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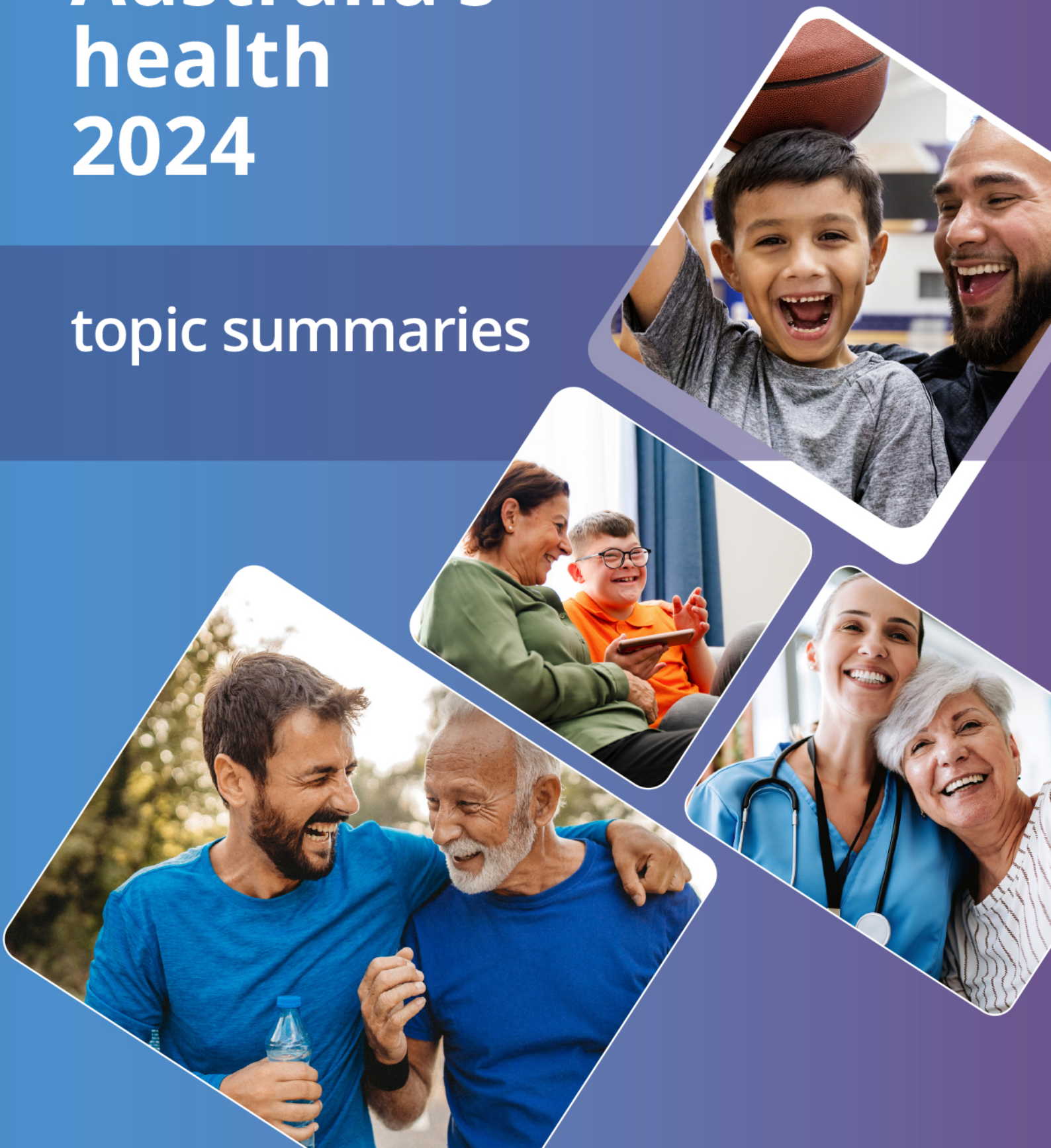
Australia's health 2024

topic summaries



Australia’s health 2024: topic summaries

Release date: 2 July 2024

About

This document is a point-in-time compilation of the Australia’s health: topic summaries (web pages) as at 2 July 2024. For the latest version of the topic summaries, including interactive content, visit www.aihw.gov.au/reports-data/australias-health/summaries.

Australia’s health topic summaries are part of the Australia’s health 2024 report.

About Australia's health 2024

Australia's health 2024 is the AIHW's 19th biennial health report.
It consists of 3 products:

Australia's health 2024: in brief

This report provides a summary of the state of health in Australia today.

Australia's health: topic summaries

This is a collection of over 60 web pages that present key information and statistics on the health of Australians, the health system, and factors that can influence our health (some are updated when new data are available).

Australia's health 2024: data insights

This report is a collection of 11 in-depth web articles on selected health topics, with a focus on the importance of a strong evidence base for supporting the health of Australians.

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Burden of disease

This topic summary is part of the Australian Burden of Disease Study 2023 report.

On this page

Burden of disease measures the impact of diseases and injuries on a population. It combines the years of healthy life lost due to living with ill health (non-fatal burden) with the years of life lost due to dying prematurely (fatal burden). The Australian Burden of Disease Study (ABDS) 2023 includes estimates of disease burden due to 220 diseases and injuries in Australia in 2023.

This report presents findings from the ABDS 2023, with estimates for previous years (2003, 2011, 2015, 2018) for comparison.

About the ABDS 2023

In the ABDS 2022, for the first time disease burden estimates were projected to the publication year (2022) and included estimates of disease burden due to COVID-19. The ABDS 2023 builds on that Study by refining methods for estimating burden in the year of analysis (2023). The ABDS 2023 also makes use of more recently available data, such as the National Survey of Mental Health and Wellbeing 2020–21.

Burden from COVID-19 was estimated using the most recent data available at the time of analysis, with assumptions made about the period without full data. Given the dynamic and ongoing nature of the COVID-19 pandemic, these estimates may be revised in the future as more data become available for the latter part of 2023.

ABDS 2023 includes a section on the National Preventive Health Strategy 2021–30 burden of disease targets and a new data visualisation on health-adjusted life expectancy (HALE).

For more information on methods used in the Study, refer to the Technical notes.

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 is the difference between a population's actual health and its ideal health, where ideal health is living to old age in good health (without disease or disability).

Burden of disease is measured using the summary metric of disability-adjusted life years (DALY, also known as the total burden). One DALY is one year of healthy life lost to disease and injury. DALY caused by living in poor health (non-fatal burden) are the 'years lived with disability' (YLD). DALY caused by premature death (fatal burden) are the 'years of life lost' (YLL) and are measured against an ideal life expectancy. DALY allows the impact of premature deaths and living with health impacts from disease or injury to be compared and reported in a consistent manner.

If a disease has a high number of DALY, it is considered to have a high burden on the population. Some diseases have high fatal burden due to the number of premature deaths they cause (for example, cancers) or they cause death at younger ages, while others have high non-fatal burden due to the number of people living with the condition and/or the severity of the illness (for example, musculoskeletal conditions).

Burden estimates can be reported for diseases or injuries, which describe a specific health problem (for example, dementia). Reporting can also be for a disease group (for example, neurological conditions), which consists of a number of related diseases. There are 220 separate diseases and injuries, and 17 disease groups in the ABDS.

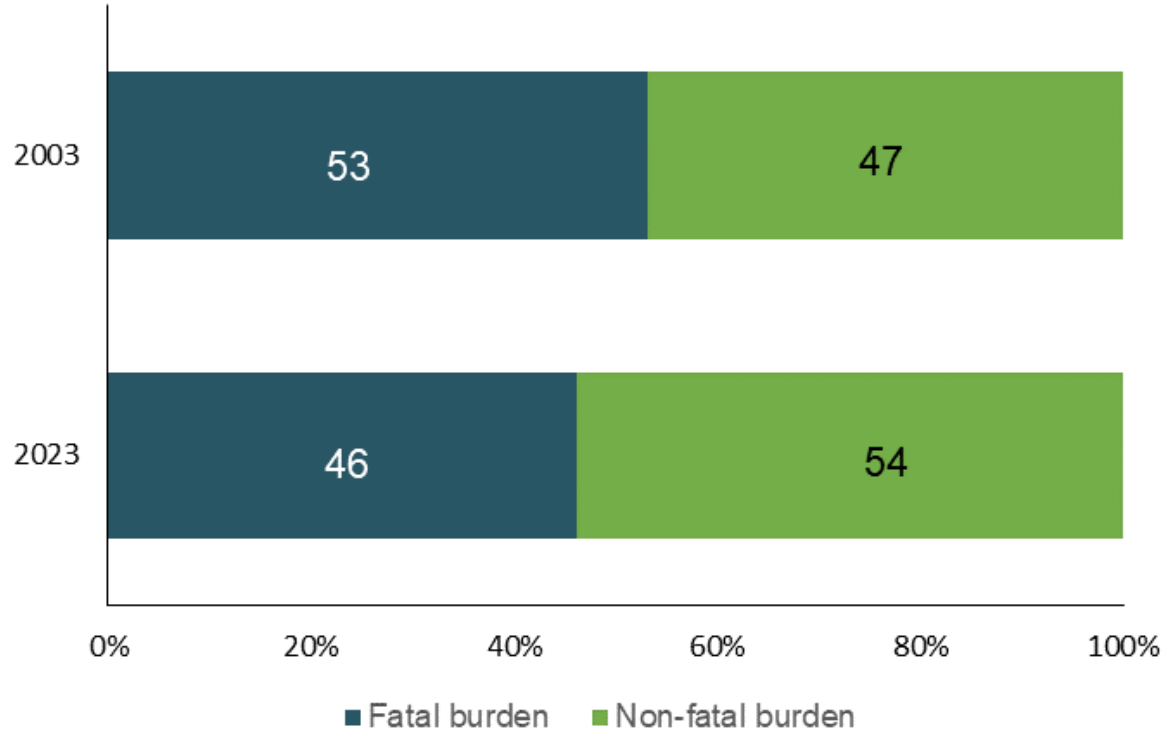
Living with illness or injury accounts for just over half the burden

In 2023, Australians lost 5.6 million years of healthy life (total burden, DALY) due to:

Living with illness or injury caused more disease burden than dying prematurely. Between 2003 and 2023, there has been a moderate shift from fatal burden to non-fatal

burden being the biggest contributor to total burden (Figure 1.1). This is mostly driven by fewer premature deaths in recent years.

Figure 1.1: Proportion (%) of total burden due to fatal and non-fatal burden in 2003 and 2023



Source: AIHW Australian Burden of Disease Database.

To further explore the contribution of fatal and non-fatal burden over time, refer to the interactive data visualisations: Burden of disease in Australia and Fatal vs. non-fatal burden.

Long-term improvements in fatal burden but recent increases in non-fatal burden

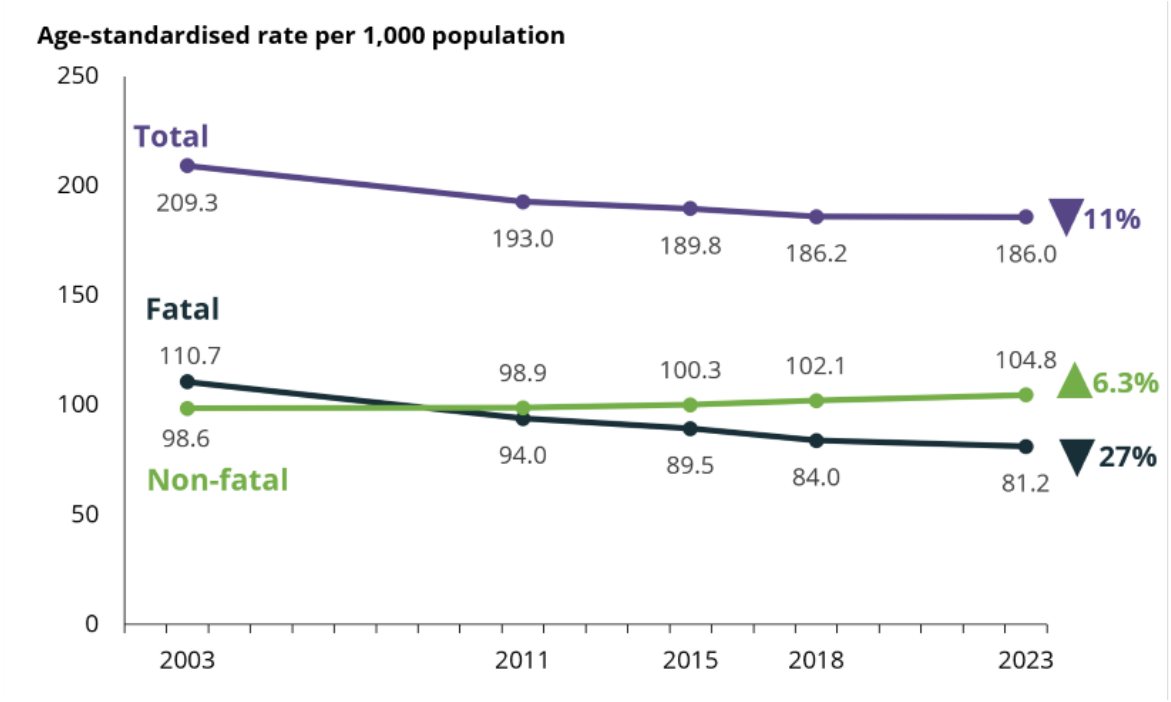
Over the 20-year period from 2003 to 2023, the rate of total disease burden (the crude rate) was relatively similar (212 DALY per 1,000 population in 2003 compared with 213 DALY per 1,000 population in 2023). Underlying this was a 13% decrease in the rate of fatal burden while the rate of non-fatal burden increased by 15% over that period.

After adjusting for population ageing, there was an 11% decline in the age-standardised rate of total burden between 2003 and 2023 (Figure 1.2). This was driven by a 27% decrease in the rate of fatal burden, as the non-fatal burden rate increased by 6.3%.

Note that when compared with 2018, age-standardised rates for 2023 were higher for non-fatal, lower for fatal burden and similar for total burden. Impacts due to the COVID-19 pandemic may have caused or affected the burden due to other causes, including impacts due to restrictions and lockdowns. Therefore, simply subtracting the

disease burden due to COVID-19 from the total burden does not necessarily reflect the true disease burden experienced had the COVID-19 pandemic not occurred.

Figure 1.2: Change in the age-standardised total burden (DALY), fatal burden (YLL) and non-fatal burden (YLD) rate (per 1,000 population) between 2003 and 2023



Source: AIHW Australian Burden of Disease Database.

Chronic diseases cause most of the burden

In 2023, the 5 disease groups causing the most burden were cancer, mental health conditions & substance use disorders, musculoskeletal conditions, cardiovascular diseases and neurological conditions (Table 1.1).

Together these disease groups accounted for around two-thirds (64%) of the total burden. These disease groups include mostly chronic, or long-lasting, conditions.

Table 1.1: Summary of 5 leading disease groups causing burden in 2023

	Cancer	Mental health & substance use	Musculoskeletal	Cardiovascular	Neurological
% of total DALY	17	15	13	12	8
% of total DALY that was fatal	91	2	3	74	49
Change in age-standardised rates between 2003 and 2023[(a)]	↓ Decreased	↑ Increased	↓ Decreased	↓ Decreased	↑ Increased

(a) Based on the rate difference; that is, the absolute difference between the age-standardised rate of burden from 2003 to 2023.

Source: AIHW Australian Burden of Disease Database.

See the Fatal vs. non-fatal burden interactive data visualisation to explore the contribution of fatal and non-fatal burden to total burden by disease group or by specific disease or injury.

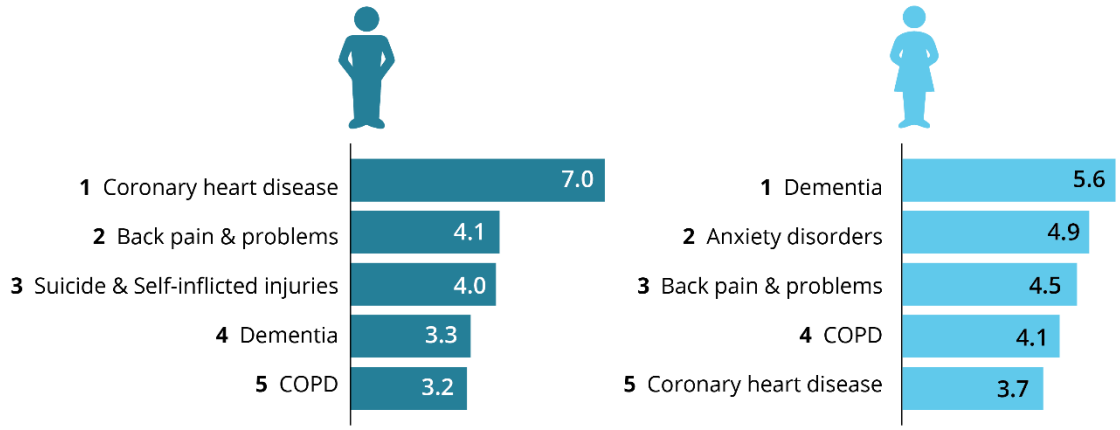
Males and females experience disease burden differently

Overall and for most age groups, males experienced more total burden than females. This was driven by males having higher rates of fatal burden.

In 2023, the leading causes of total burden among males were coronary heart disease, back pain & problems and suicide & self-inflicted injuries (Figure 1.3). Among females, the leading cause was dementia, followed by anxiety disorders and back pain & problems.

Males experienced 3 times the amount of burden due to suicide & self-inflicted injuries and 2 times the amount of burden from coronary heart disease than females. Females experienced more burden than males from dementia and anxiety disorders.

Figure 1.3: Leading causes of total burden by sex and proportion (%) of total burden, 2023



Source: AIHW Australian Burden of Disease Database.

Changes in leading specific causes of disease burden over time

Between 2003 and 2023, the crude rate of total burden:

- decreased for coronary heart disease, stroke, lung, bowel and breast cancer and rheumatoid arthritis.
- substantially increased for dementia, and its rank increased from the 12th leading cause of total burden in 2003 to the 2nd leading cause in 2023. However, this increase is partly due to changes in practices of coding deaths due to dementia (refer to Comparisons over time and Technical notes).
- increased for back pain & problems, anxiety disorders, chronic obstructive pulmonary disease (COPD), depressive disorders, osteoarthritis, asthma and type 2 diabetes.

Diseases that caused the most burden over the life course

Australians experience health loss from different diseases and injuries at various stages of life. Respiratory diseases caused burden throughout the life course, especially in children and the elderly. Mental health conditions & substance use disorders dominated the first half of the life course, while musculoskeletal conditions, cardiovascular diseases and cancer feature more prominently in the latter part of the life course. Neurological conditions (namely dementia) are a leading cause of burden in older Australians (aged 65 and over).

For more information, explore the interactive data visualisation for Leading causes of disease burden.

COVID-19 burden

COVID-19 ranked 30th among the specific diseases causing burden in 2023, accounting for 0.9% of total burden and 1.5% of all fatal burden. The burden from COVID-19 was predominantly fatal (83%).

Australians living longer but little change in the 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). Years lived in full health is also referred to as the health-adjusted life expectancy (HALE).

Males and females born in 2023 could expect to live an average of 88% and 87% of their lives in full health respectively (71.6 years of the 81.3 years of average life expectancy for males and 73.6 years of the 85.1 years of average life expectancy for females).

However, years lived in ill health are also increasing, resulting in little change in the proportion of life spent in full health between 2003 and 2023.

National Preventive Health Strategy 2021–30: burden of disease targets

The National Preventive Health Strategy 2021–30 (the 'Strategy') outlines the long-term approach to prevention in Australia. The Strategy aims to address the wider determinants of health, promote health equity and decrease the overall burden of disease through a whole-of-systems approach to prevention (Department of Health 2021).

There are 6 burden of disease specific targets in the Strategy and data from the ABDS 2023 can be used to monitor 3 of the 6 targets.

Table 1.2 shows how the burden of disease measures in 2023 compare with the baseline measures (the year 2018) for each reportable target. Between 2018 and 2023, there has been little change in the proportion of the first 25 years and 0–4 years lived in full health (ranging between 91 and 92%). There has also been little change in the average number of years lived in full health (approximately 72 years for males and 74 years for females).

Table 1.2: Selected aims and burden of disease targets in the National Preventive Health Strategy 2021–30: number and proportion (%) of years lived in full health and the percentage point change between 2018 and 2023

Aim	Target	Sex	2018 (baseline)	2023 estimate	Comparison to 2018
All Australians have the best start in life	The proportion of the first 25 years lived in full health will increase by at least 2 percentage points by 2030	Persons	92.1% of first 25 years were lived in full health	91.6% of first 25 years were lived in full health	–0.5[(a)]
All Australians have the best start in life	The proportion of the first 0–4 years of life lived in full health will increase by at least 3.5 percentage points by 2030	Persons	92.0% of first 5 years were lived in full health	91.4% of first 5 years were lived in full health	–0.6[(a)]
All Australians live in good health and wellbeing for as long as possible	Australians have at least an additional 2 years of life lived in full health by 2030	Males Females	71.5 years lived in full health 74.0 years lived in full health	71.6 years lived in full health 73.6 years lived in full health	0.1 years -0.4 years

(a) This is the difference in the proportion of the first 25 or 5 years lived in full health between 2023 and the baseline (2018).

Source: AIHW Australian Burden of Disease Database.

Estimates for 2023 are projections so progress against the targets may change as 2023 data becomes available. COVID-19's impacts on burden and the health of the Australian population may affect progress against these targets.

Where do I go for more information?

ABDS 2018 – interactive data visualisations

For more information on the burden of disease in Australia, see the following interactive data visualisations from ABDS 2018:

- State and territory estimates
- Remoteness areas
- Socioeconomic groups
- Risk factor burden
- Disease burden among Aboriginal and Torres Strait Islander people
- Risk factor burden among Aboriginal and Torres Strait Islander people.

Other reports

- *Australian Burden of Disease Study: Methods and supplementary material 2018*
- *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2018*

References

Department of Health (2021) *National Preventive Health Strategy 2021–30*- external site opens in new window, Department of Health, accessed 17 August 2022.

Cancer

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

On this page

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.

As of December 2018, there were more than 1.2 million people alive in Australia who had previously been diagnosed with cancer. During 2015–2019, 7 in 10 people (71%) survived for at least 5 years after their cancer diagnosis; an increase from 5 in 10 (53%) 25 years earlier during 1990–1994.

How common is cancer?

In 2023, it is estimated that:

- About 165,000 new cases of cancer were diagnosed in Australia, an average of over 450 every day; more than half (55%) of these cases were diagnosed in males.
- The most commonly diagnosed cancers in males were prostate cancer (25,500 cases), melanoma of the skin (10,600 cases), colorectal cancer (8,100 cases) and lung cancer (7,700 cases).
- The most commonly diagnosed cancers in females were breast cancer (20,500 cases), melanoma of the skin (7,600 cases), colorectal cancer (7,200 cases), and lung cancer (7,100 cases).

The age-standardised incidence rate (see glossary) for all cancers combined rose from 383 cases per 100,000 people in 1982 to a peak of 507 cases per 100,000 in 2008, then to 496 cases per 100,000 in 2019. Age-standardised rates are estimated to have remained similar at 503 cases per 100,000 people in 2023 (Figure 1).

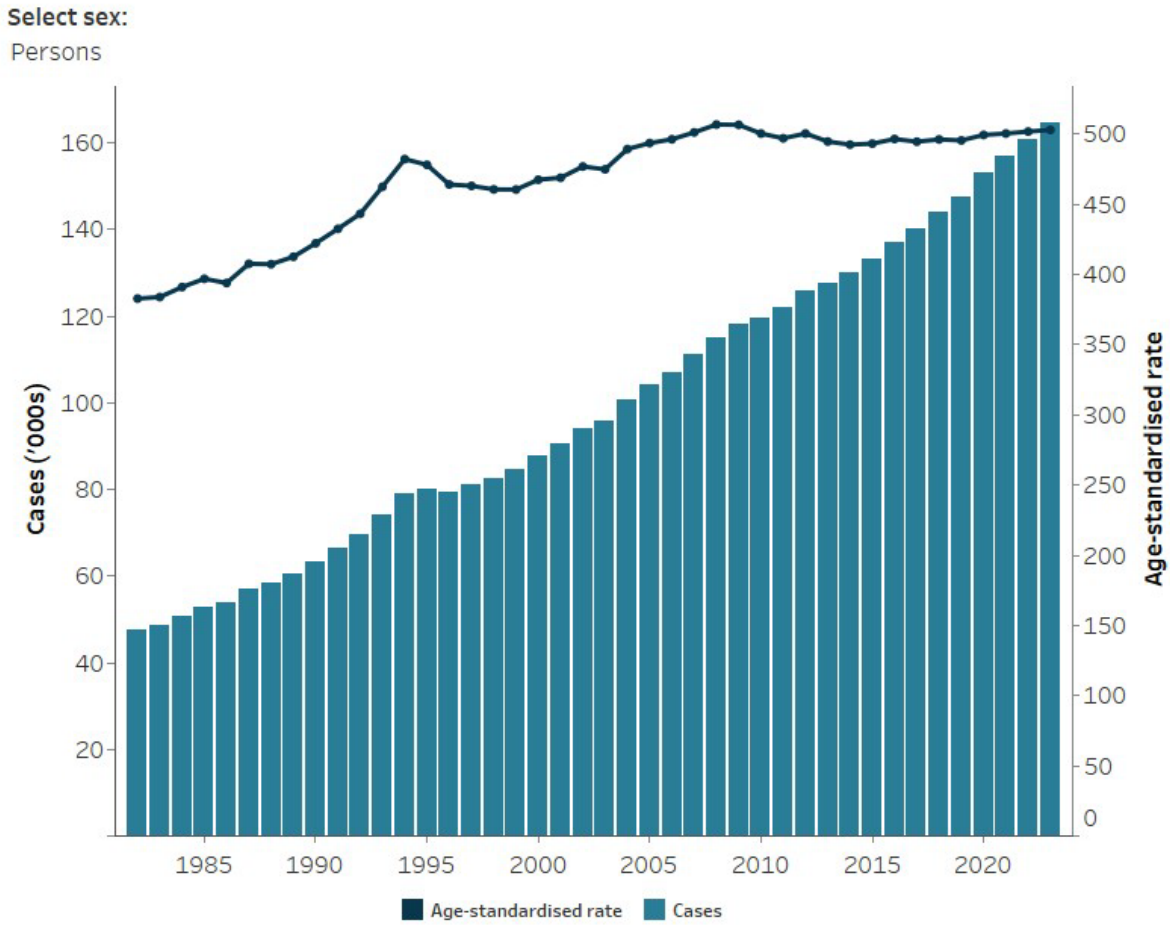
Consistent with Australia's growing and ageing population, between 2000 and 2023, the number of:

- new cancer cases increased by 88%
- deaths from cancer increased by 41%.

However, adjusted for age, the rate at which new cancer cases were diagnosed increased by only 8% while the rate at which people died due to cancer decreased by 25%, (and by 32% over the last 30 years; Figure 2). This decrease in mortality rate reflects reductions in death rates for common cancers such as lung (33% decline between 2000 and 2023), colorectal (43% decline), prostate (31% decline), and female breast cancer (27% decline), amongst others.

For more information, see Cancer Data in Australia.

Figure 1: Cancer cases and age-standardised incidence rates, by sex, 1982 to 2023



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) using the 2001 Australian Standard Population.
2. Cases and rates for 2020, 2021, 2022 and 2023 are based on projections.
Source: Australian Cancer Database 2019.
https://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. These cancers are also 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, as well as rapid population growth, the number of cancer cases diagnosed each year continues to rise. The Australian population is expected to increase by 12% (about 3.3 million people) between 2024 and 2033 (ABS 2022), while cancer cases are estimated to increase by around 22% (reflecting growth in the population of older people as well as general population increase).

It is estimated that around 204,000 cases of cancer will be diagnosed in 2033, and that between 2024 and 2033, a total of around 1.9 million cases of cancer will be diagnosed. For more information, see Cancer Data in Australia.

Is cancer becoming more common in young people?

The age-standardised rate (ASR) at which new cancers are diagnosed is estimated to have increased by 12% (from 101 to 113 cases per 100,000 people) among young people (0–49) in the 20 years from 2004 to 2023. This compares with an estimated increase of only 1% in the ASR (from 1,455 to 1,472 cases per 100,000) over the same period for people older than this.

However, this does not necessarily mean that cancer is becoming more common because increases in cancer diagnosis rates can occur for a range of reasons.

Some of the increase among young people could be due to increases in the 'chance of developing cancer' but, at least some of the increase may be due to other factors such as increases in the chance of detecting asymptomatic cancers (due to increases and/or improvements in cancer and non-cancer surveillance, testing and examination) and changes in the definition of cancer or in the criteria used for testing or diagnosis.

For instance, the rate at which new cases of appendiceal cancer are diagnosed in this age group has increased almost fivefold (from 0.5 to 2.5 cases per 100,000) and the rate at which thyroid cancer and neuroendocrine neoplasms are diagnosed has approximately doubled (from 5.5 to 9.4 cases per 100,000 cases and from 2.1 to 5.2 cases per 100,000, respectively). These increases are likely, at least in part, a consequence of increased opportunity to detect cancer or a change in classification. For example, thyroid cancer is thought to now be diagnosed more often because neck examinations have become more common and they can result in some thyroid cancers (which may not have been identified otherwise) being identified, while some neuroendocrine neoplasms have only recently been classified as cancer, and new cases of appendiceal cancer in this age group are very commonly neuroendocrine neoplasms.

The rate at which new cases of breast cancer are diagnosed in this age group has also increased by 10% (from 21 to 23 cases per 100,000 females) over this period. In contrast, the incidence rates for melanoma and lung cancer in young people are now lower (0.9 and 0.8 times respectively) than they were in 2004, which are likely to be real decreases in the risk of developing these cancers due to reductions in UV exposure and tobacco smoking.

While the age-standardised rate of new cancers being diagnosed for young people increased slightly between 2004 and 2023, age-standardised cancer death rates decreased by 30% to 40% over the same period for almost all of the 5-year age groups younger than 50.

In summary, while the rate of cancer diagnosis for young people has increased over time, and particularly for certain cancers, this could be due to various reasons, not just due to changes in the risk of developing cancer. At the same time, cancer mortality in this age group has declined.

Socioeconomic area

Socioeconomic disadvantage tends to be associated with poorer health and poorer health outcomes.

In the period 2012–2016, the age-standardised incidence rate for all cancers combined was 5% higher in the most disadvantaged areas (509 cases per 100,000) compared with the least disadvantaged areas (484 cases per 100,000).

For 3 of the 4 most commonly diagnosed cancers (prostate, breast cancer and melanoma of the skin – just under 40% of all cancers diagnosed), age-standardised incidence rates were lower (0.8 to 0.85 times as high) in the most disadvantaged areas compared with the least disadvantaged areas.

For almost all of the other most commonly diagnosed cancers, rates were higher in the more disadvantaged areas than in the less disadvantaged areas, being:

- between 1.1 and 1.2 times higher for colorectal cancer, pancreatic cancer, bladder cancer, uterine cancer;
- about 1.3 times higher for kidney cancer;
- between 1.5 and 1.6 times higher for head and neck cancers, cancer of unknown primary site, liver cancer and cervical cancer; and
- 1.8 times higher for lung cancer.

Survival was lower and mortality higher for people in the most disadvantaged areas compared with those in the least disadvantaged areas, with 5-year observed survival rates around 12 percentage points lower (56% compared with 68% in 2012–2016), and cancer mortality rates over 40% higher (185 deaths per 100,000 compared with 130 deaths per 100,000 in 2015–2019).

For more information, see Cancer in Australia 2021.

Aboriginal and Torres Strait Islander (First Nations) people

In the period 2014–2018, an average of around 1,900 cases of cancer were diagnosed among First Nations people per year (in New South Wales, Victoria, Queensland, Western Australia and Northern Territory). The age-standardised incidence rate for all cancers combined was 12% higher for First Nations people than for non-Indigenous Australians.

For the 2014–2018 period:

- Prostate cancer was the most common cancer diagnosis in First Nations males (on average, 153 cases per year).
- Breast cancer was the most common cancer diagnosis in First Nations females (on average, 230 cases per year).
- Lung cancer was the most common cancer diagnosis for First Nations people overall and the second most common cancer diagnosis for each sex (on average, 147 cases per year for males and 134 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 national data available, however from 2024, AIHW and the state and territory cancer registries anticipate commencing a national project to boost capacity and capability to collect cancer stage and recurrence data.

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. Earlier stage at diagnosis is linked with better survival rates (see Survival by stage of diagnosis below).

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.

Participation in national screening programs for breast, colorectal and cervical cancer has been associated with substantially better outcomes (higher probability of survival, lower death rates – see Cancer in Australia 2021). Similar benefits are expected from the soon to be introduced national lung cancer screening program.

More recent data on stage at diagnosis or extent of disease at diagnosis has been published for at least two jurisdictions (VCR 2023; Cancer Institute NSW 2022), showing broadly similar stage profiles compared with 2011.

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.

For information about cancer screening programs, see Cancer screening.

Cancer-related hospitalisations

In the 2021–22 financial year, there were around 1.4 million cancer-related hospitalisations, accounting for about 1 in 8 of all hospitalisations in Australia. Reflecting the increase in the number of cancer diagnoses over time, the number of cancer-related hospitalisations has increased steadily over this period from 0.9 million in 2010–11, when these accounted for 1 in 10 of all hospitalisations in Australia (see Cancer in Australia 2012).

Of cancer-related hospital admissions in 2021–22:

- 75% were same-day hospitalisations (see glossary). The large number of same-day hospitalisations is in part accounted for by the number of chemotherapy treatments
- 25% were overnight hospitalisations (see glossary), with an average length of stay of 7.6 days. Acute myeloid leukaemia had the longest average length of stay (15.5 days), followed by hypopharyngeal cancer (12.7 days) and cancer of other central nervous system (12.3 days)
- non-melanoma skin cancer was the most common cancer recorded as a principal diagnosis (24%), followed by prostate cancer (10%) and cancer of secondary site (8.3%).

When compared with 2010–11, the proportion of hospitalisations that are overnight, the overall average length of stay and the most common cancers for which hospitalisation occurred in 2021–22, have not changed appreciably (see Cancer in Australia 2012).

Chemotherapy and radiotherapy

Chemotherapy involves the use of drugs (chemicals) to prevent or treat disease (in this case, cancer). 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).

Chemotherapy and radiotherapy can be used on their own or in combination with other treatment methods.

In 2023, 625,000 chemotherapy and 2.7 million radiotherapy services were provided through the Medicare Benefits Schedule (MBS).

For information on chemotherapy and radiotherapy treatments that were not subsidised through the MBS, see Cancer in Australia 2021.

Palliative care

Palliative care – which can include 'hospice care', 'end-of-life care' and 'specialist palliative care', and can include care provided during any stage of a patient's journey (including

during curative treatments) – 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 2021–22, around 53,300 cancer-related hospitalisations in Australia (of which 37,900 had a principal diagnosis of cancer) involved palliative care – these accounted for 56% of all palliative care hospitalisations.

The most common type of cancer recorded for palliative care hospitalisation where cancer was the principal diagnosis, was secondary site cancer (22%), followed by lung cancer (14%), colorectal (bowel) cancer (7.9%) and pancreatic cancer (7.1%). Of the cancer-related hospitalisations involving palliative care, 48% ended in death, while 52% ended in transfer to another facility or discharge to home.

For more information on cancer-related treatments, see Cancer in Australia 2021.

Cancer 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, compared with the general population, whereas a figure of 50% means that the cancer has halved that chance.

During 2015–2019 in Australia:

- Individuals diagnosed with cancer had, on average, a lower (71%) 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 and thyroid cancers have 5-year relative survival rates over 95% while cancers such as pancreatic cancer and mesothelioma have 5-year relative survival rates of less than 20%.
- 5-year relative survival rates for the two most common cancers were 92% for females diagnosed with breast cancer and 96% for males diagnosed with prostate cancer.
- 5-year survival rates increased from 5 in 10 (53%) in 1990–1994 to 7 in 10 (71%) in 2015–2019.

For more information, see Cancer Data in Australia.

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 I was 100%; at Stage IV it was 36%.

More recent data on survival by stage has been published for at least one jurisdiction (VCR 2023), and shows a broadly similar survival gradient across stage.

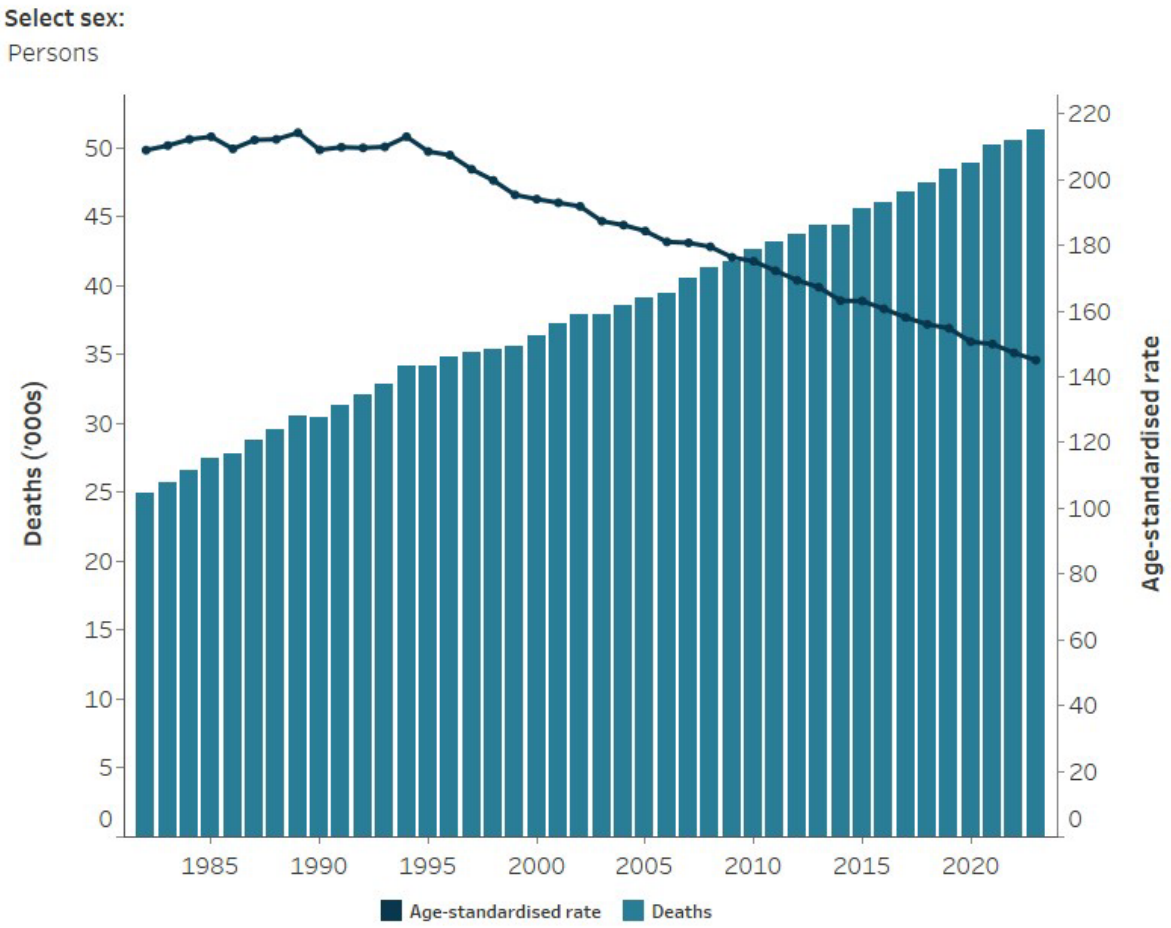
What are the impacts of cancer?

Deaths

Even though cancer survival rates have increased and cancer mortality rates continue to decrease, cancer accounts for around 3 out of every 10 deaths in Australia. It is estimated that in 2023, around 51,300 people will have died from cancer, an average of around 140 deaths every day. Males are estimated to account for 56% of these deaths.

The age-standardised cancer mortality rate has decreased from 209 deaths per 100,000 people in 1982 to an estimated 145 deaths per 100,000 people in 2023 (Figure 2). For more information, see Cancer Data in Australia.

Figure 2: Cancer-related deaths and age-standardised mortality rates, by sex, 1982 to 2023



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) using the 2001 Australian Standard Population.
2. Deaths and mortality rates for 2022 and 2023 are based on projections.

Source: National Mortality Database.

https://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 2022, cancer contributed to 17% of the total disease burden, which was more than any other disease group. Dying from cancer accounted for 32% of the fatal burden in Australia.

A large proportion (42%) of the cancer burden is attributable to personal and behavioural risk factors (for example, smoking (22%) and overweight and obesity (7%)).

For more information, see Burden of Disease.

Expenditure

In 2020–21, total recurrent expenditure on health goods and services was $210 billion, of which, $150 billion (71.6%) was able to be attributed to specific disease groups. Cancer and other neoplasms (tumours) was the disease group with the second greatest health system expenditure ($14.6 billion), accounting for 9.7% of the $150 billion disease-specific expenditure.

For more information, see Health system spending on disease and injury in Australia, 2020-21.

Where do I go for more information?

For more information on cancer, see:

- Australian Burden of Disease Study 2022
- Cancer data in Australia
- Cancer in Australia 2021
- Health system spending on disease and injury in Australia, 2020-21

For more on this topic, see Cancer.

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Chronic conditions

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

On this page

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.

This page highlights some of the most common chronic conditions in Australia with results presented by different population groups including by sex, age and across areas. The impact of living with chronic conditions is described as well as the health services used to treat and manage them.

Conditions included in analysis

Analysis on this page includes all chronic conditions (over 100 conditions) from the Australian Burden of Disease study (ABDS) disease list (AIHW 2021). This list is used in analysis of the following data sources: ABDS Database, National Hospital Morbidity Database, National Mortality Database.

The Australian Bureau of Statistics (ABS) National Health Survey- external site opens in new window (NHS) collects self-reported information on long-term health conditions that were current at the time of the survey interview and had lasted, or were expected to last, for 6 months or more. There were 72 conditions from the ABDS disease list that could be reasonably identified in the NHS data (Table 1). These are referred to as 'selected long-term health conditions' on this page. Estimates of the prevalence of these conditions are from AIHW analysis of the ABS 2022 NHS (ABS 2023a) and will differ to estimates based on different data sources and sets of conditions (see Chronic condition estimates vary).

How common are chronic conditions?

Chronic conditions are common and become more common with age

Among people of all ages, an estimated 15.4 million (61%) were living with at least one of the selected long-term health conditions in 2022. This ranged from 28% of people aged 0–14 to 94% of people aged 85 and over.

Based on AIHW analysis of the ABS 2022 NHS (ABS 2023a), anxiety and back problems were the most common of the selected long-term health conditions among people of all ages in 2022.

While these conditions are common, their prevalence (see glossary) varied by sex and age (Figure 1).

It is estimated that in 2022, among males of all ages:

- 2.1 million (16%) were living with back problems
- 1.9 million (15%) were living with anxiety
- 1.5 million (12%) were living with deafness or hearing loss.

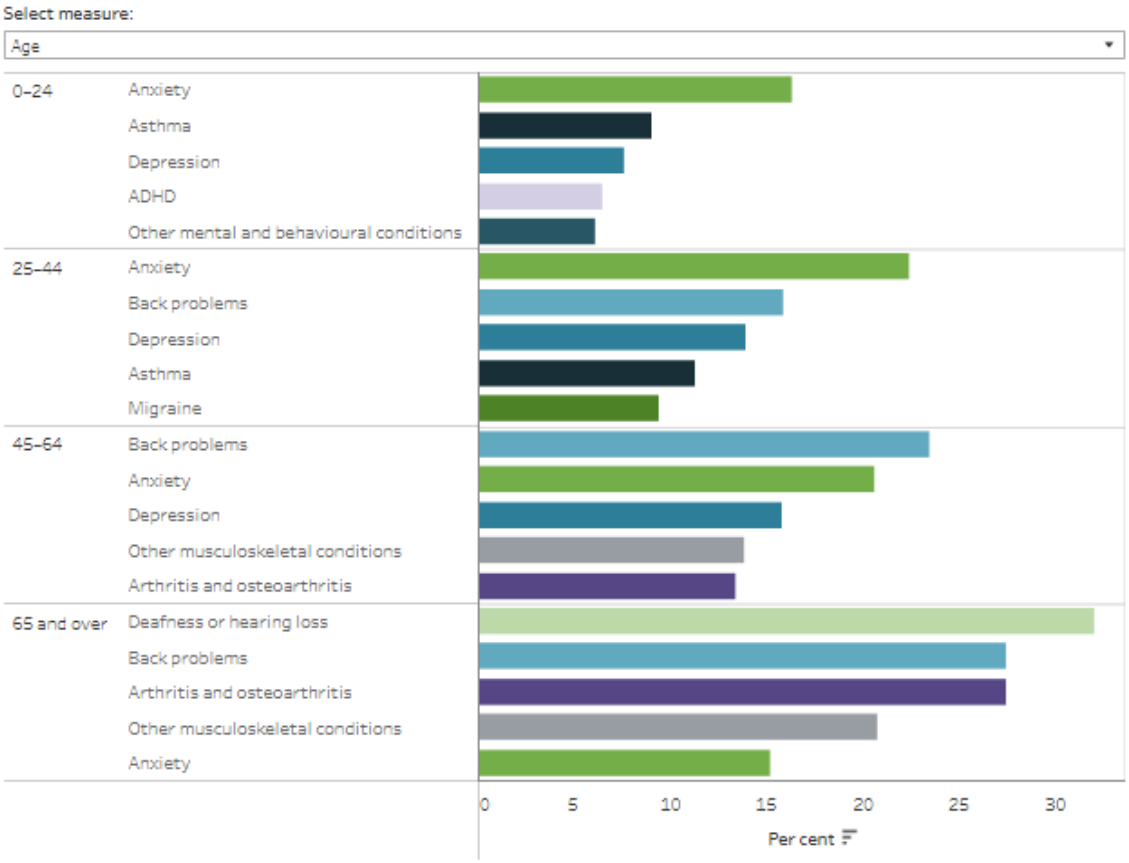
Among females of all ages:

- 2.9 million (22%) were living with anxiety
- 1.9 million (15%) were living with back problems
- 1.8 million (14%) were living with depression.

By age group, the most common of the selected long-term health conditions in 2022 were estimated to be:

- anxiety: with 1.3 million (16%) people aged 0–24 and 1.6 million (22%) people aged 25–44 living with anxiety
- back problems: with 1.5 million (23%) people aged 45–64 living with back problems
- deafness or hearing loss: with 1.3 million (32%) people aged 65 and over were living with deafness or hearing loss.

Figure 1: Most common long- term health conditions by sex and age, 2022



Notes
1. Data are self-reported.
2. The ABS 2022 National Health Survey uses the Standard for Sex, Gender, Variations of Sex Characteristics and Sexual Orientation Variables, 2020 to collect the Sex at birth variable used in this data table. Due to small numbers and the need to protect privacy, people who reported sex at birth as a term other than male or female are not reported separately or included in the total Persons category.
3. CI/confidence interval: a range determined by variability in the data, within which there is a 95% chance that the true value of an estimate lies.
4. For the list of chronic conditions included in analysis see Table 1.
Source: AIHW analysis of ABS 2023a.
https://www.aihw.gov.au

For more information on the prevalence of some of the most common chronic conditions, see Cancer, Chronic musculoskeletal conditions, Chronic respiratory conditions, Dementia, Diabetes, Heart, stroke and vascular disease and Mental health.

Variation by population groups

Socioeconomic areas

Chronic conditions tend to be more common among people living in areas of most disadvantage (lowest socioeconomic areas) than among those living in areas of least disadvantage (highest socioeconomic areas).

In 2022, the estimated prevalence of having one or more long-term health condition was:

- 56% in the areas of least disadvantage
- 63% in the areas of most disadvantage (AIHW analysis of ABS 2023a).

The prevalence of many individual conditions follows this same pattern. For example, among people of all ages in 2022 the estimated prevalence of:

- osteoarthritis ranged from 6.5% in the areas of least disadvantage to 11% in the areas of most disadvantage
- asthma ranged from 10% in areas of least disadvantage to 13% in areas of most disadvantage
- deafness or hearing loss ranged from 7.7% in the areas of least disadvantage to 12.4% in the areas of most disadvantage (AIHW analysis of ABS 2023a).

Socioeconomic areas are measured using the Socio-Economic Indexes for Areas 2016- external site opens in new window Index of Relative Socio-Economic Disadvantage based on area of residence.

For more information on how chronic conditions vary by socioeconomic area see Cancer, Chronic musculoskeletal conditions, Chronic respiratory conditions, Dementia, Diabetes, Heart, stroke and vascular disease and Mental health.

Remoteness areas

The prevalence of long-term health conditions tends to be higher outside of *Major cities*. In 2022, having one or more long-term health conditions affected an estimated:

- 58% of people living in *Major cities*
- 67% of people living in *Inner regional* areas and in *Outer regional and remote* areas (AIHW analysis of ABS 2023a).

In 2022, based on self-reported data from the NHS, deafness or hearing loss was more common among people living outside of *Major cities* (*Major cities*: 8.3%, *Inner regional* areas: 13%, *Outer regional and remote* areas: 14%). In contrast, the prevalence of asthma was similar across remoteness areas (*Major cities*: 10%, *Inner regional* areas: 12%, *Outer regional and remote* areas: 12%). For more information on how chronic conditions vary by remoteness areas see Rural and remote health.

Remoteness is classified according to the Australian Statistical Geography Standard (ASGS) 2021 Remoteness Areas- external site opens in new window structure based on area of residence.

Chronic condition estimates vary

Estimates of the number of people with chronic conditions can vary with the number of conditions included in analysis, as well as the source of data used.

Using NHS data, the ABS estimate that 12.7 million Australian's (50%) had at least one of 10 selected chronic conditions in 2022 (ABS 2023b).

A more detailed list of long-term health conditions is used in analysis of NHS data on this page. This list includes all chronic conditions from the Australian Burden of Disease

study disease list (AIHW 2021) that can be reasonably identified in the NHS data (72 conditions; Table 1) to better describe chronic conditions among people of all ages.

Conditions are self-reported to the NHS and may differ to estimates based on different data sources (for example diagnostic surveys). The scope of the NHS will also affect estimates. The NHS does not capture people in residential aged care facilities, hospitals or prisons. This may exclude people likely to experience chronic conditions and therefore underestimate certain conditions, such as dementia. The NHS does not capture people living in very remote parts of Australia and discrete Aboriginal and Torres Strait Islander communities. For more information see the National Health Survey methodology- external site opens in new window.

The ABS 2022 NHS uses the Standard for Sex, Gender, Variations of Sex Characteristics and Sexual Orientation Variables, 2020- external site opens in new window to collect the Sex at birth variable used in analysis. Due to small numbers and the need to protect privacy, people who reported sex at birth as a term other than male or female are not reported separately or included in totals on this page.

Table 1. Long-term health condition groups and prevalence among people of all ages

Condition group	Inclusions[(a)]	Prevalence (%)[(b)(c)]
Cancer	Bowel or colorectal cancer, brain cancer, breast cancer, cancer of female genital organs, cancer of male genital organs, cancer of other digestive organs, cancer of other respiratory and intrathoracic organs, Hodgkin's disease, leukaemia, non-Hodgkin's lymphoma, oesophageal or stomach cancer, skin cancer, lung cancer, cancer site unknown, other malignant tumours, in situ neoplasms, benign neoplasms & neoplasms of uncertain nature	2.3
Cardiovascular diseases	Heart failure, ischaemic heart diseases (including angina, heart attack and other ischaemic heart diseases),	5.5

Condition group	Inclusions[a]	Prevalence (%)[b][c]
	stroke, other heart diseases, other heart stroke and vascular diseases (including other cerebrovascular diseases, oedema and diseases of arteries, arterioles and capillaries), other diseases of circulatory system (including rheumatic heart disease)	
Chronic respiratory	Asbestosis, asthma, chronic obstructive pulmonary disease (chronic airflow limitation, chronic bronchitis, emphysema)	12.3
Endocrine disorders	Type 1 diabetes, Type 2 diabetes and diabetes type unknown	5.3
Gastrointestinal	Diseases of the liver, diseases of the oesophagus (including gastro oesophageal reflux disease), inflammatory bowel disease (enteritis and colitis)	1.7
Genitourinary	Chronic kidney disease (including Glomerular diseases, Renal failure or Kidney disease, Renal tubulo-interstitial diseases), non-inflammatory female pelvic conditions (including endometriosis)	2.7
Hearing and vision disorders[d]	Deafness or hearing loss (complete, partial, deaf mutism and other deafness or hearing loss nec.), other hearing and vestibular disorders (including, otosclerosis, Meniere's disease, tinnitus, other diseases of the	8.9

Condition group	Inclusions[a]	Prevalence (%)[b][c]
	middle ear and mastoid, other ear and mastoid) Cataracts, glaucoma, macular degeneration, refractive errors (including long sight or hyperopia, short sight or myopia, astigmatism, presbyopia, other disorders of ocular muscles, binocular movement, accommodation and refraction) and other vision disorders (including complete and partial blindness, colour blindness, retinal disorders or defects, other diseases of the eye and adnexa)	
Infectious diseases	AIDS (Auto Immune Deficiency Syndrome) or HIV (Human Immunodeficiency Virus), post COVID-19 conditions,	0.1
Infant and congenital conditions	Birth complications (including respiratory problems related to birth and other conditions originating in the perinatal period), cerebral palsy, congenital brain damage or malformation (including spina bifida), Down syndrome, other chromosomal abnormalities, other congenital conditions (including deformities of joints or limbs, other congenital malformations and deformations)	0.8
Mental and substance use	ADHD, anxiety disorders (including feeling anxious nervous or tense, obsessive	25.9

Condition group	Inclusions[a]	Prevalence (%)[b][c]
	compulsive disorder, panic attack, panic disorder, phobic anxiety disorders, post-traumatic stress disorder), autism spectrum disorders, bipolar affective disorder (including mania), conduct disorders, depression (including feeling depressed and other mood affective disorders), harmful use or dependence on alcohol, harmful use or dependence on drugs (including prescription drugs and other substances), intellectual impairment, schizophrenia (including psychosis), other mental health conditions (including dyslexia, dyslalia, speech impairment, other behavioural, cognitive and emotional problems with usual onset in childhood or adolescence and other mental and behavioural problems)	
Musculoskeletal	Back problems (including sciatica, disc disorders and curvature of the spine), gout, osteoarthritis, rheumatoid arthritis, other musculoskeletal and connective tissue conditions (including acquired deformities of joints and limbs, soft tissue disorders, other arthritis and type unknown, other arthropathies, other diseases of the musculoskeletal system)	28.7
Neurological	Dementia (including Alzheimer's disease), epilepsy,	8.8

Condition group	Inclusions[(a)]	Prevalence (%)[(b)(c)]
	migraine, motor neurone disease, multiple sclerosis, Parkinson's disease, other disease of the nervous system (including chronic fatigue syndrome, muscular dystrophy, narcolepsy, Huntington's disease)	
Skin	Dermatitis and eczema, psoriasis	4.1

a. Each inclusion in the condition group is counted separately to determine the number of long-term health conditions a person has.
b. Population prevalence estimates are based on information 'as reported' by NHS respondents and may differ from those reported from other sources due to differences in the method of data collection (for example, self-report survey compared with diagnostic survey).
c. The NHS is not conducted within institutions, such as residential aged care facilities, hospitals or prisons. This may exclude people likely to experience chronic conditions, leading to the underestimation of certain conditions, such as dementia. For more information see the National Health Survey methodology- external site opens in new window.
d. Vision conditions corrected with glasses are excluded from analysis.

Source: AIHW analysis of ABS 2022 (ABS 2023a).

Impact

Living with chronic conditions can have a substantial impact on an individual's health and requires considerable investment in Australia's health system.

Burden of disease

Burden of disease measures the loss of healthy life in a population due to living with, and dying prematurely from, a disease or injury. Total disease burden is expressed in terms of disability-adjusted life years, or DALY (see glossary), which represents the number of years of healthy life lost within the population.

The top 5 leading causes of disease burden in 2023 were chronic conditions.

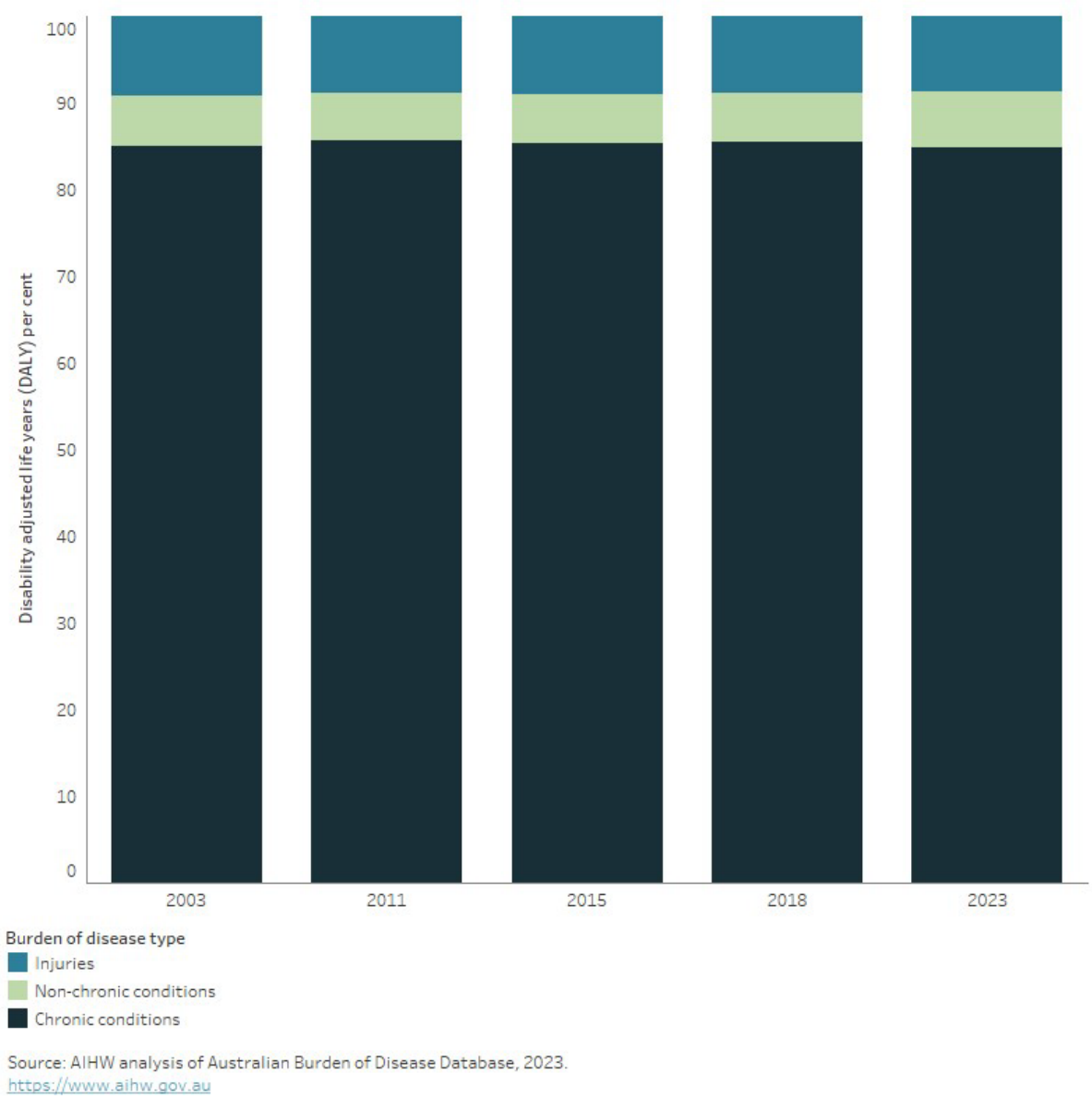
Ranked by the number of years of healthy life lost by Australians due to each condition, these were:

- coronary heart disease: responsible for 305,000 DALY
- dementia: 248,000 DALY

- back pain and problems: 242,000 DALY
- anxiety disorders: 220,000 DALY
- chronic obstructive pulmonary disease: 205,000 DALY (AIHW 2023a).

In 2023, Australians lost an estimated 4.4 million years of healthy life due to chronic conditions, equivalent to 85% of the total disease burden in that year (AIHW analysis of ABDS 2023). This proportion remained largely stable between 2003 and 2023 (Figure 2).

Figure 2: Percentage of total burden of disease due to chronic and non-chronic conditions and injury, 2003 to 2023



Source: AIHW analysis of Australian Burden of Disease Database, 2023.
https://www.aihw.gov.au

For more information on definitions and the burden of disease associated with these conditions, see Burden of disease.

Deaths

In 2022, chronic conditions were recorded as an underlying or associated cause of death for 171,500 deaths. This was 90% of all deaths, a rate of 659 per 100,000 population, based on AIHW analysis of the AIHW National Mortality Database (NMD).

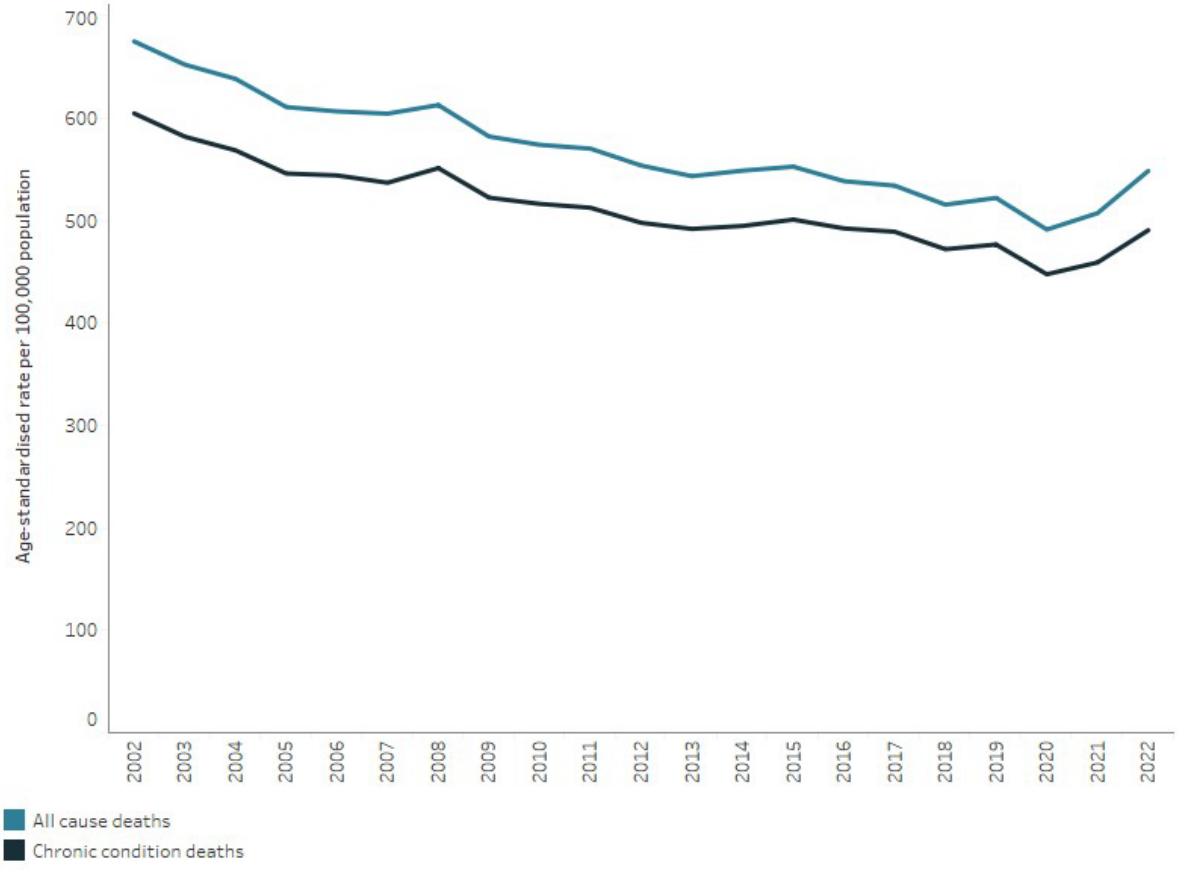
Chronic conditions contributed to between 89 and 92 per cent of all deaths each year from 2002 to 2022.

Between 2002 and 2019, after adjusting for age, the rate of deaths where chronic conditions contributed decreased on average by 1.3% per year, from 605 per 100,0000 in 2002 to 477 per 100,000 in 2019.

Between 2002 and 2019, the rate of deaths where chronic conditions contributed decreased from 605 to 477 deaths per 100,000 population, after adjusting for age. This represented a downtrend of 1.3% per year when an exponential model was fit to the time series.

The age-standardised rate of deaths where chronic conditions contributed decreased again in 2020 to 448 per 100,000 population before increasing slightly to 459 per 100,000 population in 2021 and again to 490 per 100,000 population in 2022. This was consistent with the pattern for all-cause mortality over the same period (Figure 3). For more information see Life expectancy and causes of death.

Figure 3: Age-standardised rates of death due to all-causes and where chronic conditions contributed, 2002 to 2022



Notes
1. Chronic condition deaths are identified where a relevant condition is listed as either an underlying or associated cause of death on the death certificate.
2. Deaths are reported by the year in which the death was registered at the Registry of Births, Deaths, and Marriages (RBDM).
3. Deaths registered in 2019 and earlier are based on the final version of cause of death data; deaths registered in 2020 are based on the revised version; and deaths registered in 2021 and 2022 are based on the preliminary version. Revised and preliminary versions are subject to further revision by the Australian Bureau of Statistics (ABS).
4. Rates have been standardised to the 2001 Australian population.
Source: AIHW analysis of the National Mortality Database.
https://www.aihw.gov.au

Expenditure

Chronic conditions are associated with substantial health system spending. In 2020–21, the top 3 condition groups associated with the highest spending were all chronic. Based on disease-specific allocated health care expenditure, in 2020–21:

- $14.8 billion was spent on musculoskeletal conditions
- $14.6 billion was spent on cancer and other neoplasms
- $14.3 billion was spent on cardiovascular diseases (AIHW 2023b).

Combined, the direct health care costs of these 3 conditions was 29% of total allocated health expenditure in
2020–21.

Treatment and management

Primary care

Most care for chronic conditions is provided in the primary health care setting by general practitioners (GPs) and allied health professionals, with the number of GP visits increasing with the number of chronic conditions a person has (Dobson et al. 2020).

The Royal Australian College of General Practitioners (RACGP) Health of the Nation Survey collected information on the 3 most common reasons for patient presentation to primary care, as reported by GPs (RACGP 2023). In 2023 these were:

- psychological factors, including depression and anxiety
- musculoskeletal conditions, including arthritis
- endocrine and metabolic conditions, including diabetes.

Psychological factors have been the most common health concerns managed by general practitioners since 2017, with the proportion of GPs reporting psychological factors in their top 3 reasons for patient presentations increasing from 61% in 2017 to 72% in 2023 (RACGP 2023).

Hospitalisations

In 2021–22, there were 6.4 million hospitalisations were associated with chronic conditions. This represented 55% of all hospitalisations in Australia.

Based on analysis of principal and additional diagnoses recorded in the National Hospital Morbidity Database (NHMD), in 2021–22 chronic conditions were associated with 23.4 million patient days (74% of all patient days).

The average length of stay for hospitalisations associated with chronic conditions (3.7 days) was 2.3 times longer than for other hospitalisations (1.6 days).

Between 2012–13 and 2018–19, the age-standardised rate of chronic condition hospitalisations increased from 20,100 per 100,000 population in 2012–13 to 22,700 per 100,000 population in 2018–19. The rate of chronic condition hospitalisations has fluctuated since. Per 100,000 population, there were 21,300 chronic condition hospitalisations in 2019–20; 22,500 in 2020–21 and 21,300 in 2021–22.

For more information on health service use for the selected chronic conditions, see: Cancer, Cancer screening, Chronic kidney disease, Chronic musculoskeletal conditions, Chronic respiratory conditions, Dementia, Diabetes, Heart, stroke and vascular disease, Hospitals, Mental health.

Where do I go for more information?

For further information on chronic conditions see:

- *Australia's health 2024: data insights* article The ongoing challenge of chronic conditions in Australia
- Australian Centre for Monitoring Population Health
- Chronic disease
- Australian Bureau of Statistics National Health Survey, 2022- external site opens in new window

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Chronic kidney disease

This topic summary is part of the Chronic kidney disease: Australian facts report.

On this page

Chronic kidney disease (CKD) refers to all conditions of the kidney affecting the filtration and removal of waste from the blood for 3 months or more. It is identified by reduced filtration by the kidney and/or by the leakage of protein or albumin from the blood into the urine.

CKD is mostly diagnosed at more advanced stages when symptoms become more apparent. Kidney failure 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.

How common is chronic kidney disease?

In 2011–12:

- an estimated 11% of people (1.7 million Australians) aged 18 and over had biomedical signs of CKD, according to Australian Institute of Health and Welfare (AIHW) analysis of the Australian Bureau of Statistics (ABS) latest National Health Measures Survey (NHMS) (ABS 2013)
- the prevalence of CKD increased rapidly with age, affecting around 44% 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 under-diagnosed condition (ABS 2013).

For more information on the incidence and prevalence of CKD, see How many people are living with chronic kidney disease in Australia?

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- external site opens in new window (AusDiab) and the 2011–12 NHMS.

Between 1999–2000 and 2011–12:

- the age-standardised CKD prevalence rate remained stable
- the number of Australians with moderate to severe loss of kidney function nearly doubled, from 322,000 to 604,000.

This increase was mostly driven by growth in the population of older people (as people live longer) and by survival of people with kidney failure who are receiving KRT (AIHW 2018).

The ABS is currently undertaking a multi-year Intergenerational Health and Mental Health Study in 2021–2024- external site opens in new window, which will include a new NHMS and a new National Aboriginal and Torres Strait Islander Health Measures Survey (ABS 2022).

For more information, see Trends over time.

Kidney failure

Not everyone with kidney failure chooses to receive KRT, opting instead for end-of-life care. Therefore, prevalence estimates for kidney failure need to count cases both with and without replacement therapy. 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 1997 to 2013 (AIHW 2016).

In 2013:

- there were around 5,100 new cases of kidney failure in Australia – around 14 new cases per day – of these, half (50%) were receiving KRT
- 92% of people with newly diagnosed kidney failure who were aged under 55 received KRT, compared with 19% of people newly diagnosed aged 75 and over.

Before age 75, most new cases of kidney failure are treated with KRT; however, this trend reverses after age 75, with an 11-fold increase in kidney failure without KRT compared with those aged 65–74 (145 and 13 per 100,000 population) (Figure 1) (AIHW 2016).

Figure 1: Incidence of kidney failure with and without replacement therapy, by age, 2013

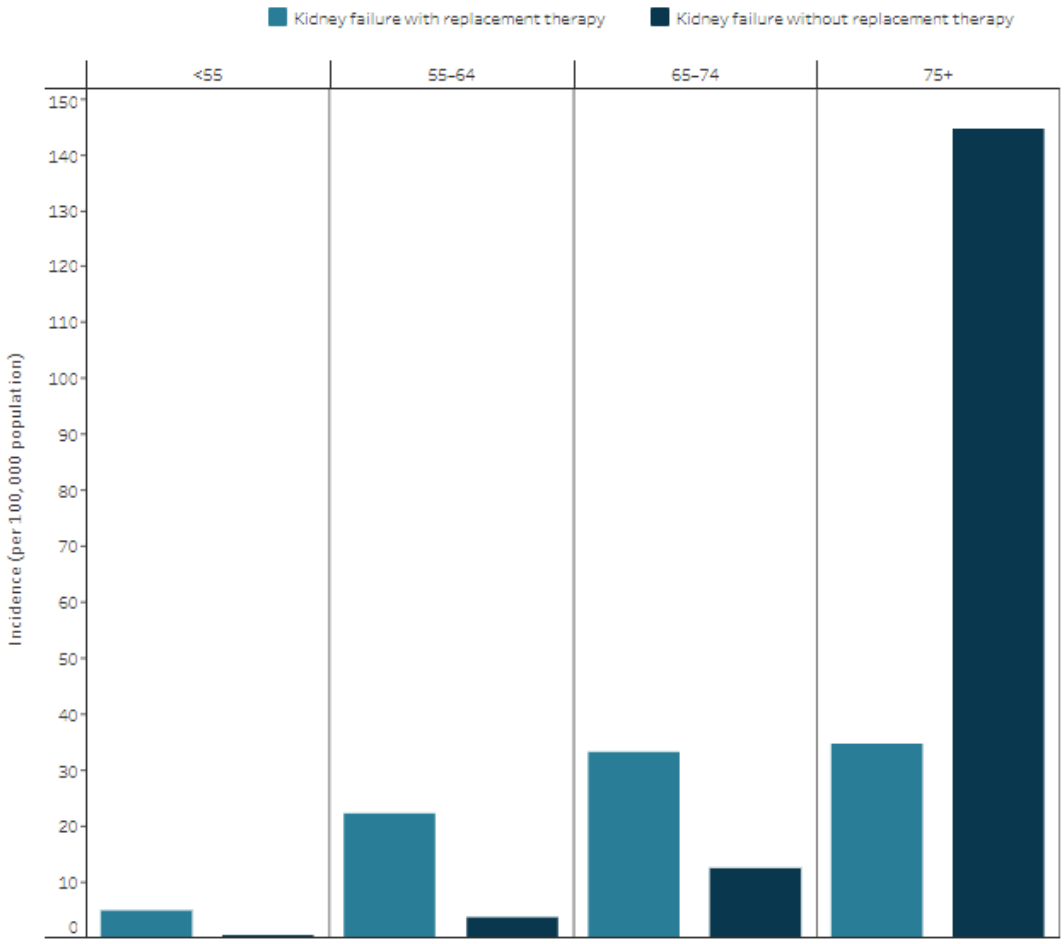


Chart: AIHW. Source: Linked data from the Australia and New Zealand Dialysis and Transplant Registry, AIHW National Mortality Database and National Death Index.
https://www.aihw.gov.au/

Download data

Impact of chronic kidney disease

Burden of chronic kidney disease

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

In 2023, CKD was:

- responsible for 1.1% of the total burden (fatal and non-fatal), compared with 0.8% in 2003
- the 14th leading cause of fatal burden across all age groups
- the sixth leading cause of fatal burden for women aged 85–89 and ninth leading cause of fatal burden for men aged 85–89 (AIHW 2023).

For more information on the burden of CKD, see Burden of chronic kidney disease.

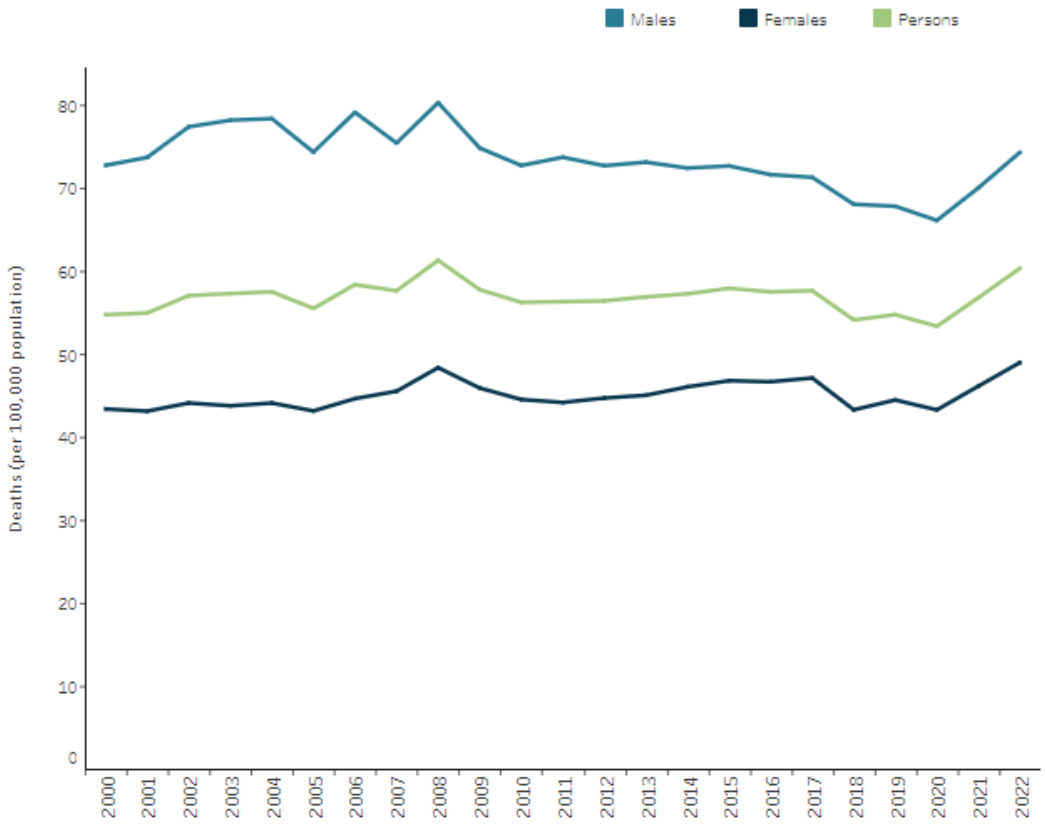
Deaths from chronic kidney disease

CKD contributed to around 22,000 deaths in 2022 (11% of all deaths in Australia), a rate of 84 per 100,000 population. CKD was recorded as the underlying cause of death in 22% and associated cause of death in 78% of CKD deaths. The number of CKD-related deaths has more than doubled since 2000 (when there were 10,200 deaths).

CKD mortality rates increased slightly year-on-year in both 2021 and 2022 (4.2% and 6.2%, respectively), after adjusting for age (Figure 2). These increases should be interpreted in the context of higher overall mortality in 2022, with two-thirds of excess deaths being associated with COVID-19 (ABS 2023b). People with pre-existing chronic conditions are also at higher risk of more severe outcomes from COVID-19 with chronic kidney diseases being a pre-existing condition among 13.2% of people who died from the virus (registered to 28 February 2023) (ABS 2023a).

For more information on deaths from CKD, see Mortality.

Figure 2: Trends in chronic kidney disease death rates (underlying or associated cause), by sex, 2000 to 2022



Notes
1. Age-standardised to the 2001 Australian Standard Population.
2. These data have been adjusted for Victorian additional death registrations in 2019. Due to the adjustment, totals do not equal the sum of their components. 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).

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

Download data

Treatment and management of chronic kidney disease

Hospitalisations

CKD was recorded as the principal or additional diagnosis for around 2 million hospitalisations – 18% of all hospitalisations in Australia in 2021–22.

Dialysis was the most common reason for hospitalisation, accounting for 14% of all hospitalisations, and 81% of CKD hospitalisations (1.7 million).

There were 385,000 hospitalisations with a diagnosis of CKD (excluding dialysis as a principal diagnosis). Of these, 85% had CKD as an additional (rather than principal) diagnosis.

Between 2000–01 and 2021–22:

- the number of hospitalisations with CKD as the principal diagnosis (excluding dialysis) more than doubled, from 24,200 to 56,800
- the age-standardised hospitalisation rate for CKD as a principal diagnosis rose by 57%.

For more information, see Hospitalisations for chronic kidney disease.

Kidney replacement therapy

In 2022, around 29,000 people received KRT with 53% being treated with dialysis while 47% had a kidney transplant.

The number of people receiving KRT has more than doubled since 2003, from around 13,800 to 29,000 (ANZDATA, 2023).

For more information on kidney replacement therapy, see Treatment of kidney failure.

Population groups

The impact of CKD varies between population groups.

Generally, the impact of CKD in terms of prevalence, hospitalisation, mortality and burden of disease, is greater among Aboriginal and Torres Strait Islander (First Nations) people, people living in lower socioeconomic areas, and people living in *Remote* and *very remote* areas. For example:

- An estimated 59,600 First Nations adults (18%) had biomedical signs of CKD in 2012–13 (ABS 2014). First Nations adults were 2.1 times as likely as non-Indigenous adults to have biomedical signs of CKD, after adjusting for age.
- CKD accounted for 2.5% of total disease burden among First Nations people in 2018 (6,500 DALY). The proportion attributed to fatal burden (73%) was higher than non-fatal burden (27%). The burden from CKD was 7.8 times as high among First Nations people as non-Indigenous people (AIHW 2021, 2022).
- Among people living in the lowest socioeconomic areas, there were around 16,200 deaths where CKD was the underlying or associated cause in 2020–2022 (105 per 100,000 population). The CKD death rate among this group was 1.8 times as high as for people living in the highest socioeconomic areas, after adjusting for age.
- Among people living in *Remote* and *very remote* areas, there were 17,100 CKD hospitalisations in 2021–22 (3,400 per 100,000 population). People living in these areas were 3.0 times as likely to be hospitalised for CKD as people living in *Major cities*, after adjusting for age.

Where do I go for more information?

For more information, see Chronic kidney disease: Australian facts.

References

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Chronic musculoskeletal conditions

This topic summary is part of the Chronic musculoskeletal conditions report.

On this page:

What are chronic musculoskeletal conditions?

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

How common are chronic musculoskeletal conditions?

Around 7.3 million (29%) people in Australia were estimated to be living with chronic musculoskeletal conditions, according to self-reported data in the 2022 Australian Bureau of Statistics (ABS) National Health Survey (NHS). Prevalence has not changed since the last survey in 2017–18.

Of these people:

- 4.0 million (16%) were estimated to be living with back problems
- 3.7 million (15%) were estimated to be living with arthritis
- 854,000 (3.4%) were estimated to be living with osteoporosis or osteopenia (ABS 2023).

Note: Unless otherwise stated, crude rates are presented for prevalence in this report and as such, these rates have not been adjusted to account for differences in the age structures of different populations. Care should therefore be taken before making comparisons between populations using these data.

Prevalence by age and sex

Females and older people were the most likely in Australia to be living with chronic musculoskeletal conditions. According to the NHS, in 2022:

- 69% of people aged 75 and over were estimated to be living with a musculoskeletal condition, compared with 23% of people aged 25–44
- females, compared with males, were 5 times as likely to be living with osteoporosis, and 1.4 times as likely to be living with arthritis
- the prevalence of back problems was similar among males and females (16% and 15%, respectively) (Figure 1) (ABS 2023).

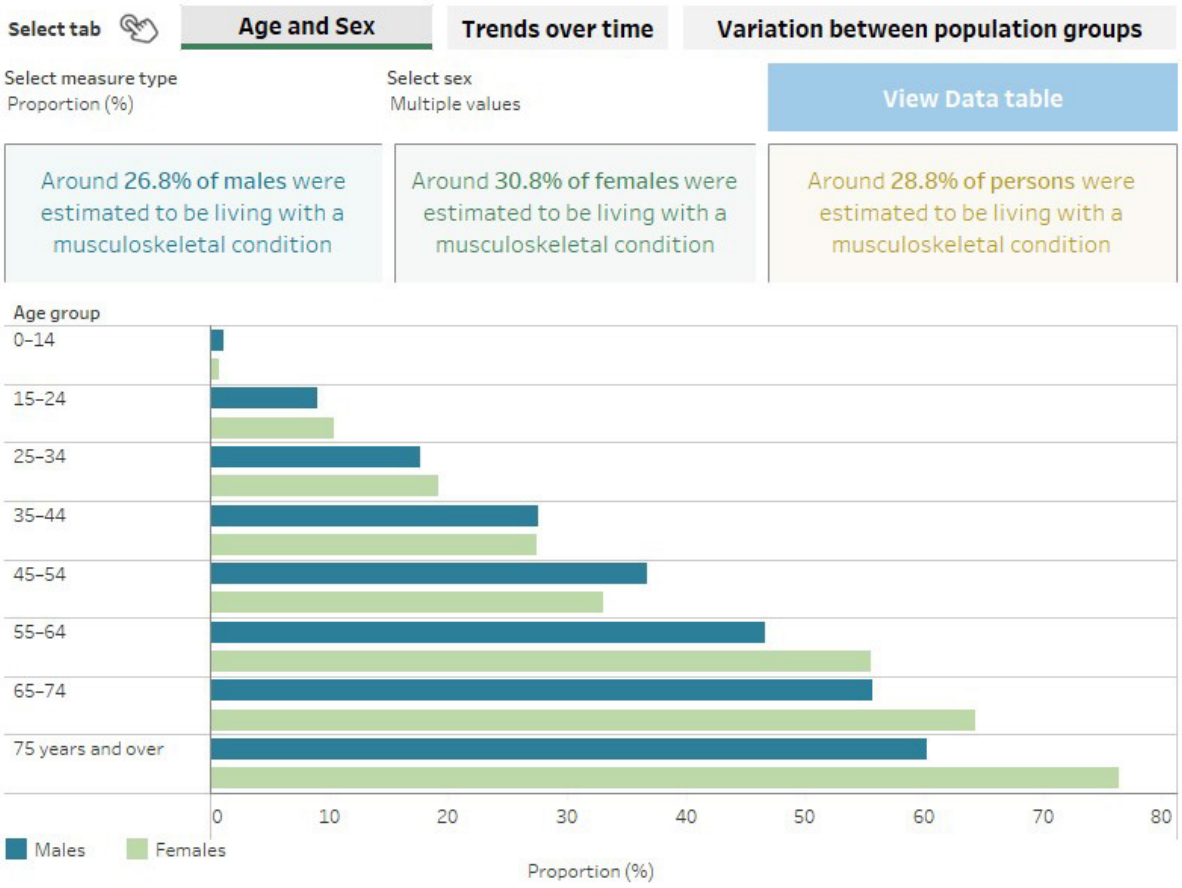
After adjusting for different population age structures over time, between 2001 and 2022, the prevalence of:

- back problems decreased from 21% to 15%
- arthritis remained relatively stable (14% and 12%, respectively) (Figure 1) (ABS 2023).

After adjusting for age differences, the prevalence of musculoskeletal conditions generally increased with increasing levels of disadvantage (also known as socioeconomic areas) but was similar across remoteness areas (Figure 1) (ABS 2023).

For more information see All arthritis, Back problems and Osteoporosis.

Figure 1: Prevalence of chronic musculoskeletal conditions, by age and sex, over time (2001 to 2022), by population group, 2022



Percentage has a a margin of error greater than 10 percentage points which should be considered when using this information.
Notes
1. The prevalence here refers to the number of individuals who self-reported living with current and long-term conditions such as arthritis, rheumatoid arthritis, osteoarthritis, other/unknown arthritis, other arthropathies, rheumatism, back problems, osteoporosis, gout, other diseases of the musculoskeletal system and connective tissue and symptoms and signs involving the musculoskeletal system and connective tissue.
2. For more details, please see the Technical notes and Data tables.
Source: ABS 2023.
https://www.aihw.gov.au

Impact of chronic musculoskeletal conditions

Chronic musculoskeletal conditions are large contributors to illness, pain and disability in Australia. The 2018 Survey of Disability, Ageing and Carers found that, of the people with disability in Australia, 13% were estimated to be living with back problems and another 13% were estimated to be living with arthritis as the main long-term health condition causing the disability (ABS 2019).

Measures of impact presented in this section include burden of disease, health expenditure and mortality data.

Burden of disease

In 2023, the musculoskeletal conditions disease group accounted for 12.8% of total disease burden (also known as disability adjusted life years or DALY), 23.1% of non-fatal burden (also known as 'years lived with disability' or YLD) and 0.8% of fatal burden (also known as years of life lost, or YLL). It was also the second leading disease group contributing to non-fatal burden after mental health conditions and substance use disorders (AIHW 2023a).

Among all individual conditions, back problems were the leading cause of non-fatal burden (accounting for 7.9% of YLD).

Within the musculoskeletal conditions disease group:

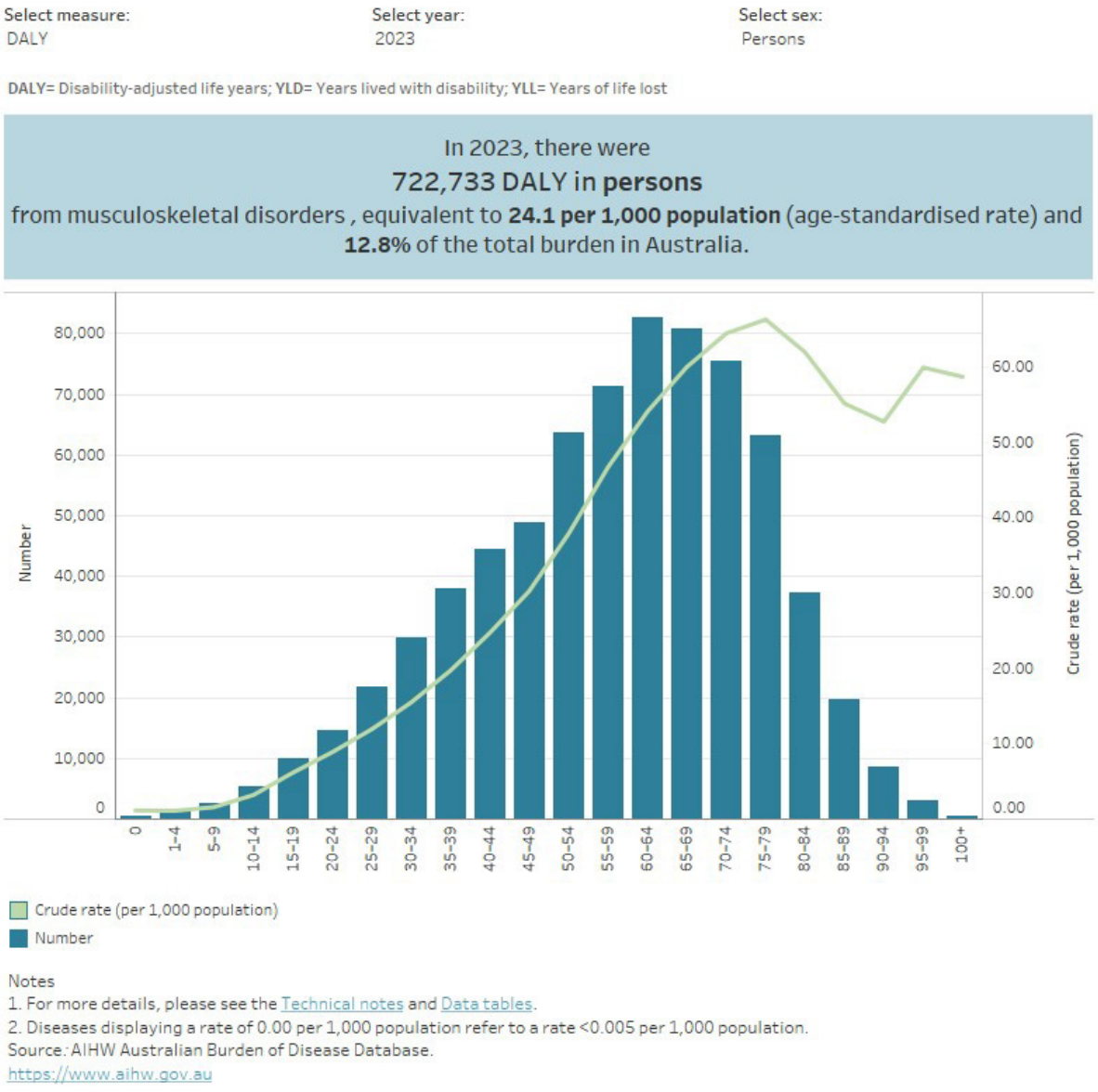
- back problems accounted for 34% of burden (DALY)
- other musculoskeletal conditions accounted for 30% of burden (DALY)
- osteoarthritis accounted for 20% of burden (DALY)
- rheumatoid arthritis accounted for 16% of burden (DALY).

Variation by age and sex

In 2023:

- the rate of burden from musculoskeletal conditions generally increased with increasing age, peaking between ages 75–79 (66.3 DALY per 1,000 population)
- after adjusting for age differences, the rate of total burden from musculoskeletal conditions was 20% higher among females compared with males (26.2 and 21.8 per 1,000 population, respectively) (Figure 2).

Figure 2: Burden of disease due to musculoskeletal conditions by sex and age, 2003, 2011, 2015, 2018 and 2023



Notes
1. For more details, please see the Technical notes and Data tables.
2. Diseases displaying a rate of 0.00 per 1,000 population refer to a rate <0.005 per 1,000 population.
Source: AIHW Australian Burden of Disease Database.
https://www.aihw.gov.au

Trends over time

After adjusting for different population age structures over time, the rate of burden from musculoskeletal conditions was relatively stable between 2003 and 2023, averaging 24.2 DALY per 1,000 population across the 5 time points reported.

For more information, see the *Australian Burden of Disease Study 2023*.

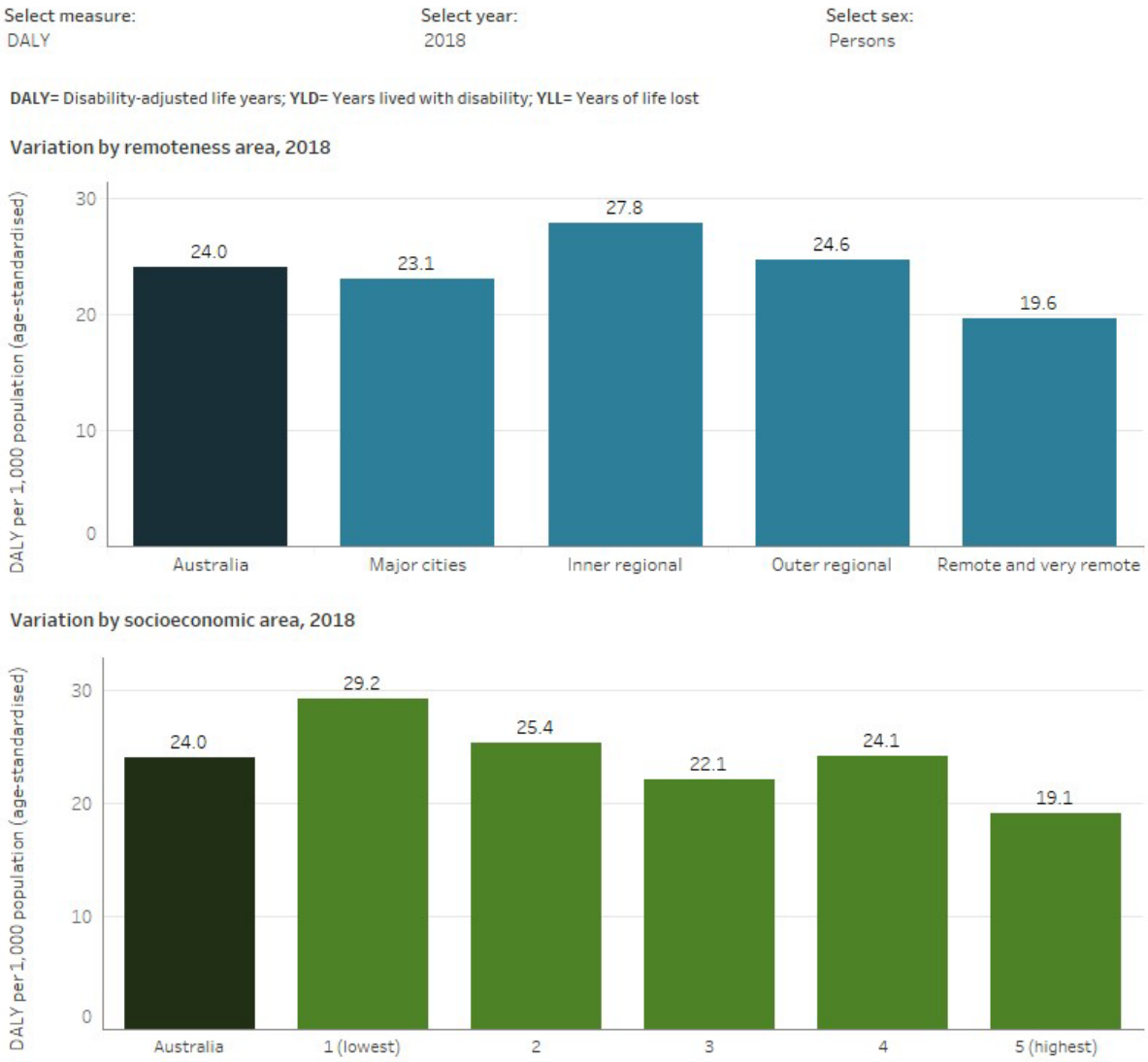
Variation between population groups

In 2018, after adjusting for age differences, the rate of total burden of musculoskeletal conditions was:

- highest for people living in *Inner regional* areas, and lowest for people living in *Remote* and *very remote* areas (27.8 and 19.6 DALY per 1,000 population, respectively)
- 1.5 times as high for people living in the areas of most disadvantage (lowest socioeconomic areas) compared with people living in areas of least disadvantage (highest socioeconomic areas) (29.2 and 19.1 DALY per 1,000 population, respectively) (Figure 3) (AIHW 2021a).

For more information, see the *Australian Burden of Disease Study 2018*: Interactive data on disease burden.

Figure 3: Burden of disease due to musculoskeletal conditions for remoteness area and socioeconomic area, by sex, 2011, 2015 and 2018



Source: AIHW Australian Burden of Disease Database.
https://www.aihw.gov.au

Modifiable risk factors contribute to burden

In 2018, 16% of the total burden (DALY) due to musculoskeletal conditions could be attributed to modifiable risk factors. These risk factors included:

- overweight and obesity, which contributed to 8.9% of the musculoskeletal burden, and 28% of the osteoarthritis burden
- occupational exposures and hazards, which contributed to 5.6% of the musculoskeletal burden, and 17% of the back problems burden
- tobacco use, which contributed to 2% of the musculoskeletal burden (AIHW 2021a).

For definitions and information on the burden of disease associated with these conditions, see *Australian Burden of disease Study 2023*.

Health system expenditure

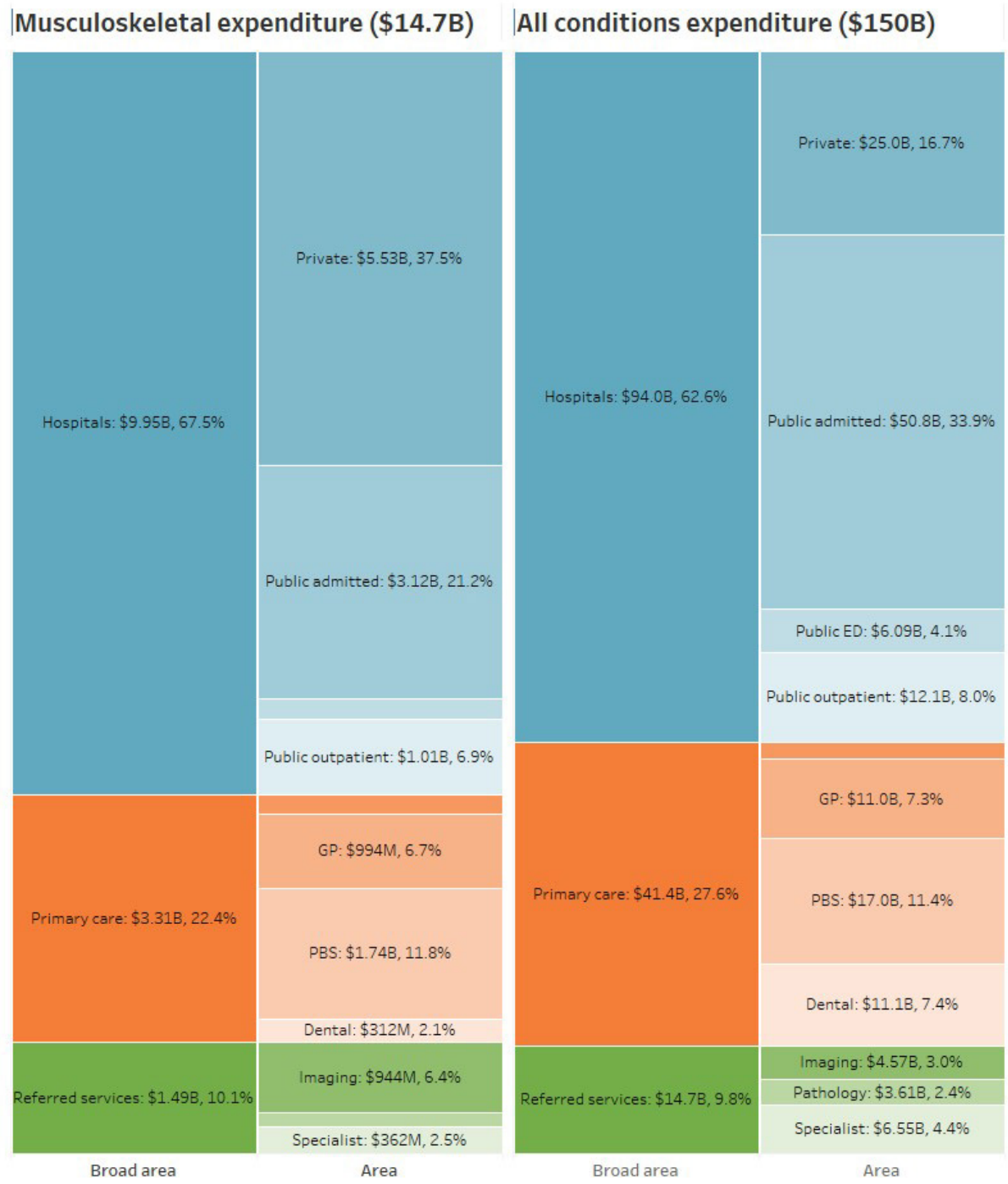
In 2020–21, an estimated $14.7 billion of expenditure in the Australian health system was attributed to musculoskeletal conditions, representing 9.8% of total health expenditure (AIHW 2023b).

Where is the money spent?

In 2020–21:

- hospital services represented 68% ($10 billion) of musculoskeletal expenditure, which was slightly higher than the hospital proportion for all disease groups (63%). The private hospital proportion of musculoskeletal expenditure was more than double the proportion for all disease groups (38% and 17%, respectively)
- primary care accounted for 22% ($3.3 billion) of musculoskeletal spending, which was slightly lower than the primary care proportion for all disease groups (28%)
- referred medical services represented 10% of musculoskeletal spending, which was similar to the referred services proportion for all disease groups. The medical imaging proportion of musculoskeletal expenditure was over double the proportion for all disease groups (6.4% and 3.0%, respectively) (Figure 4).

Figure 4: Musculoskeletal condition expenditure attributed to each area of the health system, with comparison to all disease groups, 2020–21



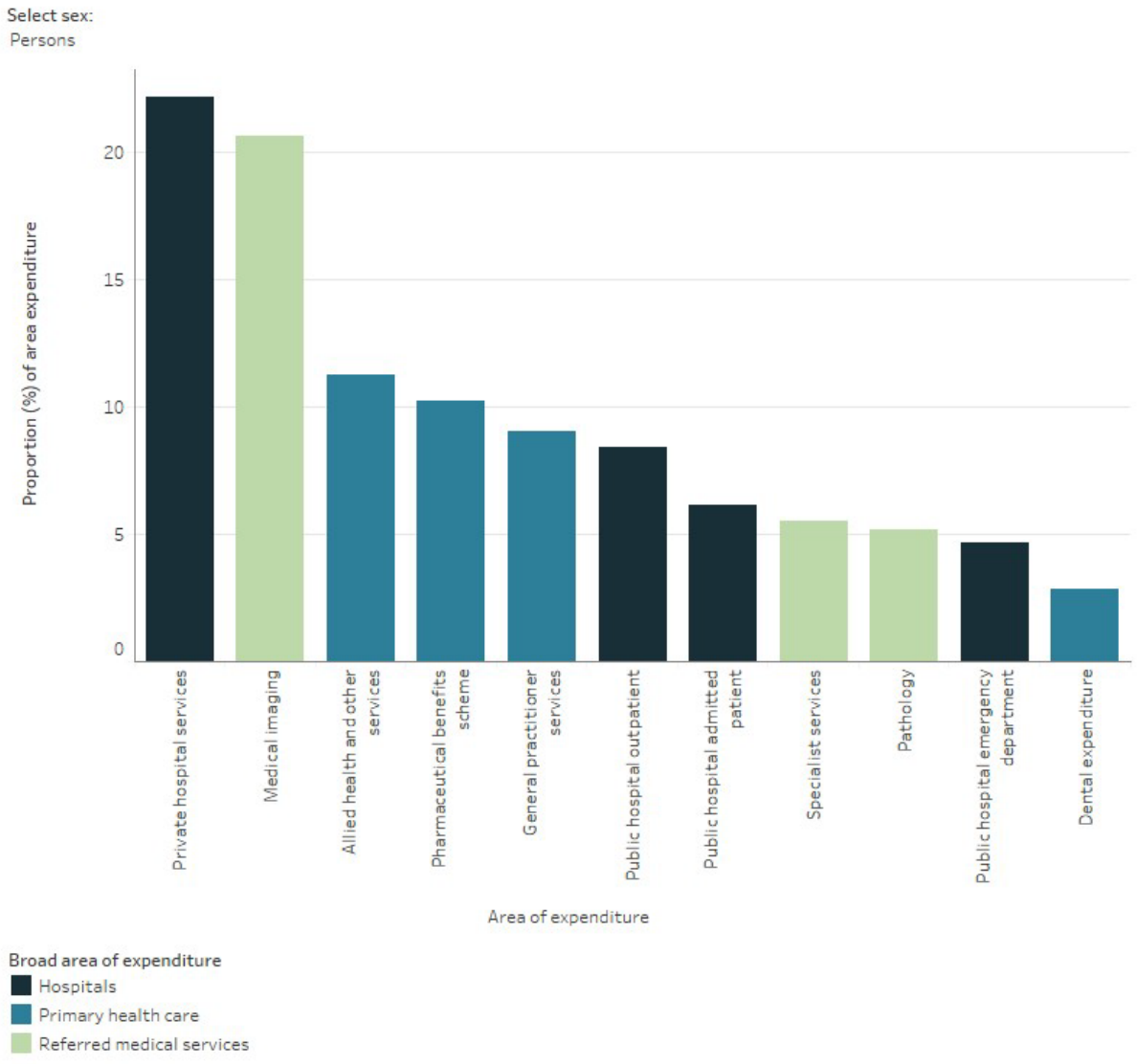
Notes
1. For more details, please see the Technical notes and Data tables.
2. Total health expenditure includes spending for all disease groups included in the Australian Burden of Disease Study.
Source: AIHW Disease Expenditure Database.
https://www.aihw.gov.au

In 2020–21, musculoskeletal conditions accounted for:

- 22% ($5.5 billion) of all private hospital service expenditure – ranking first of all disease groups
- 21% ($943.7 million) of all medical imaging expenditure – ranking second of all disease groups (Figure 5).

For more information, see *Health system spending on disease and injury in Australia, 2020–21*.

Figure 5: Proportion of expenditure attributed to musculoskeletal conditions, for each area of the health system, 2020–21



Source: AIHW Disease Expenditure Database.
https://www.aihw.gov.au

Who is the money spent on?

The distribution of health system expenditure on musculoskeletal conditions by age and sex reflects the prevalence distribution, with more spending for older age groups and females. In 2020–21:

- 81% of musculoskeletal expenditure was on people aged 45 and over
- 21% more musculoskeletal expenditure was attributed to females than males ($7.9 billion and $6.5 billion, respectively) with a remaining $320.1 million (2.2%) unattributed to any sex.

In 2018–19, it was estimated that musculoskeletal conditions expenditure per case was similar for females and males (about $1,200 per case) (AIHW 2022a).

For more information, see:

- *Health system spending per case of disease and for certain risk factors*
- *Health system spending on disease and injury in Australia, 2020–21*.

How many deaths were associated with musculoskeletal conditions?

In 2022, musculoskeletal conditions were recorded as an underlying and/or associated cause for 10,446 deaths or 40 deaths per 100,000 population. This represented 5.5% of all deaths in 2022.

Musculoskeletal conditions were more likely to be recorded as an associated cause of death only (accounting for 8,690 deaths, 83% of musculoskeletal condition deaths), than as an underlying cause of death (1,756 deaths or 17% of all musculoskeletal condition deaths).

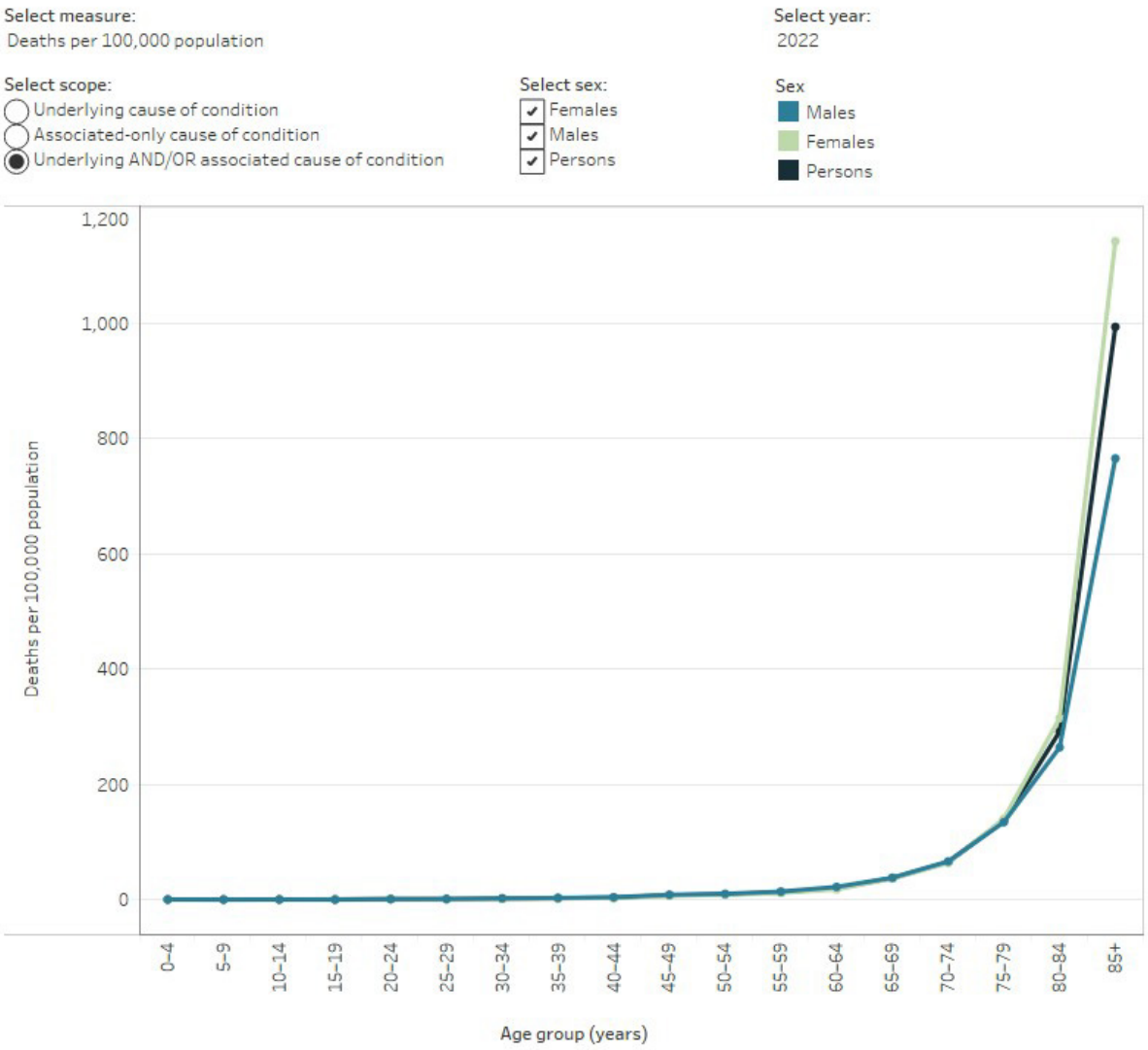
Of the specific conditions analysed in this report, osteoporosis and osteoarthritis contributed the most to any-cause musculoskeletal deaths (25% and 22% respectively), while rheumatoid arthritis contributed the most to the underlying cause of musculoskeletal deaths (14%).

Variation by age and sex

In 2022, musculoskeletal conditions mortality (as the underlying and/or associated cause) in comparison to all deaths, was relatively more concentrated among:

- older people (79% of musculoskeletal deaths were among people aged 75 and over, compared with 68% for total deaths)
- females (61% of musculoskeletal deaths were among females compared with 48% of total deaths) (Figure 6).

Figure 6: Age distribution for musculoskeletal condition mortality, by sex, 2012 to 2022



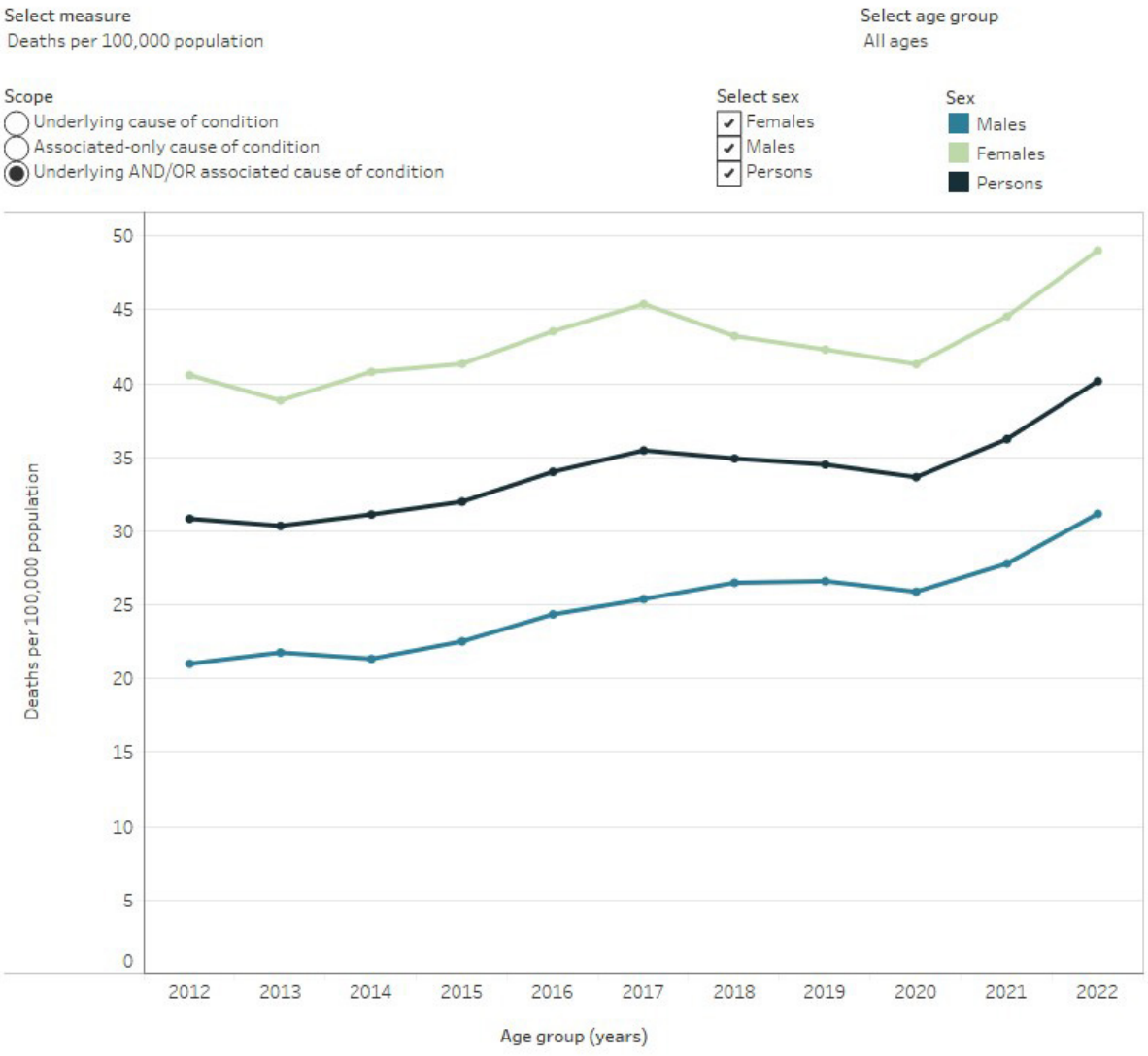
Source: AIHW analysis of the NMD.
https://www.aihw.gov.au

Trends over time

After adjusting for different population age structures over time, mortality rates for musculoskeletal conditions (as the underlying and/or associated cause) between 2012 and 2022:

- remained relatively stable between 25 and 29 deaths per 100,000 population
- were 1.2 to 1.3 times higher among females compared with males (Figure 7).

Figure 7: Trends over time for musculoskeletal condition mortality, 2012 to 2022



Source: AIHW analysis of the NMD.
https://www.aihw.gov.au

Variation between population groups

In 2022, after adjusting for age differences, mortality rates for musculoskeletal conditions (as the underlying and/or associated cause of death) were:

- 1.2 times as high for people living in *Outer regional* areas compared with people living in *Major cities* (33 and 28 deaths per 100,000 population, respectively)
- 1.4 times as high for people living in areas of most disadvantage (lowest socioeconomic areas) compared with people living in areas of least disadvantage (highest socioeconomic areas) (35 and 24 deaths per 100,000 population, respectively).

Treatment and management of chronic musculoskeletal conditions

Primary care

Musculoskeletal conditions are usually managed by general practitioners (GP) 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).

It is worth noting that there is currently no nationally consistent primary health care data collection to monitor provision of care by GPs. For more information, see *General practice, allied health and other primary care services*.

Hospital treatment

People living with musculoskeletal conditions that are very severe, or who require specialised treatment or surgery, may be admitted to hospital.

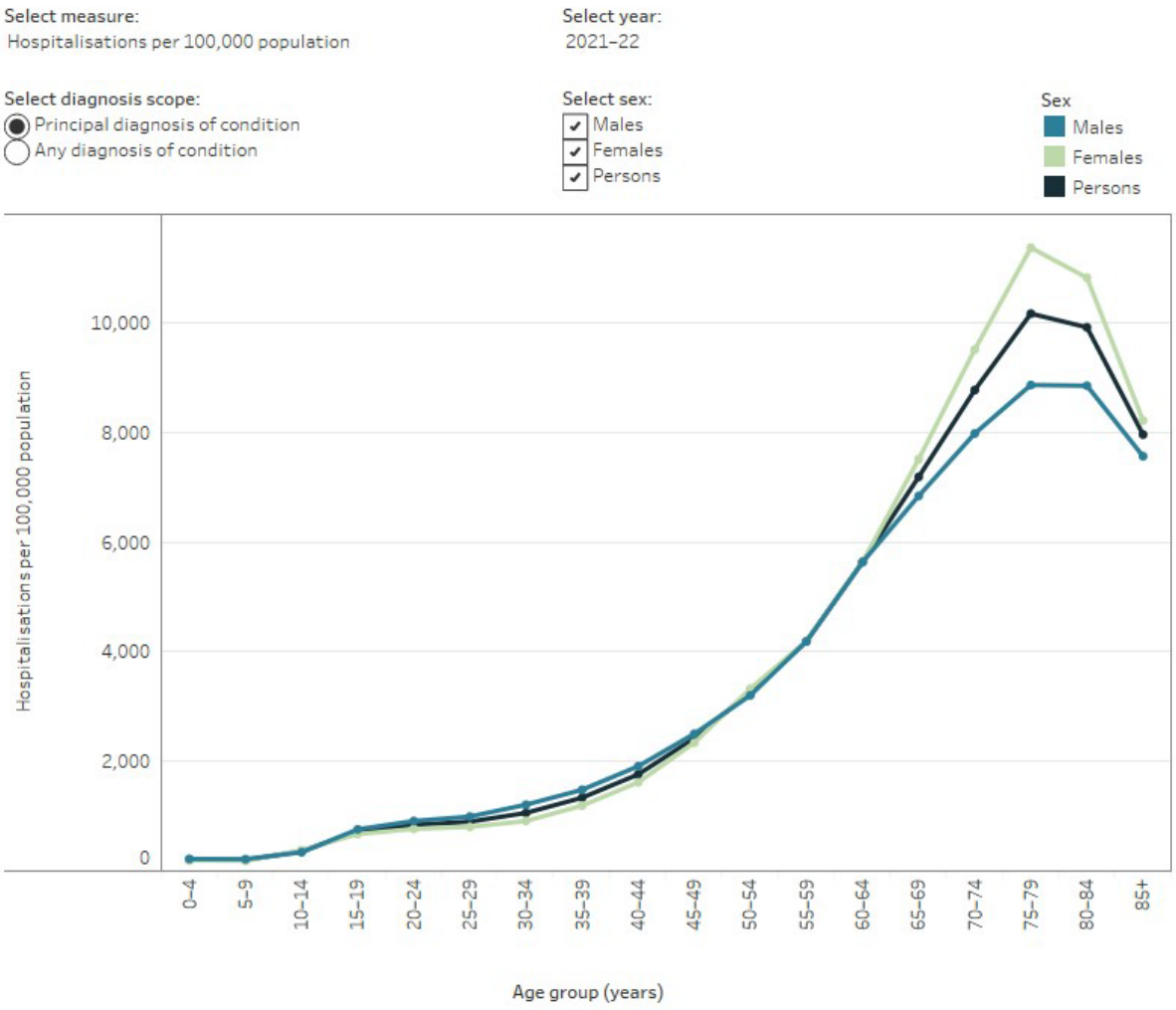
Data from the National Hospital Morbidity Database (NHMD) show that in 2021–22, there were 1.1 million hospitalisations with a principal or additional diagnosis (any diagnosis) of a musculoskeletal condition, together representing 9.5% of all hospitalisations.

The rest of this section discusses hospitalisations with a musculoskeletal principal diagnosis, unless otherwise stated. However, charts and tables also include statistics for any diagnosis of a musculoskeletal condition.

In 2021–22:

- there were 745,100 musculoskeletal condition hospitalisations, representing 6.4% of all hospitalisations, and 2,900 hospitalisations per 100,000 population
- musculoskeletal hospitalisations included: osteoarthritis (32%), back problems (24%), osteoporosis (1.4%), rheumatoid arthritis (1.3%), gout (0.9%), and other musculoskeletal conditions (40%)
- musculoskeletal conditions accounted for 2.4 million bed days, representing 7.6% of all bed days
- 49% of musculoskeletal condition hospitalisations were overnight stays, with an average length of 5.5 days (Figure 8).

Figure 8: Age distribution for musculoskeletal hospitalisations, by sex, 2015–16 to 2021–22



Notes
1. For more details, please see the Technical notes and Data tables.
2. Rates were calculated using December estimated resident populations.
3. Age-standardised rates were standardised to the June 2001 estimated resident population, using 5-year age groups up to 85+ years.
Source: AIHW analysis of the NHMD.
https://www.aihw.gov.au

Variation by age and sex

In 2021–22, musculoskeletal condition hospitalisation rates were:

- highest for people aged 75–79 years (10,200 hospitalisations per 100,000 population)
- slightly higher for females compared with males (3,000 and 2,700 hospitalisations per 100,000 population, respectively) (Figure 8).

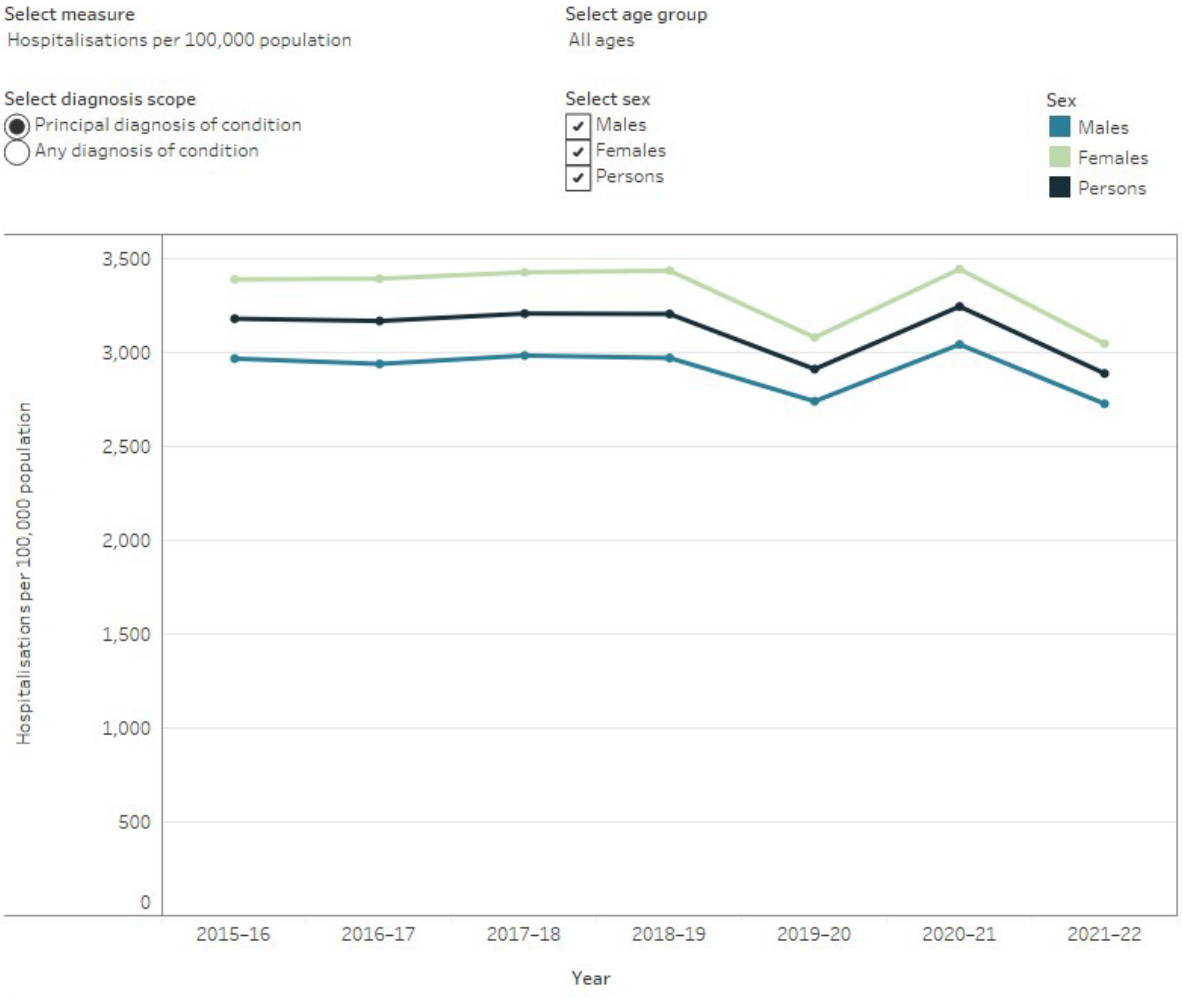
Trends over time

From 2015–16 to 2021–22, for musculoskeletal hospitalisations:

- the rate was steady until 2018–19 (at about 3,200 hospitalisations per 100,000 population) and then varied, decreasing to a low of about 2,900 hospitalisations per 100,000 population in 2021–22
- the proportion and average length of overnight stays were relatively stable, averaging to 49% and 5.4 days, across the period (Figure 9).

It should be noted that the rate of hospitalisations over the past few years may have been affected by the COVID-19 pandemic.

Figure 9: Trends over time for musculoskeletal hospitalisations, 2015–16 to 2021–22



Notes
1. For more details, please see the Technical notes and Data tables.
2. Rates were calculated using December estimated resident populations.
3. Age-standardised rates were standardised to the June 2001 estimated resident population, using 5-year age groups up to 85+ years.
Source: AIHW analysis of the NHMD.
https://www.aihw.gov.au

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
- the 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).

COVID-19 impact on chronic musculoskeletal conditions

The COVID-19 pandemic had substantial impacts on hospital activity generally. 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 2022b).

At the beginning of the pandemic in Australia, non-urgent elective surgery was suspended from late March to late April 2020. In the same financial year (2019–20), after adjusting for age differences, the rate of total hip and knee replacement surgery where osteoarthritis was the principal diagnosis decreased 8.6% and 11.4% respectively from 2018–19. This decrease was driven by the April–June 2020 quarter, which saw 31% and 37% fewer admissions for hip and knee replacements respectively, compared with the April–June 2019 quarter (Figure 10).

In 2020–21, rates rebounded to exceed pre-pandemic levels, but in 2021–22 they decreased below pre-pandemic levels (for more information, see Osteoarthritis).

For more information, see 'Changes in the health of Australians during the COVID-19 period' in *Australia's health 2022: data insights*.

Figure 10: Total hip and knee replacement surgeries, by month, 2019 to 2021

Note: For more details, please see the Technical notes and Data tables.
Source: AIHW National Hospitals Morbidity Database.
https://www.aihw.gov.au

In 2020–21:

- the median waiting times for total hip replacement surgery and total knee replacement surgery increased compared with 2019–20, by 49% and 38% respectively. This compares to an increase of 23% for all elective surgery (AIHW 2021b)
- 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 compare to a 4.8 percentage point increase for all elective surgeries (AIHW 2021b).

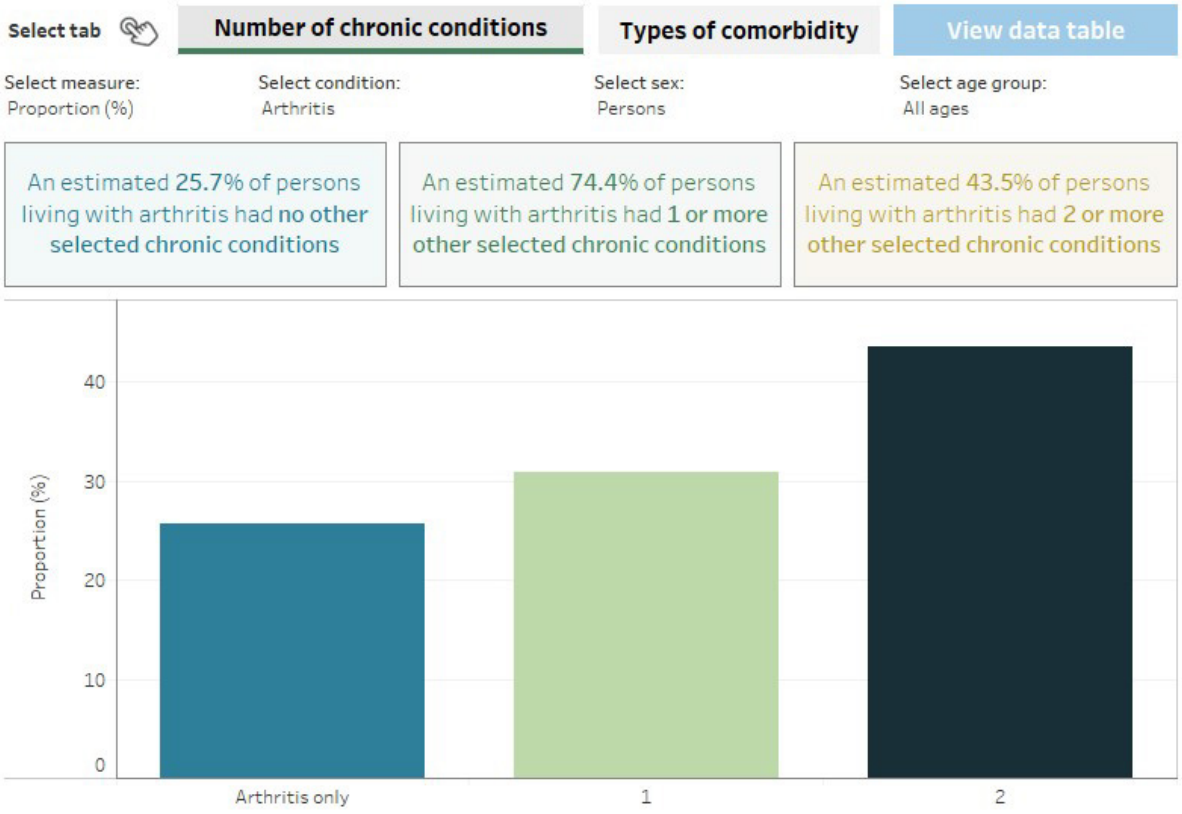
Comorbidities of chronic musculoskeletal conditions

People living with chronic musculoskeletal conditions are often also living with other chronic and long-term conditions, known as 'comorbidity'. According to the NHS, in 2022:

- an estimated 2.7 million (74%) people who were living with arthritis also had one or more other chronic conditions. Among them, 38% were estimated to be living with mental or behavioural conditions and 36% were estimated to be living with back problems
- an estimated 2.9 million (72%) who were living with back problems also had one or more other chronic conditions. Among them, 43% were estimated to be living with a mental or behavioural condition and 34% were estimated to be living with arthritis (Figure 11) (ABS 2023).

For more information, see All arthritis and Back problems.

Figure 11: Number of selected chronic conditions and types of comorbidity in people with musculoskeletal conditions, by condition, sex and age, 2022



Percentage has a margin of error greater than 10 percentage points which should be considered when using this information.
Notes
1. The selected chronic conditions included in this comorbidity analysis were arthritis, asthma, back problems cancer, chronic obstructive pulmonary disease (COPD), diabetes, heart, stroke and vascular disease, kidney disease, mental and behavioural conditions and osteoporosis. For specific condition definitions, see see ABS NHS 2022.
2. Data are self-reported.
3. Proportions may not sum to 100% because some people have more than one comorbidity.
4. For more details, please see the Technical notes and Data tables.
Source: ABS 2023.
https://www.aihw.gov.au

Where do I go for more information?

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

- ABS National Health Survey- external site opens in new window
- ABS Health Conditions Prevalence- external site opens in new window
- Australian Centre for Monitoring Population Health

For more on this topic, visit Chronic musculoskeletal conditions.

References

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Chronic respiratory conditions

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/chronic-respiratory-conditions/chronic-respiratory-conditions/contents/summary

On this page:

What are 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.

This page focuses on asthma and chronic obstructive pulmonary disease (COPD) as these are common respiratory conditions and are associated with poor health and wellbeing.

For more information on what is covered by the term 'chronic respiratory conditions' for each data source, see the Technical notes and Data tables.

How common are chronic respiratory conditions?

Around 8.5 million (34%) people in Australia were estimated to have chronic respiratory conditions, according to self-reported data in the 2022 Australian Bureau of Statistics (ABS) National Health Survey (NHS) (ABS 2023). This included:

- 2.8 million (11%) people who were estimated to be living with asthma
- 638,000 (2.5%) people who were estimated to be living with COPD (ABS 2023).

Note: Unless otherwise stated, crude rates are presented for prevalence in this report and as such, these rates have not been adjusted to account for differences in the age structures of

different populations. Care should therefore be taken before making comparisons between populations using these data.

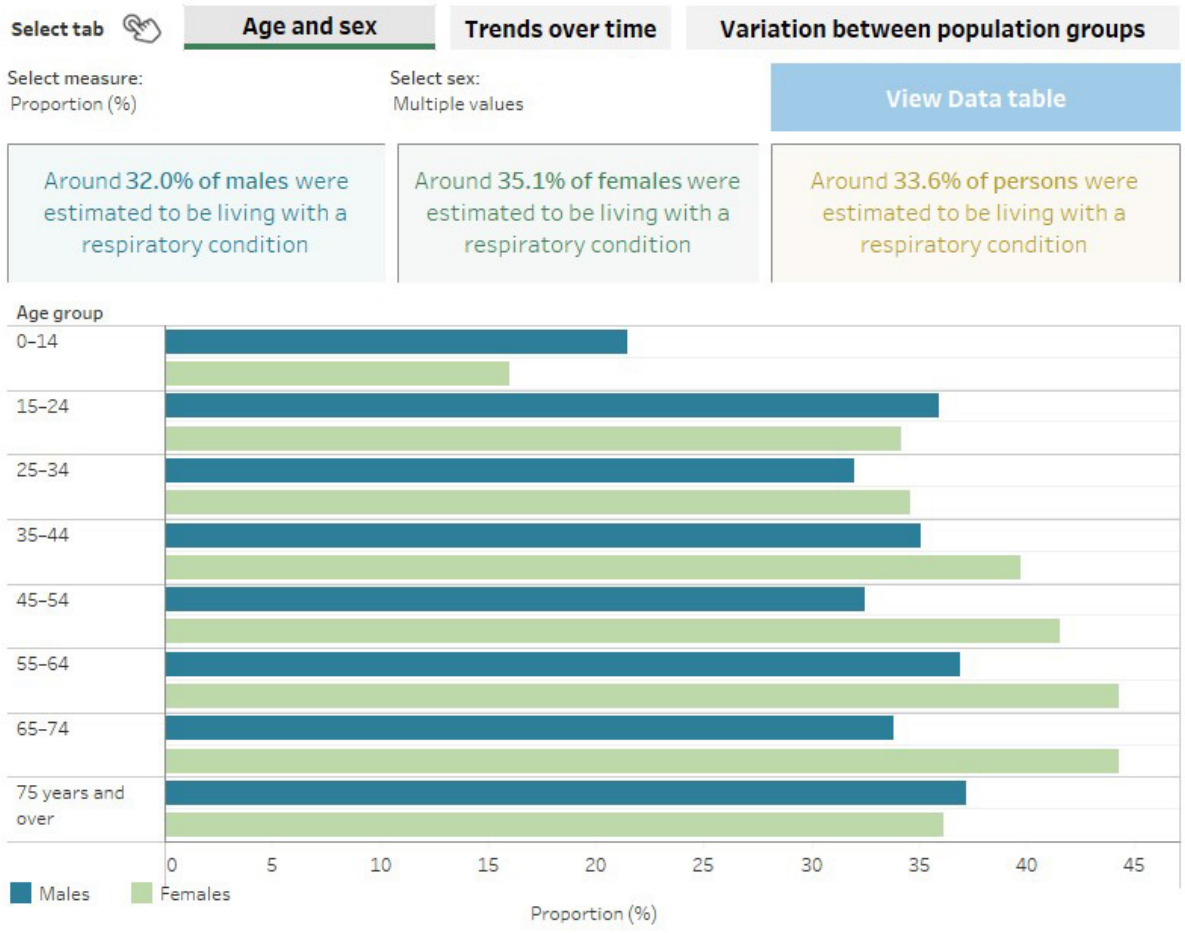
In 2022, the prevalence of:

- asthma was similar for boys and girls aged 0–14, but higher for females than males over the age of 15
- asthma did not vary substantially by remoteness area or level of disadvantage (also known as socioeconomic area)
- COPD increased with increasing age and is similar for males and females
- COPD was highest among people living in *Outer regional and remote areas* and lowest for people living in *Major cities* (3.9% and 2.2%, respectively)
- COPD was 4.7% for people living in areas of most disadvantage (lowest socioeconomic areas) and 1.5% for people living in the least disadvantaged areas (highest socioeconomic areas) (Figure 1) (ABS 2023).

Between 2001 and 2022, after adjusting for different population age structures over time, the prevalence of asthma and COPD remained stable (12% to 11%, and 3.6% to 2.2%, respectively) (Figure 1) (ABS 2023).

For more information, see Asthma and Chronic obstructive pulmonary disease.

Figure 1: Prevalence of selected respiratory conditions, by age and sex, over time (2001 to 2022) and by population group, 2022



Percentage has a margin of error greater than 10 percentage points which should be considered when using this information.
Notes
1. The prevalence here refers to the number of individuals who self-reported living with current and long-term conditions such as chronic obstructive pulmonary disease (COPD), asthma, hay fever and allergic rhinitis, chronic sinusitis, other diseases of the respiratory system, and symptoms and signs involving the respiratory system.
2. For more details, please see the Technical notes and Data tables.
Source: ABS 2023.
https://www.aihw.gov.au

Impact of chronic respiratory conditions

Chronic respiratory conditions have varying degrees of impact on the physical, psychological, and social wellbeing of people living with the conditions, depending on disease severity and their level of control.

Natural events that affect air quality can have a direct impact on chronic respiratory conditions. Two such natural events in recent times are thunderstorm asthma and the bushfires of 2019–20.

For more information on thunderstorm asthma, see Asthma and Natural environment and health.

Impact of the 2019–20 bushfires on chronic respiratory conditions

The 2019–20 bushfires resulted in 33 deaths and the destruction of over 3,000 houses and millions of hectares of land across Australia (Parliament of Australia 2020).

During the 2019–20 bushfire season, hospitalisation and emergency department (ED) presentation rate increases for asthma and COPD coincided with the increased bushfire activity (AIHW 2021a).

The highest hospitalisation rate increase during this season was observed:

- in the week beginning 12 January 2020, of 26% for asthma, compared with the previous 5-year average (2.4 and 1.7 per 100,000 population, respectively)

- in the week beginning 1 December 2019, of 30% for COPD, compared with the previous 5-year average (2.0 and 1.6 per 100,000 population, respectively).

The highest ED presentation rate increase was observed for both conditions in the week beginning 12 January 2020:

- 44% for asthma, compared with the previous bushfire season (4.7 and 3.3 per 100,000 population, respectively)

- 31% for COPD, compared to the previous bushfire season (1.4 and 1.1 per 100,000 population, respectively).

For more information, see Asthma, COPD and Natural environment and health.

Measures of impact presented in this section include burden of disease, health expenditure and mortality data.

Burden of disease

In 2023, the respiratory conditions disease group accounted for 7.2% of total disease burden (also known as disability adjusted life years or DALY), 8.5% of non-fatal burden (also known as 'years lived with disability' or YLD) and 5.8% of fatal burden (also known as years of life lost, or YLL) (AIHW 2023a).

The rate of burden for the respiratory conditions disease group was split between COPD and asthma:

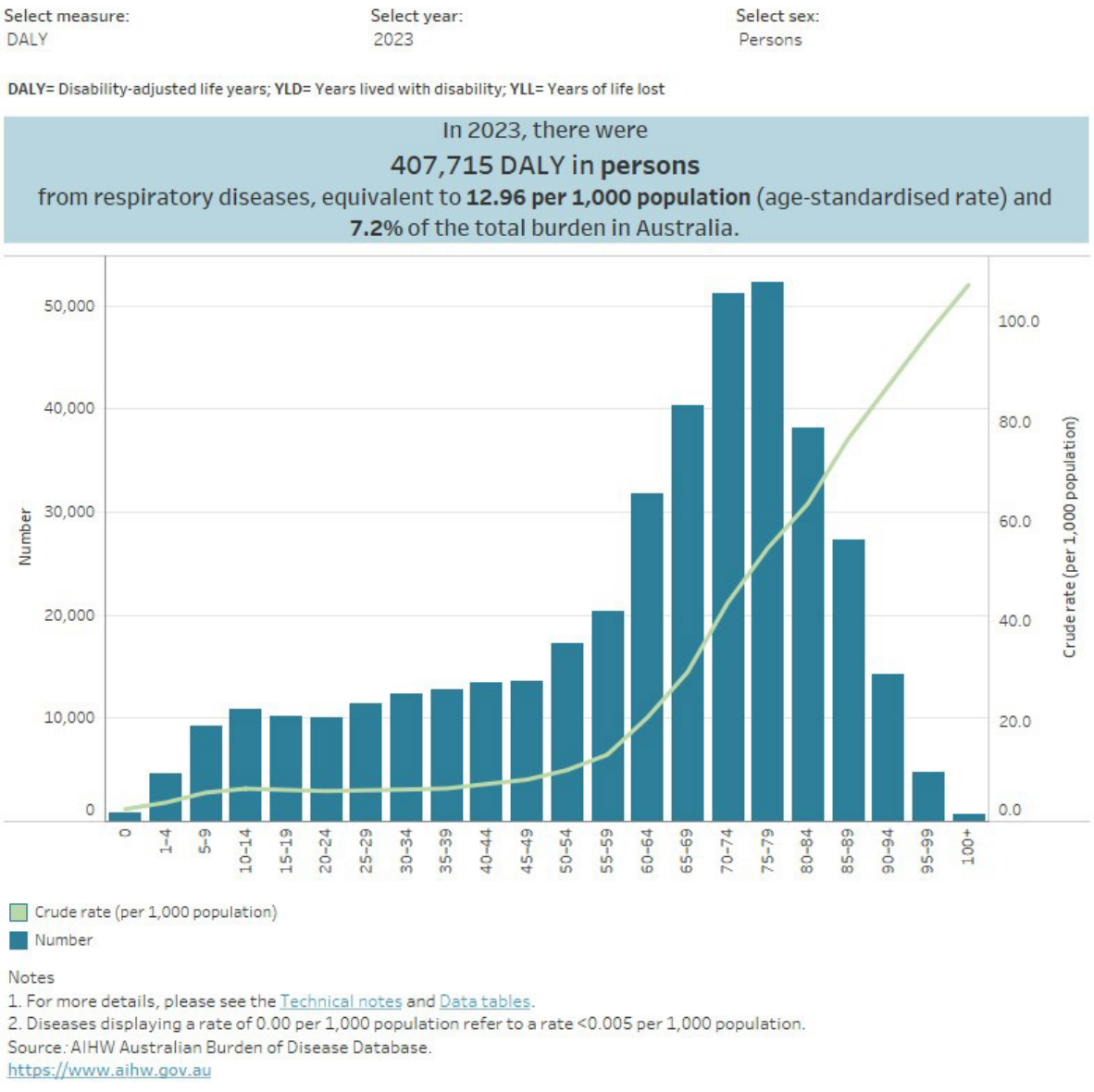
- COPD accounted for 50% of total burden (DALY), 38% of non-fatal burden (YLD) and 71% of fatal burden (YLL)
- asthma accounted for 35% of total burden (DALY), 52% of non-fatal (YLD) and 5.4% of fatal burden (YLL).

Variation by age and sex

In 2023:

- The rate of burden for the respiratory conditions disease group remained under 8.4 DALY per 1,000 population up to the age group 45–49. After this, rates increased steeply, to a high at 54.8 DALY per 1,000 population for those aged 75–79.
- Among individual conditions, COPD was the fifth leading cause of total burden of disease. Asthma was tenth but was the leading cause of total burden among children aged 1–9 (Figure 2).

Figure 2: Burden of disease due to respiratory conditions, by age and sex, 2003, 2011, 2015, 2018 and 2023



Notes
1. For more details, please see the Technical notes and Data tables.
2. Diseases displaying a rate of 0.00 per 1,000 population refer to a rate <0.005 per 1,000 population.
Source: AIHW Australian Burden of Disease Database.
https://www.aihw.gov.au

Trends over time

After adjusting for different population age structures over time, the rate of respiratory conditions burden decreased by 6% (13.8 to 13.0 DALY per 1,000 population, respectively) – or 0.3% per year on average between 2003 and 2023.

For more information, see the *Australian Burden of Disease Study 2023*.

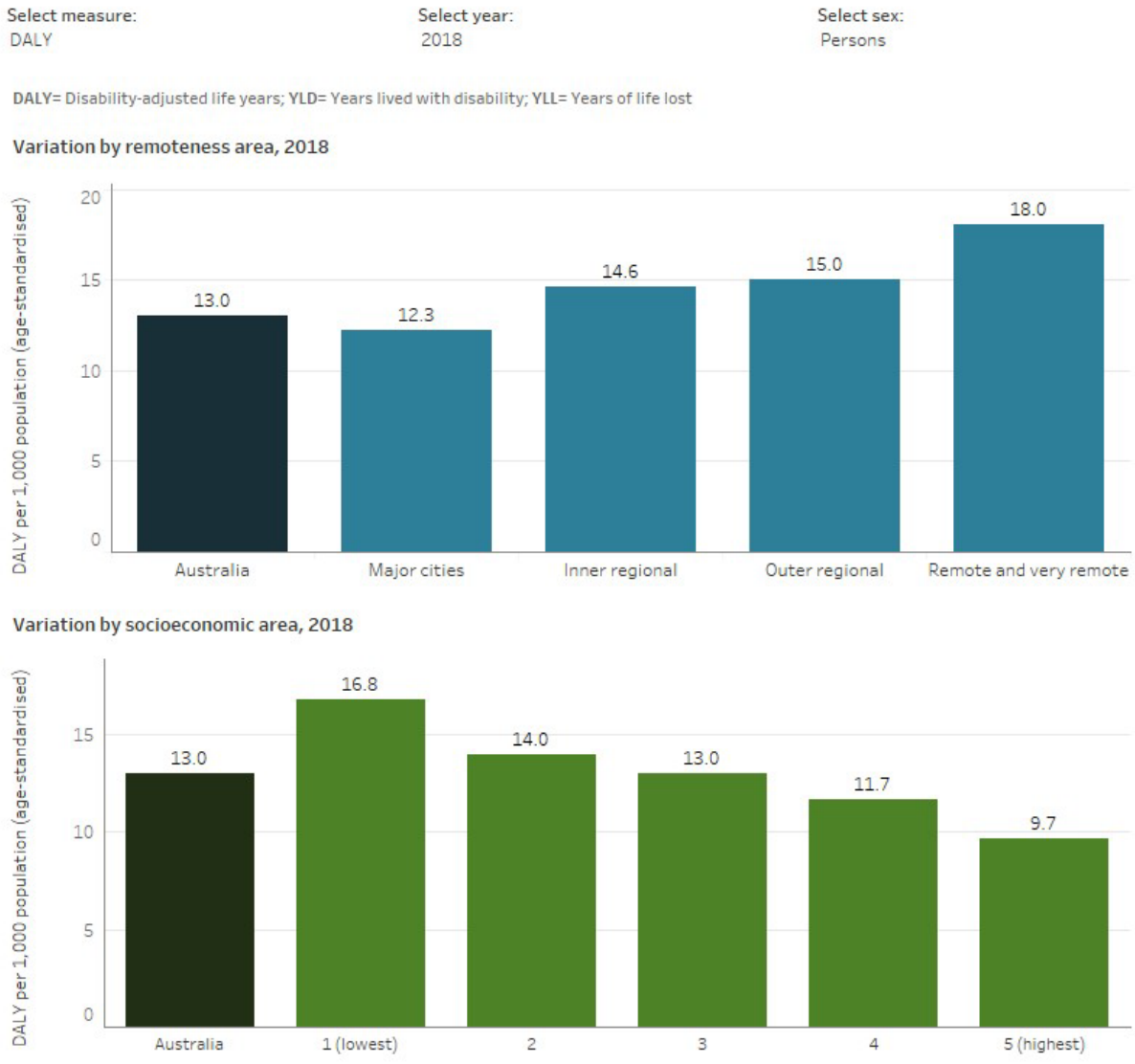
Variation between population groups

In 2018, after adjusting for age differences, the rate of respiratory condition burden:

- was highest for people living in *Remote* and *very remote* areas and lowest for people living in *Major cities* (18.0 and 12.3 DALY per 1,000 population, respectively)
- was highest for people living in areas of most disadvantage (lowest socioeconomic areas) and lowest for people living in the least disadvantaged areas (highest socioeconomic areas) (16.8 and 9.7 DALY per 1,000 population, respectively) (Figure 3) (AIHW 2021b).

For more information, see *Australian Burden of Disease Study 2018*: Interactive data on disease burden.

Figure 3: Burden of disease due to respiratory conditions for remoteness area and socioeconomic area by sex, 2011, 2015 and 2018



Source: AIHW Australian Burden of Disease Database.
https://www.aihw.gov.au

Health system expenditure

In 2020–21, an estimated $4.5 billion of expenditure in the Australian health system was attributed to respiratory conditions, representing 3.0% of total health expenditure (AIHW 2023b).

Where is the money spent?

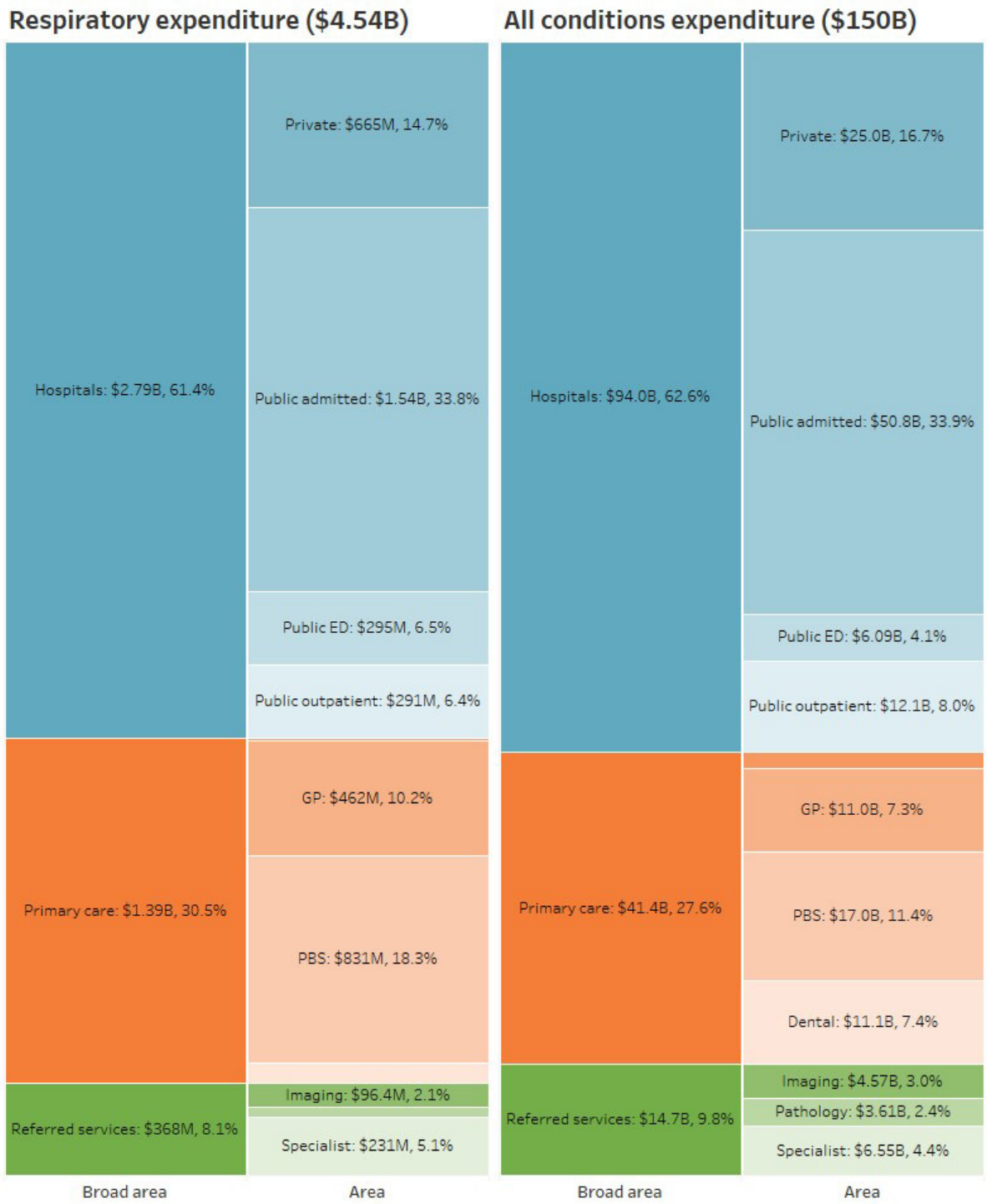
In 2020–21:

- hospital services represented 61% ($2.8 billion) of respiratory expenditure, which was very similar to the hospital proportion for all disease groups (63%). However,

the public emergency department proportion of respiratory expenditure was 1.6 times the proportion for all disease groups (6.5% compared with 4.1%)

- primary care accounted for 31% ($1.4 billion) of all respiratory condition spending, which was similar to the primary care portion for all disease groups. However, the Pharmaceutical Benefits Scheme (PBS) proportion of respiratory expenditure was 1.6 times more than the proportion for all disease groups (18% compared with 11%)
- referred medical services represented 8.1% ($368.2 million) of expenditure for respiratory conditions. This was similar to the proportion for all disease groups (9.8%) (Figure 4).

Figure 4: Respiratory conditions expenditure attributed to each area of the health system, with comparison to all disease groups, 2020–21

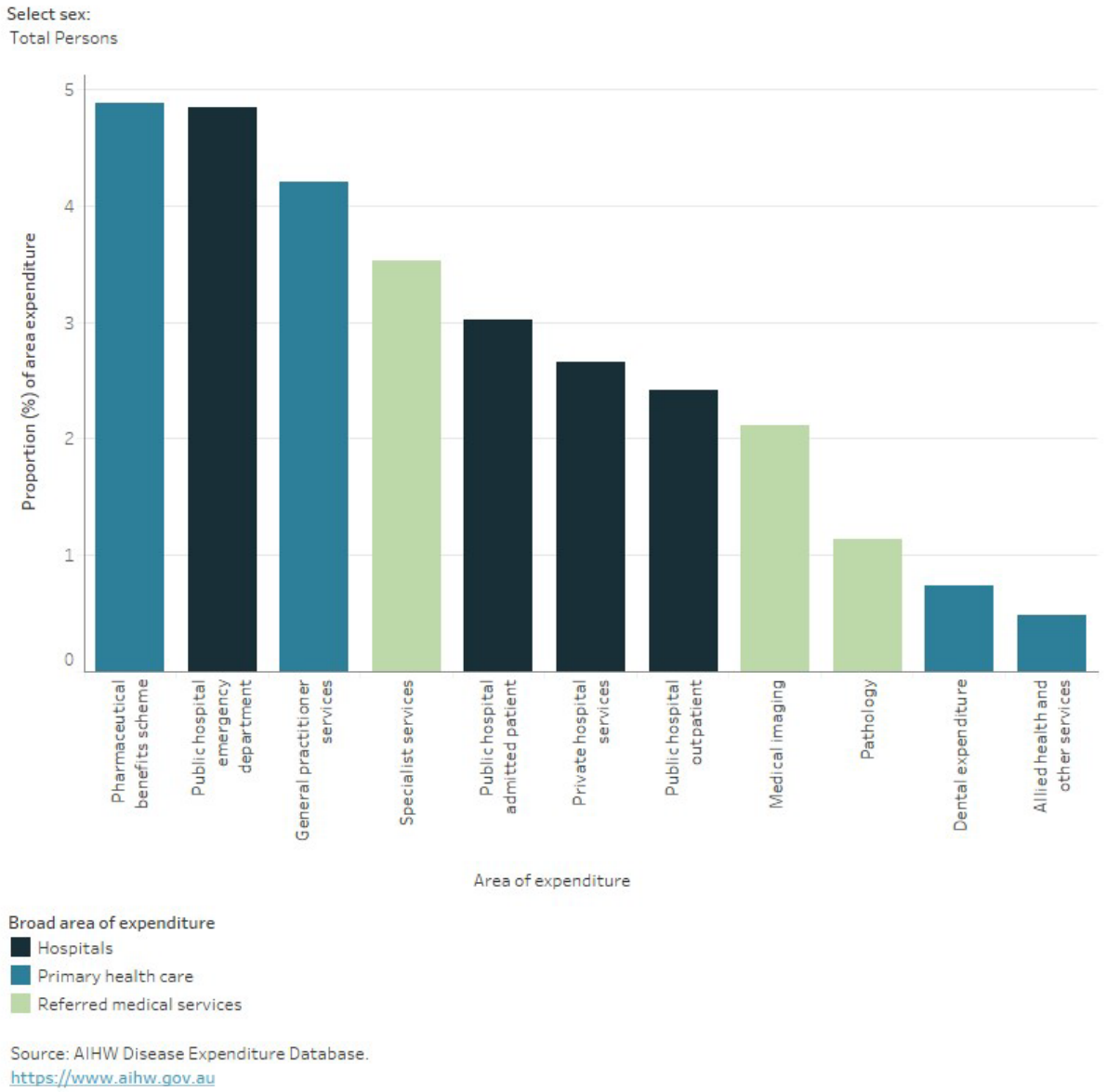


Note: Total health expenditure includes spending for all disease groups included in the Australian Burden of Disease Study.
Source: AIHW Disease Expenditure Database.
https://www.aihw.gov.au

In 2020–21, respiratory conditions accounted for:

- 4.9% ($830.9 million) of all PBS expenditure
- 4.8% ($294.8 million) of all public hospital emergency department expenditure (Figure 5).

Figure 5: Proportion of expenditure attributed to respiratory conditions, for each area of the health system, 2020–21



Source: AIHW Disease Expenditure Database.
https://www.aihw.gov.au

Who is the money spent on?

In 2020–21:

- the age distribution of spending on respiratory conditions reflects the prevalence distribution, with most spending on older people (63% for people aged 45 and over)

- the distribution of spending on respiratory conditions was similar amongst females and males ($2.2 billion and $2.3 billion, respectively).

In 2018–19, it was estimated that respiratory condition expenditure per case was:

- 10% higher for males compared with females ($530 and $480 per case, respectively)
- 74% lower than expenditure per case for all disease groups ($510 and $2,000 per case, respectively) (AIHW 2022b).

For more information, see:

- *Health system spending per case of disease and for certain risk factors*
- *Health system spending on disease and injury in Australia, 2020–21*.

How many deaths were associated with chronic respiratory conditions?

In 2022, respiratory conditions were recorded as an underlying and/or associated cause for 54,776 deaths or 211 deaths per 100,000 population. This represented 29% of all deaths in 2022.

Respiratory conditions were more likely to be recorded as an associated cause of death accounting for 39,573 deaths (72% of respiratory deaths), than as the underlying cause of death (15,203 deaths or 28% of all respiratory deaths).

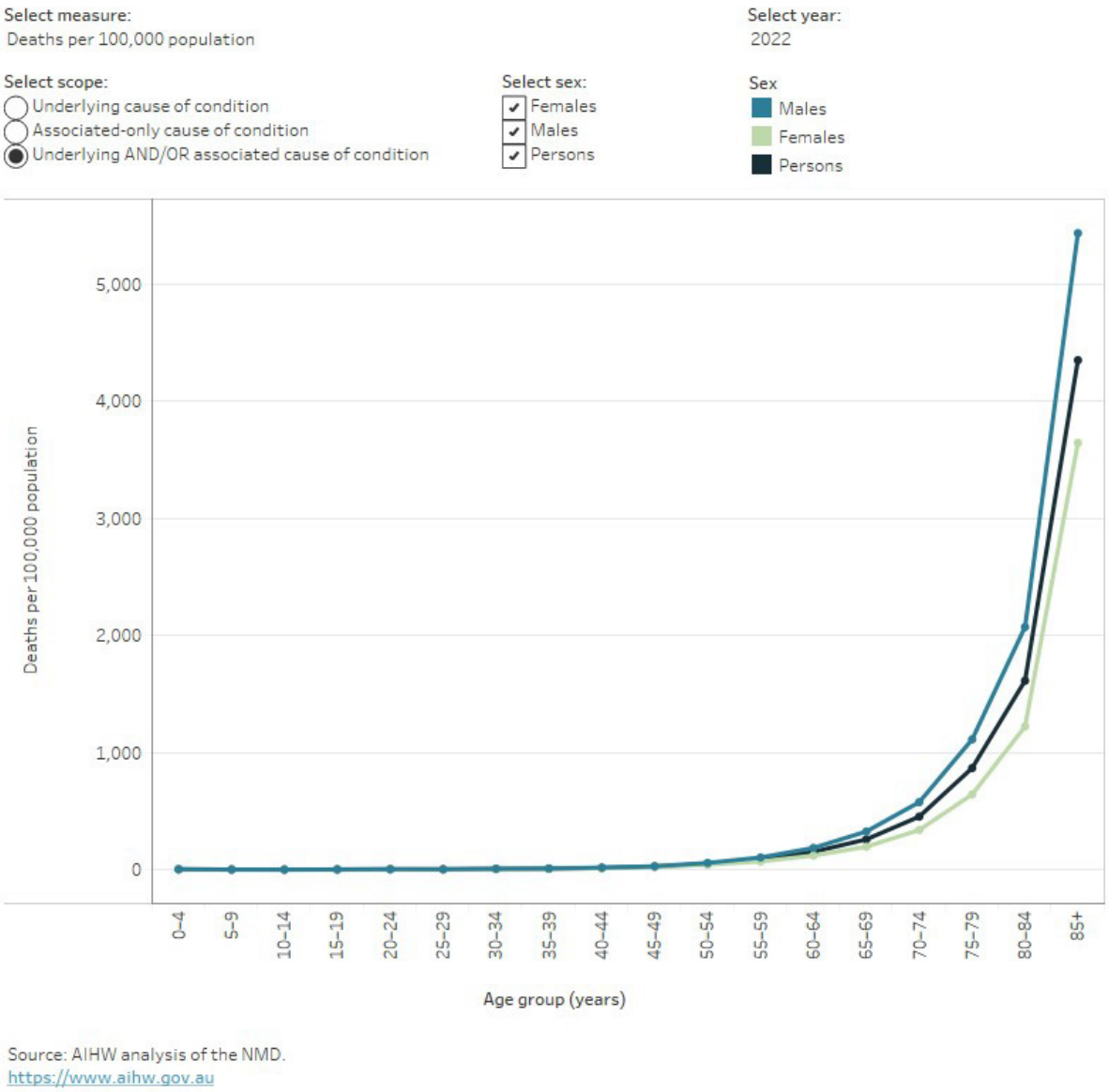
COPD and asthma accounted for 51% and 3.1% of underlying-cause respiratory deaths, respectively. Furthermore, they contributed to 35% and 4.5% of any-cause respiratory deaths.

Variation by age and sex

In 2022, respiratory conditions mortality (as the underlying and/or associated cause) in comparison to all deaths, was relatively more concentrated among:

- older people (74% of respiratory deaths were among people aged 75 and over, compared with 68% for total deaths)
- males (55% of respiratory deaths were among males compared with 48% of total deaths) (Figure 6).

Figure 6: Age distribution for respiratory conditions mortality, by sex, 2012 to 2022



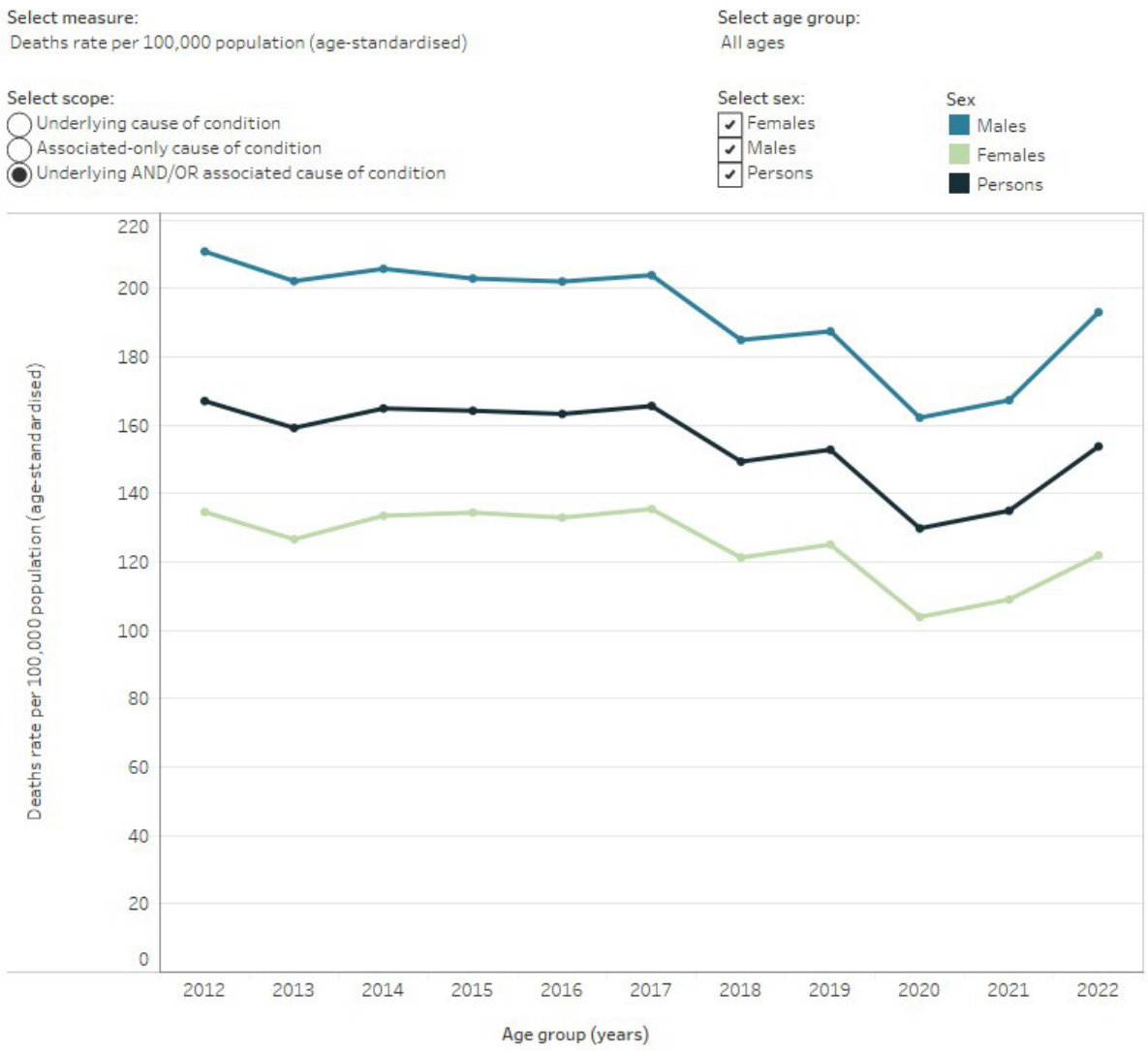
Source: AIHW analysis of the NMD.
https://www.aihw.gov.au

Trends over time

After adjusting for different population age structures over time, mortality rates for respiratory conditions (as the underlying and/or associated cause) between 2012 and 2022:

- decreased from 167 to 154 per 100,000 population
- were 1.5 to 1.6 times as high for males compared with females (Figure 7).

Figure 7: Trends over time for respiratory conditions mortality, 2012 to 2022



Source: AIHW analysis of the NMD.
https://www.aihw.gov.au

Variation between population groups

In 2022, after adjusting for age differences, mortality rates for respiratory conditions (as the underlying and/or associated cause of death) were:

- highest for people living in *Remote and very remote* areas and lowest for people living in *Major cities* (186 and 149 per 100,000 population, respectively)
- highest for people living in areas of most disadvantage (lowest socioeconomic areas) and lowest for people living in the least disadvantaged areas (highest socioeconomic areas) (197 and 119 per 100,000 population, respectively).

Treatment and management of chronic respiratory conditions

Primary care

General practitioners (GP) 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.

For more information, see *General practice, allied health and other primary care services*.

Hospital treatment

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. Hospitalisations due to asthma and COPD are classified as potentially preventable.

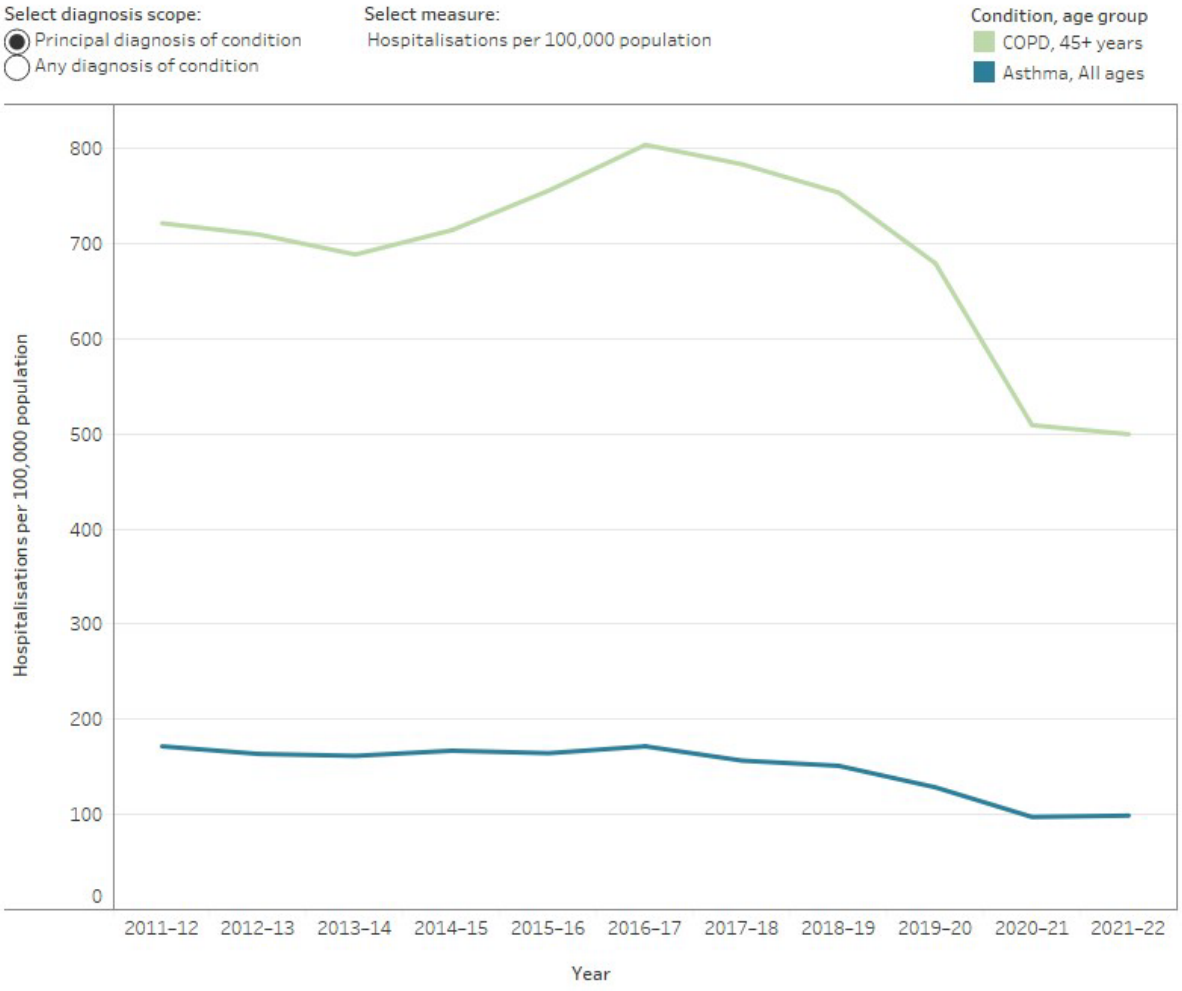
Data from the National Hospital Morbidity Database (NHMD) show that in 2021–22:

- asthma was the principal diagnosis in 25,500 hospitalisations for people of all ages
- COPD was the principal diagnosis in 53,300 hospitalisations for people aged 45 and over.

From 2011–12 to 2021–22, the hospitalisation rate for:

- asthma decreased from 170 to 100 hospitalisations per 100,000 population
- COPD, for people aged 45 years and over, decreased steeply from 2016–17 to 2020–21 (805 to 510 hospitalisations per 100,000 population) after which the rate of decrease slowed (500 hospitalisations per 100,000 population) (Figure 8).

Figure 8: Trends over time for asthma and chronic obstructive pulmonary disease hospitalisations, by sex, 2011–12 to 2021–22



Notes
1. For more details, please see the Technical notes and Data tables.
2. Rates have been age-standardised to the 2001 Australian Standard Population as at 30 June 2001. For asthma, the age groups are 5-year age groups up to 85+ years. For COPD, the age groups are: 5-year age groups from 45 years up to 85+ years.
Source: AIHW analysis of the NHMD
https://www.aihw.gov.au

COVID-19 impact on chronic respiratory conditions

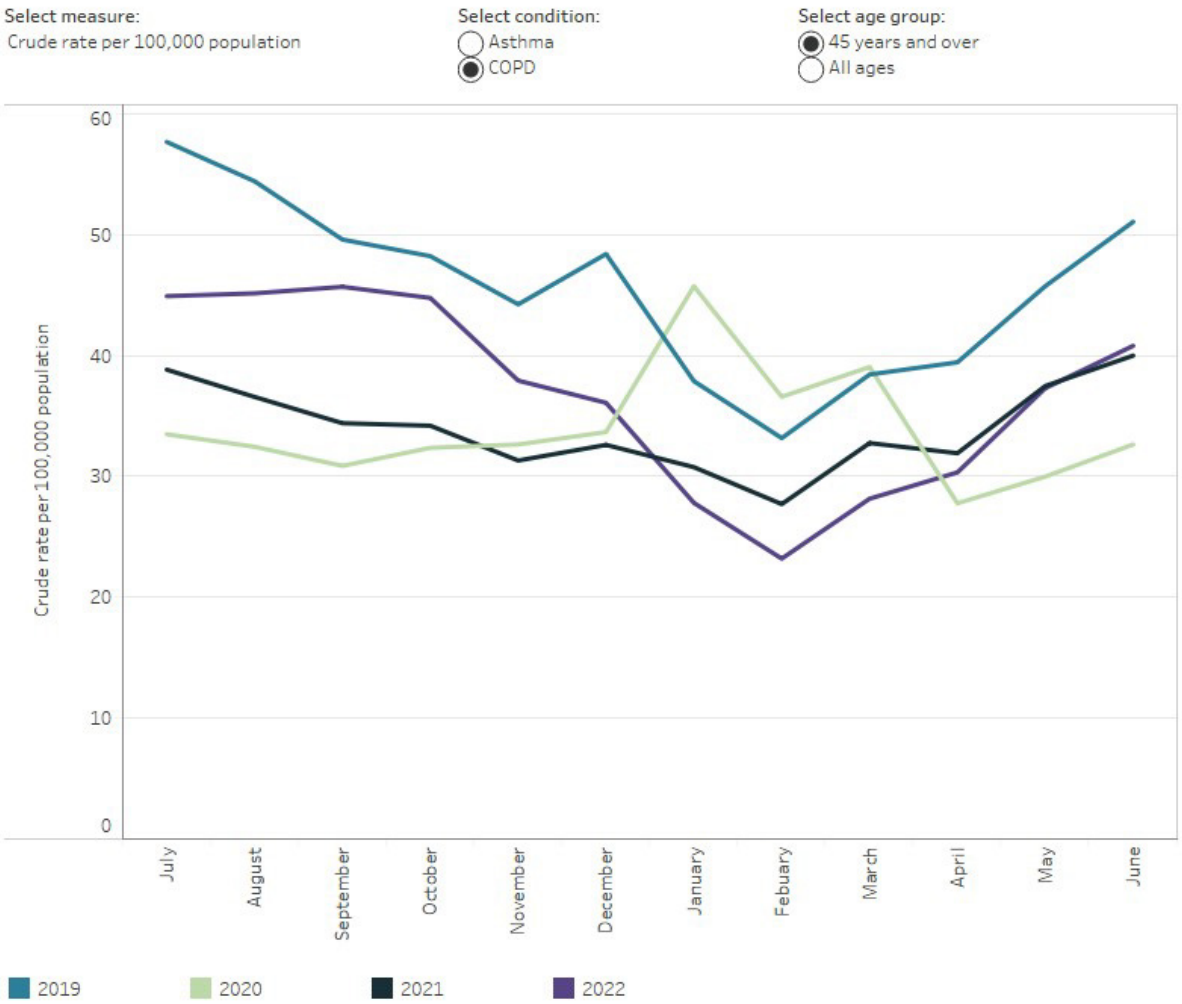
The COVID-19 pandemic had substantial impacts on hospital activity generally. The range of social, economic, business and travel restrictions, including restrictions on, or suspension of, some hospital services, and associated measures in other healthcare services to support physical distancing in Australia, resulted in an overall decrease in hospital activity between 2019–20 and 2020–21. As a result, the hospitalisation rates for asthma and COPD in these years were the lowest recorded in the last 10 years (AIHW 2022a).

For more information on how the pandemic has affected the population's health in the context of longer-term trends, see 'Changes in the health of Australians during the COVID-19 period' in *Australia's health 2022: data insights*.

Emergency department presentations for asthma and COPD were also affected by the pandemic, decreasing from March (when the national lockdown started) to May 2020 (from 26 to 11 and 39 to 28 presentations per 100,000 population, respectively).

In June 2020, emergency department presentations increased again as restrictions began to ease across the country (to 19 presentations per 100,000 population for asthma and to 33 presentations per 100,000 population for COPD) (Figure 9).

Figure 9: Monthly emergency department presentation rates for asthma and chronic obstructive pulmonary disease by age, 2019 to 2022

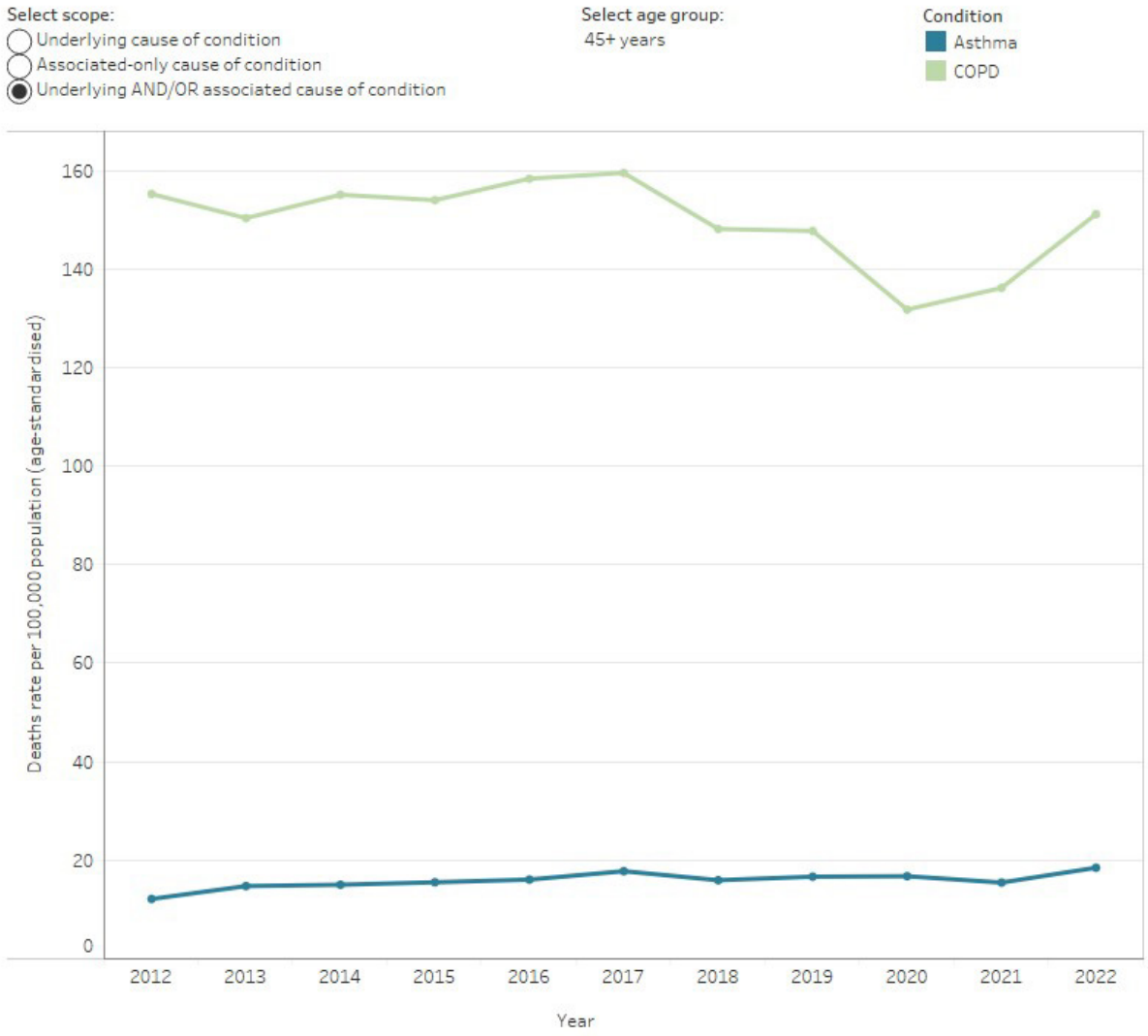


Notes
1. For more details, please see the Technical notes and Data tables.
2. Rates have been age-standardised to the 2001 Australian Standard Population as at 30 June 2001. For asthma, the age groups are 5-year age groups up to 85+ years. For COPD, the age groups are: 5-year age groups from 45 years up to 85+ years.
Source: AIHW National Non-admitted Patient Emergency Department Care database.
https://www.aihw.gov.au

During the COVID-19 pandemic (as at 31 October 2022), chronic respiratory conditions were certified as a pre-existing condition in 18% of the deaths with a chronic condition mentioned, the third highest of all chronic conditions (ABS 2022)

Death rates due to all respiratory diseases combined also showed a substantial fall in 2020, with rates particularly low for females and during the winter months compared with previous years, though rates have increased since (Figure 10).

Figure 10: Age-standardised deaths rate due to asthma and chronic obstructive pulmonary disease, 2012 to 2022



Note: For more details, please see the Technical notes and Data tables.
Source: AIHW National Mortality Database.
https://www.aihw.gov.au/

While the long-term impact of COVID-19 on the respiratory system is still being assessed, 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; Wells 2021).

For more information, see 'The impact of a new disease: COVID-19 from 2020, 2021 and into 2022' in *Australia's health 2022: data insights*.

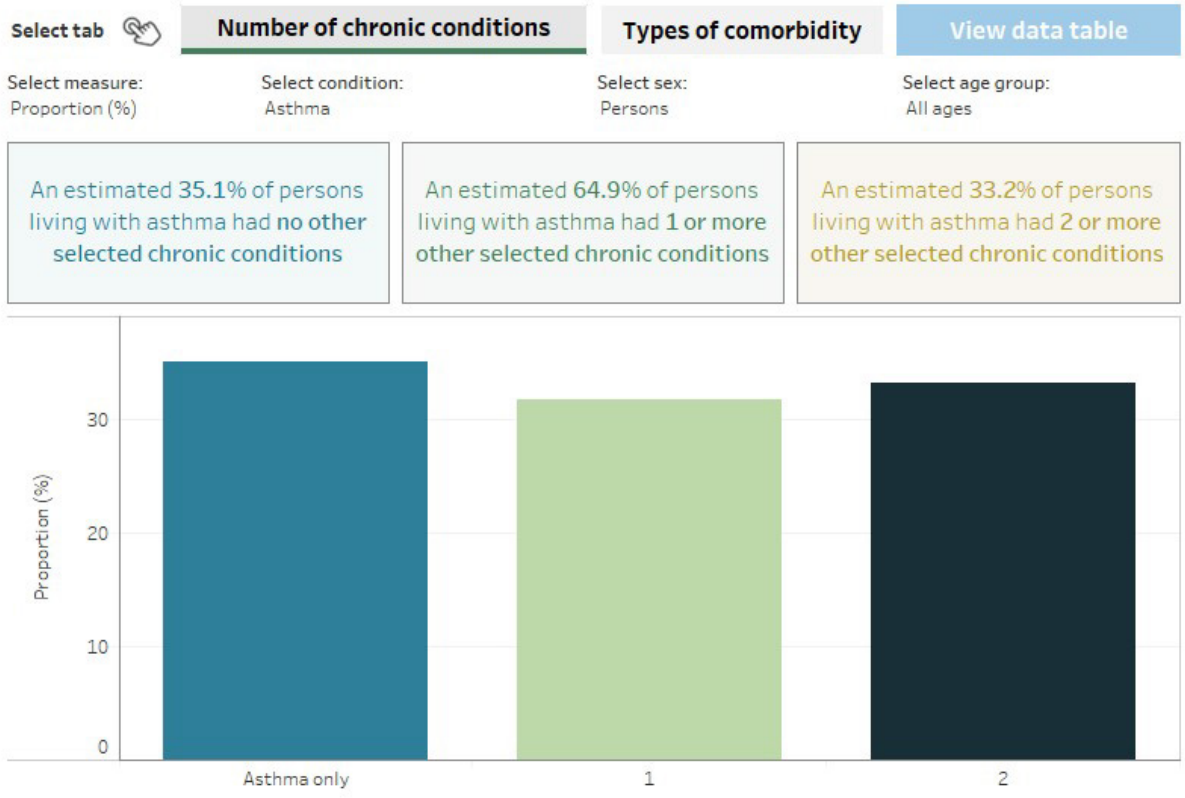
Comorbidities of chronic respiratory conditions

People living with chronic respiratory conditions often also live with other chronic and long-term conditions, known as 'comorbidity'. According to the NHS, in 2022:

- an estimated 1.8 million (65%) people who were living with asthma also had one or more other chronic conditions. Among them, 41% were estimated to be living with mental and behavioural conditions and 25% were estimated to be living with back problems
- an estimated 553,000 (87%) people who were living with COPD also had one or more other chronic conditions. Among them, 49% were estimated to be living with mental and behavioural conditions and 45% were estimated to be living with arthritis (Figure 11) (ABS 2023).

For more information, see Asthma and Chronic obstructive pulmonary disease.

Figure 11: Number of selected chronic conditions and types of comorbidity in people with asthma and chronic obstructive pulmonary disease, 2022



Percentage has a margin of error greater than 10 percentage points which should be considered when using this information.

Notes

1. The selected chronic conditions included in this comorbidity analysis were arthritis, asthma, back problems, cancer, chronic obstructive pulmonary disease (COPD), diabetes, heart, stroke and vascular disease, kidney disease, mental and behavioural conditions and osteoporosis. For specific condition definitions, see ABS NHS 2022.
2. Data are self-reported.
3. Proportions may not sum to 100% because some people have more than one comorbidity.
4. For more details, please see the Technical notes and Data tables.

Source: ABS 2023.
https://www.aihw.gov.au

Where do I go for more information?

For more information on chronic respiratory conditions, see:

- ABS National Health Survey- external site opens in new window
- ABS Health Conditions Prevalence- external site opens in new window
- Australian Centre for Monitoring Population Health

For more on this topic, visit Chronic respiratory conditions.

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COVID-19

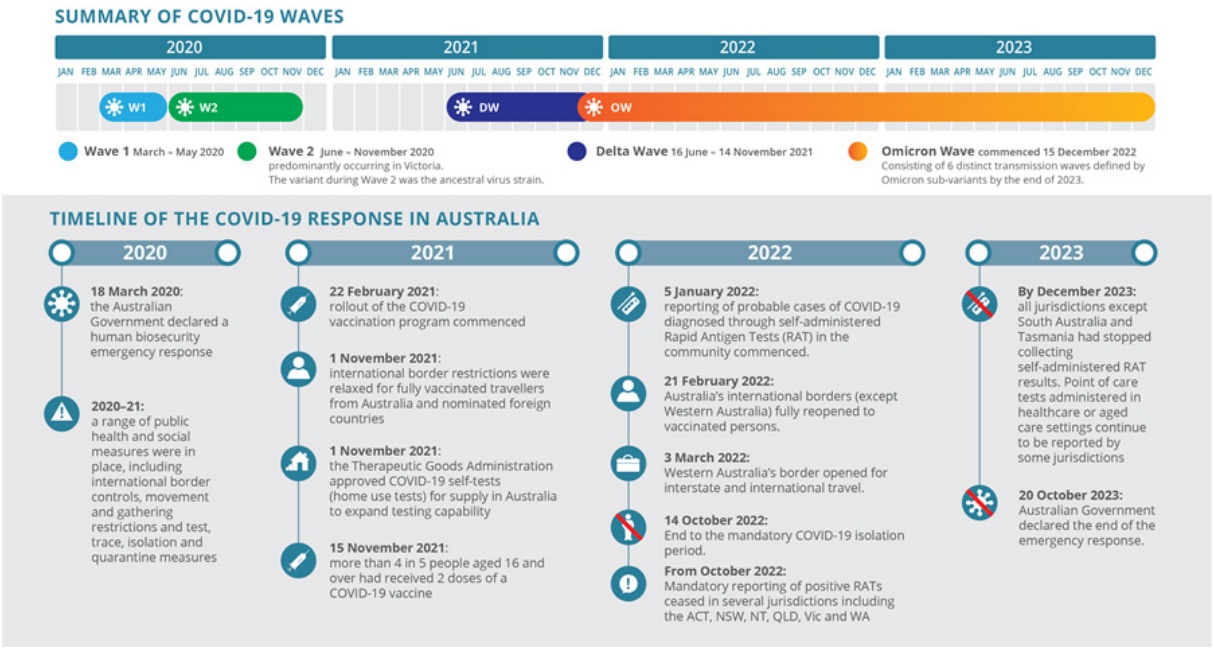
Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/australias-health/covid-19

On this page

The first confirmed case of COVID-19 was reported in Australia on 25 January 2020 (Hunt 2020). By 12 March 2020, 140 cases had been confirmed in Australia (WHO 2020). A human biosecurity emergency response was issued, and a range of public health and social measures were established to contain the spread of SARS-CoV-2, the virus that causes COVID-19. The end of the emergency response was declared on 20 October 2023; however, COVID-19 remains an important issue, with a large wave occurring at the end of 2023 and into 2024 (Figure 1) (NSW Health 2024). Research including data linkage is underway to provide greater insights into the impact of COVID-19 on people in the community, workforce, and the health system.

For more information, see the COVID-19 Register.

Figure 1: Timeline of the COVID-19 response in Australia



Sources: ABS 2022; ANAO 2022; Andrews 2022; COVID-19 Epidemiology and Surveillance Team 2024; Department of Health 2020, 2021a, 2021b; Department of Health and Aged Care 2023a, 2024b; Government of Western Australia 2022; Parliament of Australia 2020; Prime Minister of Australia 2022; TGA 2024.

COVID-19 cases in Australia

As at 25 March 2024, there had been nearly 12 million confirmed or probable COVID-19 cases reported to the National Notifiable Diseases Surveillance System (NNDSS) since the start of the pandemic (Department of Health and Aged Care 2024c). Of these, most cases (95%) have been notified since 2022. Case numbers reported to the NNDSS have been underestimated since late 2022 due to a reduction in case detection, including changes to testing and reporting requirements.

During 2020, the highest notification rate per 100,000 people was seen in Victoria (314) corresponding to the second wave (Table 1). During 2021, New South Wales and Victoria had the highest notification rates (over 3,000 per 100,000 people), and by 2022 notification rates ranged from around 30,000 in Queensland to 50,000 in Tasmania and the Australian Capital Territory. By 2023, a marked decline in notification rates was observed across all jurisdictions corresponding with the drop in reporting of cases.

Table 1: Notification rate per 100,000 people by jurisdiction, 2020 to 2023

State or territory	2020	2021	2022	2023
NSW	62	3,461	41,242	3,718

VIC	314	3,045	39,534	2,334
QLD	25	606	29,825	2,569
WA	35	15	46,153	3,304
SA	34	1,029	46,593	5,137
TAS	44	287	48,974	6,009
ACT	36	1,412	48,538	5,012
NT	32	287	41,233	2,638

Source: Department of Health and Aged Care 2024c.

Other data sources, such as seroprevalence surveys and wastewater testing, complement notification data and help to inform the public health response. In addition, monitoring COVID-19 hospital activity provides useful information on recent trends, particularly as cases are no longer comprehensively reported.

Since the start of the COVID-19 pandemic, regular seroprevalence surveys have been conducted that tested residual blood samples from blood donors (aged 18 years and over) for antibodies to SARS-CoV-2 to track the proportion of people who have been infected. The latest data found that more than two-thirds (71%) had been infected with the virus by the end of 2022 (ACSN 2023).

Data from Western Australia demonstrates the close correlation between the number of genome copies detected in wastewater and clinical COVID-19 cases during most of 2022 followed by a widening gap between the 2 sources of information from October 2022, when mandatory reporting of Rapid Antigen Tests (RATs) ceased (Department of Health, Western Australia 2024). The transmission wave that occurred over late 2023 and early 2024 is also clearly visible in the wastewater data, but less so in the case notifications. This transmission wave is also apparent in COVID-19 case hospitalisation data reported by the Australian Government (Department of Health and Aged Care 2024a). For key terms, see glossary.

How many people were hospitalised with COVID-19?

Hospital separations involving a COVID-19 diagnosis represented <0.1% of all hospital separations during 2019–2020 and 2020–2021 (Table 2). In 2021–2022, there were 263,425 COVID-19 separations representing 2.3% of all separations.

The median length of stay fell from 9 to 5 days between 2020–21 and 2021–22 (Table 2). The proportion of separations with a severe outcome (intensive care unit stay, continuous ventilator support or death) was also less in 2021–22 than during the previous years.

Table 2: Separations with a COVID-19 diagnosis, Australia, 2019–20 to 2021–22

Year	Number of COVID-19 separations	Per cent of total separations	Median length of stay (days)	Per cent involving ICU stay	Per cent involving CVS	Per cent died
2019–20	2,628	0.02	9	8.6	5.3	4.0
2020–21	4,718	0.04	9	7.0	3.8	10.3
2021–22	263,425	2.3	5	3.0	1.3	2.0

ICU = intensive care unit, CVS = continuous ventilatory support

Notes

1. COVID-19 diagnosis of either ICD-10AM U07.1 or U07.2 in any diagnosis field. COVID-19 hospitalisations could be due to COVID-19 or an incidental diagnosis following admission for another cause.

2. Total number of separations was 11.1 million in 2019–20, 11.8 million in 2020–21 and 11.6 million in 2021–22.

Sources: AIHW 2021a, 2022a, 2023a, 2023b.

COVID-19 hospitalisations varied among different population groups

In 2019–20 and 2020–21, COVID-19 hospital separation rates were highest for residents of Major cities and non-Indigenous Australians; by 2021–22 this pattern reversed and was highest for Aboriginal and Torres Strait Islander (First Nations) people and those living in Very remote areas (Table 3).

Rates of COVID-19 hospital separations were highest for people living in the highest socioeconomic area of usual residence in 2019–20 and switched to being highest for people living in the lowest socioeconomic area during 2020–21 and 2021–22.

Table 3: COVID-19 separations per 10,000 separations by population groups, 2019–20 to 2021–22

Population group	2019–20	2020–21	2021–22
Remoteness area			
Major cities	2.6	5.2	243
Inner regional	1.6	1.1	180

Outer regional	1.7	0.9	173
Remote	0.5	0.2	219
Very remote	0.2	0.2	411
Socioeconomic area			
1-Lowest	1.5	4.8	306
2	2.0	4.1	214
3	1.8	3.7	224
4	2.9	3.3	213
5-Highest	3.2	3.4	168
Indigenous status			
First Nations people	0.6	0.5	337
Non-Indigenous Australians	2.4	4.0	214
Australia	2.4	4.0	227

Notes

1. Data for the 'not reported' categories have been omitted.

2. Data are not age standardised.

Sources: AIHW 2021a, 2022a, 2023a.

1) How many people have died from COVID-19?

In Australia since the start of the pandemic to the end of 2023, 22,315 people have died from or with COVID-19 (registered by 29 February 2024) (ABS 2024b). Of these, COVID-19 was the underlying cause of death for 79% (17,673). Deaths from COVID-19 in Australia were most common among males and older age groups (ABS 2024b).

In 2022, COVID-19 was the third leading cause of death in Australia accounting for 5.2% of all deaths (ABS 2024a). This was the first time an infectious disease had been in the top 5 causes of death since 1970 (influenza and pneumonia).

The age distribution of deaths due to COVID-19 has varied during the pandemic (ABS 2022). In all 4 waves, the highest proportion of deaths occurred in those aged 80–89. The Delta wave was the only wave where more than half (53%) of the deaths occurred in

those under 80 years of age. The median age of death was also lowest during the Delta wave – 79 compared with 86 for Omicron. This distribution is reflected in burden of disease statistics: for example, in 2021, 30% of fatal burden was estimated to have occurred in those under 60, compared with 13% in 2022 (AIHW 2022b, 2022c).

COVID-19 age-standardised mortality rates (for deaths registered by 29 November 2023) were higher for those from lower socioeconomic areas (Socio-Economic Indexes for Areas, SEIFA) and for people born outside of Australia:

- In 2021, the age-standardised rate for deaths from COVID-19 was 6 times as high for those from the lowest socioeconomic SEIFA area as those from the highest area. This fell to 2.8 times as high in 2022 and to 2.4 times as high in 2023.
- People born in the Middle East had the highest COVID-19 age-standardised mortality rate overall (from 2020 to 2023) at 31.9 per 100,000 people – 2.8 times that for people born in Australia (11.2 per 100,000). The rate was highest in 2022 (60.3 compared with 26.7 for Australian-born) and fell to 11.4 in 2023, which was similar to the rate for all people born overseas (11.9) and lower than the Australian-born population (12.6) (ABS 2023c).

There were no deaths from COVID-19 among First Nations people before August 2021. Between August 2021 and September 2023, there were 226 deaths among First Nations people from COVID-19 and a further 120 COVID-19 related deaths (ABS 2023c). The age-standardised death rate from COVID-19 was 1.7 times as high for First Nations people as non-Indigenous Australians (30.1 and 18.0 per 100,000 persons, respectively).

Has COVID-19 led to more deaths than expected?

The ABS has developed estimates of excess mortality that are answering the question: 'How does the number of deaths which has occurred since the beginning of the COVID-19 pandemic (2020-2023) compare to the number of deaths expected had the pandemic not occurred? From the start of the pandemic to December 2023, there was a net total of 13,259 excess deaths in Australia (after accounting for deaths above and below usual variation) (ABS 2024c). However, the pattern of excess mortality was different by year and peaks (above usual variation) generally coincided with peaks in the Omicron wave of the pandemic. In the first year of the pandemic (2020) there was negative excess mortality in Australia, with 1,854 less deaths than expected. In 2021 there was more deaths than expected, with 369 deaths above usual variation which increased to 11,558 more deaths in 2022. In 2023 there was lower excess mortality than observed in 2022, with 3,186 deaths above usual variation. Between 2013 and 2019, the number of excess deaths has fluctuated between 59 (in 2013) and 475 (in 2015) deaths above usual variation, except for 2017 when it reached 2,335 during the last severe influenza season.

COVID-19 caused considerable disease burden in 2022

In 2022, the total burden from COVID-19 was estimated to be 151,400 disability-adjusted life years (DALY) (5.8 DALY per 1,000 population), ranking eighth among the specific

diseases, the only year when an infectious disease has been in the top 10 leading causes of disease burden since 2003 (AIHW 2022b). The burden from COVID-19 was predominantly fatal (73%) and highest in males and people aged 75–84.

Post COVID-19 condition is an emerging health issue

The World Health Organization (WHO) defines 'long COVID' or 'post COVID-19 condition' as a condition in people with a history of probable or confirmed COVID-19, usually 3 months from the onset of COVID-19, with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time (WHO 2021).

Long COVID is a multisystem disease with many subtypes ranging from symptoms such as brain fog and fatigue, which is most common in females and younger adults, to cardiovascular and metabolic sequalae observed more commonly in older adults and those with comorbidities (Al-Aly and Topol 2024). Prevalence of long COVID varies by symptom, with estimates (from international studies) ranging from 2.6% for dysosmia (change in sense of smell) to 0.5% for chest pain among unvaccinated, Omicron adult cases (Howe et al. 2023). The prevalence of all symptoms is higher among hospitalised COVID-19 cases.

Data on the prevalence of post COVID-19 condition in Australia are largely obtained from surveys, with estimates ranging from 5% to 10% of people who have had COVID-19 reporting symptoms lasting 3 months or more (Biddle and Korda 2022; Liu et al. 2021; Sax Institute 2022; Staples et al. 2023). These are likely to overestimate the prevalence of post COVID-19 condition due to the self-selected nature of participants, definitional issues of the condition and lack of comparison groups to be able to attribute symptoms to post COVID-19 condition (AIHW 2022e). Among people surveyed in August 2022, only a minority with post COVID-19 condition had impacts on their daily activities and quality of life (Biddle and Korda 2022).

Postviral syndromes are observed for other viruses such as influenza (AIHW 2022e). A recent Australian study found that self-reported functional impairment from ongoing symptoms at 12-weeks after infection with the Omicron variant was similar for COVID-19 (4.1%) and influenza (4.4%) patients (Brown et al. 2023).

The establishment of emergency use ICD-10-AM codes for post COVID-19 condition can be used to study hospitalisations and deaths due to long COVID (ABS 2023b; IHACPA 2024). However, these sources of data will be limited to reporting data for severe cases, (for example, that require hospital care) and depend upon the diagnosis of post COVID-19 condition being recognised and recorded on the patients' medical record or death certificate (AIHW 2022e). Most people who access care for persistent COVID-19 symptoms are likely to do so via a general practitioner (GP) (VAHI 2023). Declining COVID-19 case detection will also lead to further uncertainty regarding diagnosis of post COVID-19 condition in Australian communities.

Indirect effects of the COVID-19 pandemic

Diseases and illnesses

Emerging evidence shows that measures designed to help protect people from the pandemic have also had an impact on mental health and wellbeing. Data collected from January 2020 to August 2022 found that increases in policy stringency of the government response to COVID-19 in Australia were associated with worsening mental wellbeing (Biddle et al. 2022). Findings were consistent across a range of indicators including life satisfaction, psychological distress and loneliness. The associations with COVID-19 policy responses were also greater for males and young people.

During the earlier years of the pandemic, there were changes in the trends for age-standardised death rates since 2017 for many of the leading causes of death:

- deaths from respiratory conditions, particularly influenza and pneumonia, fell sharply in 2020 with small increases in 2022
- deaths from coronary heart disease continued to decline during 2020 and 2021, but increased slightly in 2022
- deaths from dementia experienced a small drop in 2020
- there was a small decline in deaths from land transport accidents during 2020 and 2021
- deaths from intentional self-harm did not increase between 2020 and 2022
- deaths from accidental poisoning fell to their lowest levels in 2021 and 2022 (Table 4).

In addition, the age-standardised rate of injury hospitalisations (per 100,000 people) has fluctuated over the first 3 years of the pandemic, following several years of relative stability, falling to 1,980 in 2019–20 (from 2,050 in 2017–18), rising to 2,130 in 2020–21 then declining to 1,970 in 2021–22 (AIHW 2023i).

Table 4: Deaths from selected leading causes of death, age-standardised rates (per 100,000 people), 2017 to 2022

Cause of death	2017	2018	2019	2020	2021	2022
Coronary heart disease (I20-I25)	61.0	56.7	55.1	50.0	50.3	52.4
Cerebrovascular disease (I60-I69)	32.6	31.3	29.7	27.9	27.9	27.2
Dementia (including Alzheimer's Disease (F01, F03, G30)	42.5	42.3	43.9	41.5	43.5	45.3
Lung cancer (C33, C34)	28.1	28.7	28.1	26.3	26.1	26.5

Prostate cancer (C61) (males)	24.9	24.1	25.3	24.4	23.6	23.9
Breast cancer (C50) (females)	19.1	19.2	20.0	18.8	18.4	17.8
Chronic obstructive pulmonary disease (J40-J44)	25.2	23.2	23.4	19.3	20.5	21.8
Influenza and pneumonia (J09-J18)	12.7	8.8	11.3	6.0	5.8	7.5
Diabetes (E10-E14)	16.2	15.3	15.5	15.8	15.8	17.1
Land transport accidents (V01–V89)	5.3	5.1	5.2	4.7	4.9	5.0
Accidental poisoning (X40–X49)	6.3	6.3	6.0	6.0	5.3	5.1
Intentional self-harm (suicide) (X60–X84, Y87.0)	13.2	12.7	13.2	12.3	12.1	12.2
COVID-19 (U07.1, U07.2, U10.9)	.	.	.	2.6	3.4	27.1

Notes

1. Rates are age standardised to the 2001 Australian estimated resident population.
2. Cause of death codes are from the ICD-10AM.

Source: AIHW National Mortality Database

Impact on the health system

General Practitioner attendances

The Australian Bureau of Statistics (ABS) 2020–21 Patient Experience Survey reported that 9.8% of people aged 15 and over delayed or missed health care from a GP when needed due to COVID-19 (ABS 2021). For comparison, 2.4% of people delayed GP care due to cost in the same year.

Analysis of Medicare data demonstrates how the number of visits to GPs changed over time (Table 5):

- In 2020, there were 166 million GP attendances which were similar to the pre-pandemic trend. New temporary telehealth items for GP attendances introduced in March 2020 played an important role in maintaining rates that were consistent with previous trends. Many temporary GP telehealth attendance items were made permanent from January 2022 (Department of Health and Aged Care 2022).
- In 2021, there was a sharp increase to 187 million GP attendances that coincided with GP attendances to assess a patient's suitability for the COVID-19 vaccine.

There were 19.5 million GP attendances for COVID-19 vaccine suitability assessment in 2021, which represented 10.5% of all GP attendances. This number fell to 9.6 million (5.5%) and 2.4 million (1.5%) attendances in 2022 and 2023 respectively. When excluding these attendances, the number of GP attendances in 2021 increased only slightly to 168 million attendances when compared to 2020.

- In 2022, the number of GP attendances declined to 175 million attendances, but still experienced a growth comparing to 2020.
- In 2023, the number of GP attendances fell further to 163 million attendances which was similar to the trend prior to 2021.

Table 5: GP and telehealth attendances by calendar year, 2017–23

	2017	2018	2019	2020	2021	2022	2023
Number of GP attendances (million)	151.8	155.5	160.7	166.5	187.0	174.6	163.3
Number of GP attendances per person (ERP)	6.2	6.2	6.3	6.5	7.3	6.7	6.1
Percentage of people receiving a GP service (%)	87.1	86.8	87.5	85.2	88.5	87.4	83.9
Number of telehealth attendances (million)	0.2	0.2	0.3	45.3	46.5	45.6	33.7
Number of telehealth attendances per person (ERP)	0.01	0.01	0.01	1.8	1.8	1.8	1.3
Percentage of people receiving a telehealth service (%)	0.3	0.4	0.4	48.6	49.2	49.7	40.9

ERP = estimated resident population

Note: Telehealth attendances are a subset of services in GP attendances, specialist attendances, obstetrics services and some unlisted categories.

Source: AIHW analysis of the Medicare Benefits Schedule maintained by the Australian Government Department of Health and Aged Care.

Specific arrangements for telehealth varied over the pandemic period, including bulk billing requirements. For example, telehealth services were initially required to be bulk billed for concessional, COVID-19 vulnerable patients or children under 16. This requirement for bulk billing was removed incrementally and ceased entirely in October 2020.

Chronic disease management services

Following the introduction of new telehealth services in March 2020, 1 in 3 consultations for Chronic Disease Management (CDM) services were conducted using telehealth in April and May (AIHW 2022g). There were a higher number of claims for CDM services in 2020 compared with 2019 from June (AIHW 2022g). Potential reasons include:

- the availability of telehealth services may have improved access to CDM services.
- concerns around the higher risk of COVID-19 disease for patients with chronic illness may have led to prioritisation of these patients for assessment during 2020.

Hospitalisations

The total number of hospitalisations for admitted patients in public and private hospitals was lower than previous years in both 2019–20 and 2021–22 (2.8% and 2.1% lower respectively) (Table 6). In these years, hospitalisation rates were 401 and 405 per 1,000 population respectively – lower than the rate of 422 hospitalisations per 1,000 population in 2018–19, prior to the pandemic.

Table 6: Hospitalisations and days of patient care, 2015–16 to 2022–23

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23
No. of hospitalisations (million)	10.5	10.9	11.2	11.5	11.1	11.8	11.6	12.1
% change from previous year	n.a.	3.9	2.2	2.6	-2.8	6.3	-2.1	4.4
Rate per 1,000 population	413	420	419	422	401	418	405	415
No. of days of patient care (million)	29.8	30.9	30.2	30.9	30.2	31.2	31.8	33.2

Note: The rate per 1,000 population is the crude rate based on the estimated resident population as at 30 June at beginning of the reference period.

Source: AIHW National Hospital Morbidity Database

The number of patient days of care provided in hospitals declined by 2.2% in 2019–20 compared with the previous year and then gradually increased in each subsequent year of the pandemic (Table 6).

Elective surgery (admissions from public hospital waiting lists)

Elective (planned) surgeries were heavily affected by disruptions to hospital services in 2019–20 and subsequent years (AIHW 2023e). Prior to the pandemic, admissions for elective surgeries from public hospital waiting lists generally increased each year. For example, between 2015–16 and 2018–19, the number of surgeries fluctuated, with an overall average 2.1% increase each year (Table 7). For each year since then, the number of elective surgery admissions from public hospital waiting lists has been lower than that seen in 2018–19. The number of elective surgery admissions in 2022–23, while higher than the numbers for some of the preceding years, was still lower than the number of surgeries done in 2016–17 (Table 7).

Table 7: Admissions from public hospital elective surgery waiting lists

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23
No. of admissions (thousand)	725.3	748.1	748.8	758.1	688.3	754.6	623.0	735.5
% change from previous year	n.a.	+5.1	+0.1	+1.2	-9.2	+9.6	-17.4	+18.1
Rate per 1,000 population	30.2	30.7	30.2	30.4	27.2	29.4	24.3	28.3

Notes

1. The rate per 1,000 population is the rude rate based on the estimated resident population as at 30 June at beginning of the reference period.
2. Admissions from public hospital elective surgery waiting lists includes private patients treated in public hospitals, and may include public patients treated in private hospitals (under contract).

Source: AIHW National Elective Surgery Waiting Times Data Collection

Reductions in elective surgery activity occurred as a result of:

- formal nationally-agreed restrictions in the initial stages of the pandemic that aimed to protect hospital resources (such as personal protective equipment (PPE) and ICU beds) and ensure staffing availability in the face of uncertain hospital demand
- local restrictions (at statewide or regional levels) that applied at other times in response to outbreaks, and
- broader disruptions to the health system (and particularly workforce availability) that arose in the face of increasing COVID-19 case numbers. For example, the lowest number of elective surgery admissions from public hospital waiting lists was in 2021–22. This coincided with a peak in the number of COVID-19 cases (early 2022) and occurred

at a time when requirements to isolate were still in place affecting staff availability (Department of Health 2020; Kelly 2022; Watson et al. 2022).

The surgeries most heavily affected by these disruptions were those assigned to category 3 (the lowest urgency category) – where procedures are clinically indicated within a year. Between 2020–21 and 2021–22, admissions for category 3 procedures declined by 32%. Category 2 admissions (clinically indicated withing 90 days) decreased by 17%, and category 1 admissions (clinically indicated within 30 days) declined by 2.2% (AIHW 2023e).

By jurisdiction, the largest increases in admissions from public hospital elective surgery waiting lists between 2021–22 and 2022–23 were in Victoria (29% increase) and New South Wales (23.5% increase). Despite these increases, the number of admissions from elective surgery waiting lists in these states in 2022–23 (and the corresponding rate per 1,000 population) was lower than the number of admissions prior to the pandemic in 2018–19 (AIHW 2023h).

For more information and data visualisations for elective surgery, see Elective Surgery Activity.

Health expenditure

In 2021–22 compared with 2020–21, total health spending increased by 6% in real terms, from $227.6 to $241.3 billion, which was almost double the 10-year trend of 3.4%. Spending increased by 11% ($8.3 billion) on primary health care and by 5% ($4.2 billion) on hospitals (AIHW 2023f). Total health system spending on the response to COVID-19 over the first 3 years of the pandemic (2019–20 to 2021–22) was $47.9 billion and represented 7.2% of total health spending during the same period.

Spending on COVID-19 increased from 3.2% ($6.6 million) of total health spending in 2019–20 to 10.9% ($26.2 million) in 2021–22 when COVID-19 spending was highest (AIHW 2023g).

Of the total COVID-19 health spending in 2021–22:

- 49% was spent by the Australian Government and state and territory governments through the National Partnership on COVID-19 Response, with the largest area of spending for state public health activities such as PPE supplies, contact tracing, expansion of critical care capacity, additional cleaning in schools, hospitals and public transport, and the vaccinations program
- 48% was spent by the Department of Health and Aged Care with the largest area of spending on primary care including public health activities such as the vaccine response, protective and preventive measures, RAT subsidies and respiratory clinic services
- 2.7% was spent by individuals on COVID-19 related items such as RATS, masks and respirators and sanitiser (AIHW 2023g).

For more information, see Health system spending on the response to COVID-19 in Australia 2019–20 to 2021–22.

Cancer screening

National cancer screening programs were also disrupted in 2020 due to COVID-19 restrictions (AIHW 2021b).

BreastScreen Australia services were suspended from the start of the pandemic until late April or early May 2020. Key trends include:

- 140,844 fewer screening mammograms were performed through BreastScreen Australia between April and June 2020 than the same period in 2018 (250,446 versus 109,602)
- from June 2020, the number of screening mammograms recovered progressively to pre-COVID-19 levels until June 2021, with 254,721 mammograms performed between April and June 2021
- the number of screening mammograms performed fell between July and December 2021 – to 213,683 mammograms in the December quarter (October to December) – coinciding with further COVID-19 restrictions (AIHW 2023d).

The breast cancer screening participation rate for women aged 50–74 fell from 54% in 2018–2019 to 48% in 2020–2021 and recovered slightly to 50% in 2021–2022 (AIHW 2023d).

There was no suspension of the National Cervical Screening Program due to COVID-19 at any time during 2020 (AIHW 2023c). 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 pandemic on cervical screening is currently unclear, although there is some indication that the number of tests may have been reduced.

There was no suspension of the National Bowel Cancer Screening Program at any time during 2020 (AIHW 2023c). There was a small decline in the 2-yearly participation rates for people aged 50–74 from 44% in 2019–2020 to 41% in 2020–2021 (AIHW 2023d).

Health workforce

The COVID-19 pandemic has also impacted the health workforce. The growth rate in total full time equivalent (FTE) for the health workforce (which includes practitioners registered with the Australian Health Practitioner Regulation Agency who are currently in the labour force) was higher during the pandemic period (3.9% between 2020 and 2022) than in previous years (3.4% between 2013 and 2019), mainly contributed by nurses and midwives (Department of Health and Aged Care 2023b). The experience with COVID-19 led to improvements in work practices that prioritise the mental wellbeing of the health workforce (AHHA 2022).

For more information, see Health workforce.

Medicines

To ensure the ongoing supply of medicines for consumers during the pandemic, several temporary changes to prescribing and dispensing were introduced, such as supply of a

consumer's usual medicine without consumers physically visiting a doctor for a prescription and use of image based prescriptions, in order to reduce the risk of doctors, pharmacists and consumers contracting COVID-19 (AIHW 2022d). There was initial concern and reports of medicine shortages, particularly in the early stage of the pandemic when in March 2020 there was a 23% increase in the number of prescriptions dispensed under Pharmaceutical Benefits Scheme (PBS) and Repatriation Pharmaceutical Benefits Scheme (RPBS) (31.0 million) compared with March 2019 (25.2 million) as a result of consumer stockpiling (AIHW 2022f). Pharmacists were consequently required to limit dispensing of prescription medicines and in April 2020, and prescription volumes decreased (22.7 million).

Prescriptions dispensed under the PBS and RPBS have been steadily increasing since 2017 (296.6 million dispensed in 2017 compared with 335.4 million dispensed in 2023), despite a brief increase in dispensing during March 2020 (Table 8). Key patterns include:

- Medicines for the respiratory system had a small increase in dispensing during 2020, before returning to normal patterns of use.
- While the dispensing of antiinfectives for systemic use have decreased since 2020, from 2022 the arrival of COVID-19 antivirals have contributed to increased utilisation of all antivirals.

COVID-19 may have had an impact on the overall decline of antiinfectives (ACSQHC 2023a) through decreased prescribing of some of these medicines by GPs, physical distancing restrictions resulting in fewer respiratory tract infections, and policy changes in April 2020 encouraging prescribers to issue repeat prescriptions for antimicrobials only when indicated (ACSQHC 2022, 2023b).

The Australian Government supported access to the safe and effective treatment of COVID-19. This included the listing of 2 oral COVID-19 antiviral treatments on the PBS Schedule in early 2022, molnupiravir (Lagevrio®) and the composite product of nirmatrelvir and ritonavir (Paxlovid®) for people who are vulnerable to severe disease, including older Australians and people with specified risk factors (Department of Health and Aged Care 2024b).

Table 8: PBS and RPBS prescriptions, 2017–2023

Variable	2017	2018	2019	2020	2021	2022	2023
Number of prescriptions dispensed (million)	296.6	303.1	307.6	310.9	316.8	328.1	335.4
Number of prescri	12.1	12.1	12.1	12.1	12.3	12.6	12.6

ptions dispensed per person (ERP)							
Percentage of people dispensed a prescription (%)	68.8	67.9	68.2	64.1	65.5	67.6	66.9
Number of respiratory system prescriptions dispensed (million)	13.6	13.3	13.3	14.2	13.1	14.1	13.4
Number of respiratory system prescriptions dispensed per person (ERP)	0.6	0.5	0.5	0.6	0.5	0.5	0.5
Percentage of people dispen	10.7	10.1	10.2	9.8	9.3	11.3	10.0

sed a respiratory system prescription (%)							
Number of antiinfective prescriptions dispensed (million)	27.7	26.8	27.4	20.9	20.7	23.7	23.8
Number of antiinfective prescriptions dispensed per person (ERP)	1.1	1.1	1.1	0.8	0.8	0.9	0.9
Percentage of people dispensed an antiinfective prescription (%)	41.7	39.9	40.2	32.1	32.9	37.5	37.1
Number of COVID-19						636,090	613,408

antiviral prescriptions dispensed							
Number of COVID-19 antiviral prescriptions dispensed per person (ERP)						0.02	0.02
Percentage of people dispensed a COVID-19 antiviral prescription (%)						2.3	2.0

ERP - Estimated Resident Population

Note: COVID-19 antivirals are included in the Antiinfectives for systemic use group

Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health and Aged Care

How does Australia compare internationally?

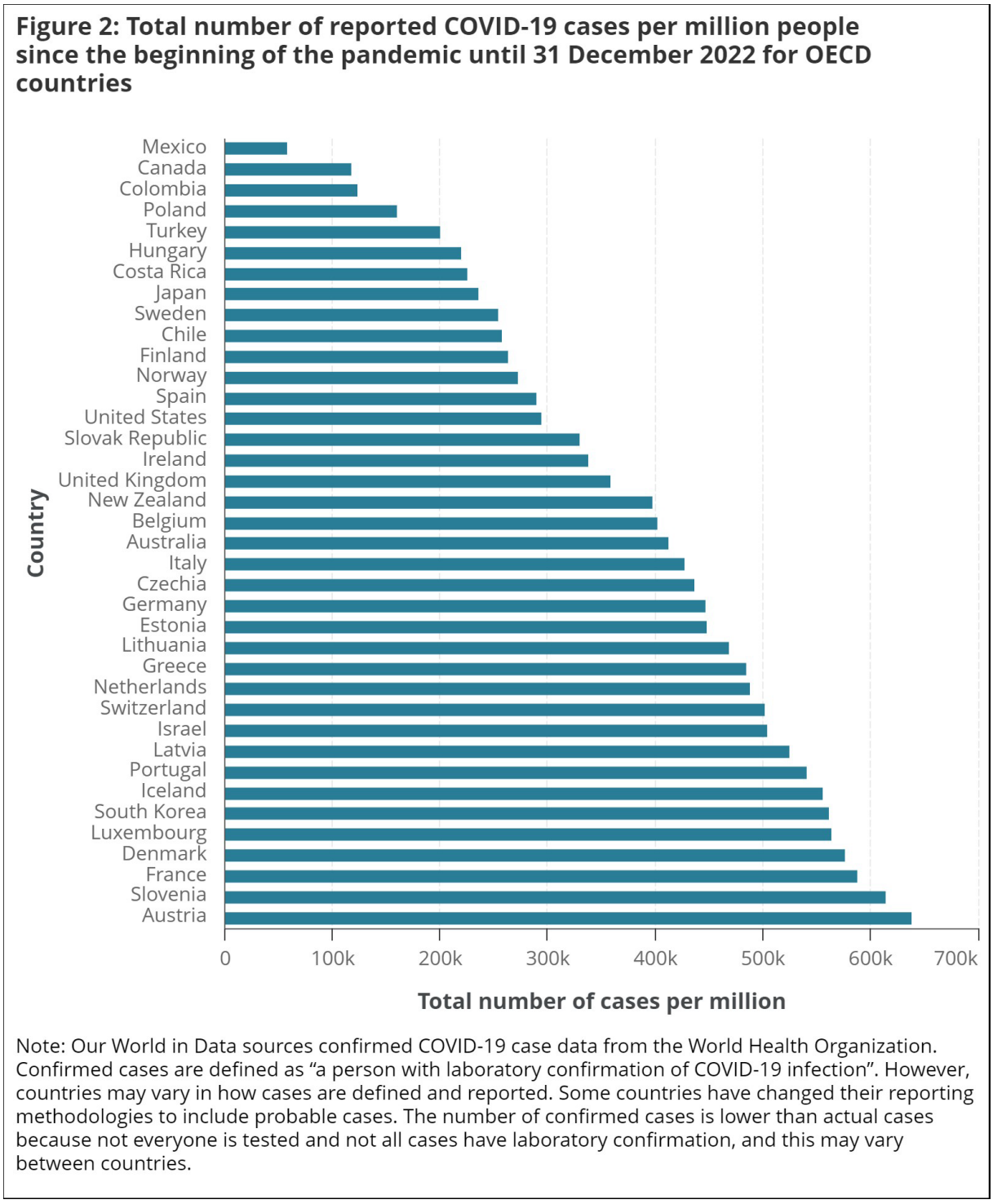
In the early stages of the pandemic, Australia performed well across the 38 Organisation for Economic Co-Operation and Development (OECD) countries in terms of the direct impacts of COVID-19 on health. From January 2020 to October 2021, Australia had reported:

- 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).

By 31 December 2022, the total number of COVID-19 cases per million people was lower than several European countries, similar to New Zealand and higher than Canada and Japan (Figure 2) (Mathieu et al. 2022).

Figure 2: Total number of reported COVID-19 cases per million people since the beginning of the pandemic until 31 December 2022 for OECD countries

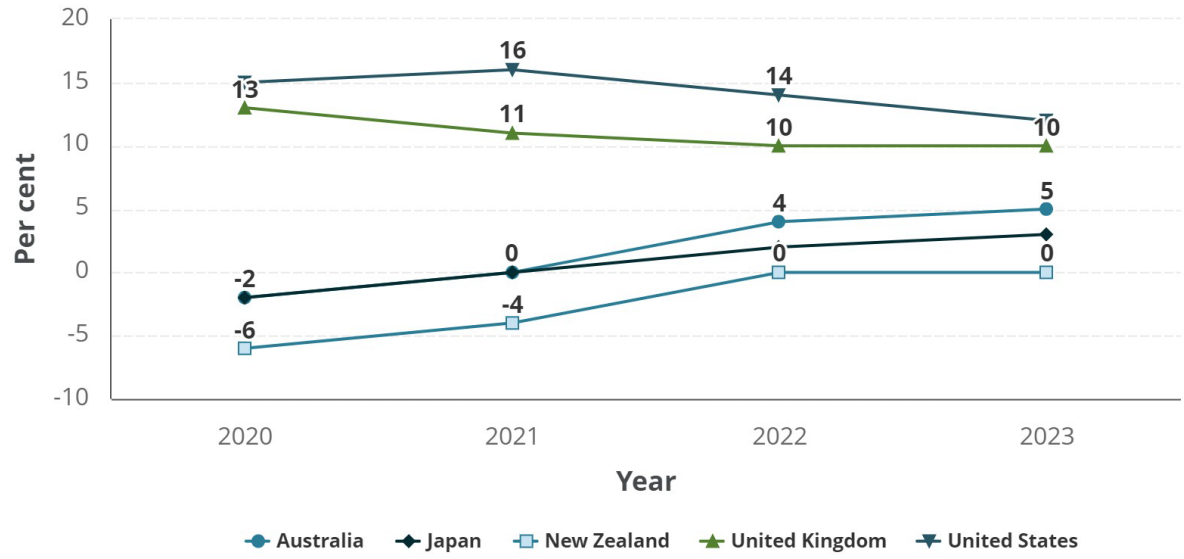


Note: Our World in Data sources confirmed COVID-19 case data from the World Health Organization. Confirmed cases are defined as "a person with laboratory confirmation of COVID-19 infection". However, countries may vary in how cases are defined and reported. Some countries have changed their reporting methodologies to include probable cases. The number of confirmed cases is lower than actual cases because not everyone is tested and not all cases have laboratory confirmation, and this may vary between countries.

Source: OurWorldInData.org

Since the beginning of the pandemic, Australia has had one of the lowest excess mortality rates compared with other countries with available data (Figure 3). Australia has had lower excess mortality than the United States, United Kingdom and most European countries, and higher excess mortality than Japan and New Zealand (based on cumulative deaths compared with projected deaths based on past trends).

Figure 3: Cumulative excess mortality (%) since the beginning of the pandemic until June 2023 for selected countries



Notes

1. Data are the percentage difference between the cumulative number of deaths since 1 January 2020 and the cumulative expected number of deaths based on previous years (2015–2019).
2. Data for 2023 are based on deaths until 25 June 2023.

Source: OurWorldInData.org

In a number of OECD countries such as the United Kingdom and the United States, life expectancy fell by around one year during the first 2 years of the COVID-19 pandemic (Arias et al. 2022; OECD 2023; PHE 2021). Globally, life expectancy fell from 73.3 years in 2019 to 71.7 in 2021, however in Australia, life expectancy rose from 82.9 to 83.3 (GBD 2021 Demographics Collaborators). When 2022 data were included, life expectancy in Australia across 2020–2022 fell for the first time since the mid-1990's by 0.1 year (ABS 2023d). This fall is likely to be driven by the higher death rates observed in 2022.

Where do I go for more information?

For more information on COVID-19, see:

Demonstrating the utility of the COVID-19 Register

Long COVID in Australia – a review of the literature

For more on this topic, see COVID-19.

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Dementia

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

On this page

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.

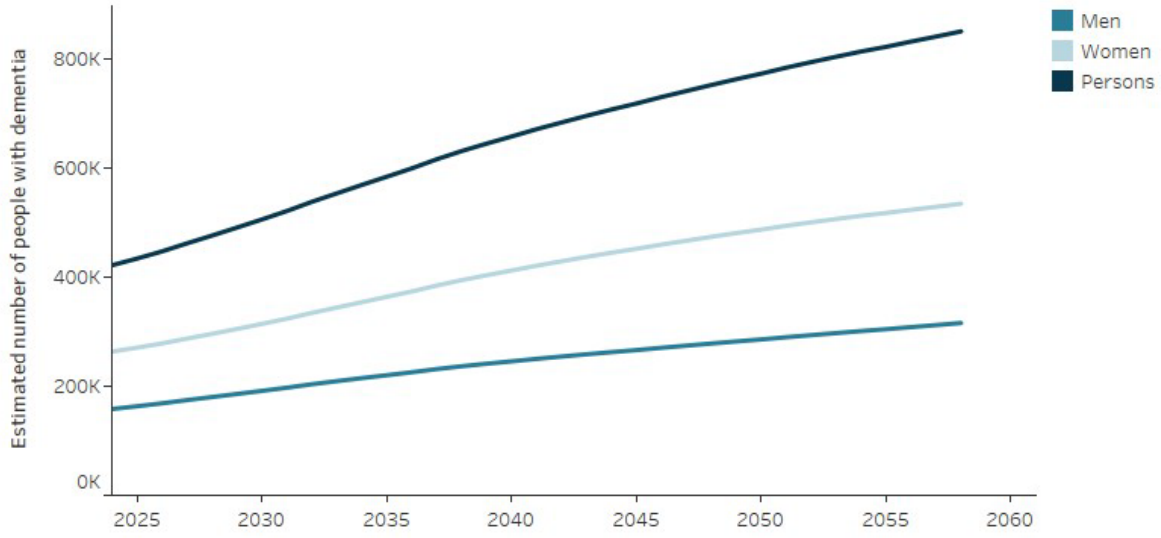
Dementia is a significant and growing health and aged care issue in Australia that has a substantial impact on the health and quality of life of people with the condition, as well as their family and friends. As the condition progresses, the functional ability of an individual with dementia declines, 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.

How common is dementia?

In 2023, it was estimated that there were 411,100 (AIHW estimate) Australians living with dementia. Based on AIHW estimates, this is equivalent to 15 people with dementia per 1,000 Australians, which increases to 84 people with dementia per 1,000 Australians aged 65 and over. Nearly two-thirds (63%) 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 to 849,300 (533,800 women and 315,500 men) (Figure 1).

Figure 1: Australians living with dementia between 2024 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.
http://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?

The Organisation for Economic Co-operation and Development (OECD) estimated that in 2021, the prevalence of dementia in Australia was 13.2 cases per 1,000 population. This estimate is slightly less than the OECD average of 15.0 per 1,000 population, ranking 12th lowest out of 38 countries (OECD 2023).

For data by age, sex, geographic and socioeconomic area, see Prevalence of dementia.

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, there are health behaviours that can increase or decrease the risk of developing dementia (known as 'modifiable risk factors').

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).

For more information about risk factors, see What puts someone at risk of developing dementia?

Impact

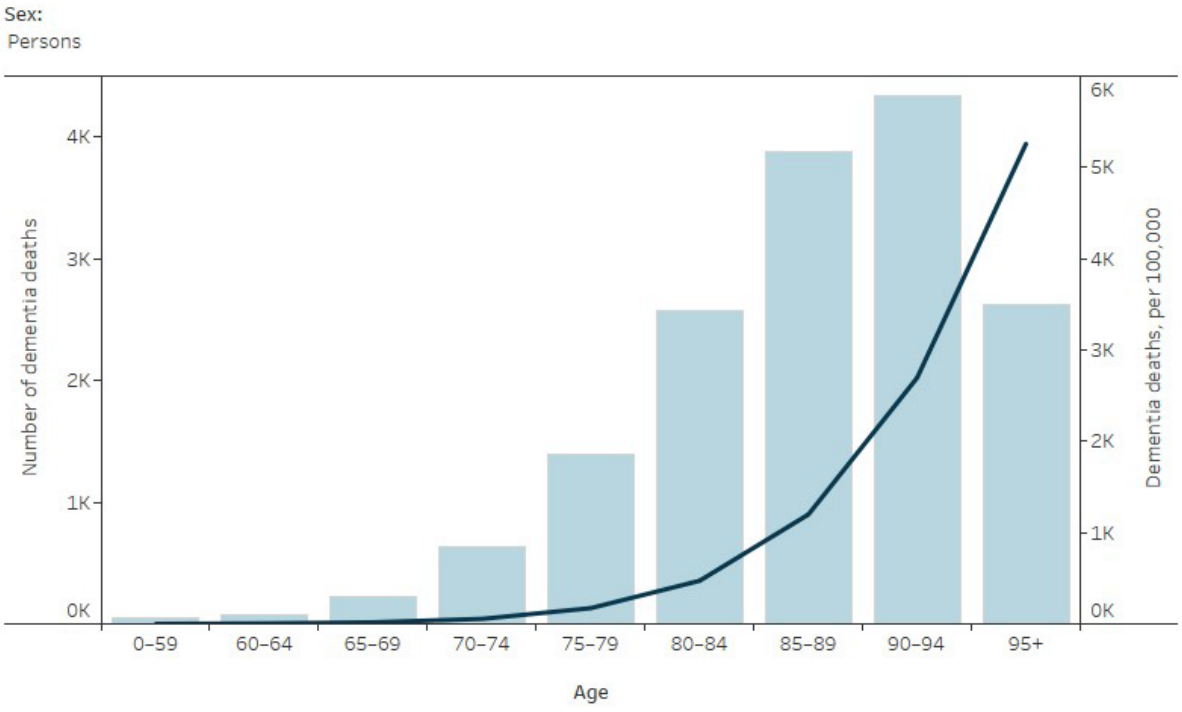
Dementia is the second leading cause of death in Australia

In 2021, dementia was the second leading cause of death in Australia, accounting for just under 15,800 deaths (or 10% of all deaths). Dementia was the leading cause of death for women and the second leading cause for men, after coronary heart disease.

The number of deaths due to dementia increased from 10,780 deaths in 2012 to 15,800 deaths in 2021. The age-standardised rate, which accounts for differences in the age and sex structure of a population, rose between 2012 and 2021, from 38 to 41 deaths per 100,000 Australians. The rate of deaths due to dementia by age and sex was highest among men and women aged 95 and over, reaching just over 4,000 and 5,700 per 100,000 population, respectively (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, 2021



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 11,075 deaths due to COVID-19, registered by 30 April 2023 in Australia. Of these deaths, over 30% had dementia (including Alzheimer's disease) recorded (ABS 2023). COVID-19 was an associated cause of death for a further 677 deaths due to dementia (including Alzheimer's disease).

For more information on COVID-19 deaths released by the Australian Bureau of Statistics (ABS), see COVID-19 Mortality in Australia: Deaths registered until 31 January 2024- external site opens in new window.

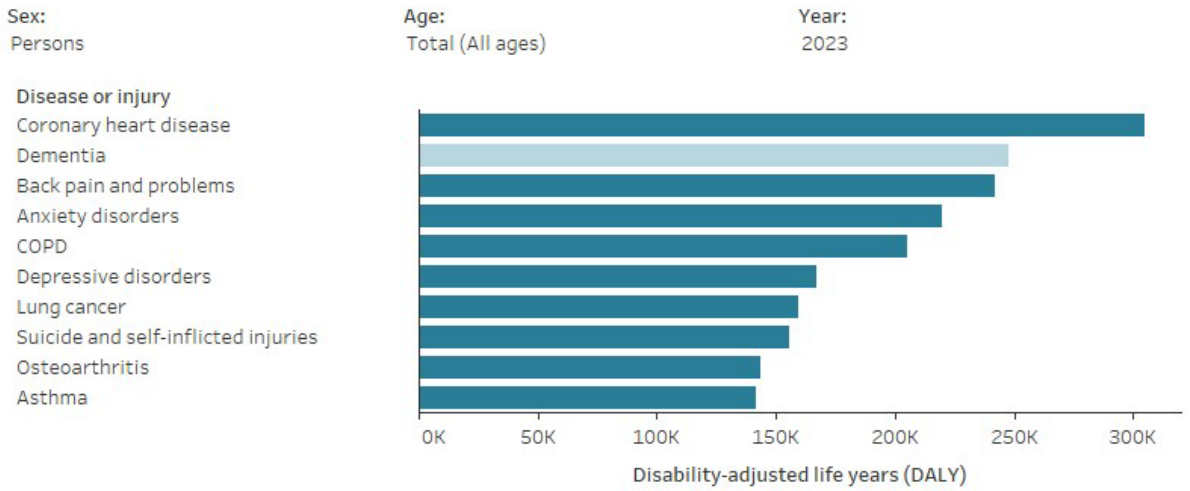
Dementia is a leading cause of burden of disease

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 second leading cause of burden of disease in Australia in 2023, behind coronary heart disease. However, it was the leading cause of burden for women

as well as for Australians aged 65 and over. The total burden of dementia was almost 248,000 DALY, with 59% of burden attributable to dying prematurely and 41% from the impacts of living with dementia (Figure 3).

Figure 3: Leading 10 causes of disease burden (DALY) in Australia, by sex and age, 2015, 2018, 2022 and 2023



Notes
1. COPD refers to Chronic obstructive pulmonary disease.
2. COVID-19 is a disease of the respiratory system, caused by the coronavirus SARS-CoV-2.
3. Conditions that were grouped into residual categories in the Australian Burden of Disease Study 2023 (such as 'Other musculoskeletal conditions') are not included in the rankings.
4. Lower respiratory infections include influenza and pneumonia.
5. Due to rounding, estimates for all persons for some diseases does not equal the sum of male and female estimates.
Source: AIHW Australian Burden of Disease Database http://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 including obesity, physical inactivity, tobacco smoking, high blood pressure in midlife, high blood plasma glucose levels, and impaired kidney function) were reduced.

For detailed information on burden attributable to specific risk factors, see Burden of disease due to dementia.

Treatment, management and support

Primary health care 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 2020).

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 Primary health care services.

In 2020–21, around half of all services claimed under the Medicare Benefits Scheme (MBS) by people with dementia were for GP consultations (42% for people in the community and 58% for people living in permanent residential aged care).

The second most common MBS service used by people with dementia were pathology services, accounting for 32% of services among those living in the community, and 29% among those living in permanent residential aged care.

Among people with dementia living in the community, more than 70% of people aged 65–84 years had at least one specialist visit in 2020–21. Specialist attendances including general medicine, geriatric medicine, neurology and psychiatry were more common among people with dementia compared to people without dementia living in the community.

Among people living in permanent residential aged care, specialist and allied health service use was generally lower among people with dementia compared to people without dementia.

For information about patterns of health service use among people with younger onset dementia see Younger onset dementia: new insights using linked data.

Dementia-specific medications

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

In 2021–22, there were over 658,000 prescriptions dispensed for dementia-specific medications to just under 68,700 Australians with dementia aged 30 and over. There was a 51% increase in scripts dispensed for dementia-specific medications between 2012–13 and 2021–22.

People with dementia may experience changed behaviours, such as aggression, agitation and delusions, commonly known as behaviours 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 2021–22, antipsychotic medications were dispensed to about one-fifth (20%) of the 68,700 people who had scripts dispensed for dementia-specific medication.

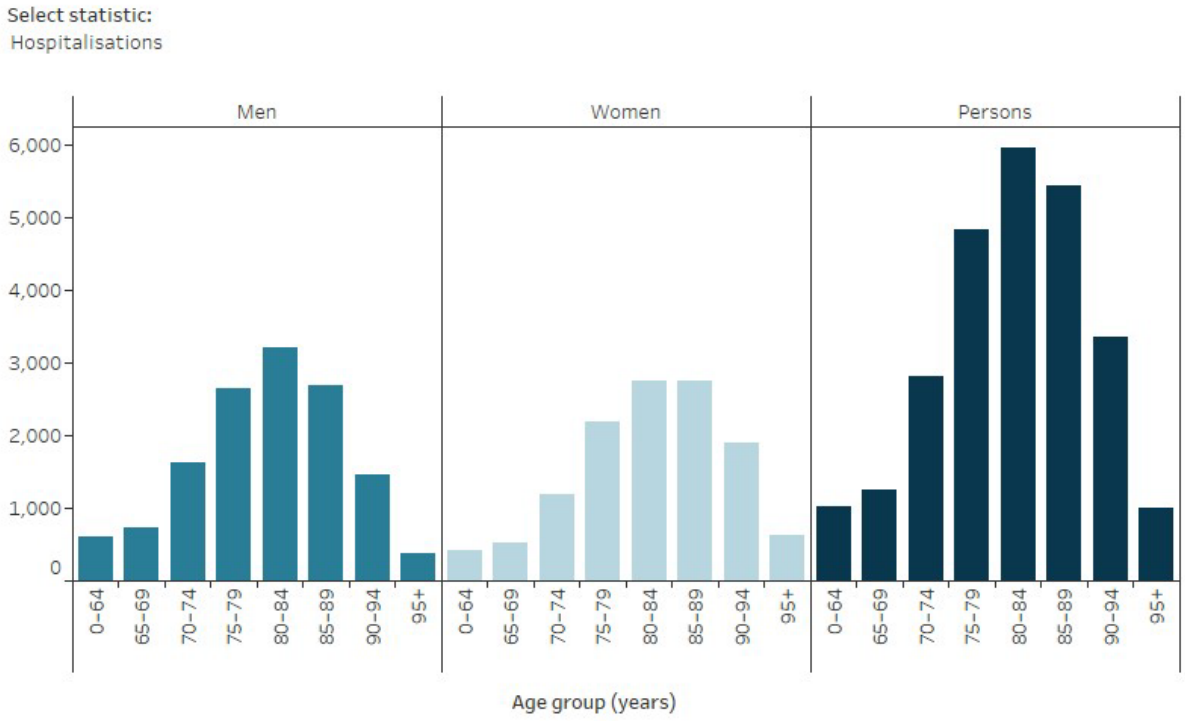
For information on medicine types, see Prescriptions for dementia-specific medications.

Hospitalisations

In 2021–22, there were more than 11.6 million hospitalisations in Australia (AIHW 2023). Of these, dementia was the main reason for admission for about 25,700 hospitalisations, which is equivalent to 2 out of every 1,000 hospitalisations.

For people with dementia, the average length of stay was more than 5 times as long as the average for all hospitalisations (15 days and 2.7 days, respectively). Of the hospitalisations due to dementia, 63% of patients were aged 75–89, with the number of hospitalisations increasing with age up to 80–84 years, then decreasing in the older age groups (Figure 4).

Figure 4: Hospitalisations due to dementia, by age and sex, 2021–22



See the technical notes for further information, available at
https://www.aihw.gov.au/reports/dementia/dementia-in-aus/contents/technical-notes
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.

For information on hospitalisations with dementia, as well as data by state and territory and dementia type, see Hospital care.

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.

In 2021–22, there were over 242,000 people living in permanent residential aged care, and more than half (54% or about 131,000) of these people had dementia.

For detailed information on the services and initiatives available, see Aged care and support services used by people with dementia.

How do people with dementia access aged care services?

The My Aged Care- external site opens in new window 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.

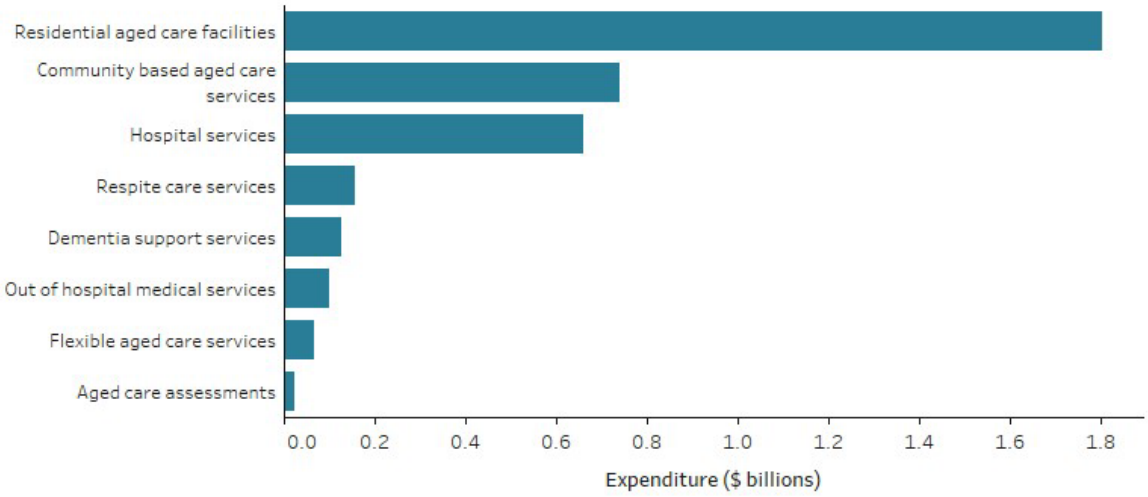
In 2021–22, just over 37,100 Australians who completed an aged care assessment (either a comprehensive or home support assessment) had dementia recorded as a health condition. This equates to 9.3% of people who completed an aged care assessment that year. Of the aged care assessments undertaken by people with dementia, just over 4 in 5 (81%) were comprehensive assessments (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 $3.7 billion of health and aged care spending in 2020–21 was directly attributable to the diagnosis, treatment and care of people with dementia.

Residential aged care services accounted for the largest share of expenditure (49% or $1.8 billion), followed by community-based aged care services (20% or $741 million) and hospital services (18% or $662 million) (Figure 5).

Figure 5: Health and aged care spending directly attributable to dementia by broad service area, 2020–21



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 2023 there were at least 140,900 informal primary carers of people with dementia. Among primary carers of people with dementia, 3 in 4 (75%) were female and 1 in 2 (50%) 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 ABS Survey of Disability, Ageing and Carers (SDAC) 2018, among carers of people with dementia:

- 1 in 2 (47%) provided an average of 60 or more hours of care per week
- 3 in 4 (76%) reported one or more physical or emotional impacts of the role

- 1 in 4 (23%) reported that they needed more respite care to support them
- 1 in 2 (52%) 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.

For more information, see Dementia data gaps and opportunities and the National Dementia Data Improvement Plan 2023–33.

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.

Childhood dementias

Around 1% of all dementia diagnoses in Australia are childhood dementia caused by over 70 rare genetic disorders (Childhood Dementia Initiative 2020). Most cases of childhood dementia are fatal before adulthood (Dementia Support Australia 2022).

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 data about 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.

For more information, see the National Dementia Data Improvement Plan 2023–33.

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.

First Nations people

Among Aboriginal and Torres Strait Islander (First Nations) 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 First Nations people 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 First Nations people and improve the development of culturally appropriate and effective policies and services.

Due to sampling issues, data on First Nations carers of people with dementia and/or carers of First Nations people 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 (47%) 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 (30%) 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.

For information on population groups of interest that may benefit from a more specific focus within dementia care, see Dementia in priority groups.

Where do I go for more information?

- For more AIHW reports on this topic, visit Dementia.
- For detailed dementia statistics, see chapters of Dementia in Australia.
- For dementia information, education, advocacy and resources, see Dementia Australia.
- For support services and information, see Dementia Support Australia.
- For information on ageing and carers from the Australian Bureau of Statistics, see Disability, Ageing and Carers, Australia: summary of findings, 2018.
- For information on the Australian adult population's attitudes and knowledge of dementia and dementia risk reduction, see Australia's Dementia Awareness Survey.

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Diabetes

This topic summary is part of the Diabetes: Australian facts report.

On this page

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, type 2 diabetes, gestational diabetes, and other diabetes.

For more information on diabetes types, see What is diabetes?

How common is diabetes?

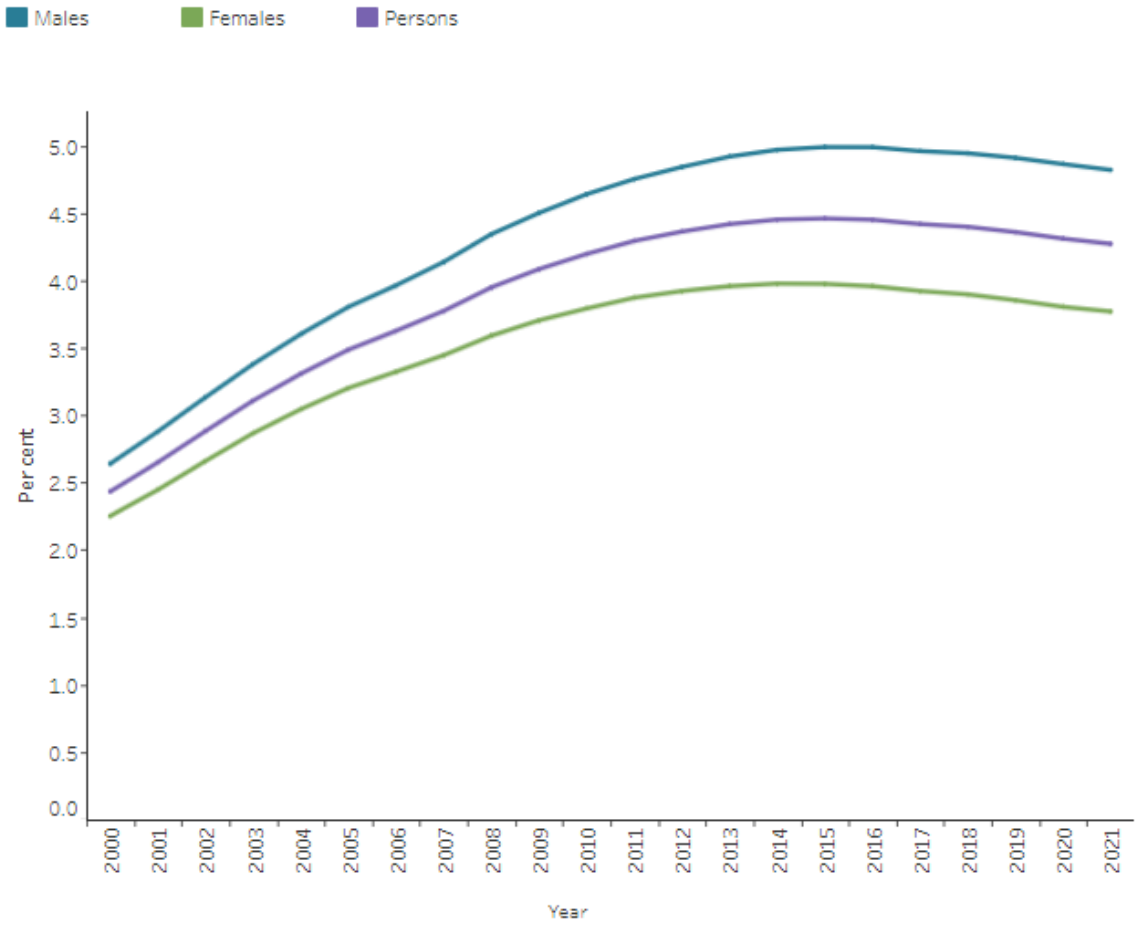
In 2021:

- an estimated 1 in 20 (5.1% or just over 1.3 million) Australians were living with diagnosed diabetes (prevalence). This includes people with type 1 diabetes, type 2 diabetes and other diabetes, but excludes gestational diabetes
- almost 1 in 5 Australians (19%) aged 80–84 were living with diabetes – almost 30 times as high as for those aged under 40 (0.7%)
- diabetes was 1.3 times as common in males compared with females, after controlling for age.

Between 2000 and 2021, the number of people living with diabetes in Australia increased almost 2.8-fold, from 460,000 to 1.3 million.

After controlling for age, diabetes prevalence rates have remained relatively stable since 2011 for both males and females (Figure 1).

Figure 1: Prevalence of diabetes from linked NDSS and APEG data, 2000–2021



Notes:
1. Age-standardised to the 2001 Australian Standard Population.
2. Includes persons with missing or unassigned information on age and/or sex.

Chart: AIHW. Source: AIHW analysis of linked National Diabetes Services Scheme and Australasian Paediatric Endocrine Group state-based registers.
https://www.aihw.gov.au

Type 1 diabetes

Around 58,600 people were newly diagnosed (incidence) with type 1 diabetes between 2000 and 2021. 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.

In 2021, there were 3,000 people newly diagnosed with type 1 diabetes in Australia, equating to 12 diagnoses per 100,000 population.

For more information, see Type 1 diabetes.

Type 2 diabetes

Just over 1.3 million people were newly diagnosed with type 2 diabetes in Australia between 2000 and 2021. This was an average of 60,000 people each year.

However, in 2021, the number of people newly diagnosed with type 2 diabetes was well below this average at 45,700, equating to 178 diagnoses per 100,000 population.

There has been a steady decline in the age-standardised incidence rate for type 2 diabetes in Australia between 2000 and 2021, with an overall drop of 43%. Although evidence from the 2019 Global Burden of Disease study as reported in *The Lancet* (2020) shows an overall increase in incidence globally, the observed declining trend has also been reported in a number of other countries (Magliano et al. 2019). The fall in incidence may be due to improved preventive measures such as screening, increased awareness and educational programs leading to behavioural changes and risk factor modification (Magliano et al. 2019; Shrapnel and Butcher 2020).

For more information, see:

- Type 2 diabetes
- Incidence of type 2 diabetes in Australia – trends over time.

Gestational diabetes

More than 1 in 6 (18% or 53,900) females aged 15–49 who gave birth in hospital in 2021–22 had been diagnosed with gestational diabetes during their pregnancy, according to the National Hospital Morbidity Database (NHMD).

After adjusting for changes in the age structure of the population over time, the incidence of gestational diabetes more than doubled in Australia between 2012–13 and 2021–22.

The rising incidence of gestational diabetes in the last decade is likely driven by several factors including increasing maternal age, higher rates of maternal overweight and obesity, and a growing proportion of higher risk ethnic groups in the population (Laurie and McIntyre 2020). The introduction of new diagnostic guidelines across all states and territories between 2011 and 2013 is also likely to have contributed towards the increasing rates.

For more information, see:

- Incidence of gestational diabetes in Australia – Changing trends
- Gestational diabetes.

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 2023:

- type 1 diabetes was responsible for around 19,000 years of healthy life lost (0.7 DALY per 1,000 population) and contributed to 0.3% of the total disease burden in Australia

- type 2 diabetes was responsible for around 124,000 years of healthy life lost (4.7 DALY per 1,000 population) and contributed 2.2% to the total disease burden in Australia – the 11th leading specific cause.

The overall rate of burden due to type 1 and type 2 diabetes remained stable between 2003 and 2023, after adjusting for age (AIHW 2023a).

For more information, see Burden of diabetes.

Expenditure

In 2020–21, an estimated $3.4 billion of expenditure in the Australian health system was attributed to diabetes, representing 2.3% of total disease expenditure. The breakdown in expenditure by diabetes type was:

- type 2 diabetes: 68%
- type 1 diabetes: 11%
- gestational diabetes: 2.1%
- other and unspecified diabetes: 20% (AIHW 2023b).

Note: Numbers may not add to 100 due to rounding.

For more information, see Health system expenditure.

Adverse effects in pregnancy

Diabetes in pregnancy, whether pre-existing (that is, type 1, type 2 or other diabetes) or arising as a result of the pregnancy (gestational diabetes), is associated with an increased risk of adverse outcomes for the mother and child both during pregnancy, labour and delivery and in the longer term. According to the NHMD, in 2020–21, women with pre-existing diabetes (and to a lesser extent, gestational diabetes) were more prone to complications during pregnancy and intervention in childbirth with higher rates of caesarean section, induced labour, pre-existing and gestational hypertension, and pre-eclampsia compared with women with no diabetes in pregnancy.

Babies of women 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).

For more information, see Pregnancy complications.

Deaths

Diabetes remains one of the 10 leading causes of death in Australia and was the underlying cause of around 6,000 deaths in 2022. However, it contributed to around 21,900 deaths (11% of all deaths) when associated causes are also considered (84 deaths per 100,000 population).

While diabetes death rates (underlying and/or associated cause) remained relatively stable between 2000 and 2021, a 10.2% increase was recorded between 2021 and 2022, after adjusting for age. This increase should be interpreted in the context of higher overall mortality in 2022, with two-thirds of excess deaths being associated with COVID-

19 (ABS 2023b). People with pre-existing chronic conditions are also at higher risk of more severe outcomes from COVID-19 with diabetes being a pre-existing condition among 15.7% of people who died from the virus (registered until February 2023) (ABS 2023a).

For more information, see Deaths.

Treatment and management of diabetes

Medicines

In 2020–21, there were over 16.5 million prescriptions dispensed for diabetes medicines, representing 5.3% of total prescriptions. Metformin, a glucose-lowering medication for patients living with type 2 diabetes, was the seventh most dispensed medicine (Department of Health and Aged Care 2021).

According to the National (insulin–treated) Diabetes Register (NDR), 31,700 people began using insulin to treat their diabetes in 2021. Among the people with diabetes who initiated insulin use, 49% had type 2 diabetes, 39% had gestational diabetes, 10% were newly diagnosed with type 1 diabetes and 2% had other forms of diabetes.

For more information, see Medicines use.

Hospitalisations and procedures

Of the 1.2 million hospitalisations that were associated with diabetes (10% of all hospitalisations in Australia) in 2021–22:

- 4.7% had diabetes recorded as the principal diagnosis
- 95% had diabetes recorded as an additional diagnosis
- 1.1 million had type 2 diabetes recorded as the principal and/or additional diagnosis
- 62,900 had type 1 diabetes recorded as the principal and/or additional diagnosis.

People living with diabetes may require procedures to manage their diabetes or treat the complications of diabetes. In 2021–22, there were 3,800 weight loss procedures and 6,300 lower limb amputations undertaken for people with type 2 diabetes.

For more information, see Hospitalisations.

Variation between population groups

The impact of diabetes varies between population groups.

Rates of prevalence, hospitalisation, mortality and burden of disease are, on average, greater among Aboriginal and Torres Strait Islander (First Nations) people, people living in lower socioeconomic areas and people living in *Remote and very remote* areas. For example:

- Around 64,100 First Nations adults (7.9%) were living with diabetes in 2018–19. First Nations adults were 2.9 times as likely as non–Indigenous adults to have diabetes, after adjusting for age (ABS 2019).
- Type 2 diabetes accounted for 2.9% of total disease burden among First Nations people in 2018 (7,000 DALY). The proportion attributed to fatal burden (43%) was lower than non-fatal burden (57%). The burden of disease from type 2 diabetes was 4.1 times as high among First Nations people as non-Indigenous people (AIHW 2021, 2022).
- Among people living in the lowest socioeconomic areas, there were around 6,500 deaths where diabetes was the underlying or associated cause in 2022 (125 per 100,000 population). The diabetes death rate among this group was 2.3 times as high as for people living in the highest socioeconomic areas, after adjusting for age.
- Among people living in *Remote* and *very remote* areas, there were 47,600 diabetes hospitalisations in 2021–22 (19,200 per 100,000 population). People living in these areas were 2.5 times as likely to be hospitalised for diabetes as people living in *Major cities*, after adjusting for age.

Where do I go for more information?

For more information on diabetes, see:

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

For more on this topic, visit Diabetes.

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Health of people experiencing homelessness

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

On this page

People experiencing homelessness and those at risk of homelessness (see glossary) are among Australia's most socially and economically disadvantaged. Experiencing or being at risk of homelessness is associated with a higher risk of adverse health, social, and economic outcomes (Fitzpatrick et al. 2013).

Health problems can arise as a consequence of experiencing homelessness, including malnutrition and dental problems (Goode et al. 2018; Huang et al. 2022). Homelessness can expose people to violence and victimisation, result in long-term unemployment and lead to the development of chronic ill health (Larney et al. 2009). People experiencing homelessness have significantly higher rates of death and chronic illness when compared with the general population (Morrison 2009).

People experiencing health issues while also experiencing homelessness may have difficulties managing their health conditions which can lead to the development and/or exacerbation of a chronic health issue. This in turn can reduce a person's ability to sustain wellbeing, employment, housing, and personal networks, further impacting their ability to sustain stable housing.

People experiencing homelessness

On Australian Bureau of Statistics (ABS) Census night in 2021, more than 122,000 people were estimated to be experiencing homelessness in Australia, up from 116,000 (an increase of 5.2%) since 2016. Of the people experiencing homelessness in 2021, 56% were male, 58% were younger than 35 and 20% identified as Aboriginal and Torres Strait Islander (First Nations) origin (ABS 2023).

Of people experiencing homelessness in Australia in 2021:

- 47,900 (39%) were living in 'severely' crowded dwellings
- 24,300 (20%) were in supported accommodation for the homeless
- 7,600 (6.2%) were living in improvised dwellings, tents or sleeping out (also termed rough sleeping) (ABS 2023).

The General Social Survey provides some insights into the health status of people who have experienced homelessness in Australia. In 2019, an estimated 2.2 million Australians aged 15 and over had been without a permanent place to live at some time in their lives (ABS 2019). Around 75% stayed with friends or relatives and 34% experienced rough sleeping. The most common reason for the most recent experience of being without a permanent place to live was a relationship or family breakdown (48%).

Government-funded Specialist Homelessness Services (SHS) across Australia provide services supporting people who are experiencing homelessness or who are at imminent risk of homelessness. In 2022–23, SHS services provided support to around 274,000 clients. Of those, 116,000 (or 47%) clients were experiencing homelessness when they first began support (AIHW 2023).

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

The impact of homelessness on health

There is a growing volume of research on the impact of insecure housing on the health of individuals and the associated costs to the health system (Davies and Wood 2018; Zaretzky and Flatau 2013).

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. Subsequently health needs are often not considered until an emergency arises (Wise and Phillips 2013). While rough sleeping is the least common form of homelessness in Australia (ABS 2023), the longer-term impacts of rough sleeping on health are profound due to issues such as poor nutrition, living in harsh environments and high rates of injury (Fazel et al. 2014).

Severe overcrowding is the 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 (including COVID-19) and induce psychological stress (AIHW 2014; Buckle et al. 2020).

Life expectancy of people experiencing homelessness

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 with those who are not:

- more than 30 years in the United Kingdom and the United States (Maness and Khan 2014; Perry and Craig 2015)
- more than 10 years for people in marginal housing in Canada (Hwang et al. 2009).

Australian studies have suggested people who were homeless die an average of 22 to 33 years younger than those who are housed (Knaus 2024; Zordan et al. 2023).

Research has shown that much of the mortality 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). This study suggests that health services could play a role in preventing homelessness by identifying risk factors, and early intervention for specific groups.

Despite the worse health outcomes for people at risk of or experiencing homelessness, there is evidence that this effect can be reversed with appropriate housing. Internationally, some of the health benefits associated with secure housing following a period of insecure housing were:

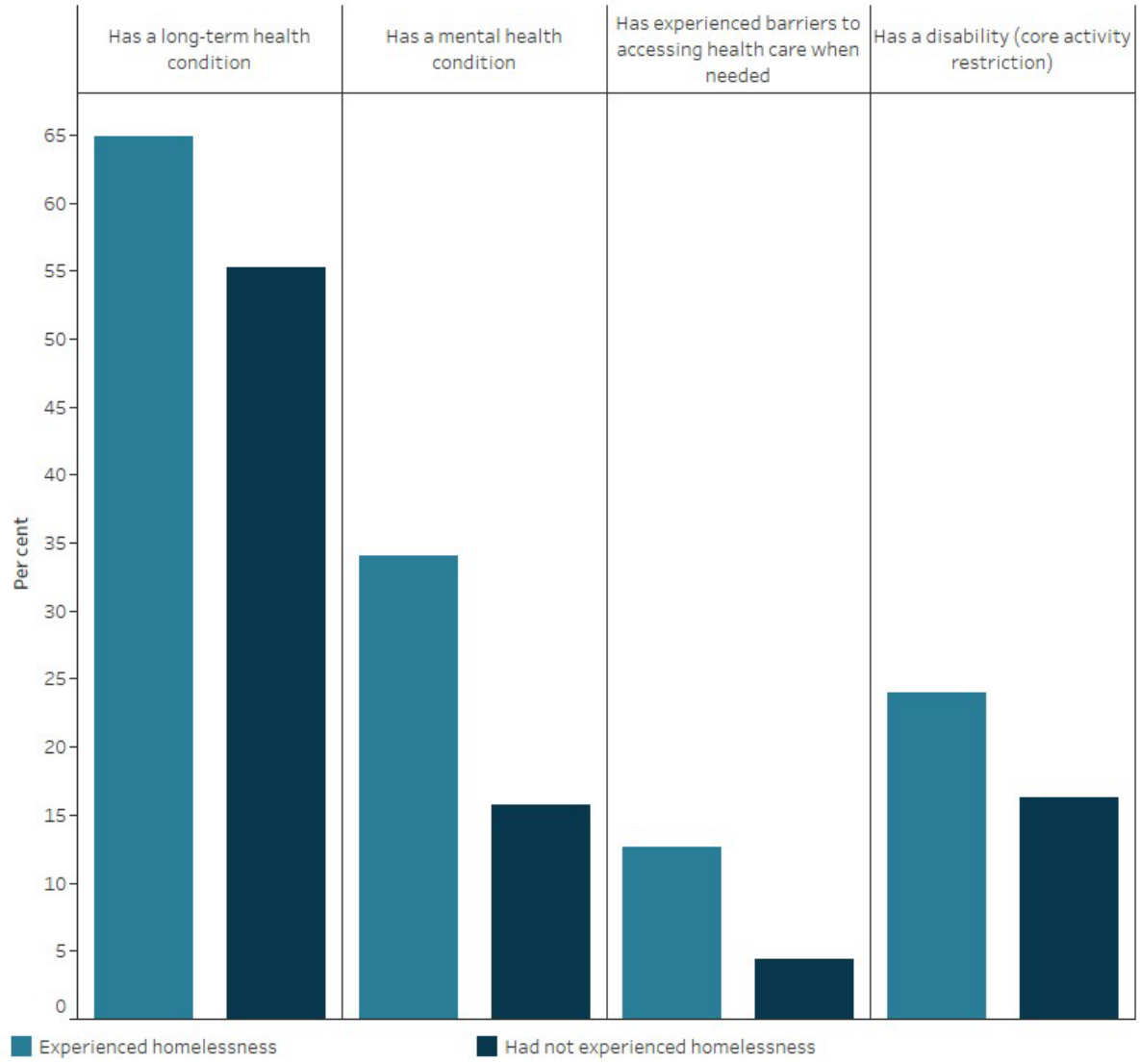
- decreased rates of hospitalisation
- reduced transmission of infectious diseases
- improved mental health symptoms
- overall improved wellbeing (Carnemolla et al. 2020).

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 one 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.

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



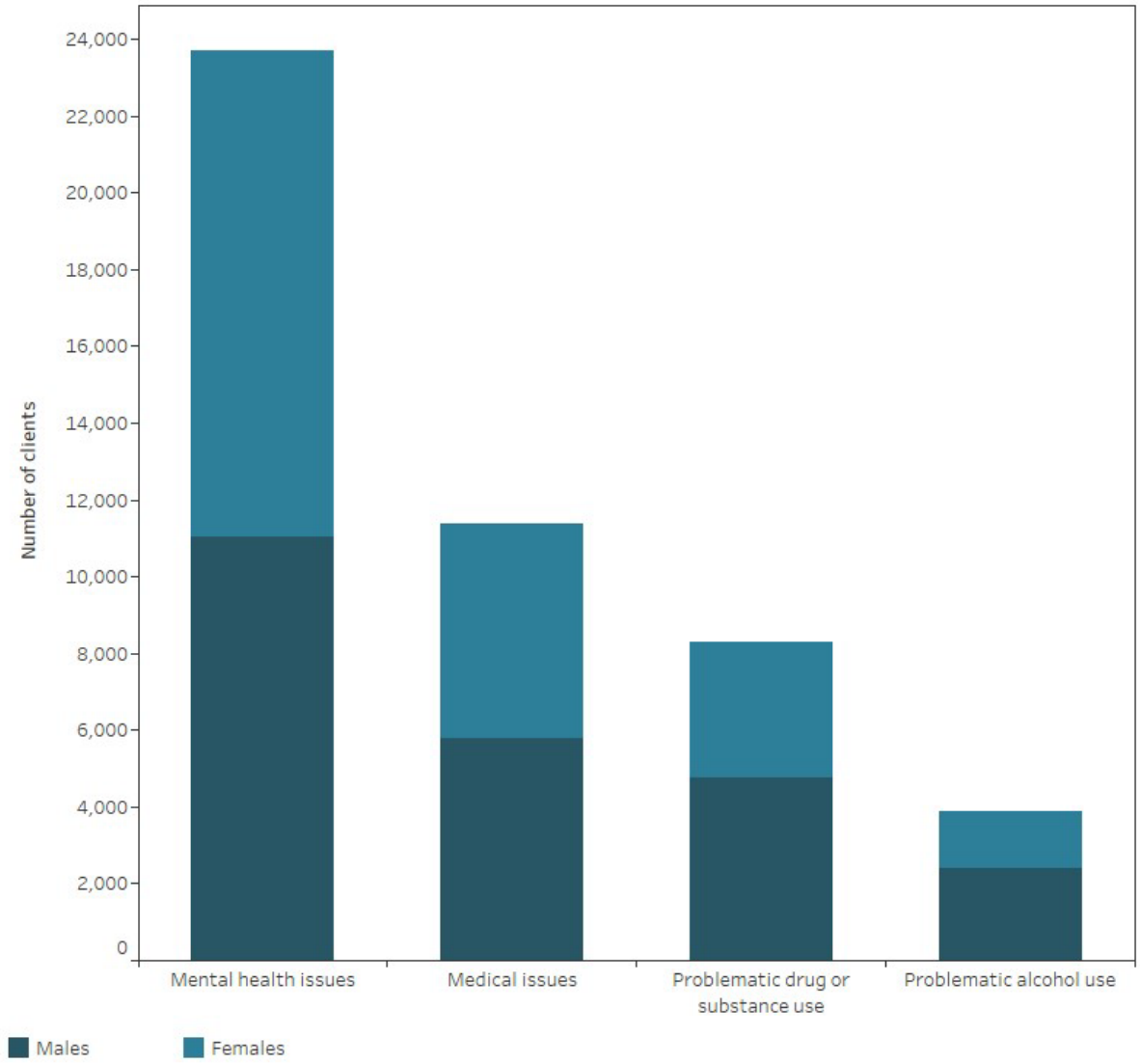
Source: AIHW analysis of ABS General Social Survey, June 2014, TableBuilder.
http://www.aihw.gov.au

Specialist Homelessness Services clients – health services needs

In 2022–23, around 1 in 4 (27% or 31,600) SHS clients who were homeless when they first presented to a SHS agency for assistance identified health-related reasons for seeking support (AIHW 2023). Clients may require assistance for more than one reason. Of the 31,600 people experiencing homelessness and reporting health-related reasons (Figure 2):

- 23,700 clients identified mental health issues
- 11,400 clients identified medical issues
- 8,300 clients identified problematic drug or substance use
- 3,900 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, 2022–23



Source: Specialist Homelessness Services Collection 2022–23
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 a 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 (AIHW 2023).

In 2022–23, SHS clients who were homeless at first presentation needed a range of health-related services:

- around 13,300 clients needed health/medical services
- over 5,000 needed drug/alcohol counselling (Table 1).

Individual clients may have more than one need and SHS data does not describe whether referred clients eventually received the health care needed.

Table 1: Number of clients who were homeless at first presentation, by specialised health-related service need, 2022–23

Specialised health-related services	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	13,271	58.7	19.2	22.1
Mental health services	12,074	46.6	18.7	34.7
Drug/alcohol counselling	5,031	46.0	17.3	36.8
Specialist counselling services	4,740	53.7	18.1	28.2
Psychological services	4,391	35.4	23.2	41.4
Child specific counselling services	2,995	54.3	19.1	26.7
Psychiatric services	2,939	34.2	20.7	45.1
Family planning support	1,456	57.5	11.3	31.2

Specialised health-related services	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)]
Pregnancy assistance	1,274	59.7	12.8	27.6
Physical disability services	1,123	43.8	17.3	38.9

(a) Includes clients who refuse a service.

Source: Specialist Homelessness Services Collection 2022–23, unpublished.

Barriers to accessing health care

Homelessness has a substantial impact on a person's health and presents challenges for people to access appropriate and effective medical care, including ongoing care (Davies and Wood 2018).

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

Individual risk factors such as illness and poor health can be a barrier to receiving health care. For example, mental illness can influence both being able to attend appointments and the effectiveness of health care provided (Davies and Wood 2018). The stigma associated with receiving mental health care, 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, 2021
- ABS Information Paper–a statistical definition of homelessness, 2012

For more information on this topic, see Homelessness services.

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Heart, stroke and vascular disease

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

On this page

Heart, stroke and vascular disease – also known as cardiovascular disease (CVD) – is a broad term that describes the many different diseases and conditions that affect the heart and blood vessels.

Coronary heart disease, stroke and heart failure are common forms of CVD. Other forms include atrial fibrillation, peripheral arterial disease, rheumatic heart disease and congenital heart disease.

Some types of CVD are caused by atherosclerosis, a condition where deposits of cholesterol and other substances build up in the arteries to form plaque. Atherosclerosis can reduce or block blood supply to the heart (causing angina or heart attack) or to the brain (causing stroke).

A number of risk factors can increase a person's chance of developing CVD, including behavioural (for example, smoking, insufficient physical activity and poor diet), biomedical (for example, high blood pressure or abnormal blood lipids) and others that can't be controlled such as age and sex.

For more information, see:

- What is heart, stroke and vascular disease?
- Risk factors.

How common is heart, stroke and vascular disease?

An estimated 1.3 million Australians aged 18 and over (6.7% of the adult population) were living with one or more conditions related to heart, stroke and vascular disease, based on self-reported data from the Australian Bureau of Statistics (ABS) 2022 National Health Survey (ABS 2023c). This includes 600,000 adults (3.0%) who reported having coronary heart disease (including angina and heart attack).

CVD was more commonly reported by men than women (7.6% and 5.8%, respectively) and increased with age, affecting around 1 in 4 (28%) adults aged 75 and over in 2022.

For more information, see How many Australians have heart, stroke and vascular disease?

Acute coronary events

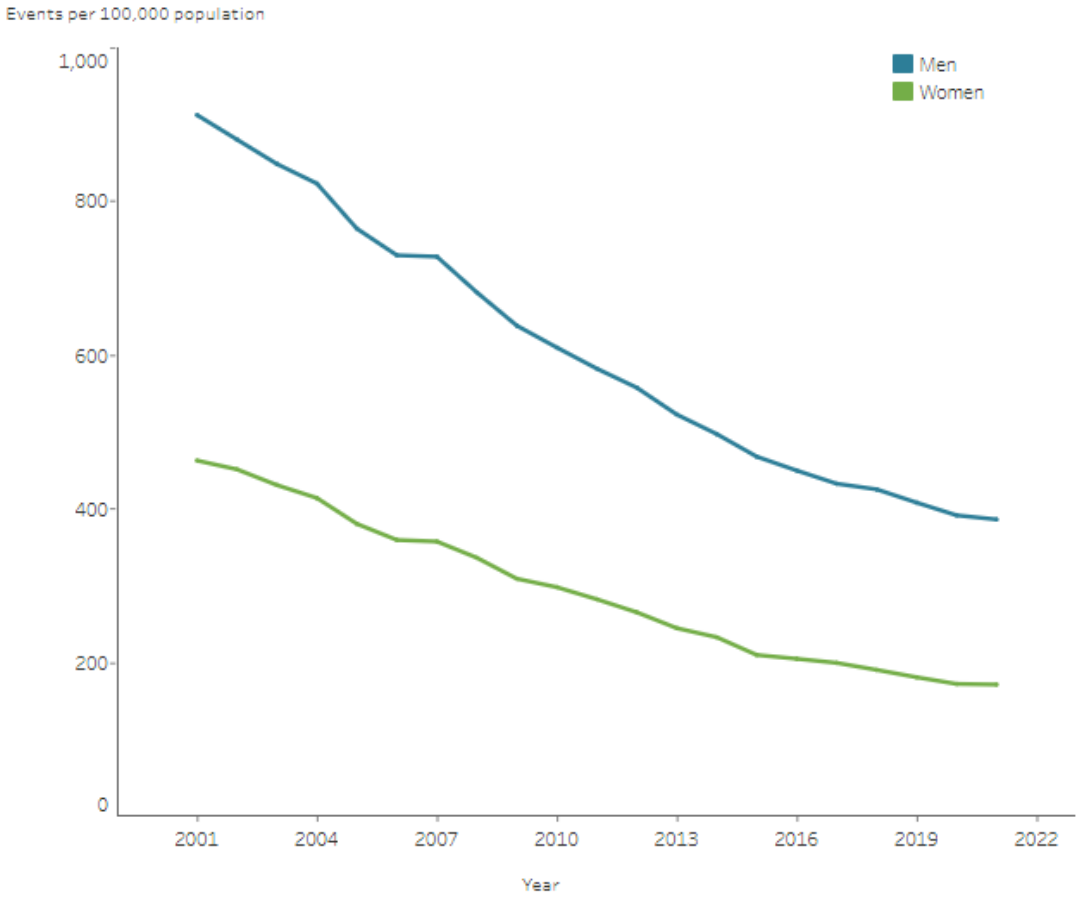
There are no national data sources on the number of new cases of coronary heart disease. However, a proxy measure can be used as an estimate – the number of acute coronary events, which includes heart attack and unstable angina (AIHW 2022b).

In 2021, there were an estimated 57,300 acute coronary events among people aged 25 and over – equivalent to 157 events every day. Around 12% of these events (6,900 cases) were fatal.

After adjusting for age, rates of acute coronary events:

- were 2.3 times as high in men than women
- were 4.6 times as high among people aged 85 and over compared with people aged 55–64
- were 2.8 times as high among Aboriginal and Torres Strait Islander (First Nations) people compared with non-Indigenous people (men 2.5 times as high, women 3.7 times as high)
- fell by 63% for women and 58% for men between 2001 and 2021 (Figure 1).

Figure 1: Acute coronary events among persons aged 25 years and over, by sex, 2001–2021



Notes:
1. Age-standardised to the 2001 Australian Standard Population.
2. Acute coronary events include heart attack (acute myocardial infarction) and unstable angina.

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

For more information, see Acute coronary events.

Stroke

In 2018, an estimated 387,000 Australians aged 15 and over (1.6% of the population) had experienced a stroke at some time in their lives, based on self-reported data from the ABS Survey of Disability, Ageing and Carers (ABS 2019b).

The prevalence of stroke in 2018 was:

- higher in males (1.6%) than females (1.1%), after adjusting for age
- more common in older age groups, with over 2 in 3 (71%) occurring in people aged 65 and over.

In 2021, there were an estimated 40,700 stroke events in Australia – around 112 every day. The rate of stroke events:

- was 1.4 times as high among males as females, after adjusting for age
- increased with age, being 6 times as high among people aged 85 and over as those aged 65–74
- fell by one-quarter (27%) between 2001 and 2021, after adjusting for age.

For more information, see Stroke.

Heart failure

An estimated 144,000 people aged 18 and over (0.7% of the adult population) had heart failure in 2022, based on self-reported data from the ABS 2022 National Health Survey (ABS 2023c).

Heart failure was more commonly reported by men (1.0%) than women (0.5%). The prevalence of heart failure increases with age, affecting around 4.1% of adults aged 75 and over in 2022.

Using self-reported data underestimates the true burden of heart failure, as early stages are only mildly symptomatic, and many cases are undiagnosed. A 2016 review of studies reported the prevalence of heart failure in the Australian population as ranging between 1.0% and 2.0% (Sahle et al. 2016).

For more information, see Heart failure and cardiomyopathy.

Impact of heart, stroke and vascular disease

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 2023, Australians lost an estimated 666,000 years of healthy life due to CVD (19 DALY per 1,000 population). CVD accounted for almost 12% of the total burden of disease (14% males, 10% females), ranking fourth behind cancer, mental and substance use disorders, and musculoskeletal conditions.

Coronary heart disease was the leading single cause of burden for males, and eighth leading single cause for females in 2023.

After adjusting for age, the rate of burden from CVD fell by 47% between 2003 and 2023 (AIHW 2023a).

Expenditure

In 2020–21, an estimated 9.5% of total allocated expenditure in the Australian health system ($14.3 billion) was attributed to CVD.

Nearly two-thirds (65%, or $9.2 billion) was spent on hospital services, with another 20% ($2.9 billion) related to non-hospital medical services (largely primary care) and 14% ($2.0 billion) spent on prescription medicines dispensed through the Pharmaceutical Benefits Scheme (PBS) (AIHW 2023b).

Deaths

In 2022, CVD was the underlying cause of 45,000 deaths (24% of all deaths), a rate of 173 per 100,000 population. CVD was the second leading cause of death group, behind cancers (27% of all deaths).

The proportion of CVD deaths (as the underlying cause of death) by subtype in 2022 was:

- coronary heart disease: 41%
- stroke: 19%
- heart failure and cardiomyopathy: 11%
- hypertensive disease: 5.9%
- atrial fibrillation: 5.7%
- peripheral arterial disease: 4.3%
- rheumatic heart disease: 0.8%.

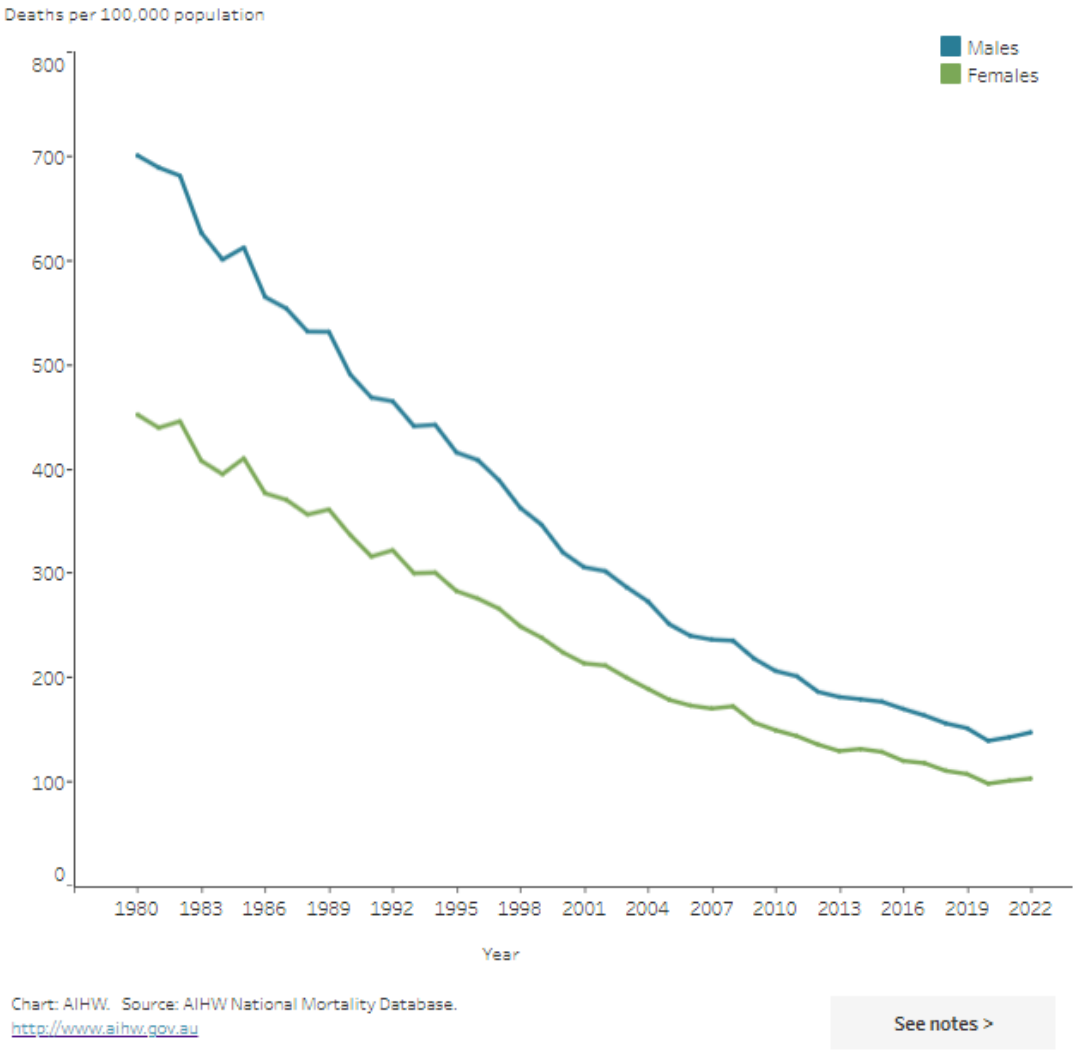
In 2022, CVD death rates:

- were 1.4 times as high among males as females, after adjusting for age
- increased with age, with over half (52%) occurring in persons aged 85 and over.

After adjusting for age, the CVD death rate has declined by more than three-quarters for both males (79%) and females (77%) between 1980 and 2022 (Figure 2). This downward trend has been driven by major public health improvements with advancements in both prevention and treatment.

Although CVD mortality rates reached an all-time low in 2020 at 158 per 100,000 population (the first year of the pandemic), they increased year-on-year in both 2021 and 2022 (2.3% and 2.1%, respectively, after adjusting for age). The CVD mortality rate remains 3.4% below that recorded in 2019 and recent increases should be interpreted in the context of higher overall mortality in 2022, with two-thirds of excess deaths being associated with COVID-19 (ABS 2023b). People with pre-existing chronic conditions are also at higher risk of more severe outcomes from COVID-19 with chronic cardiac conditions being the most common pre-existing diseases among those who died from the virus (deaths registered to February 2023) (ABS 2023a).

Figure 2: Cardiovascular disease death rates, by sex, 1980–2022



For more information, see Impacts and Death.

Treatment and management of heart, stroke and vascular disease

Primary care

Primary health care professionals, including general practitioners (GPs), are often the first point-of-care for people who have non-acute cardiovascular disease.

In a 2020–21 survey of GP practices, high blood pressure (hypertension) was the single most common condition recorded for patients (6.0%). Cardiovascular medicines were the largest proportion of total prescriptions ordered by GPs for patients (32%) (NPS MedicineWise 2022).

In 2023, over 188,000 Heart Health Checks were processed by Medicare (males 91,300, females 96,900). Checks were most commonly conducted among people aged 55–64 (58,500) and 65–74 (51,400) (Services Australia 2024).

Medicines

Almost 120 million PBS prescriptions for cardiovascular system medicines were dispensed to the Australian community in 2022–23. These comprised 36% of total PBS prescriptions (Department of Health and Aged Care 2023).

Around two-thirds of these prescriptions (68%, 81 million) were PBS-subsidised, with the remainder being under co-payment.

Rosuvastatin (16.5 million) and atorvastatin (12.1 million), both lipid-modifying medicines, and perindopril (7.1 million), a blood pressure-lowering medicine, were among the most commonly supplied PBS medicines in 2022–23.

Emergency department presentations

In 2022–23, there were 331,400 presentations to hospital emergency departments with a principal diagnosis of CVD – a rate of 1,300 presentations per 100,000 population.

- 17,100 (5.2%) were triaged as 'resuscitation' and needed immediate care, 145,900 (44%) as 'emergency' (should be seen within 10 minutes), 123,300 (37%) as 'urgent' (within 30 minutes), 40,600 (12%) as 'semi-urgent' (within 60 minutes) and 4,600 (1.4%) as 'non-urgent' (within 120 minutes).
- 195,500 (59%) were subsequently admitted to the hospital they presented to; 109,300 (33%) departed without being admitted or referred; and 19,700 (6.0%) were referred to another hospital for admission (AIHW 2023c).

Hospitalisations

In 2021–22, CVD was recorded as the principal diagnosis of around 568,000 hospitalisations – 4.9% of all hospitalisations in Australia.

Coronary heart disease was the most common principal diagnosis among CVD hospitalisations (26%), followed by atrial fibrillation (13%), heart failure and cardiomyopathy (12%), stroke (12%), peripheral arterial disease (5.5%), hypertensive disease (2.4%) and rheumatic heart disease (0.8%).

After adjusting for age, rates of hospitalisation with CVD as the principal diagnosis were 1.6 times as high for males compared with females.

Acute care CVD hospitalisations as a principal diagnosis declined by 22% between 2000–01 and 2021–22, from 2,100 to 1,600 per 100,000 population, after adjusting for age.

Procedures

CVD-related diagnostic or treatment procedures performed on hospital patients in 2021–22 included:

- 131,700 coronary angiographies (88,000 males, 43,700 females)
- 48,100 echocardiographies (32,600 males, 15,500 females)
- 43,700 percutaneous coronary interventions (PCI) (32,800 males, 10,900 females)
- 19,000 pacemaker insertions (11,600 males, 7,400 females)

- 12,700 coronary artery bypass grafts (CABG) (10,600 males, 2,100 females)
- 12,200 heart valve repair or replacement procedures (7,800 males, 4,400 females)
- 3,800 cardiac defibrillator implants (2,900 males, 870 females)
- 1,800 carotid endarterectomy procedures (1,300 males, 460 females)
- 105 heart transplants (67 males, 38 females).

For more information, see Treatment and management.

Population groups

The impact of heart, stroke and vascular disease varies between population groups.

Rates of prevalence, hospitalisation, mortality and burden of disease are, on average, greater among First Nations people, people living in lower socioeconomic areas, and people living in *Remote and very remote* areas. For example:

- Around 42,000 First Nations adults (8.6%) were living with heart stroke and vascular disease in 2018–19. First Nations adults were 2.1 times as likely as non-Indigenous adults to have heart, stroke and vascular disease, after adjusting for age (ABS 2019a).
- CVD accounted for 10% of total disease burden among First Nations people in 2018 (24,600 DALY). The proportion attributed to fatal burden (86%) was higher than non-fatal burden (13%). The burden of disease from CVD was 2.4 times as high among First Nations people as non-Indigenous people (AIHW 2021, 2022a).
- Among people living in the lowest socioeconomic areas, there were 31,200 deaths where CVD was the underlying cause in 2020–2022 – a rate of 202 per 100,000 population. The CVD death rate for this group was 1.5 times as high as for people living in the highest socioeconomic areas, after adjusting for age.
- Among people living in *Remote and very remote* areas, there were 11,400 CVD hospitalisations in 2021–22 – a rate of 2,300 per 100,000 population. People living in these areas were 1.3 times as likely to be hospitalised for CVD as people living in *Major cities*, after adjusting for age.

Where do I go for more information?

For more information, see Heart, stroke and vascular disease: Australian facts.

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Infectious and communicable disease

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On this page

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, air 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).

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.

What are 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, airborne 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).

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 then 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). It is worth noting that cases of Human

immunodeficiency virus (HIV) notifications are not available through NNDSS. For more information on HIV notifications, see UNSW Kirby Institute HIV.

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

Infectious diseases over time

Throughout the 1900s, improved sanitation and new prevention and treatment options drastically reduced the burden of infectious diseases. Immunisation and vaccination are key preventive measures against infectious and communicable diseases and have 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 Australia has maintained its measles elimination status, the rise in measles cases globally has resulted in instances of imported measles cases entering the country (Doherty Institute 2023). In 2023, there were only 26 notifications for measles nationwide. For more information, see Immunisation and vaccination.

In late 2019, COVID-19 emerged as a new disease and the World Health Organization (WHO) declared it a pandemic in March 2020. By 31 March 2024, more than 775 million cases and over 7 million COVID-19 related deaths, had been confirmed worldwide (WHO 2024). However, the true numbers are likely to be much higher as many cases and deaths from COVID-19 may go undetected and unreported (COVID-19 Excess Mortality Collaborators 2022; Lau et al. 2021). In Australia, there have been nearly 12 million confirmed or probable cases of COVID-19 as at 25 March 2024 (Department of Health and Aged Care 2024). Since the start of the pandemic, a total of 22,315 people have died from or with COVID-19 in Australia (registered by 29 February 2024) (ABS 2024).

COVID-19 caused considerable burden in Australia. The total burden from COVID-19 was 48,400 DALY (1.8 DALY per 1000 population) in 2023. COVID-19 contributed 0.9% of the total disease burden in 2023, and over 34% of the burden of all infectious diseases. The burden of COVID-19 was predominantly fatal and was higher in males (AIHW 2023). For more information, see Burden of disease.

Although the burden of infectious diseases (including COVID-19) in Australia is relatively small (2.5% of total disease burden in 2023) (AIHW 2023), 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 2023).

Significant demographic, technological, and environmental changes in the 21st century present future threats to the spread of infectious diseases. Increased urbanisation and population density creates opportunities for more persistent infectious disease outbreaks. Globalisation increases the risk of importing and exporting pathogens. Climate change is expanding the seasonal and geographic dynamics of many infectious

diseases, and is expected to be the driving cause of increasing infectious disease rates in new populations (Baker et al. 2022).

How common are infectious diseases?

We do not know the incidence of all infectious diseases in Australia, as only a subset of infectious diseases are notifiable. However, data from the National Hospitalisation Morbidity Database and the National Mortality Database give an indication on the impact of serious conditions due to infectious diseases that required hospitalisations and/or caused deaths.

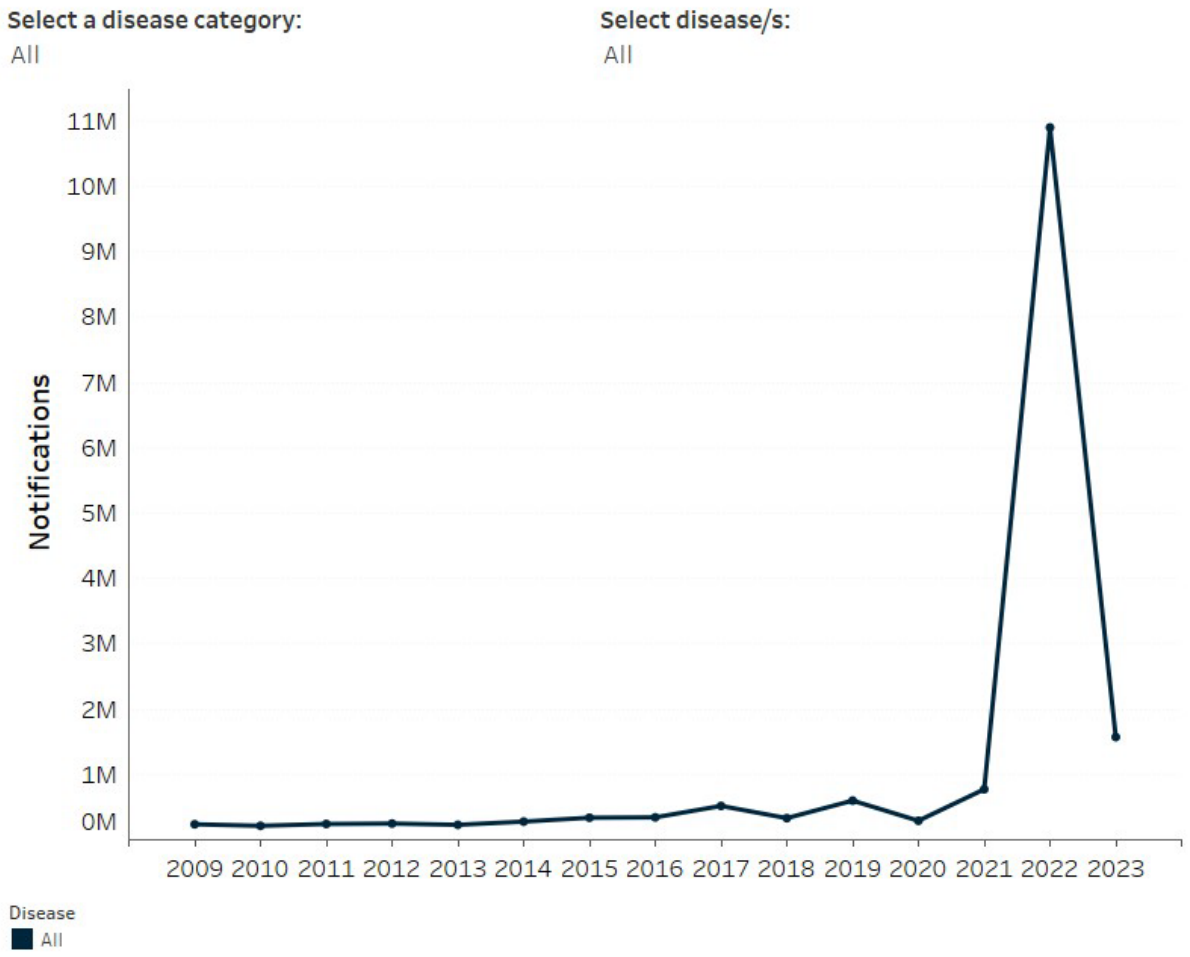
Notifiable diseases

Over 1.5 million cases of notifiable diseases were reported to the NNDSS in 2023, with COVID-19 (over 837,400 cases) accounting for 54% of the total notifications.

After COVID-19, the 6 diseases with the highest number of notifications include:

- Influenza (laboratory confirmed) – more than 290,000 notifications (19% of the total notifications)
- Respiratory syncytial virus (RSV) – almost 129,000 notifications (8% of the total notifications)
- Chlamydia (a sexually transmissible infection) – more than 109,000 notifications (7% of the total notifications)
- Campylobacter (a gastrointestinal infection) – more than 41,000 notifications (3% of the total notifications)
- Gonorrhoea (a sexually transmissible infection) – more than 40,000 notifications (3% of the total notifications)
- Varicella zoster (which causes chickenpox and shingles) – more than 34,000 notifications combined, or about 2% of the total notifications (Figure 1).

Figure 1: Cases of notifiable infectious diseases, Australia, 2009–2023



Note: RSV and invasive Group A Streptococcal disease became nationally notifiable conditions in 2021. Cases of HIV notifications are not included as they are not available through NNDSS.
Source: NNDSS data extracted 5 February 2024.
https://www.aihw.gov.au/

Vaccine-preventable diseases

One key group among notifiable diseases is vaccine-preventable diseases. Many of these, including rubella (3 notifications in 2023), diphtheria (13 notifications in 2023) and tetanus (4 notifications in 2023) are rare in Australia, because of Australia's high immunisation rates. For more information, 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.

The number of influenza notifications decreased substantially in 2020 and 2021. This is potentially owing to public health measures put in place to control the pandemic, such as physical distancing, international and local travel restrictions, lockdowns, mask-wearing and handwashing, which 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.

Following the relaxation of public health restrictions in 2022 and 2023, the number of influenza notifications increased again. In 2023, the number of influenza notifications reached the second highest number of notifications ever recorded since 2001.

Sexually transmissible infections and blood borne viruses

Significant progress has been made in the prevention and management of blood borne viruses (BBV) and sexually transmissible infections (STI) in Australia. However, diseases such as hepatitis B, hepatitis C, HIV, chlamydia and syphilis remain significant public health issues. In 2023, the most commonly notified BBV was hepatitis C (over 7,600 notifications). The HIV notification rate has generally declined over the past decade. In 2021, there were 552 new HIV diagnoses, representing a decline of 48% since 2012 (King et al. 2022). The number of notified STI has generally increased over the last decade, with chlamydia being the most commonly notified STI (more than 109,000 notifications in 2023), followed by gonorrhoea (more than 40,000 notifications in 2023), and infectious syphilis (over 6,400 notifications in 2023). Notification rates for infectious syphilis and gonorrhoea increased notably between 2013 and 2019, followed by a decrease between 2019 and 2021, which was likely due to a decline in testing during the COVID-19 pandemic. Chlamydia notification rates increased in females between 2013 and 2019, but were relatively stable in males, with rates in both sexes declining during the pandemic (King et al. 2023).

An ongoing outbreak of infectious syphilis among young Aboriginal and Torres Strait Islander (First Nations) adults in Queensland, the Northern Territory, Western Australia and South Australia has contributed to increasing numbers of STI notifications over the last decade. Since January 2011, the outbreak has resulted in more 5,600 notifications (Department of Health and Aged Care 2023a).

In general, new syphilis cases in Australia are diagnosed mainly in men who have sex with men in urban areas, or young First Nations people 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. Eighty-three cases of congenital syphilis (when the infection passes from a mother to her baby during pregnancy or at birth) were reported between 1 January 2016 and 30 September 2023 (Department of Health and Aged Care 2023a).

STI and BBV notifications among First Nations people are disproportionately 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 (see glossary), increase the risk of STI and BBV for First Nations people (King et al. 2022; Wand et al. 2016; Ward et al. 2020). Collection of information about testing for STI among First Nations people aged 15–34 was piloted in 2022 as part of the national Key Performance Indicators (nKPIs) for Indigenous-specific primary health care organisations. For more information on the nKPI collection, see Aboriginal and Torres Strait Islander specific primary health care: results from the OSR and nKPI collections.

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 and BBV allows targeted prevention programs to be designed. The ongoing response to STI and BBV in Australia is being coordinated by the Department of Health and Aged Care through the 5 National Blood Borne Viruses and Sexually Transmissible Infections Strategies including:

- Third National Hepatitis B Strategy 2018–2022
- Fourth National STI Strategy 2018–2022
- Fifth National Hepatitis C Strategy 2018–2022 uihy l o
- Fifth National Aboriginal and Torres Strait Islander BBV and STI Strategy 2018–2022
- Eighth national HIV strategy 2018-2022 (Department of Health and Aged Care 2023b).

The next iteration of the Strategies for 2024–2030 is in development, with the overarching goal of eliminating blood borne viruses and STI as public health threats by 2030. In addition, the HIV taskforce was established in 2023 to review Australia's efforts to end the HIV epidemic, with the goal of achieving virtual elimination of HIV transmission in Australia by 2030 (Department of Health and Aged Care 2023c).

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, otitis media, unspecified

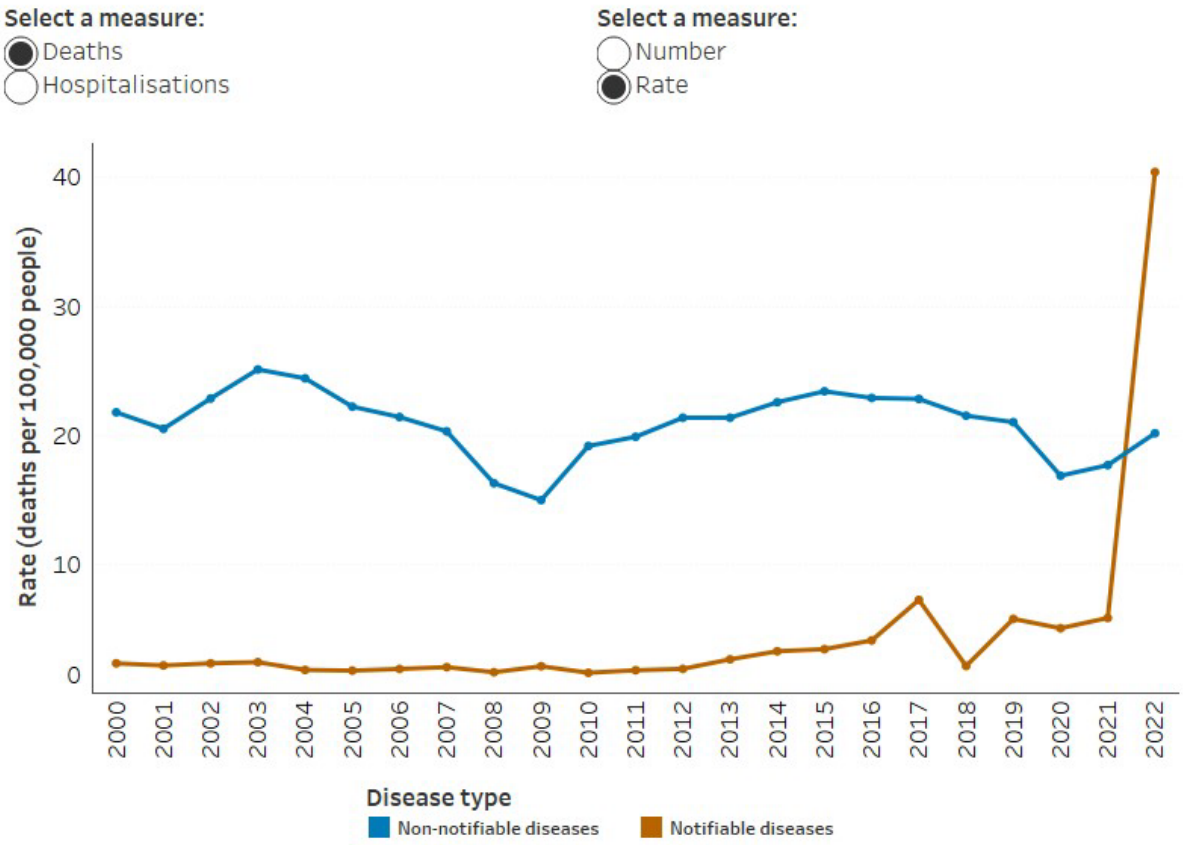
viral hepatitis, and other infections. Abscess causing pneumonia is not listed as a separate category in mortality coding.

The impact of infectious diseases

Hospitalisations

In 2021, there were more than 362,600 hospitalisations for infectious diseases, of which 92% were for non-notifiable diseases. The hospitalisation rate for non-notifiable infectious diseases generally increased between 2006 and 2017, before stabilising at around 16 per 1,000 people (Figure 2). The rate dropped considerably to 11.2 per 1,000 in 2020 before increasing slightly to 13.0 per 1,000 in 2021.

Figure 2: Deaths and hospitalisations from notifiable and non-notifiable infectious diseases, numbers and rates, Australia, 2000–2022

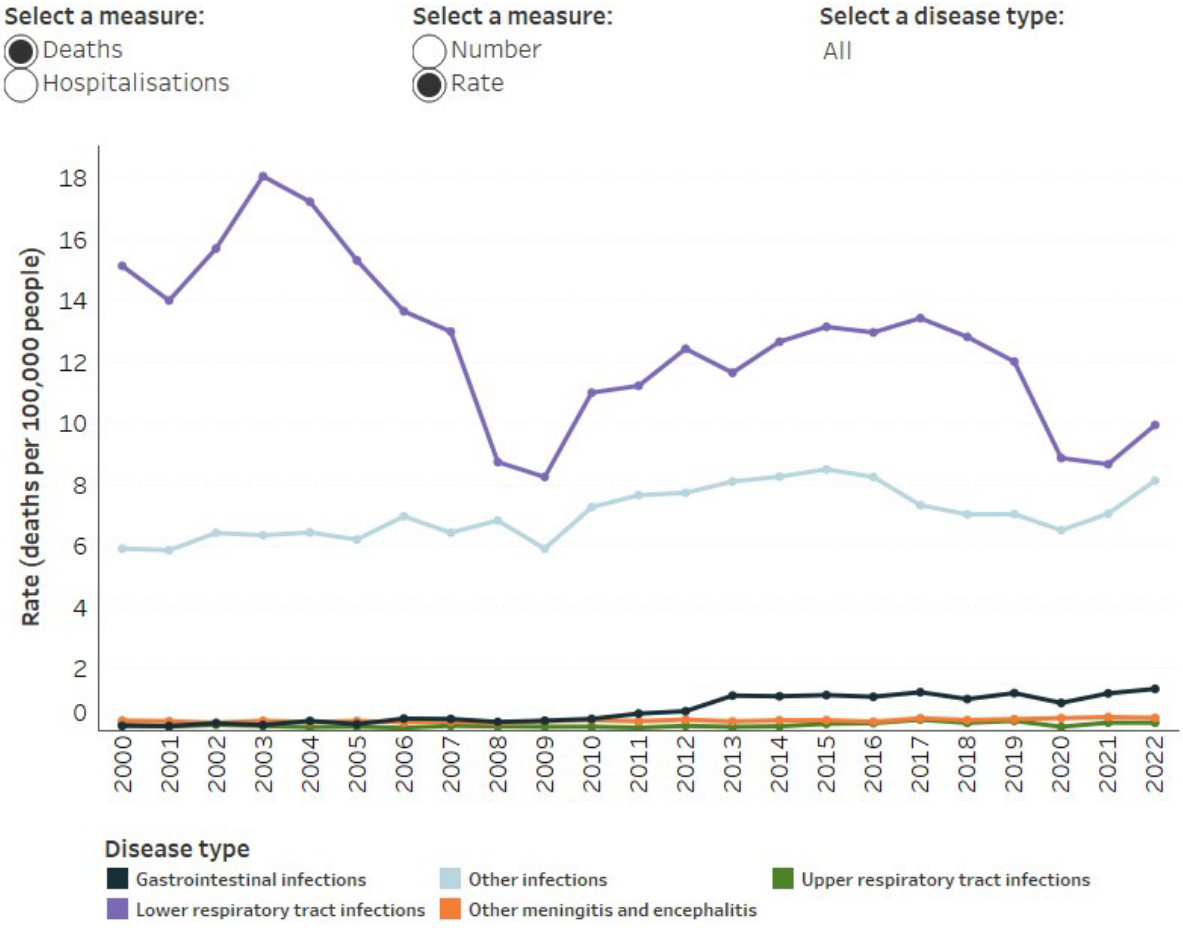


Notes:
1. Hospitalisations based on principal diagnosis. Deaths based on underlying cause of death.
2. Rates are presented as crude rates per 1,000 people for hospitalisations and crude rates per 100,000 people for deaths.
3. Deaths registered in 2019 and earlier are based on the final version of cause of death data; deaths registered in 2020 are based on the revised version; and deaths registered in 2021 are based on the preliminary version. Revised and preliminary versions are subject to further revision by the ABS.

Sources: AIHW National Hospital Morbidity Database, AIHW National Mortality Database.
https://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 (4.6 hospitalisations per 1,000 people) and 2019 (5.9 per 1,000), but this fell to 3.6 per 1,000 in 2020 before rising to 4.6 per 1,000 in 2021 (Figure 3).

Figure 3: Deaths and hospitalisations from non-notifiable infectious diseases, by disease type, numbers and rates, Australia, 2000–2022



Notes:
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3. Deaths registered in 2019 and earlier are based on the final version of cause of death data; deaths registered in 2020 are based on the revised version; and deaths registered in 2021 are based on the preliminary version. Revised and preliminary versions are subject to further revision by the ABS.

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

The hospitalisation rate for notifiable infectious diseases ranged between 1.1 and 2.2 per 1,000 people over the period 2000 to 2019 but dropped to 0.8 per 1,000 in 2020 before rising again to 1.1 per 1,000 in 2021 (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 1,222 to 35,672 hospitalisations (from below 0.1 to 1.4 hospitalisations per 1,000 people). In 2021, however, there were only 621 hospitalisations for influenza, a rate of 0.02 per 1,000 people. This is consistent with the fall in the number of notified cases described above.

Hospitalisations where COVID-19 infection was recorded increased from 2,631 in 2020 to 57,238 in 2021. As per Australian coding rules, in almost all cases COVID-19 was not specified as the principal diagnosis (IHPA 2021). 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%).

For more information on hospitalisation in Australia, see Hospitals.

Deaths

In 2022, more than 15,770 deaths in Australia were attributed to infectious diseases, a rate of 61 per 100,000 people. About a third (33%) of these deaths were attributed to non-notifiable diseases, the most common of which were lower respiratory infections (almost 2,594 deaths, 10 per 100,000) (Figures 2 and 3).

There were 9,859 deaths due to COVID-19 registered in 2022 (38 per 100,000), accounting for over 93% of all deaths attributed to notifiable diseases and 63% of all deaths attributed to infectious diseases in Australia. There were 1,122 deaths due COVID-19 in 2021 and 900 deaths in 2020, with crude death rate of 4.4 and 3.5 per 100,000 respectively. More information on deaths from COVID-19 is provided in *Australia's health 2022: data insights* article The impact of a new disease: COVID-19 from 2020, 2021 and into 2022 Australia's health 2022: data insights.

Influenza, which was the most common cause of notifiable disease deaths between 2014 and 2019, was recorded as the underlying cause of 56 deaths in 2020, 2 deaths in 2021 and 305 deaths in 2022.

For more information on deaths in Australia, see Life expectancy and deaths.

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
- Department of Health and Aged Care COVID-19 pandemic
- Department of Health and Aged Care Communicable diseases
- Department of Health and Aged Care Syphilis and Infectious syphilis outbreak
- Department of Health and Aged Care Australian Influenza Surveillance Report and Activity Updates

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Injury

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

On this page

Injuries are a major cause of morbidity, permanent disability, and mortality affecting the quality of life of individuals and families across Australia (AIHW 2008).

Injuries are the leading cause of death for people aged 1–44.

Injuries accounted for:

- 1.9 million ED presentations (7,000 per 100,000 population) in 2022–23
- 549,000 hospitalisations (2,100 per 100,000 population) in 2022–23
- 14,700 deaths in 2021–22 (57 per 100,000 population) in 2021–22
- 8.0% of the total burden of disease in 2023 (AIHW 2023a)
- 7.3% of health spending in 2020–21 (AIHW 2023b).

Main causes of injury

In 2022–23, the leading causes of injury hospitalisations were:

- falls (238,000 hospitalisations or 760 per 100,000 people)
- contact with objects (78,700 hospitalisations or 300 per 100,000 people)
- transport (61,200 hospitalisations or 235 per 100,000 people).

In 2021–22, the leading causes of injury deaths were:

- falls (6,400 deaths or 17 per 100,000 people)
- suicide (3,100 deaths or 12 per 100,000 people
- accidental poisoning (1,500 deaths or 5.8 per 100,000 people).

For more information, see The main causes of injury.

Trends in injury hospitalisations and deaths

From 2017–18 to 2022–23, the age-standardised rate of injury hospitalisations fell marginally by an annual average of 0.7%. There was a noticeable fluctuation in hospitalisation cases seen between 2019–20 and 2021–22, possibly related to disruptions caused by COVID-19.

The number of injury deaths have generally been increasing over time (from 13,200 in 2017–18 to 14,700 in 2021–22), but the age-standardised death rate from injuries has remained relatively stable (ranging from 47.0 to 48.7 per 100,000 persons over the same period).

For more information, see The main causes of injury.

Injuries by age and sex

Males are more likely to present to the emergency department (ED), be hospitalised and die from injuries than females. Causes of injury differ by age – for example, the youngest and oldest people are most likely to have an injury from a fall.

ED presentations

In 2022–23:

- males presented to ED with injuries more than females (8,000 per 100,000 people compared with 6,100 per 100,000, respectively)
- young children aged 0–4 had the highest rates of ED presentations of any age group (10,800 per 100,000 0–4-year-olds).

Hospitalisations

In 2022–23:

- males accounted for 55% of all injury hospitalisations
- falls were most common among those aged 75+ (46% of reported falls)
- most assault-related injury hospitalisations occurred among 15–49-year-olds (78%).
- males were more likely to be injured and hospitalised across all causes except for falls (about 770 females and 730 males per 100,000) and intentional self-harm (about 130 females and 65 males per 100,000).

Deaths

In 2021–22:

- around 3 in 5 (61%) injury deaths were for males

- males were more likely to die from any cause of injury than females
- falls was the leading cause of death for both sexes.

Trends over time

Over the past decade:

- rates of injury hospitalisation have remained steady or decreased slowly for most younger age groups but increased for adults aged 45+
- injury death rates have remained steady or decreased for most younger age groups but increased for adults aged 45+.

For more information, see Differences by sex and age group and Injury causes and age.

Injuries can happen to anyone, but some population groups are more at risk than others. For example, see First Nations people and Region and socioeconomic status.

Injury types

In 2022–23, fractures (about 412,000 presentations) and open wounds (about 320,000 presentations) were the most frequent ED presentations where injury type was recorded.

For hospitalisations in 2022–23, the top 3 types of injuries were fractures (about 820 per 100,000 persons or 215,000 cases), open wounds (around 345 per 100,000) and soft tissue injuries (around 202 per 100,000).

For more information, see Nature of injuries.

Place of occurrence

In 2022–23, the home was the most commonly recorded place of injury (about 162,000 cases) followed by streets or highways (51,900 cases), sports areas (29,700 cases) and aged care facilities (about 27,500 cases).

For more information, see Place of occurrence.

Severity

The severity or seriousness of an injury can be measured in several ways. Some of these are:

- emergency department presentation metrics such as triage category
- average length of hospital stay (ALOS) measured in days
- time in an intensive care unit (ICU) or receipt of continuous ventilatory support (CVS)
- in-hospital deaths.

For more information, see Severity.

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Life expectancy and causes of death

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

On this page:

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 2022, there were 190,939 deaths registered in Australia (99,924 males; 91,015 females). Less than 1% of all deaths in Australia in 2022 occurred among children aged 0–4 years, while over two-thirds (68%) were among people aged 75 and over.

Deaths data

Causes of death are documented on death certificates by medical practitioners or coroners and coded by the Australian Bureau of Statistics (ABS) using the World Health Organization (WHO) 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 WHO (Becker et al. 2006) with minor modifications to suit the Australian context.

Leading causes of death presented on 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.

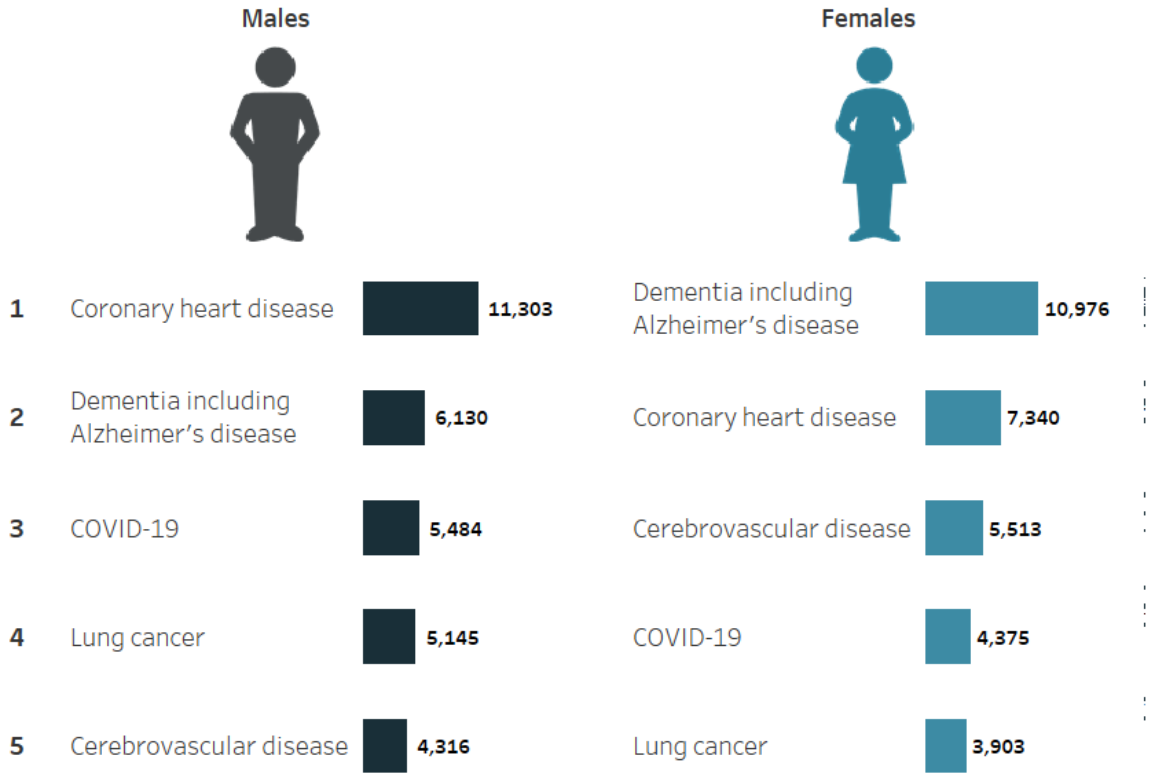
For more information, see Technical notes.

Leading causes of death by sex and age

In 2022, the leading cause of death for males was coronary heart disease, accounting for 11,303 (11%) 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 10,976 (12%) deaths, followed by coronary heart disease.

Other diseases among the 5 leading causes of deaths for males and females were: COVID-19, lung cancer, and cerebrovascular disease (which includes stroke).

Figure 1: Leading underlying causes of death in Australia, by sex, 2022



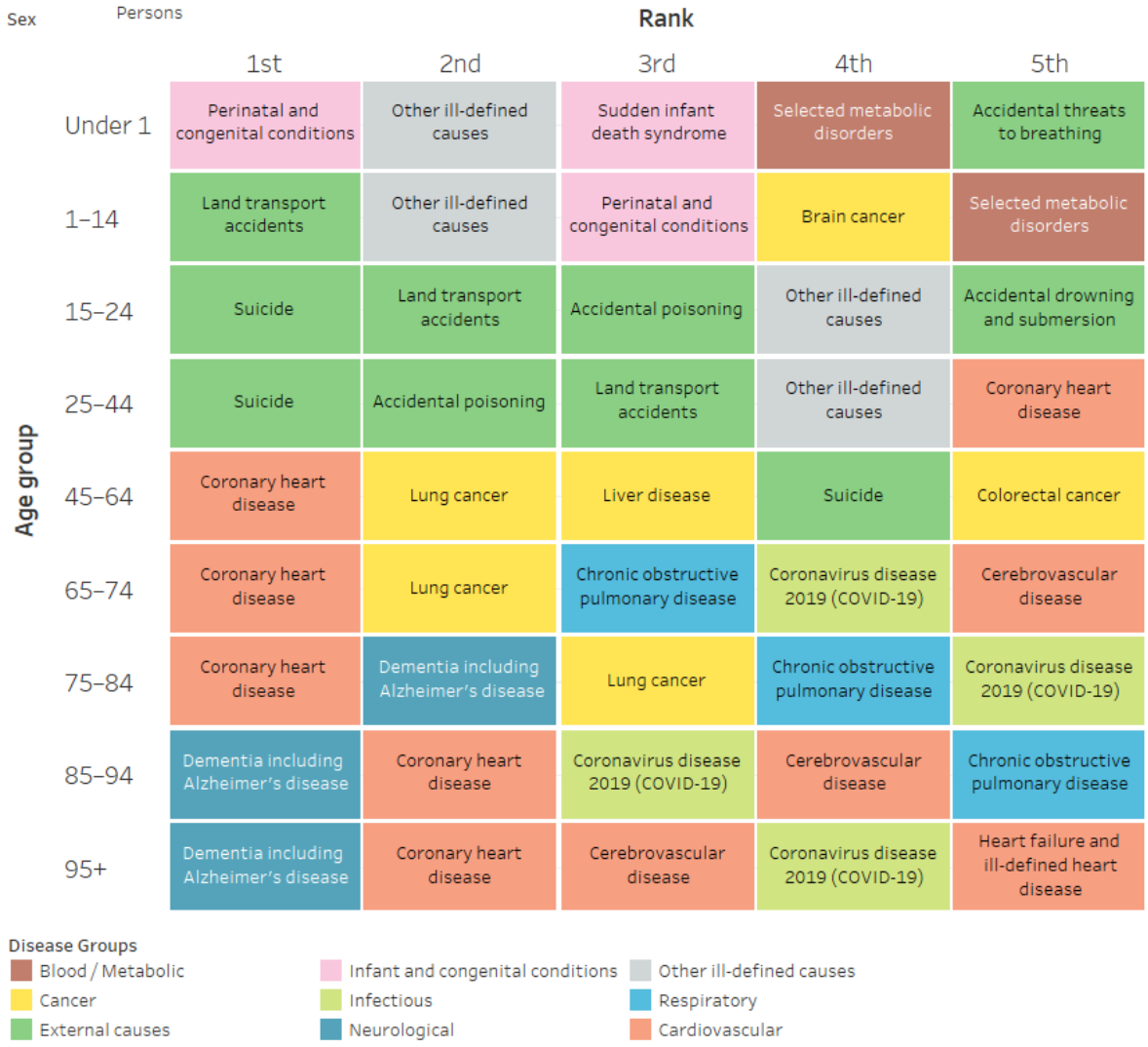
Source: AIHW National Mortality Database; Table S3.1.
https://www.aihw.gov.au

As well as differences by sex, the leading causes of death vary by age (Figure 2). Among infants, most deaths in 2022 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 most deaths among people aged 45 and over. Coronary heart disease was the leading cause of death for males aged 45 and over. Cancers (such as breast and lung) were the leading causes of death for females aged 45–74, and for those aged 75 and over it was dementia including Alzheimer's.

For more information, see Leading causes of death.

Figure 2: Leading underlying causes of death in Australia, by age group and sex, 2022



Source: AIHW National Mortality Database; Table S3.2.
https://www.aihw.gov.au

Notes

1. '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.

2. Heart failure refers to 'Heart failure and complications and ill-defined heart disease (I50–I51)'.

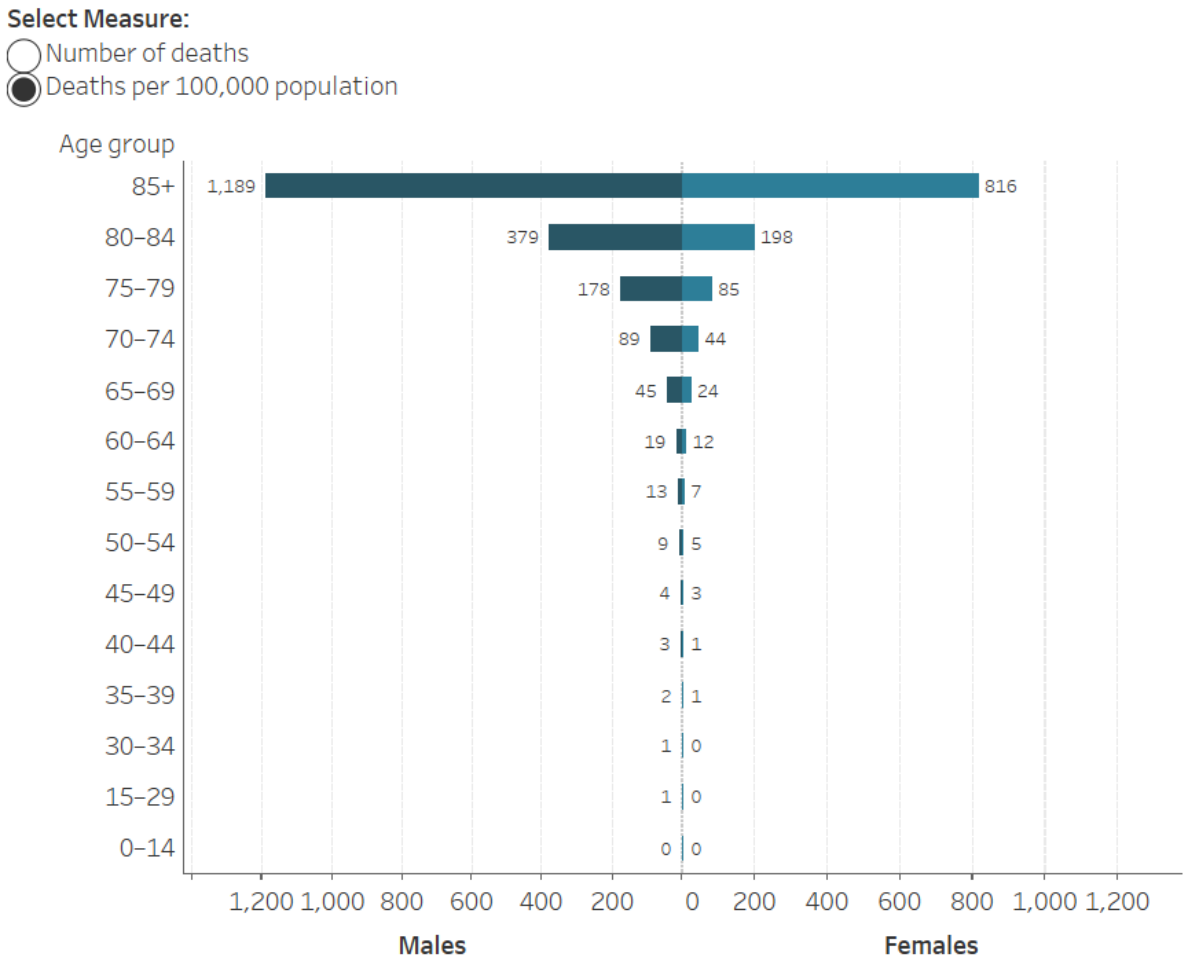
3. There were no suicide deaths in children under 5. The number of deaths of children attributed to suicide can be influenced by coronial reporting practices, see Deaths due to intentional self-harm (suicide): Coding of suicide- external site opens in new window in the Methodology of Causes of Death, Australia, ABS.

Deaths due to COVID-19

In 2022, there were 9,859 deaths due to COVID-19 registered in Australia. The number of deaths due to COVID-19 increased with increasing age. More than half occurred among those aged 85 and over (Figure 3). See COVID-19 deaths.

Males had higher numbers of COVID-19 deaths than females for most age groups. The death rate for males aged 70–79 was twice that of females in the same age groups.

Figure 3: Number of deaths and age-specific rates (per 100,000 population) in Australia due to COVID-19, by age and sex, 2022



Note: COVID-19 is coded to ICD-10 codes U07.1 (COVID-19, virus identified), U07.2 (COVID-19, virus not identified), U08.9 (Personal history of COVID-19, unspecified), U09, (Post COVID-19 condition, unspecified) or U10.9 (Multisystem inflammatory syndrome associated with COVID-19, unspecified). Only deaths where COVID-19 was the underlying cause of death are included. In 2022, they included codes U07.1, U07.2 and U10.9.
Source: AIHW National Mortality Database; Table S4.1.
https://www.aihw.gov.au

For the latest statistics on deaths due to COVID-19, see ABS reports Provisional Mortality Statistics- external site opens in new window and 'Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022' in Australia's health 2022: data insights.

Trends in deaths over time

In Australia, death rates have declined since at least the early 1900s. Between 1907 and 2022, the crude death rate decreased by 32%. When accounting for changes in the population age structure over this period, the age-standardised death rate fell by 73%.

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 75 per 100,000 in 2022 (decrease of 97%).

There has been a transition from infectious diseases such as influenza and tuberculosis which caused the most deaths in the early 1900s, to cardiovascular diseases and cancers causing the most deaths from the 1930s.

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

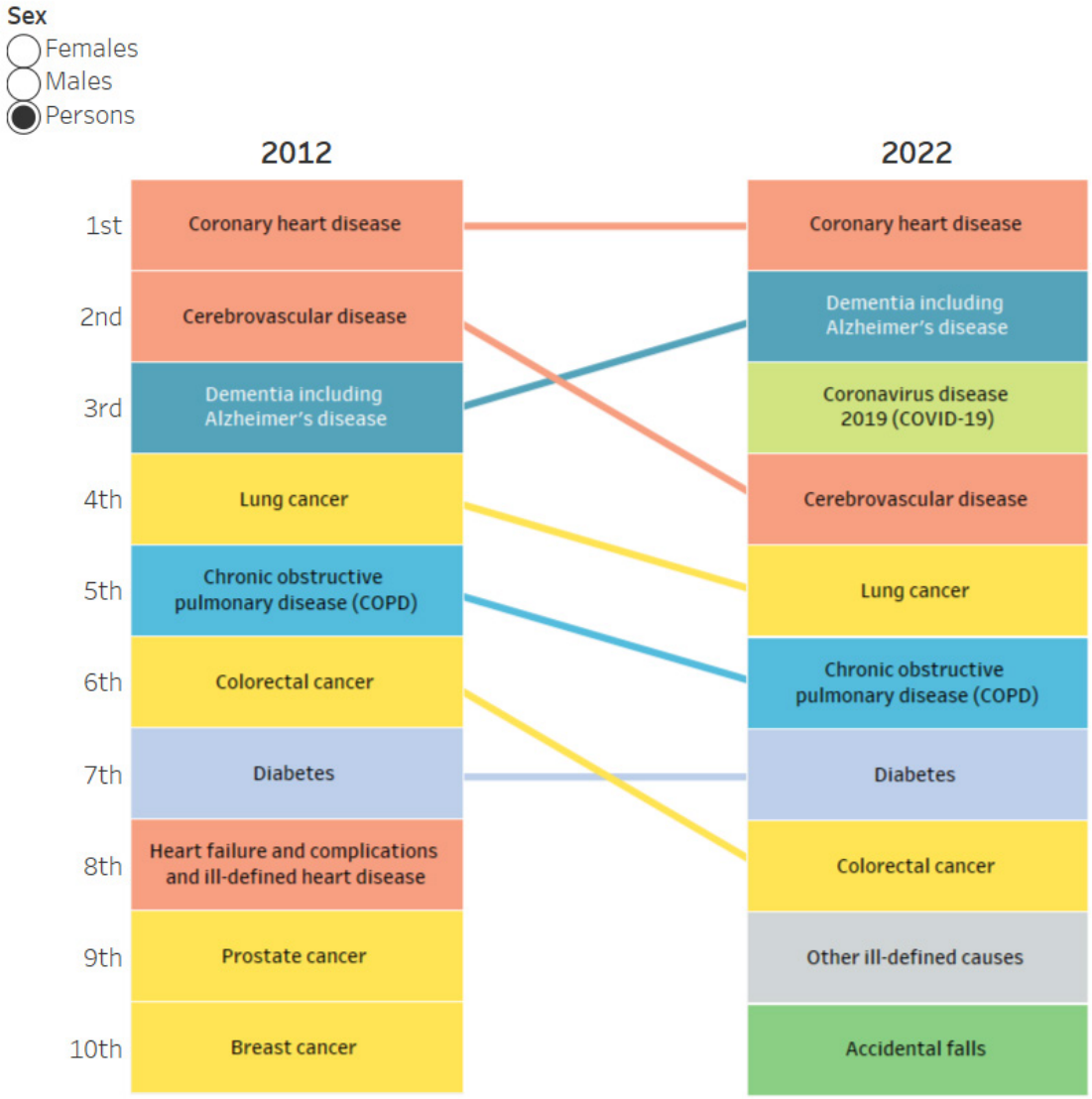
With the exception of the emergence of COVID-19, the 10 leading causes of death have generally remained the same throughout the last decade, albeit with different rankings (Figure 4). COVID-19 entered the top 10 leading causes of death in 2022 for the first time and was the 3rd and 4th leading cause of death for males and females respectively.

When considering the leading causes across the last decade:

- Coronary heart disease was the leading cause of death for males in both 2012 and 2022.
- Dementia including Alzheimer's disease has replaced coronary heart disease as the leading cause of death for females.
- Dementia including Alzheimer's disease increased in ranking for both males and females.
- Deaths due to cancer (lung, prostate, and colorectal) decreased in ranking for males.
- Deaths due to cancer (lung, breast, and colorectal) decreased in ranking for females.

For more information, see Trends in deaths.

Figure 4: Change in disease ranking and the proportion of all deaths for the leading 10 underlying causes of death in Australia, by sex, between 2012 and 2022



Source: AIHW National Mortality Database; Table S3.1, Table S5.3.
https://www.aihw.gov.au

Variation in deaths between population groups

First Nations people

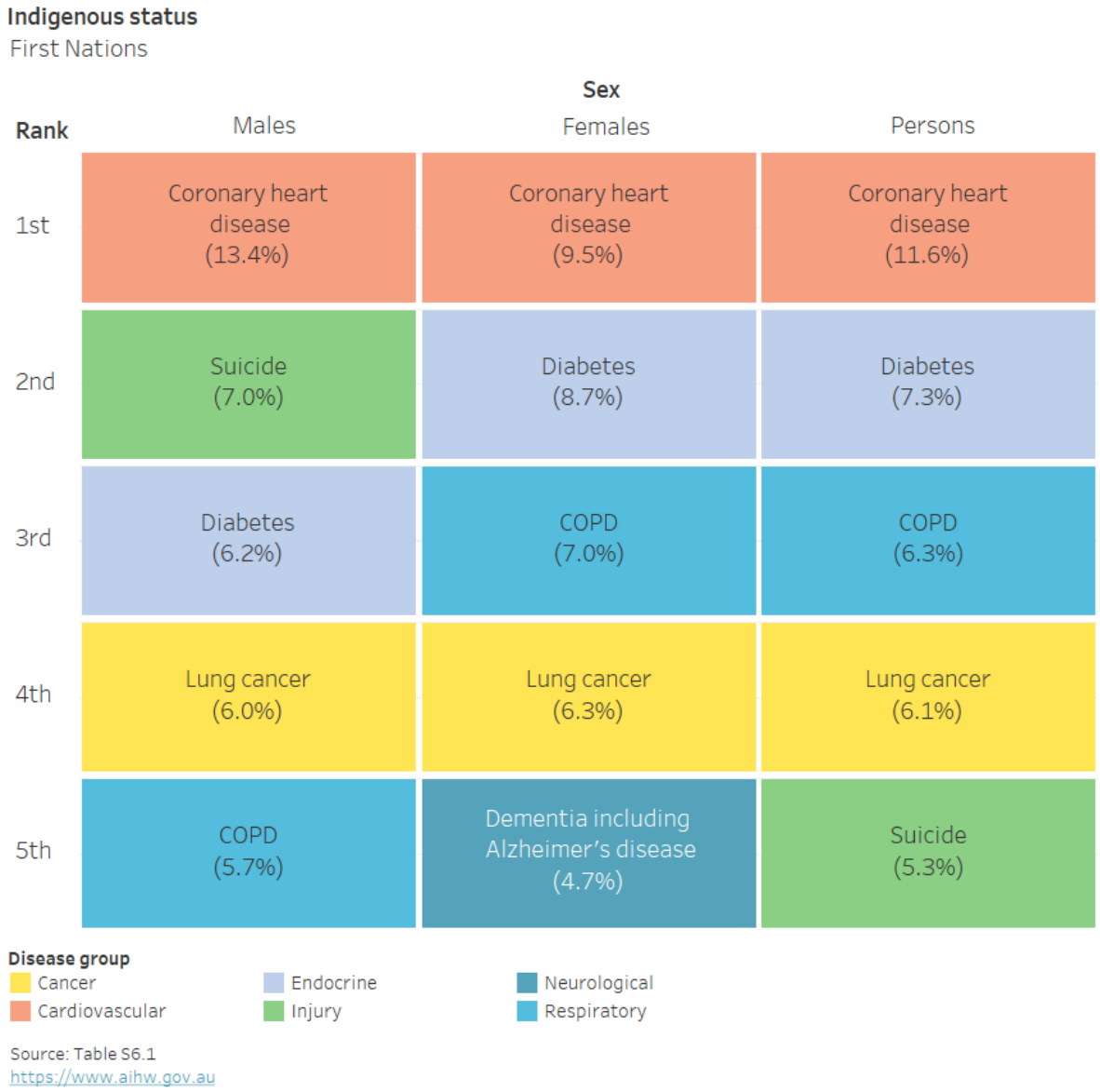
In the period 2018–2022:

- the crude death rate for First Nations people was 488 deaths per 100,000 population
- the age-standardised death rate for First Nations males was 1.3 times that of First Nations females (1,109 and 884 deaths per 100,000 population)

- the age-standardised death rate among First Nations people was 1.9 times the rate of non-Indigenous Australians (990 and 534 deaths per 100,000 population respectively)
- The 3 leading causes of death for First Nations people 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 5).

See Health and wellbeing of First Nations people.

Figure 5: Leading underlying causes of death in Australia, by Indigenous status and sex, 2018–2022



Source: Table S6.1
https://www.aihw.gov.au

Remoteness areas

Rates of death and leading causes of death differ between the areas where people live. When looking at the difference in what causes death by where people live, in 2018–2022:

- crude death rates were highest in *Inner regional* areas (853 deaths per 100,000) and lowest in *Very remote* areas (571 per 100,000)
- age-standardised death rates increased with increasing remoteness
- the age-standardised death rate for those in *Very remote* areas was 1.6 times the rate of those living in *Major cities* (770 and 492 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
- dementia including Alzheimer's disease had a lower ranking in *Remote* and *Very remote* areas (4th and 6th respectively) compared with *Major cities* and *Regional areas* (2nd).

See Rural and remote health.

Socioeconomic areas

Rates of death and leading causes of death differ between socioeconomic groups. In 2018–2022:

- crude death rates were highest in the lowest socioeconomic areas (805 deaths per 100,000) and lowest in the highest socioeconomic areas (540 per 100,000 population)
- age-standardised death rates decreased with increasing socioeconomic position
- the age-standardised death rate for people living in the lowest socioeconomic areas was 1.5 times the rate for people living in the highest socioeconomic areas (616 and 418 deaths per 100,000 population, respectively)
- for the leading causes, excluding dementia, the age-standardised death rate was highest in the lowest socioeconomic area, and lowest in the highest area.

See Social determinants of health and Variation in deaths 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'. For more information, see Multiple causes of death.

In 2022, 81% 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 (on average, 3.4 causes were recorded).

Some underlying causes of death had a higher number of associated causes of death than others:

- Deaths due to diabetes have an average of 5.5 causes recorded.
- Deaths due to dementia have an average of 3.1 causes recorded.

Some diseases were more likely to be reported as either the underlying or as an associated cause of death. For example:

- Kidney failure is more likely to be reported as an associated cause of death, with 40% of deaths due to diabetes reporting chronic or unspecified kidney failure.
- Liver and lung cancers are more likely to be reported as an underlying cause of death. For deaths with these causes recorded on the certificate, 90% and 89% of the underlying causes were due to the liver or lung cancer, respectively.

Multiple cause of death analysis can help to answer questions about what causes and contributes to death, not only from an underlying cause of death perspective. The report What do Australians die from? uses multiple cause of death data to understand some of the complexities in asking these questions.

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, on average, a newborn is expected to live.

For the first time since the mid-1990's, life expectancy in Australia decreased in 2020–2022 (by 0.1 years for males and females from 2019–2021) (ABS 2023a). However, Australia still has one of the highest life expectancies in the world – ranked fourth (males and females combined) in 2022, among the 38 member countries of the Organisation for Economic Co-operation and Development (OECD) (OECD 2024). In Australia, a boy born in 2019–2022 can expect to live to the age of 81.2 and a girl can expect to live to 85.3 (ABS 2023a).

As with death rates and leading causes of death, life expectancy varies between population groups within Australia. For First Nations people born in 2020–2022, life expectancy is estimated to be 8.8 years lower than that for non-Indigenous males (71.9 years compared with 80.6) and 8.1 years lower than for non-Indigenous females (75.6 years compared with 83.8) (ABS 2023b).

For more information, see Life expectancy.

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, 2022- external site opens in new window
- ABS Causes of death, Australia, 2022- external site opens in new window

For more on this topic, see Life expectancy & deaths.

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OECD (Organisation of Economic Cooperation and Development) (2024) *Health status, OECD Health Statistics (database)*- external site opens in new window, OECD, accessed 25 March 2024.

Measures of health and health care for Australia and similar countries

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

On this page

Comparing health and health care data between countries allows us to compare Australian experiences on a global scale and supports policy, planning and decision making. This page provides a high-level comparison of international health data. The interactive visualisation on this page allows you to compare data from the 38 Organisation for Economic Co-operation and Development (OECD) member countries, including Australia, across a range of health and health care indicators, with a focus on Australia's international performance. OECD member countries provide a useful comparison for Australia because almost all have high-income economies (World Bank 2023).

For information on 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 2023 (OECD 2023). The latest year of data available for some countries on these indicators at the time of this report was 2022, and where this was not available, the latest available year has been used, from 2010 onwards.

Where possible, this page has provided more recent Australian statistics which have been provided to the OECD and are expected to be updated on the OECD database in 2024.

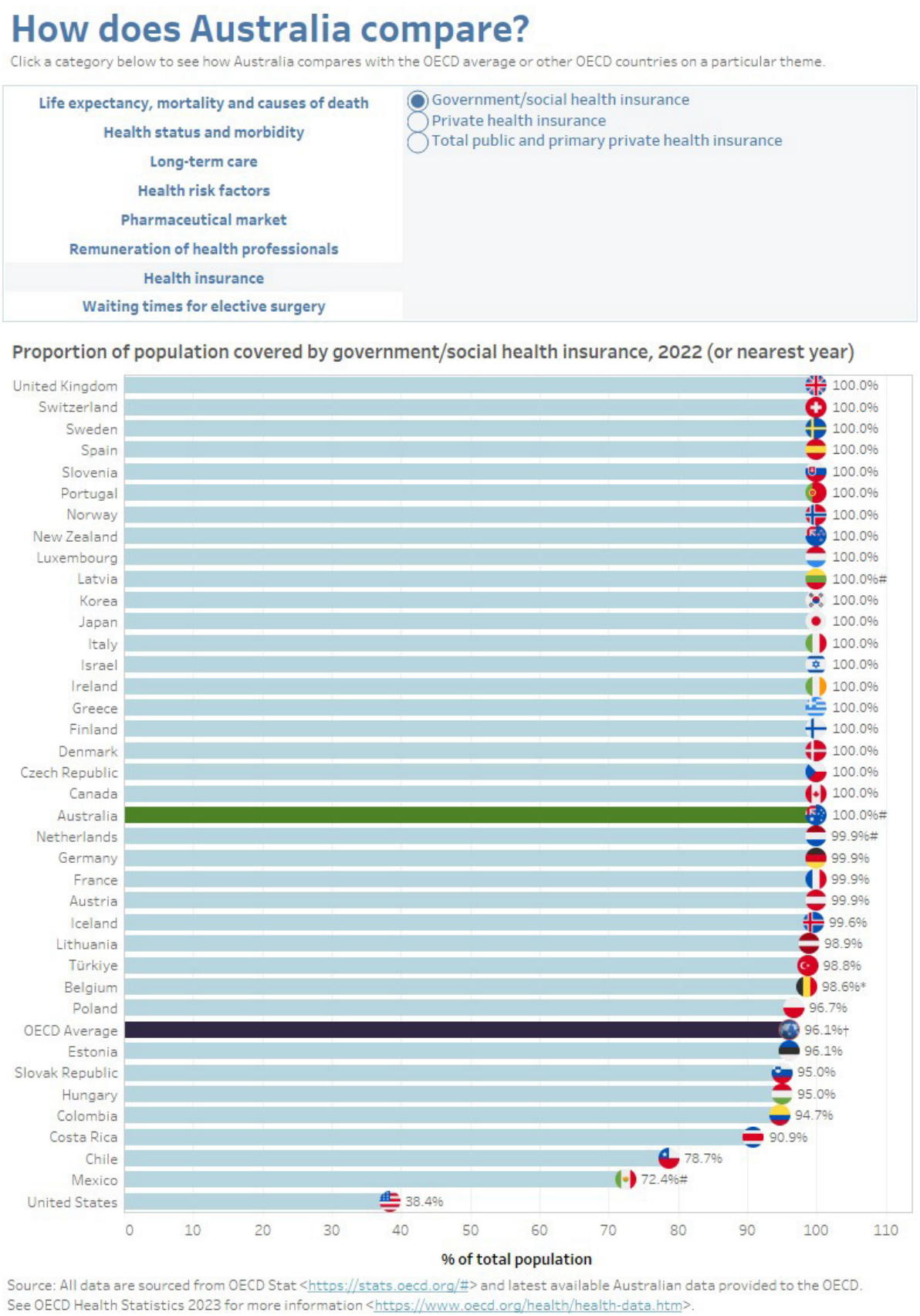
For contextual information about health and how we measure health, see Understanding health and health data. For further detail on definitions, sources, notes, indicators, and data availability, please refer to the OECD website.

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

In general, Australia compares well with other OECD countries on many health measures. In particular, Australia's results are more favourable than the OECD average for many indicators, including perceived health status, mortality and public and private health insurance coverage. Some exceptions to this include alcohol consumption and overweight or obesity risk factors.

Figure 1 compares various health indicators such as life expectancy, health risk factors and health insurance across 38 OECD countries in 2022 or the nearest year. Please note, data reported in this figure were the latest available at the time of writing. For the latest available data for each measure, visit OECD data explorer.

Figure 1: How does Australia compare?



Source: All data are sourced from OECD Stat <https://stats.oecd.org/#> and latest available Australian data provided to the OECD.
See OECD Health Statistics 2023 for more information <https://www.oecd.org/health/health-data.htm>.

Life expectancy, mortality and causes of death

In 2022 (or based on the latest year of data):

- Australia had the fifth lowest rate of mortality from Diseases of the circulatory system among the 38 OECD countries, at 164.5 deaths per 100,000 population (2021 – age standardised to the 2015 OECD population).
- Australia's infant mortality rate (with no minimum threshold of gestation period or birthweight) was 3.3 deaths per 1,000 live births (2021) – in the middle at 21st out of 38 OECD countries and lower than the OECD average of 4.1 deaths per 1,000 live births. Japan experienced the lowest rate of infant mortality (1.7 deaths per 1,000 live births).
- Australia's life expectancy at birth was equal fourth highest with Spain at 83.3 years (2021) – above the OECD average of 80.3 years. The highest life expectancy out of the 38 OECD countries was in Japan, where people could expect to live 84.5 years at birth.

Health status and morbidity

In 2022 (or based on the latest year of data):

- Among the 38 OECD countries, Colombia (9.9%, 2021), Greece (9.7%, 2021), and Japan (9.4%, 2021) had the highest proportion of low birthweight babies. The proportion of low birthweight babies in Australia was 6.3% (2021), 16th lowest of the OECD countries and slightly lower than the OECD average, 6.5% of total live births.
- Among those aged 15 and over, Australians were fourth most likely to perceive their health as 'good/very good' out of 37 OECD countries. New Zealanders were most likely to perceive their health as 'good/very good' (88.4%, 2022), followed by those living in Canada (88.3%, 2021), the United States (86.4%, 2021) and Australia (85%, 2022). Those living in Japan (36.6%, 2019) and Lithuania (48.1%, 2022) were least likely to rate their health as 'good/very good'. The OECD average was 68.5% ('good/very good').

Health risk factors

In 2022 (or based on the latest year of data):

- Australia was above the OECD average for litres per person of pure alcohol consumed by people aged 15 and over, at 10.1 litres per capita (in 2019) compared with the OECD average of 8.6 litres per capita. The highest amount of alcohol consumed of the 38 countries with data available was in Latvia (12.2 litres per capita, 2021), while the lowest was in Türkiye (1.4 litres per capita, 2021).
- Australia had the 10th highest proportion of people aged 15 and over who are living with overweight or obesity (64% in 2022), out of the 21 countries that reported measured height and weight data. This was higher than the OECD average of 59.4%. Chile had the highest at 74.2% (2016).

- Australia had the fifth lowest proportion of daily smokers among people aged 15 and over (8.5% in 2022) for all 38 OECD countries, with Türkiye ranking highest at 28% (2019), and Iceland with the lowest at 6.2% (2022). The OECD average was 15.7%.
- Australia had the fifth highest proportion of regular users (at least monthly) of vaping products (also known as e-cigarettes) among people aged 15 and over (5.7% in 2022) of the 33 OECD countries with data on use of vaping products. Estonia ranked highest at 10.4% (2022) and Austria the lowest at 0.7% (2019). The OECD average was 3.4%.

Long-term care

In 2022 (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 (47.6 per 1,000 in 2021) ranked 11th highest, out of the 32 OECD countries with available data. This was higher than the OECD average of 42.1 per 1,000.
- Australia had 7.3 formal long-term care workers per 100 population aged 65 and over in 2020 eighth highest out of the 24 OECD countries providing data. The OECD average was 5.7 per 100 population and Sweden (2021) and Norway (2022) had the highest, at 11.7 formal long-term care workers per 100 population.
- Australia had the third highest proportion (5.6% in 2021) of long-term care recipients in institutions (other than hospitals) for the population aged 65 and over, out of the 29 OECD countries with available data. The OECD average was 3.6%. Lithuania had the highest with 10.3% (2021).

It should be noted that definitions of long-term care vary between countries and this may impact the ranking of Australia compared with other OECD countries (OECD 2023). Additionally, the OECD definition is not consistent with Australia's own reporting of aged care measures.

Pharmaceutical market

In 2022 (or based on the latest year of data):

- Total pharmaceutical sales per capita ($US purchasing power parity) were highest in Belgium, at $US1,086 (2022), of 31 OECD countries with data available. Australia's pharmaceutical sales were equivalent to $US472 per capita (2021), lower than the OECD average ($US595 per capita).

It should be noted that Australian data only relate to medicines dispensed under the Pharmaceutical Benefits Scheme and do not account for medicines dispensed in hospitals or any over-the-counter or private sales.

Remuneration of health professionals

In 2022 (or based on the latest year of data):

- Self-employed general practitioners in Australia had the second lowest annual income among 15 OECD countries, at around $US 98,789 (adjusted for purchasing power parity) in 2021. This was lower than the OECD average of $US 151,183. The highest was Germany with $US 278,927 (2021), and the lowest was Israel with $US 94,522 (2021).
- Salaried hospital nurses in Australia earned the fifth highest annual income among 36 OECD countries, at around $US 70,569 (adjusted for purchasing power parity), in 2020. The highest was $US 111,135 in Luxembourg (2022), and the lowest in Lithuania ($US 23,940 in 2018). The OECD average was $US 53,309.
- For self-employed specialists, the annual income in Australia was fourth lowest among 11 OECD countries, estimated at around $US 217,319 per year (adjusted for purchasing power parity) in 2021. The highest was Luxembourg ($US 370,728 in 2015) and lowest was Israel ($US 164,441 in 2021).

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 (see glossary). Average salaries derived from the OECD Health Statistics 2023 (as is presented above) should not be compared with data from previous versions.

Health insurance

In 2022 (or based on the latest year of data):

- Australia was among 22 OECD countries (of all 38 OECD countries) in which 100% of the total population is covered by government or social health insurance for health care. The United States was lowest at 38.4% (2021), with the OECD average being 96.1%.
- Across 38 OECD countries, the proportion of the total population covered by private health insurance (the OECD refers to this as voluntary health insurance, which may be primary or in addition to government/compulsory coverage – duplicate, complementary or supplementary) was highest in Belgium, at 97.5% (2021). The proportion of the population covered by private health insurance in Australia was 54.9% (2022), ninth highest of 31 OECD countries and above the OECD average (34.8%).
- Australia was among 22 OECD countries (of all 38 OECD countries) in which 100% of the population were covered by public or primary private health insurance. Sixteen did not have 100% coverage with Mexico ranked lowest for this indicator (72.4% of its population covered by public or private health insurance in 2020). The OECD average was 98%.

Waiting times for elective surgery

In 2022 (or based on the latest year of data), the median waiting times in Australia from specialist assessment to treatment differed from the OECD averages, with some procedures having shorter median wait times than the average, and others longer. These included:

- coronary bypass (19 days in 2021), seventh highest out of 15 countries that supplied data and below the OECD average of 27 days.
- hip replacement (153 days in 2021), fifth highest out of 17 countries that supplied data and below the OECD average of 165 days.
- hysterectomy (74 days in 2021), fifth highest out of 14 countries that supplied data and above the OECD average of 63 days.

Data for Australia relate to 2020–21 so comparisons should be interpreted with caution as these data may be impacted by restrictions in healthcare activities that were introduced to prevent and reduce the spread of COVID-19. For more information, see Admitted patient activity.

Where do I go for more information?

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

- Measures of welfare and wellbeing for Australia and similar countries
- A working guide to international comparisons of health
- OECD Data Explorer (formerly OECD.Stat)
- OECD Data

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Mental health

This topic summary is part of the Mental health subsite.

On this page:

Key points

In the previous 12 months, an estimated...

Data tables: Prevalence and impact of mental illness

Mental health is a key component of overall health and wellbeing (WHO 2021). 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). However, a person does not need to meet the criteria for a mental illness to be negatively affected by their mental health (COAG Health Council 2017; Slade et al. 2009).

The terms ‘mental illness’, ‘mental disorder’, ‘mental health condition’ ‘psychiatric illness’ and other terms are used across a range of different studies and data sources to describe a range of mental health and behavioural disorders, which can vary in both severity and duration. For this report the term mental illness is used.

There are multiple surveys which collect information on the extent of mental illness in the Australian population. This page collates evidence on the prevalence and impact of mental illness. For more information about specific surveys, refer to data sources.

How many Australians have experienced mental illness?

The following estimates come from the 2020–2022 National Study of Mental Health and Wellbeing (NSMHW). It included an in-person interview using the World Health Organization’s Composite International Diagnostic Interview, version 3.0. This instrument indicates diagnoses, rather than relying on participant’s self-reporting of mental illness (ABS 2023b).

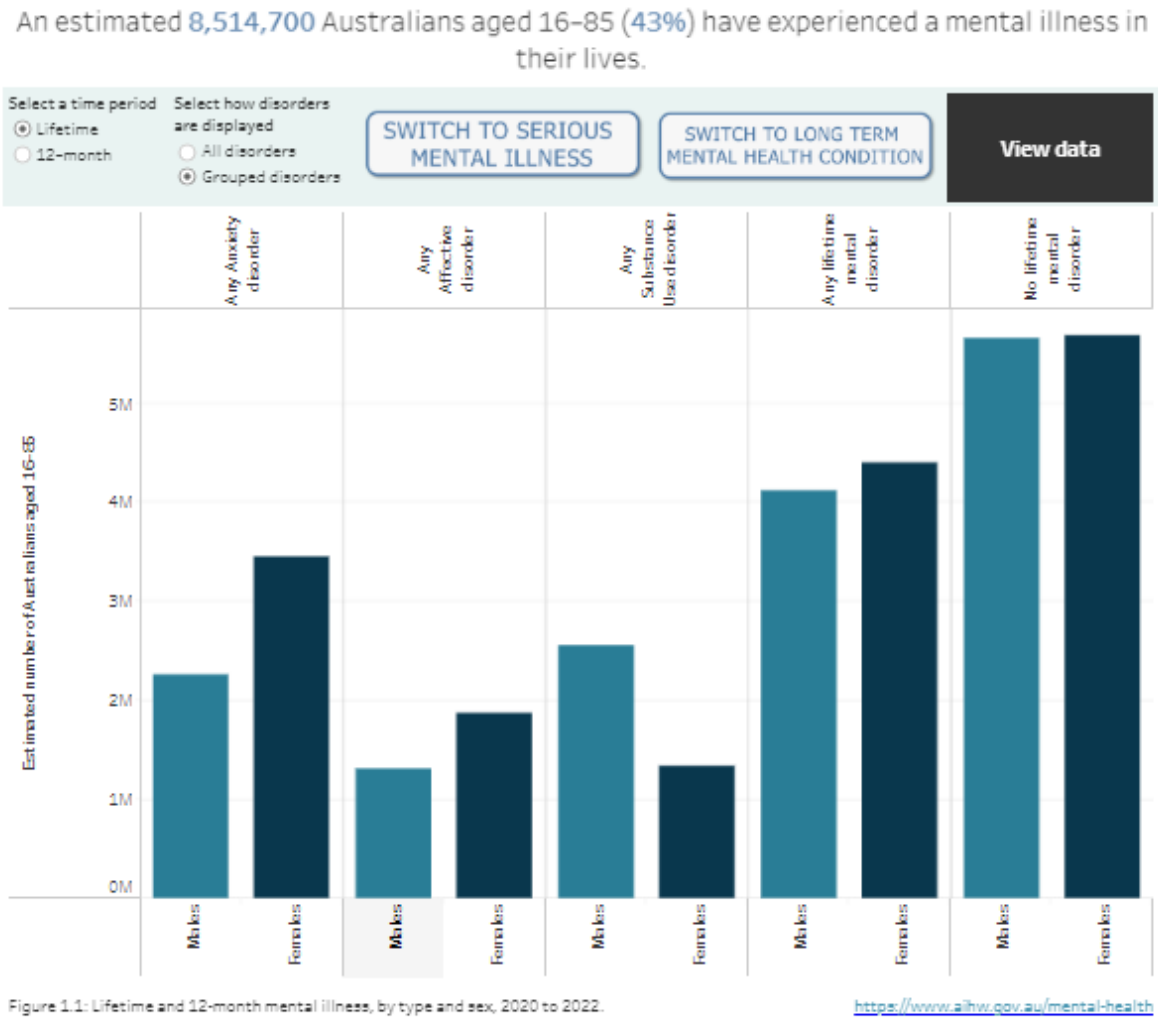
Based on the NSMHWB, of Australians aged 16–85, an estimated:

- 8.5 million had experienced a mental illness at some time in their life (43% of the population).
- 4.3 million had experienced a mental illness in the previous 12 months (22% of the population; Figure 1).

The most common mental illnesses in Australia, in the 12 months prior to the study, were:

- *Anxiety disorders* (3.4 million people, or 17% of the population)
- *Affective disorders* (1.5 million, or 8%)
- *Substance Use disorders* (650,000, or 3%) (ABS 2023a).

Figure 1: Lifetime and 12-month mental illness, by type and sex, 2020 to 2022



Sources: National Study of Mental Health and Wellbeing, 2020–2022; Household, Income and Labour Dynamics in Australia Survey 2021

The Australian Bureau of Statistics (ABS) National Health Survey- external site opens in new window (NHS) provides information on a range of health conditions, including self-reported mental illness. The NHS records a person as having a mental illness during the collection period only if the person reports that the condition had lasted, or was expected to last, 6 months or longer. According to the 2022 NHS, 26% of Australians aged 15 and over were estimated to have a mental illness during the collection period (January 2022 to April 2023) (ABS 2023e).

Based on the 2021 Census of Population and Housing- external site opens in new window (the Census) – which includes people of all ages – over 8 million Australians (32%) reported that they had been told by a doctor or nurse that they have a long-term health condition, with 2.2 million (9%) reporting a mental illness (including depression or anxiety) (ABS 2022a). Although the Census provides valuable information on the total population, the ABS recommends that the NSMHW be used as the reference source for mental illness prevalence data as it uses diagnostic criteria, rather than the self-reporting approach used in the Census and other surveys (ABS 2022b).

Similarly, the Household Income Labour Dynamics in Australia- external site opens in new window (HILDA) is a household-based panel study that collects information including health and wellbeing. The HILDA survey asks participants whether they have been told by a doctor or nurse that they have a serious mental illness, such as depression or anxiety, or a long-term mental illness. In 2021:

- an estimated 19% of Australians reported being diagnosed with depression, anxiety or any other serious mental illness at some time in their life, an increase from 11% in 2009.
- 6% of Australians reported having a long-term mental illness which requires help or supervision, or a nervous or emotional condition which requires treatment.

Mental illness includes conditions with relatively low prevalence and potentially severe consequences, such as psychotic illnesses (Department of Health and Ageing 2010). Psychotic illnesses may be characterised by symptoms including disordered thinking, hallucinations, delusions and disordered behaviour – although individual experiences vary greatly. Diagnoses include *Schizophrenia, Schizoaffective disorder* and *Delusional disorder.*

From the 2010 National Psychosis Survey it was estimated that 64,000 Australians aged 18–64 experienced a psychotic illness and were in contact with public specialised mental health services each year (referred to as the treated prevalence). This equates to 5 cases per 1,000 population. The survey found the most frequently recorded of these disorders was *Schizophrenia* which accounted for almost half of all diagnoses (47%) (Morgan et al. 2011).

Change over time

Prior to 2020–2022, the NSMHW was last undertaken in 2007. Estimates from the two surveys showed only minor differences in the overall prevalence of mental illness among the Australian population remained broadly similar, with 45% of Australians aged 16–85 years having a lifetime mental illness in 2007, compared with 43% in 2020–2022. In 2007, an estimated 20% of Australians had a 12-month mental illness, compared with 22% in 2020–2022. The prevalence of a 12-month mental illness remained the same among males (18% for both), but there was an increase among females (from 22% in 2007 to 25% in 2020–2022).

While the prevalence of a 12-month mental illness remained broadly similar between the two surveys for people aged 25–85, there was increased prevalence among young adults. In 2007, 26% of those aged 16–24 had a 12-month mental illness; in 2020–2022, this figure was 39%. This change is almost entirely driven by an increased prevalence among females in this age group: 30% of females aged 16–24 years in 2007 had a 12-month illness, compared with 46% in 2020–2022 (the prevalence for males of this age group increased from 23% to 32%).

Changes in methodology and diagnostic criteria mean that some comparisons between the 2007 and 2020–2022 studies should be made with caution. For more information, refer to Data interpretation.

Age and sex

The prevalence of mental illness varies by age and sex and has increased more rapidly than other serious illnesses – this increase has been more pronounced for young women (aged 15–34). In 2021, double the proportion of females aged 20–29 reported that they had been told by a doctor or nurse that they have a mental illness compared to males the same age (16% and 8%, respectively) (ABS 2022a)

According to the HILDA survey, in 2021, the estimated prevalence of depression or anxiety was highest among younger women and men (aged 15–34) at 22%, compared to 15% for people aged 55 and over. Since 2017, mental illness prevalence rates exceed asthma, which had been the most common serious illness for this age group (Figure 2).

Figure 2: Types of serious illness by age and sex, 2009 to 2021

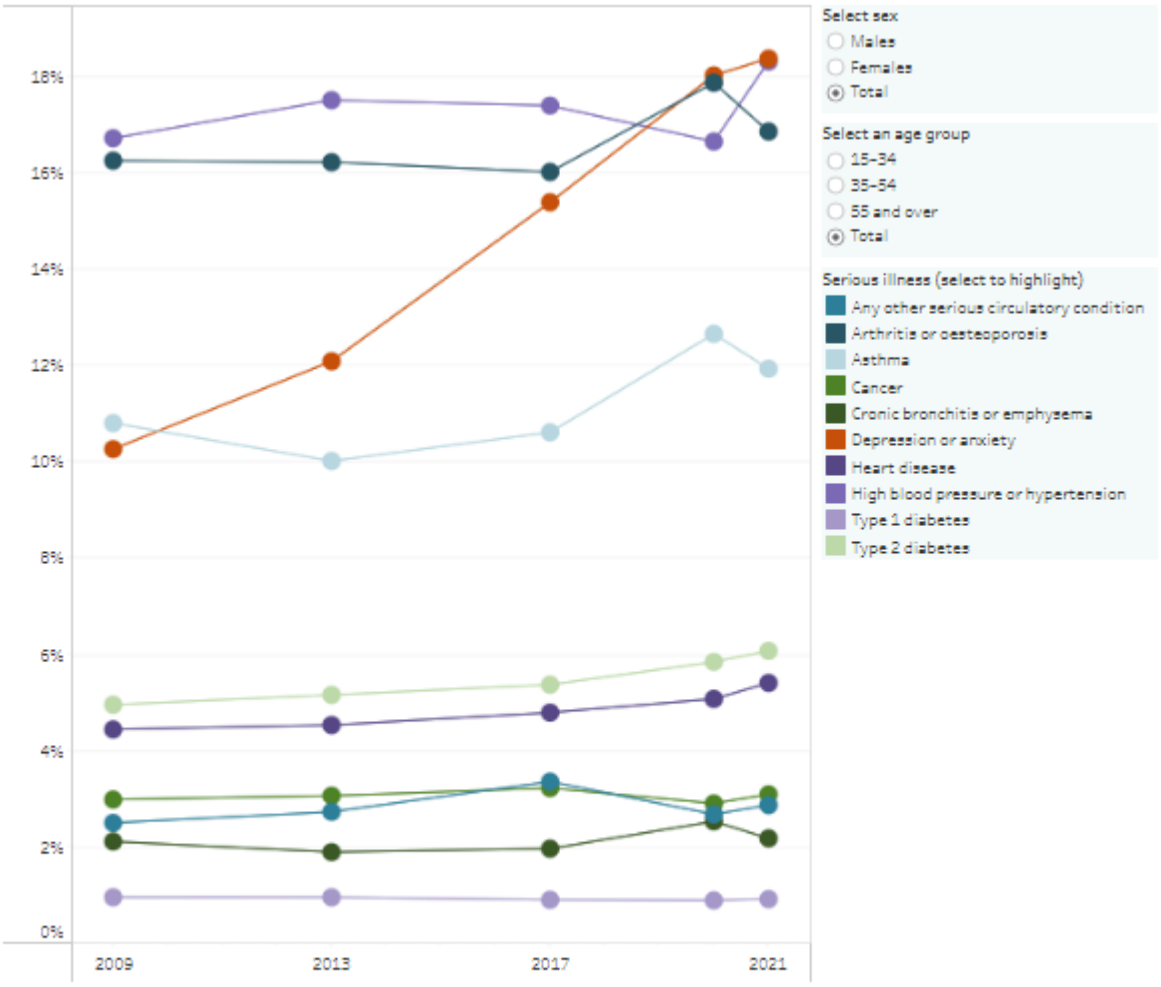


Figure 2: Estimated proportion of Australians reporting serious illnesses, by sex and age group, 2009–2021.

https://www.aihw.gov.au/mental-health

Source: Household, Income and Labour Dynamics in Australia Survey, 2021.

Persistence of mental illness by age and sex

The HILDA survey collects additional health information every four years which allows the persistence of serious illness to be considered. The 2021 survey results showed that:

- 61% of males who reported with depression or anxiety in 2017 reported still having the condition 4 years later.
- 71% of females who reported with depression or anxiety in 2017 reported still having the condition 4 years later.
- 70% of people aged 15–34 who reported with depression or anxiety in 2017 reported still having the condition 4 years later.
- 69% of people aged 35–54 who reported with depression or anxiety in 2017 reported still having the condition 4 years later.
- 64% of people aged 55 and over who reported with depression or anxiety in 2017 reported still having the condition 4 years later.

In addition, of those who accessed treatment for their depression or anxiety diagnosis in 2017:

- 74% reported still having the condition 4 years later.
- 9% reported not having the condition but having any other serious illnesses 4 years later.
- 17% reported not having any serious illness 4 years later.

Similarly, of those who took prescribed medication for their depression or anxiety diagnosis in 2017:

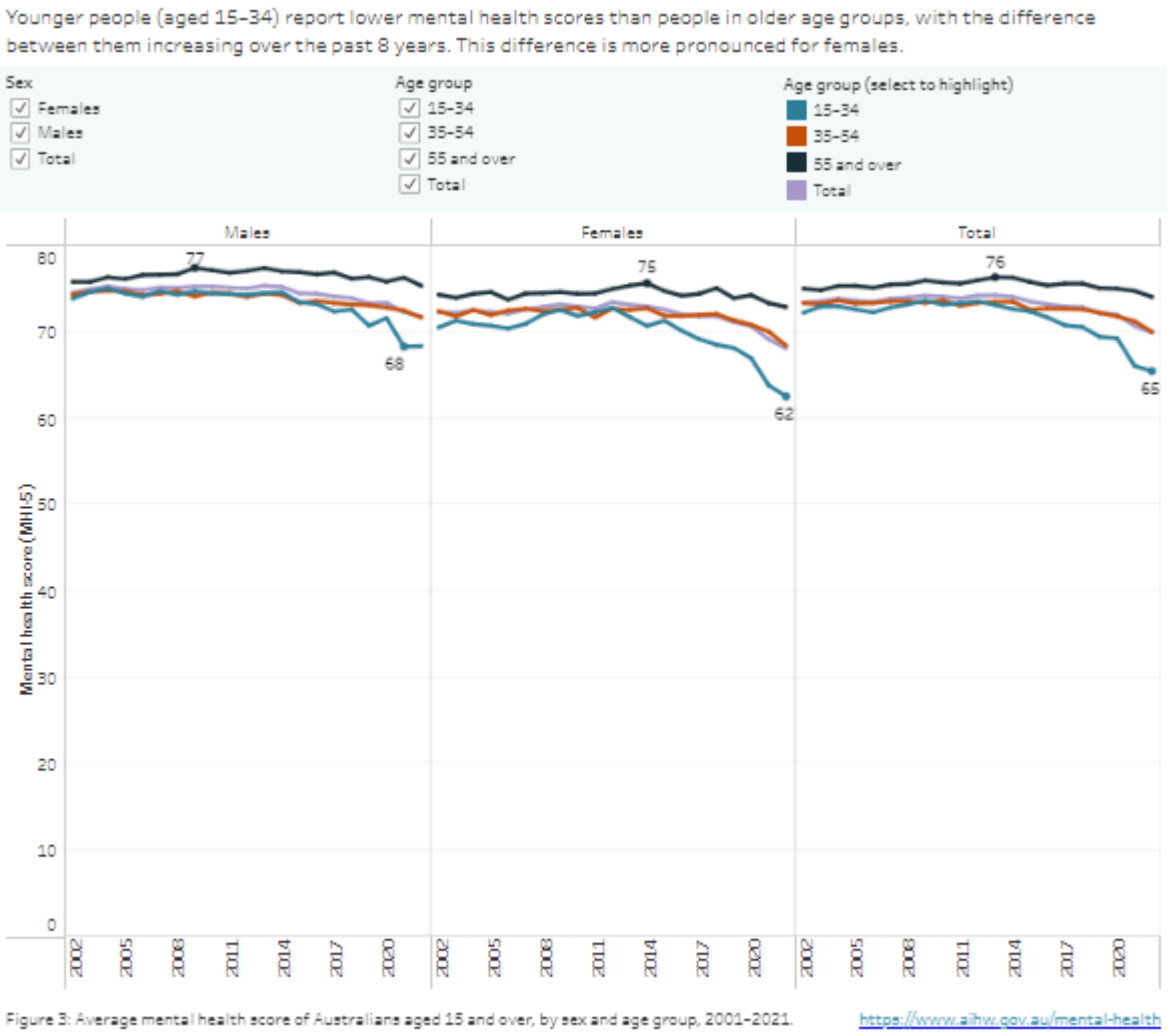
- 76% reported still having the condition 4 years later.
- 6% reported not having the condition but having other serious illness 4 years later.
- 18% reported not having the condition 4 years later.

It is important to note that we cannot definitively determine whether an illness is persistent or episodic throughout the entire four-year period. The survey provides a snapshot of illness prevalence at specific points in time, and changes in prevalence rates over time may reflect a combination of unobserved factors including changes in survey methodology, and variations in individual experiences at some point during the 4 years.

In addition to self-reported diagnoses, the HILDA Survey tracks the mental health of Australians based on the MHI-5 (Mental Health Inventory-5) mental health measure (a subscale of the SF-36 general health measure). This measure ranges from 0 to 100, with higher scores suggesting better mental health. The average score remained around 74 from 2001 to 2012. From 2013, it started decreasing until reaching 70 in 2021. Females maintained a lower average score than males over this time (Figure 3).

People aged 15–34 had lower mental health scores than those in older age groups. Moreover, this gap has been increasing as scores for younger people decrease at faster rates over the past 8 years. The average mental health score for people aged 15–34 decreased from 72 in 2001 to 65 in 2021. This difference is more pronounced for females, whose score decreased from 70 to 62 over this time. Females aged 55 and over recorded an average mental health score of 73 in 2021 compared with younger females (aged 15–34) who recorded an average score of 62.

Figure 3: Average mental health score of Australians aged 15 and over by sex, 2001–2021



Source: Household, Income and Labour Dynamics in Australia Survey, 2021.

Children and adolescents

The most recent Australian Child and Adolescent Survey of Mental Health and Wellbeing, also referred to as the Young Minds Matter Survey, was undertaken in 2013–14. Almost 3,000 people aged 4–17 participated and the survey included a structured diagnostic interview to assess young people against mental illness criteria (Lawrence et al. 2015).

About 14% of children and adolescents aged 4–17 years were estimated to have experienced mental illness in the previous 12 months, equivalent to about 628,000 people, which, assuming the same prevalence as 2013–14, would be equivalent to about 628,000 people based on the estimated 2022 population. The most common mental illnesses among children and adolescents were:

- *Attention Deficit Hyperactivity Disorder* (7%, or about 334,000 people)
- *Anxiety disorders* (7%, or about 312,000)
- *Major depressive disorder* (3%, or about 126,000)

- *Conduct disorder* (2%, or about 95,000).

About 30% of adolescents with a mental illness experienced 2 or more mental illnesses at some time in the previous 12 months.

Male children and adolescents (16%) were more likely than females (12%) to have experienced mental illness in the previous 12 months. The prevalence of mental illness was slightly higher for older females (13% for those aged 12–17) than younger (11% for those aged 4–11). The prevalence for males did not differ markedly between the younger and older age groups (17% and 16%, respectively) (Lawrence et al. 2015).

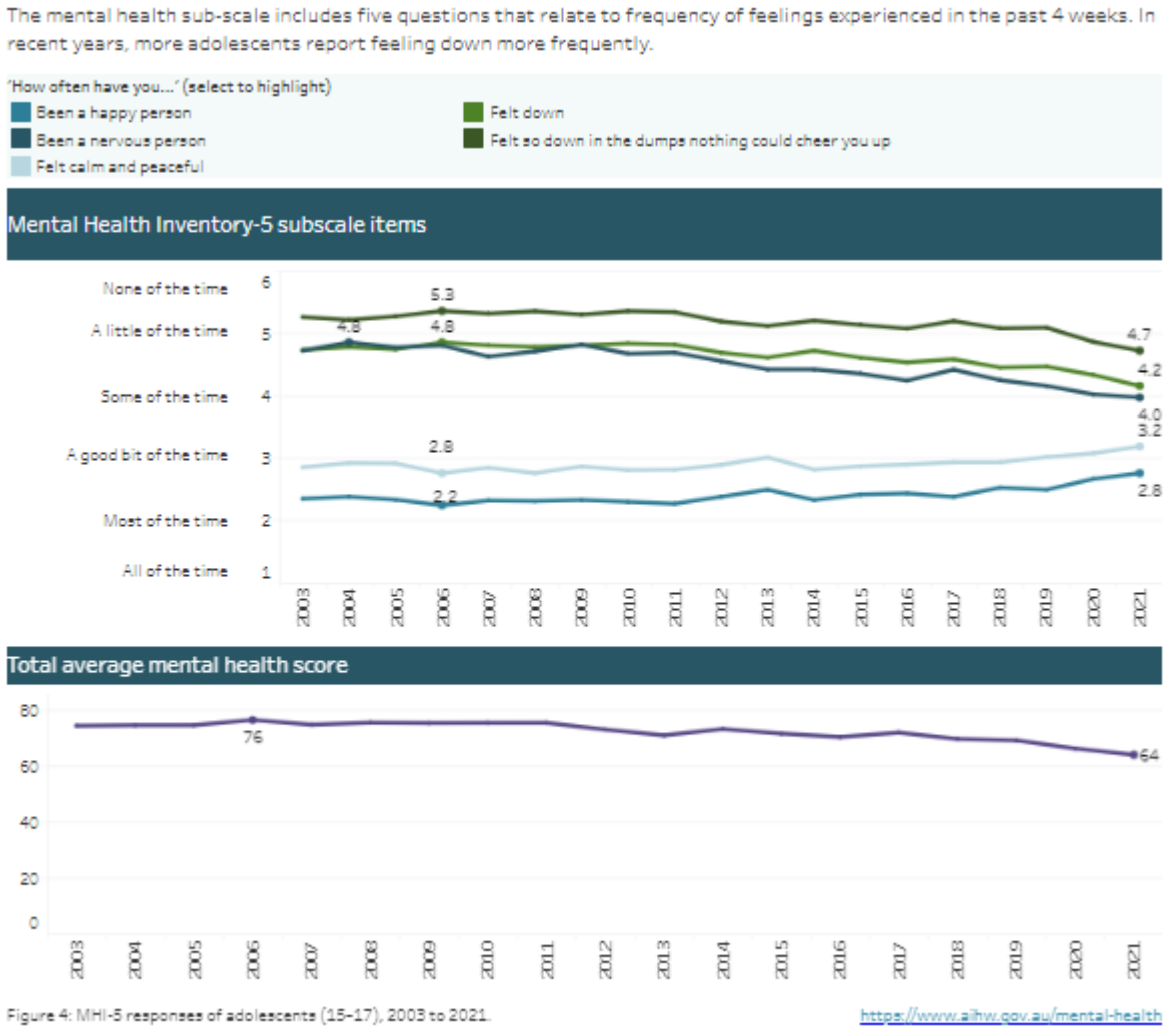
In 2021, HILDA estimates showed that around 7% of Australians aged 15–17 had a long-term mental health condition such as a nervous or emotional condition which requires treatment, or a mental illness which requires help or supervision. This proportion has increased from 2% in 2003. In addition, 19% of Australians in this age group were estimated to be diagnosed with depression, anxiety or any other mental illness, an increase from 6% in 2009.

How do female adolescents compare with male adolescents?

- 27% of female adolescents (aged 15–17) reported a serious mental illness in 2021; an increase from 16% in 2017. In comparison, 11% of male adolescents reported a serious mental illness, showing no change from 2017.
- 25% of female adolescents reported an anxiety disorder in 2021; an increase from 15% in 2017. In comparison, 9% of male adolescents reported an anxiety diagnosis, an increase from 8% in 2017.
- 13% of female adolescents reported a depression disorder in 2021; an increase from 7% in 2017. In comparison, 4% of male adolescents reported a depression disorder, a decrease from 6% in 2017.

Based on the 2021 HILDA survey, more adolescents reported frequently feeling ‘so down in the dumps nothing could cheer you up’ compared with 2008. The average score for this question has decreased from a high of 5.3 in 2008 to a low of 4.7 in 2021. The average score for the question ‘felt calm and peaceful’ has increased from 2.8 to 3.2, indicating that fewer adolescents report feeling calm and peaceful frequently (Figure 4).

Figure 4: Experience of mental health among people aged 15–17 years, 2003 to 2021



Source: Household, Income and Labour Dynamics in Australia Survey, 2021.

How does mental health differ across Australia?

In 2021, the Census included new questions on 10 common long-term health conditions. Some insights from the Census include:

- 11% of people who usually reside in Tasmania have been told by a doctor or nurse that they have a mental illness, the highest proportion of any state or territory.
- People who have no usual address tend to report a higher proportion of mental illnesses than people usually residing in fixed geographic areas (Figure 5).

Figure 5: Census data by states and territories, SA4 and PHN

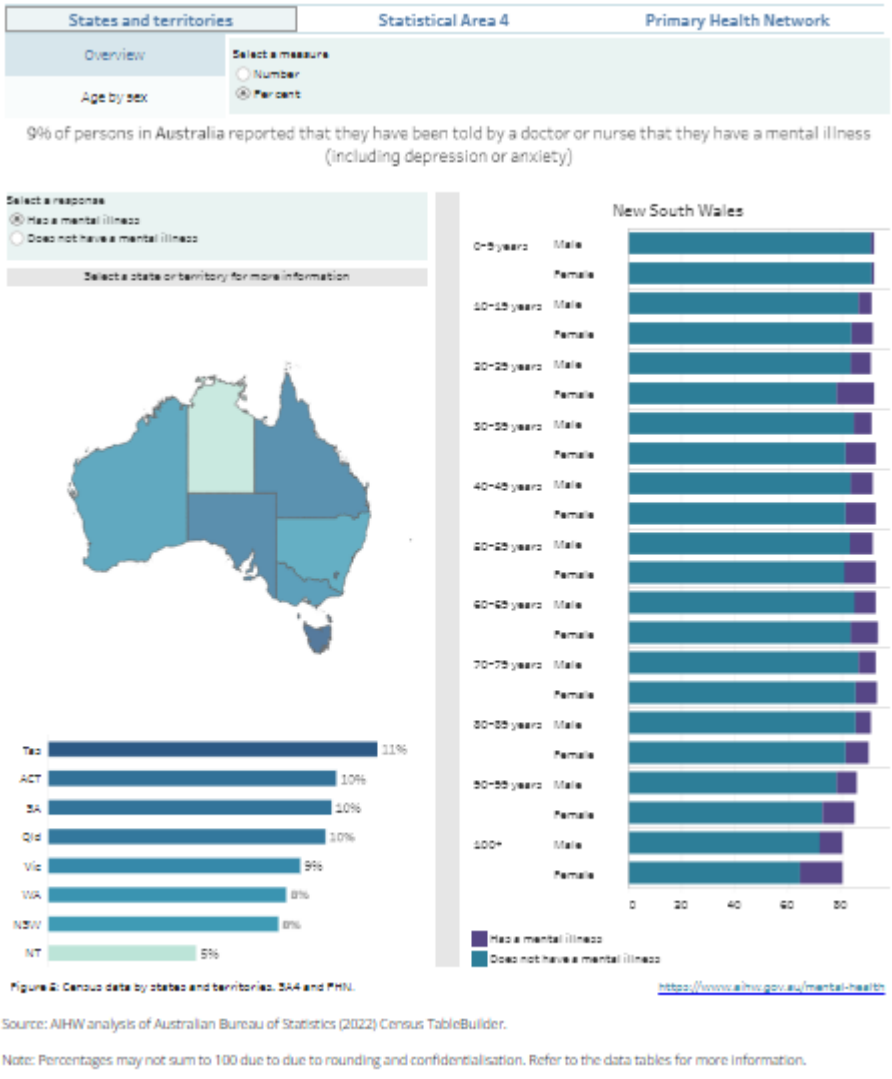


Figure 5: Census data by states and territories, SA4 and PHN. https://www.aihw.gov.au/mental-health

Source: AIHW analysis of Australian Bureau of Statistics (2022) Census TableBuilder.

Note: Percentages may not sum to 100 due to due to rounding and confidentialisation. Refer to the data tables for more information.

Impact of mental illness

The HILDA survey collects information on the extent to which health conditions impact an individual's everyday activities. In 2021, for people who reported having a long-term mental illness, an estimated:

- 17% reported needing help or supervision due to their condition.
- 59% of people aged less than 65 reported having difficulties with employment due to their condition. These difficulties included needing ongoing assistance or special equipment to work, having to restrict number of work hours or type of work they can do, among others.
- 58% of students aged less than 65 had difficulties with education due to their condition.

HILDA also collects information on the degree to which health conditions limit the amount of work an individual can do (on a 0 to 10 scale, where 0 equals 'not at all' and 10 equals 'unable to do any work'). In 2021, an estimated 68% of people reported that

their condition limits the type or amount of work they can do, of these, about half reported a score higher or equal to 7, with 12% scoring 10.

First Nations people

An estimated 24% (187,500) of Aboriginal and Torres Strait Islander (First Nations) people reported a mental illness, based on the 2018–19 National Aboriginal and Torres Strait Islander Health Survey. The rate was similar among females than males (25% compared with 23%, respectively). An estimated 31% of people reported experiencing high or very high levels of psychological distress in the previous 4 weeks (ABS 2019). For more information, refer to Indigenous health and wellbeing.

LGBTIQ+ people

The acronym LGBTIQ+ is used here as an umbrella term to refer to lesbian, gay, bisexual, trans/transgender, intersex, queer and other sexuality, gender and bodily diverse people and communities.

LGBTIQ+ people report lower health and wellbeing compared to other Australians generally. The Private Lives Survey (PL3), a survey of LGBTIQ+ people, has been conducted 3 times since 2005. The most recent survey, undertaken in 2019, was completed by about 6,800 participants. Whilst this survey included participants with an intersex variation/s, the data are not able to be disaggregated by this category and, therefore, the acronym LGBTQ+ is used when referring to the PL3 results. LGBTIQ+ is used when referring to communities more generally.

In 2020, an estimated 61% of LGBTQ+ people reported having been diagnosed with depression and 47% reported having been diagnosed with an anxiety disorder. An estimated 57% reported experiencing high or very high levels of psychological distress within the past 4 weeks.

An estimated 59% of LGBTQ+ people who accessed a mainstream medical clinic felt that their sexual orientation was very or extremely respected and 38% thought that their gender identity was very or extremely respected (Hill et al. 2020). For more information, refer to Private Lives 3- external site opens in new window.

People with disability

Adults with disability generally experience higher psychological distress than people without disability. According to the 2020–21 National Health Survey, it was estimated that 33% of adults with disability experienced high or very high psychological distress in the previous week, compared with 12% of the population without disability. People with psychosocial disability were the most likely to report high or very high psychological distress (76%), followed by people with intellectual disability (53%) (AIHW 2024).

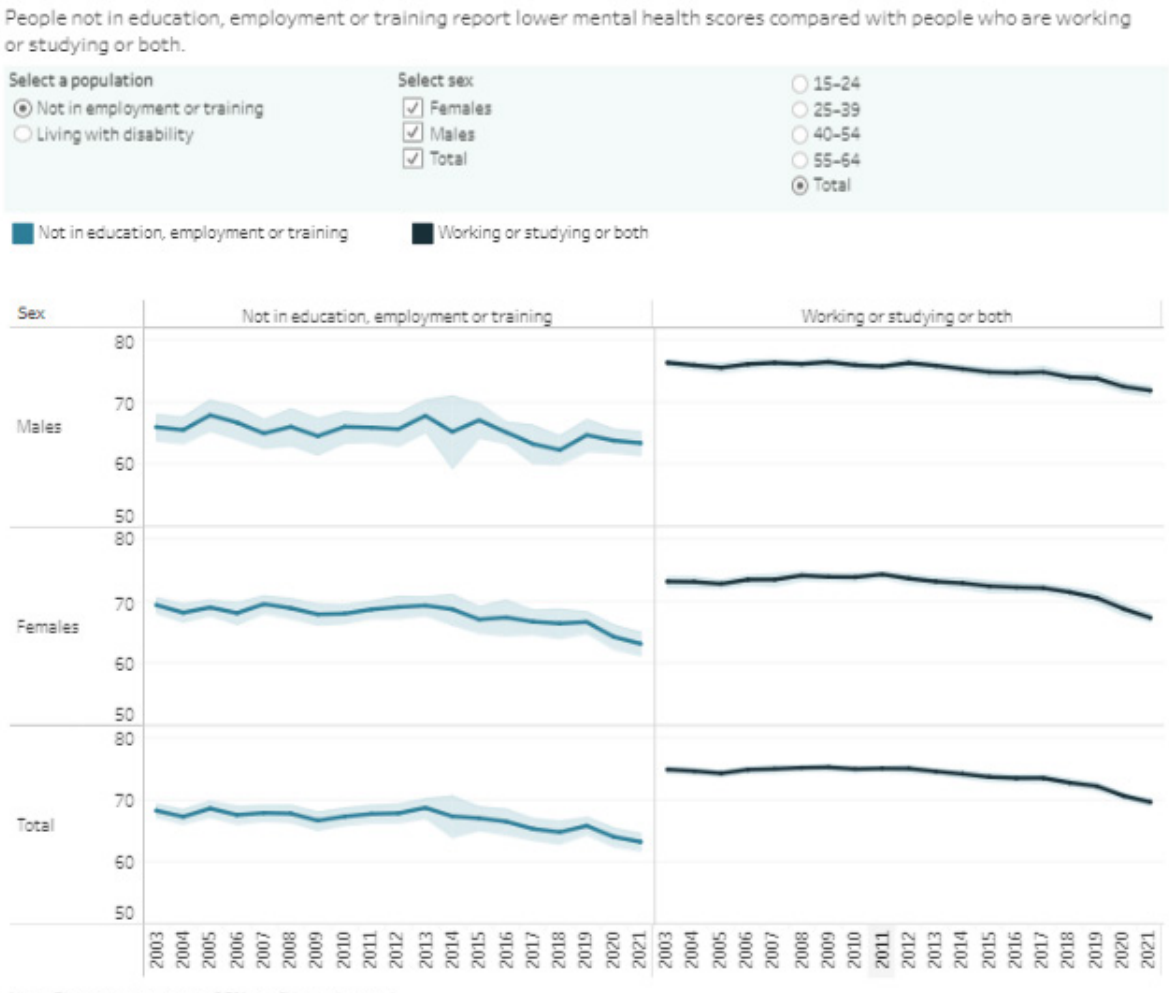
In 2021, the HILDA survey estimated that the average mental health score of people living with disability (impairment or disability that restricts the individual in everyday activities, and which has lasted, or is likely to last, for six months or more (Wilkins et al. 2024)) is consistently lower than those who do not live with disability (62 compared to 72). The score is lower for females with disability than males (60 compared with 64) (Figure 6). For more information, refer to People with disability in Australia.

People not in education, employment or training (NEET)

The HILDA survey can be used to estimate and report on people aged 15–64 who are not employed, not enrolled in education and not enrolled in any course or training (NEET). Young people who are NEET are at risk of becoming socially excluded by lacking the skills to improve their socioeconomic situation (OECD 2023). Estimates show that the mental health score of the NEET population is consistently lower than those who work, study or both (in 2021, 70 compared to 63).

Even though the mental health score of younger people is the lowest among all age groups, young people aged 15–24 who are either studying or working or both, consistently maintain a higher average mental health score than those who are not (in 2021, 64 compared to 61). In particular, during the first year affected by the COVID-19 pandemic (2020), the average mental health score of young NEETs (aged 15–24) dropped to a low of 58, compared to 65 for other young people (Figure 6).

Figure 6: Mental health of selected population groups by age and sex, 2003 to 2021



Note: Blue area represents 95% confidence interval.
Figure 6: Mental health score of population groups, 2003–2021.

https://www.aihw.gov.au/mental-health

Source: Household, Income and Labour Dynamics in Australia Survey, 2021.

Burden of mental illness

Severity

Mental illness affects all Australians, either directly, for those who experience it or indirectly, such as family members, friends and carers. Mental illness can vary in severity and be episodic or persistent in nature. In most cases, the impact on the individual will be mild (9%, or an estimated 1.4 million people) or moderate (5%, or an estimated 710,000 people). It is estimated that around 3% (or an estimated 500,000 people) have a severe mental illness, of which 330,000 people have episodic mental illness and 170,000 have persistent mental illness (Whiteford et al. 2017).

Burden of disease

Mental health conditions and substance use disorders, such as Depression, Anxiety and Drug use, are substantial components of overall disability and morbidity. The Australian Burden of Disease Study 2023 examined the health loss due to disease and injury that is not improved by current treatment, rehabilitative and preventative efforts of the health system and society. For Australia, *Mental and substance use disorders* were estimated to be responsible for 15% of the total burden of disease, placing it second as a broad disease group after *Cancer* (17%) (AIHW 2023).

How many Australians experience psychological distress?

What is psychological distress?

Another insight into the mental health and wellbeing of Australians is provided by measures of psychological distress, which may include nervousness, agitation, psychological fatigue and depression. 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.

How is psychological distress measured?

Psychological distress is commonly measured using the Kessler 10 Psychological Distress Scale (K10), a scale based on questions regarding negative emotional states experienced in the past 30 days (ABS 2023d). Someone experiencing psychological distress will not necessarily be experiencing mental illness, although high scores on the K10 are strongly correlated with the presence of depressive or anxiety disorders (Andrews and Slade 2001). As it is relatively straightforward to measure, High and Very high levels of psychological distress are often used as a proxy for the presence of mental illness.

Surveys which measure psychological distress include the National Study of Mental Health and Wellbeing- external site opens in new window, the National Health Survey- external site opens in new window and the Household, Income and Labour Dynamics in Australia- external site opens in new window (HILDA) survey. Data presented here

come from the National Study of Mental Health and Wellbeing 2020–2022 and National Health Survey.

Among Australians aged 16–85, as measured from late 2020 to late 2022, 17% experienced high or very high levels of psychological distress. A higher proportion of females aged 16–24 experienced psychological distress than males of this age group (34% compared with 18%) (Figure 7) (ABS 2023a). For more information on psychological distress, refer to the AIHW suicide and self-harm monitoring site.

Figure 7: Estimated number of Australians aged 16–85 experiencing psychological distress, 2020–2022

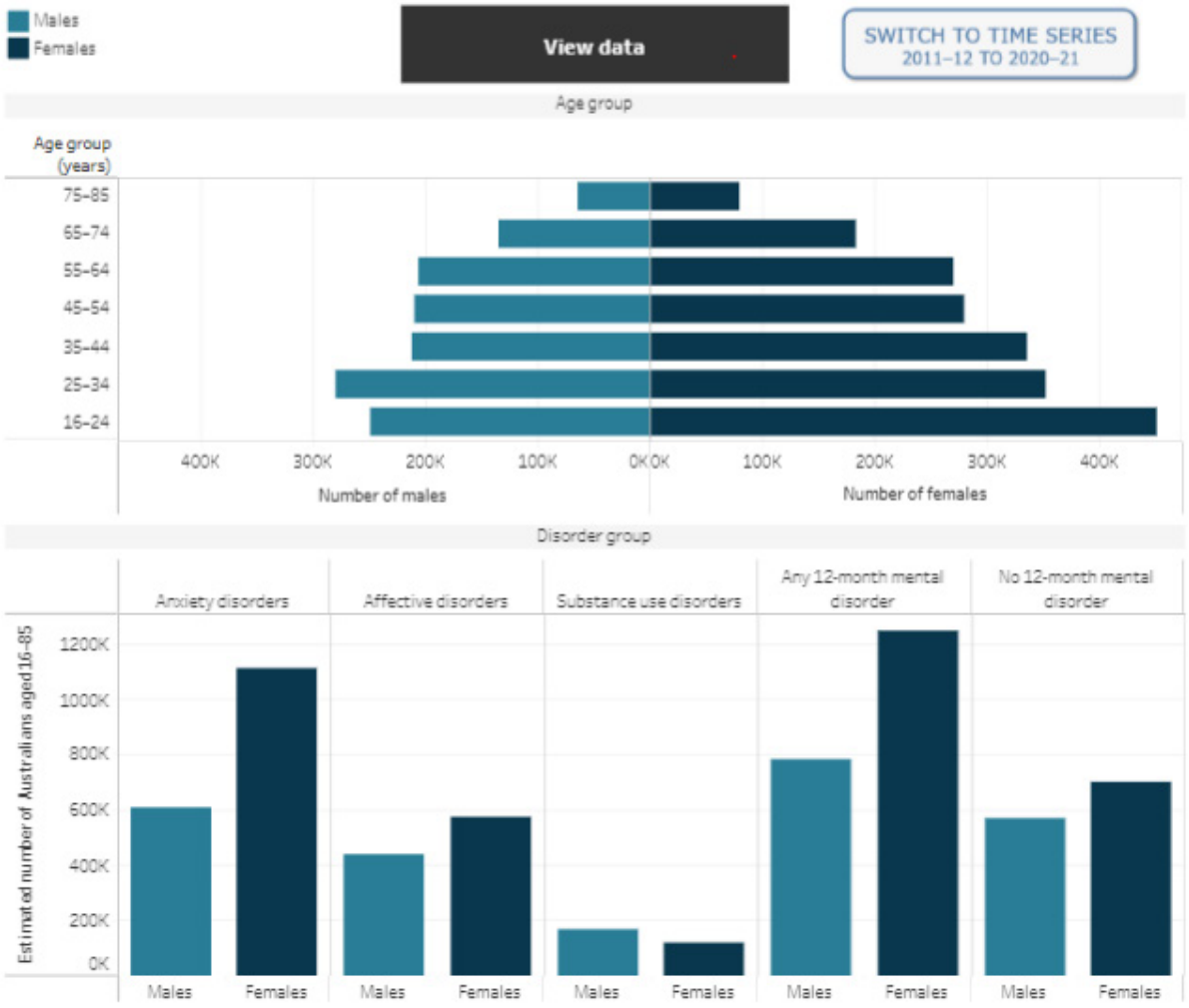


Figure 7.1: Estimated number of Australians aged 16–85 experiencing psychological distress by disorder and age group, 2020–2022

https://www.aihw.gov.au/mental-health

Source: National Study of Mental Health and Wellbeing 2020–2022; National Health Survey 2011–12, 2020–21.

Where can I find more information?

For more information on the prevalence of mental illness, refer to:

- Australian Burden of Disease Study 2023
- Stress and trauma

- Census of Population and Housing 2021- external site opens in new window
- National Health Survey methodology- external site opens in new window
- National Study of Mental Health and Wellbeing- external site opens in new window
- Household, Income and Labour Dynamics in Australia- external site opens in new window

Data interpretation

Prevalence estimates

The reported estimates of prevalence for mental illness in this section may diverge from actual prevalence because of potential undiagnosed conditions. The calculated prevalence rates from most data sources included here, other than the NSMHW, are influenced by how prone individuals are to access mental health care services. This is unlikely to be the same across demographic groups (Wilkins et al. 2019).

What are confidence intervals?

In this section, measures of statistical uncertainty pertaining to estimates (95% confidence intervals) from the HILDA survey are shown in all data tables and represented in data visualisations by black bars or shaded area surrounding lines. If the intervals for comparison groups do not overlap – that is, they do not include the same values in the range – the difference between groups can be generally inferred to be statistically significant.

Comparing the 2007 and 2020–2022 NSMHW

Although the 2020–2022 NSMHW was designed to be broadly comparable with the 2007 survey, changes in methodology and diagnostic criteria mean that some comparisons should be made with caution (ABS 2023c). These include:

- Comorbidity of physical health conditions and mental disorders.
- Agoraphobia with Panic Disorder.
- Post-Traumatic Stress Disorder.
- Obsessive-Compulsive Disorder.

For more information, please refer to Microdata: National Study of Mental Health and Wellbeing- external site opens in new window.

Data sources

National Study of Mental Health and Wellbeing 2020–2022

The National Study of Mental Health and Wellbeing (NSMHW) is a component of the wider Intergenerational Health and Mental Health Study (IHMHS) funded by the Australian Government Department of Health and Aged Care (Department of Health and Aged Care 2023).

Data for the 2020–2022 NSMHW was collected in the Survey of Health and Wellbeing (SHWB) by the Australian Bureau of Statistics (ABS), across 2 cohorts, comprising around 10,000 households. The first cohort was conducted between December 2020 and July 2021. The second cohort was conducted from December 2021 to October 2022. The survey included an in-person interview using the World Health Organization's Composite International Diagnostic Interview, version 3.0, which an instrument which indicates potential diagnoses (ABS 2023b).

The objectives of the NSMHW are to provide information in 5 key areas:

- How many Australians have mental disorders?
- What is the impact of these disorders?
- How many people have used services and what are the key factors affecting this?
- Are services making a difference to the lives of people experiencing a mental illness?
- How many Australians have a lived experience of suicide and what services have they used?

Data presented on this page were extracted using the ABS TableBuilder- external site opens in new window. There may be some differences between this data and that published elsewhere, due to different calculation or estimation methodologies and extraction dates. The TableBuilder uses a randomisation technique to confidentialise small numbers. This can result in differences between totals and small variations in numbers from one data extract to another.

For more information, go to the National Study of Mental Health and Wellbeing methodology, 2020–2022- external site opens in new window.

National Health Survey

The National Health Survey (NHS), run by the ABS, collects data on the health of Australians including health conditions, health risk factors and demographic and socio-economic information. It is part of a series of national health surveys conducted by the ABS since 1977. The 2020–21 NHS was conducted from January 2022 to April 2023. Data was collected from approximately 13,100 households around Australia (ABS 2023d).

The survey focused on the health status of Australians and health-related aspects of their lifestyles. Information was collected about respondents' long-term health conditions and on lifestyle factors which may affect health, such as tobacco smoking, alcohol consumption, fruit and vegetable consumption, sugar sweetened and diet drink consumption, and physical activity. Self-reported health status, height, weight, body mass, and use of health services were also collected.

The survey also collected a standard set of information about respondents including age, sex, country of birth, main language, employment, education, and income.

Data presented on this page were extracted using the ABS TableBuilder- external site opens in new window. There may be some differences between this data and that published elsewhere due to different calculation or estimation methodologies and extraction dates. The TableBuilder uses a statistical randomisation technique to

confidentialise small numbers. This can result in differences between totals and small variations in numbers from one data extract to another.

For more information, see National Health Survey: First Results methodology, 2022- external site opens in new window.

Household, Income and Labour Dynamics in Australia Survey

The Household, Income and Labour Dynamics in Australia (HILDA) Survey is a household-based panel study that collects information about economic and personal wellbeing, labour market dynamics and family life. This survey was first collected in 2001. Information collected includes family relationships, income and employment, and health and education. The HILDA Survey follows the lives of more than 17,000 Australians each year, aiming to tell the stories of the same group of Australians over the course of their lives.

Refer to the HILDA Technical Paper Series: Melbourne Institute: Applied Economic & Social Research- external site opens in new window for more information.

Second Australian Child and Adolescent Survey of Mental Health and Wellbeing

Also known as *Young Minds Matter*, the second Australian Child and Adolescent Survey of Mental Health and Wellbeing survey was conducted between June 2013 and April 2014 in the homes of over 6,300 families with children and/or adolescents aged 4 to 17 (Lawrence et al. 2015).

The objectives of the survey were to determine:

1. How many children and adolescents have mental health problems and disorders.
2. The nature of these mental health problems and disorders.
3. The impact of these mental health problems and disorders.
4. How many children and adolescents have used services for mental health problems and disorders.
5. The role of the education sector in providing services for children and adolescents with mental health problems and disorders.

Mental disorders were assessed using specific diagnostic modules from the Diagnostic Interview Schedule for Children Version IV (DISC-IV) and a specifically developed Impact on Functioning module. DISC-IV modules for seven disorders were included in the survey:

- *Anxiety disorders*: Social phobia, separation anxiety disorder, generalised anxiety disorder and obsessive-compulsive disorder.
- *Major depressive disorder.*
- *Attention-Deficit/Hyperactivity Disorder* (ADHD).
- *Conduct disorder* (Lawrence et al. 2015).

For more information, refer to The mental health of children and adolescents- external site opens in new window.

Survey of High Impact Psychosis

The 2010 Survey of High Impact Psychosis (SHIP) is Australia's second national psychosis survey. The survey covered 1.5 million people aged 18–64 years, approximately 10% of Australians in this age group. A two-phase design was used. In phase 1, screening for psychosis took place in public mental health services and non-government organisations supporting people with mental illness. For the second phase, 1,825 of those who screened-positive for psychosis were randomly selected and interviewed. Data collected included symptomatology, substance use, functioning, service utilisation, medication use, education, employment, housing, and physical health including fasting blood samples (Morgan et al. 2011).

2021 Census of Population and Housing

The 2021 Census of Population and Housing (the Census) aimed to count every person in Australia on Census Night, 10 August 2021.

The calculated prevalence rates from Census data are influenced by how prone individuals are to access mental health care services. This is unlikely to be the same across demographic groups (Wilkins et al. 2019).

Data presented on this page were extracted using the ABS TableBuilder- external site opens in new window. There may be some differences between this data and that published elsewhere due to different calculation or estimation methodologies and extraction dates. The TableBuilder uses a randomisation technique to confidentialise small numbers. This can result in differences between totals and small variations in numbers from one data extract to another.

For more information, refer to Census methodology, 2021- external site opens in new window.

Private lives 3

The Australian Research Centre in Sex, Health and Society (ARCSHS) at La Trobe University runs Australia's largest targeted surveys of LGBTQ+ adults, the Private Lives and Writing Themselves In surveys, respectively (Hill et al. 2020). The most recent iteration of this survey, Private Lives 3 (PL3), was undertaken in 2019. The PL3 dataset is the largest and most comprehensive available for the LGBTQ+ population in Australia and includes a diverse sample of participants from all states and territories and demographic groups (Hill et al. 2020).

A limitation of PL3 and other targeted, community surveys of LGBTQ+ people is that they tend not to be based on probability sampling and, as a result, it is not possible to conclude that they provide representative data for the LGBTQ+ population. However, these surveys do provide important information about the survey respondents, which can inform the work of LGBTQ+ researchers and advocates, and policy makers. For more information, refer to Private Lives 3- external site opens in new window.

Key concepts

Key concept	Description
Burden of disease	Burden of disease is measured in disability-adjusted life years (DALYs) – years of life lost due to premature mortality (fatal burden) and years of healthy life lost due to poor health (non-fatal burden).
Episodic mental illness	An episodic mental illness is characterised by acute episodes of symptoms, which may be severe and disabling, with periods of minimal symptoms or remission.
Long-term health condition	In the HILDA survey, a long-term health condition is one that restricts everyday activities and has lasted or is likely to last for six months or more.
Mental Health Inventory-5 (MHI-5)	The MHI-5 is a questionnaire used to screen for depressive and anxious symptoms. It consists of 5 questions about how people have been feeling during the past 4 weeks. Responses are recorded on a scale of 1 to 6, where 1 equates to 'All of the time' and 6 'None of the time'.
Persistent mental illness	In persistent mental illness, the severity and impact of symptoms may fluctuate but remain chronic and may be disabling.
Prevalence	Prevalence measures the proportion of a population with a particular condition during a specified period of time (period/point prevalence), usually measured over a 12-month period or over the lifetime of an individual (lifetime prevalence).
Psychosocial disability	Psychosocial disability within the Survey of Disability, Ageing and Carers refers to people who report:

Key concept	Description
	A nervous or emotional condition which causes restrictions in everyday activities; or A mental illness for which help or supervision is required; or Memory problems or periods of confusion that restrict everyday activities; or Social or behavioural difficulties that restrict everyday activities (ABS 2020).
Serious illness	In the HILDA survey, a serious illness is any illness which has lasted or is likely to last for six months or more.
Medical Outcomes Study Short Form (SF-36)	The SF-36 is a widely used 36 item questionnaire covering a range of physical health, mental health and wellbeing measures. It can be used to make comparisons between groups and quantify disease burden.

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Multimorbidity

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

On this page

Having a chronic condition becomes more common with increasing age. At the same time, Australia's ageing population and improvements in medical care mean more people are living for longer with chronic conditions. This increases the likelihood of a person living with multiple chronic conditions, a state of health known as multimorbidity.

People living with multiple chronic conditions often have complex health needs and report poorer overall quality of life than those without multimorbidity. This makes managing multimorbidity an important health concern for all Australians.

This page highlights how common living with multiple conditions is and shows how the chronic conditions that occur together vary by age and sex. The impact of living with multiple conditions is described, as well as how care is co-ordinated for people with multimorbidity.

Estimates of multimorbidity on this page are from AIHW analysis of the Australian Bureau of Statistics (ABS) 2022 National Health Survey (NHS) (ABS 2023a), unless otherwise stated. Estimates are based on analysis of 72 long-term health conditions self-reported to the NHS (Table 1) and will differ from estimates based on different data sources and sets of conditions (see Multimorbidity estimates vary).

How common is multimorbidity?

Multimorbidity is common and becomes more common with increasing age.

It is estimated that 38% of Australians (9.7 million people) had 2 or more of the selected long-term health conditions in 2022. This ranged from 11% of people aged 0–14 to 79% of people aged 85 and over (Figure 1).

In 2022, multimorbidity was more common among females than males. An estimated 4.6 million males (37%) and 5.0 million females (39%) were living with multimorbidity.

Of the 5 most common long-term health conditions, females had a higher prevalence (see glossary) than males for:

- anxiety (22% and 15% respectively)
- depression (14% and 11%)
- asthma (12% and 9.4%).

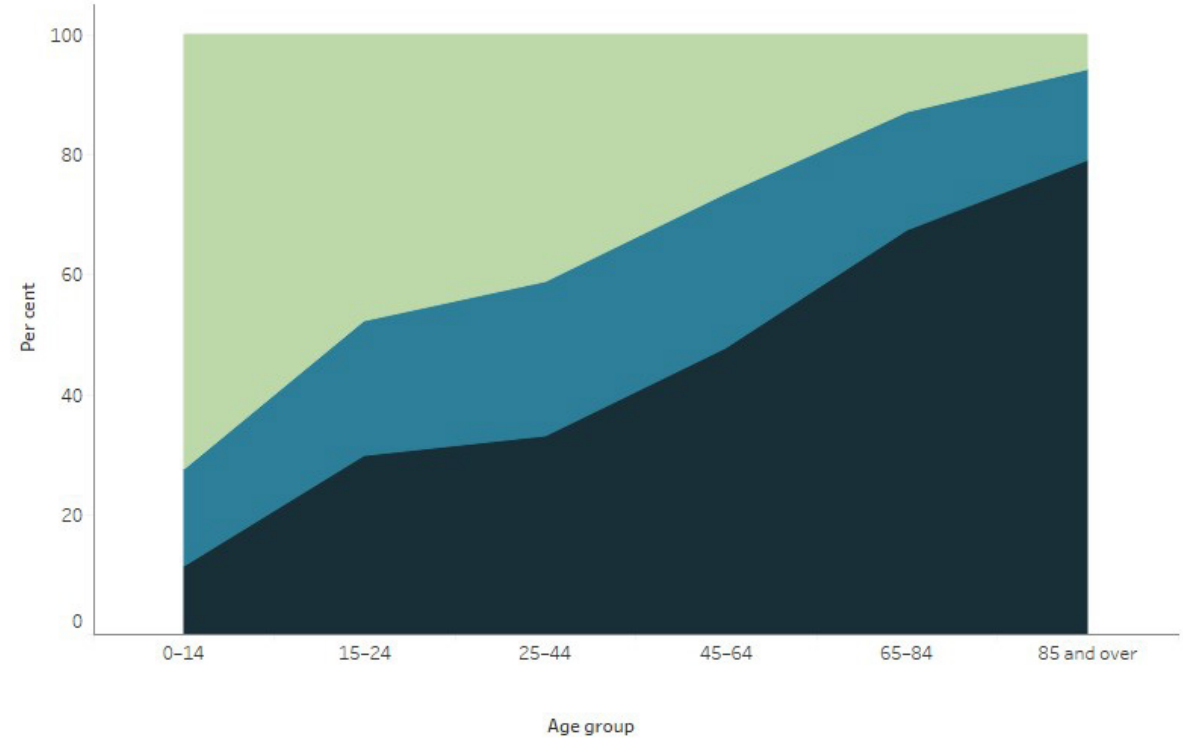
However, females had a lower prevalence than males for:

- back problems (15% and 16%)
- deafness and hearing loss (7.4% and 12%).

The higher prevalence for females for some of the most common conditions contributes to the higher multimorbidity among females.

For more information on the prevalence of chronic conditions see Chronic conditions.

Figure 1: Proportion of people with 0, 1 and 2 or more selected long-term health conditions by age, 2022



Notes
1.Data are self-reported.
2.Analysis includes individuals who identified as male or female. The ABS 2022 National Health Survey uses the Standard for Sex, Gender, Variations of Sex Characteristics and Sexual Orientation Variables, 2020 to collect the Sex at birth variable used in this data table. Due to small numbers and the need to protect privacy, people who reported sex at birth as a term other than male or female are not reported separately or included in the total Persons category.
3.Confidence interval: a range determined by variability in data, within which there is a 95% chance that the true value of an estimate lies.
4. For the list of long-term health conditions included in analysis see Table 1.
Source: AIHW analysis of ABS 2023a.
https://www.aihw.gov.au

Variation between population groups

Certain groups of people are more likely to experience multiple conditions than others.

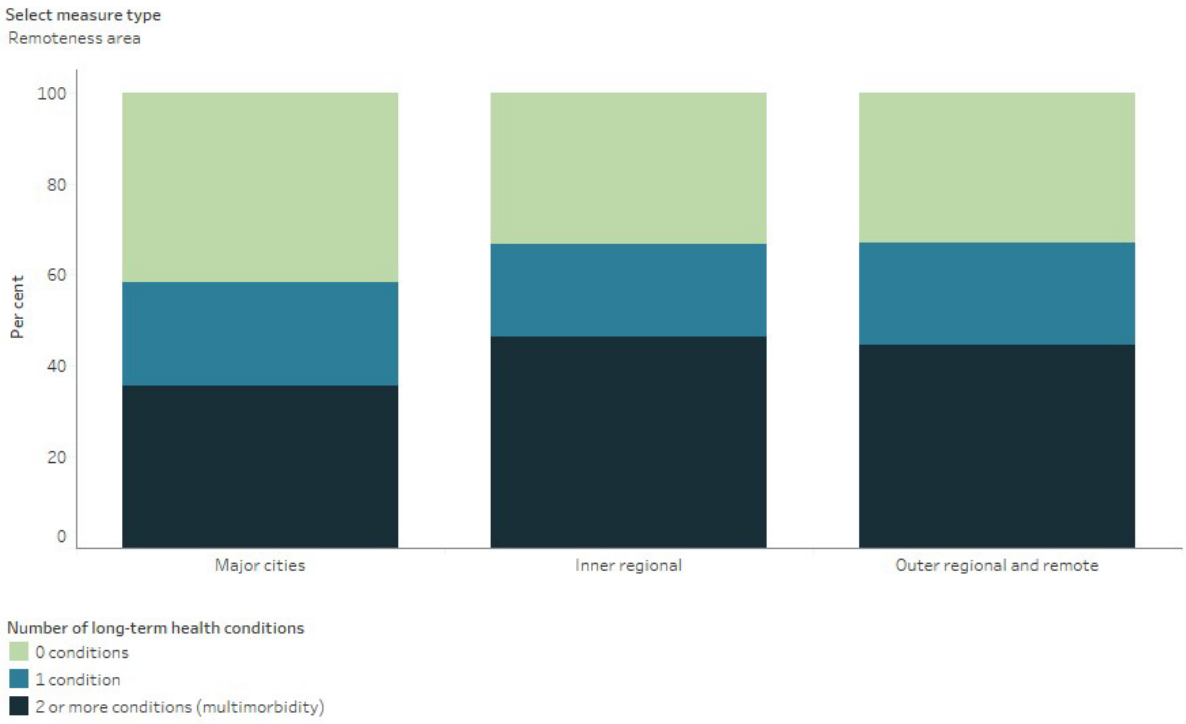
Multimorbidity becomes more common with increasing socioeconomic disadvantage (Figure 2). In 2022, the estimated prevalence of multimorbidity was:

- 31% in the areas of least disadvantage (the highest socioeconomic areas)
- 44% in areas of most disadvantage (the lowest socioeconomic areas).

By remoteness area, the prevalence of multimorbidity was higher in *Inner regional* (46%) and *Outer regional* areas (45%) than in *Major cities* (35%). For more information on the health of these population groups, see Rural and remote health.

These differences remained after adjusting for differences in the age structure of the socioeconomic and remoteness area populations.

Figure 2: Proportion of people with 0, 1 and 2 or more selected long-term health conditions by socioeconomic and remoteness areas, 2022



Notes
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3.Confidence interval: a range determined by variability in data, within which there is a 95% chance that the true value of an estimate lies.
4. For the list of chronic conditions included in analysis see Table 1.
5. Remoteness is classified according to the Australian Statistical Geography Standard (ASGS) 2021 Remoteness Areas structure based on area of residence. Remoteness area analysis excludes *Very remote* areas of Australia.
Source: AIHW analysis of ABS 2023a.
https://www.aihw.gov.au

Patterns of multimorbidity

Chronic conditions can occur together in an individual by chance (because they are common) or because there is an underlying association between them. Associations between conditions may occur where they are commonly diagnosed together, share common risk factors, or where one condition is a risk factor for another.

In 2022, the selected long-term health conditions that most commonly co-occurred varied by age and sex (Figure 3).

Long-term health conditions more commonly diagnosed in childhood (such as ADHD and autism) feature in multimorbidity at younger age groups while conditions that

develop over the life-course (such as back problems, osteoarthritis and deafness or hearing loss) feature more with increasing age.

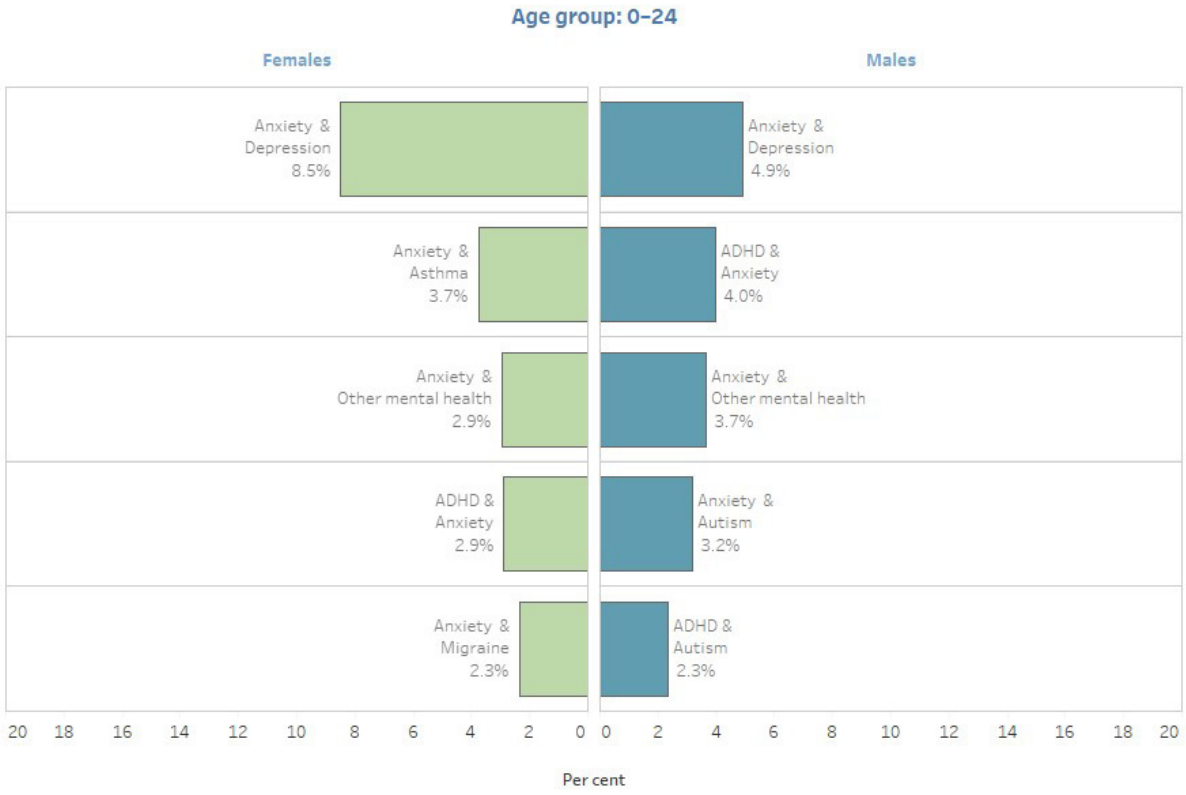
In 2022, an estimated 1.9 million people (15%) were living with anxiety. Anxiety commonly occurred together with other conditions among people aged under 65. For example, anxiety and depression were estimated to co-occur among:

- 197,000 males (4.9%) and 323,000 females (8.5%) aged 0–24
- 311,000 males (8.7%) and 483,000 females (13%) aged 25–44
- 331,000 males (10.9%) and 367,000 females (11.6%) aged 45–64.

An estimated 2.1 million people (16%) were living with back problems (including sciatica, disc disorders and curvature of the spine) in 2022. Back problems commonly occurred with other conditions among people aged 45–64 and those aged 65 and over. For example, in 2022 an estimated:

- 169,000 males aged 45–64 (5.6%) and 289,000 males aged 65 and over (15%) were living with back problems and deafness or hearing loss
- 173,000 females aged 45–64 (5.5%) and 272,000 females aged 65 and over (12%) were living with back problems and osteoarthritis.

Figure 3: Prevalence of the most common pairs of co-occurring conditions by sex and age group, 2022



Notes
1.Data are self-reported.
2.Analysis includes individuals who identified as male or female. The ABS 2022 National Health Survey uses the Standard for Sex, Gender, Variations of Sex Characteristics and Sexual Orientation Variables, 2020 to collect the Sex at birth variable used in this data table. Due to small numbers and the need to protect privacy, people who reported sex at birth as a term other than male or female are not reported separately or included in the total Persons category.
3.Confidence interval: a range determined by variability in data, within which there is a 95% chance that the true value of an estimate lies.
4. For the list of long-term health conditions included in analysis see Table 1.
5. Prevalence estimates are ordered but are not always significantly different to each other.
Source: AIHW analysis of ABS 2023a.
https://www.aihw.gov.au

Impact

Living with multimorbidity can have a substantial impact on an individual's health, affect their quality of life and have social and economic effects.

In 2022, compared with people with no long-term health conditions of the same age, people aged 18 and over with multimorbidity reported experiencing higher levels of:

- disability, restriction or limitation (41% of people with multimorbidity experienced this compared with 2.0% of people with no long-term health conditions)
- moderate to very severe bodily pain in the previous 4 weeks (41% compared with 8.2%)
- fair or poor health (28% compared with 3.2%) (Figure 4).

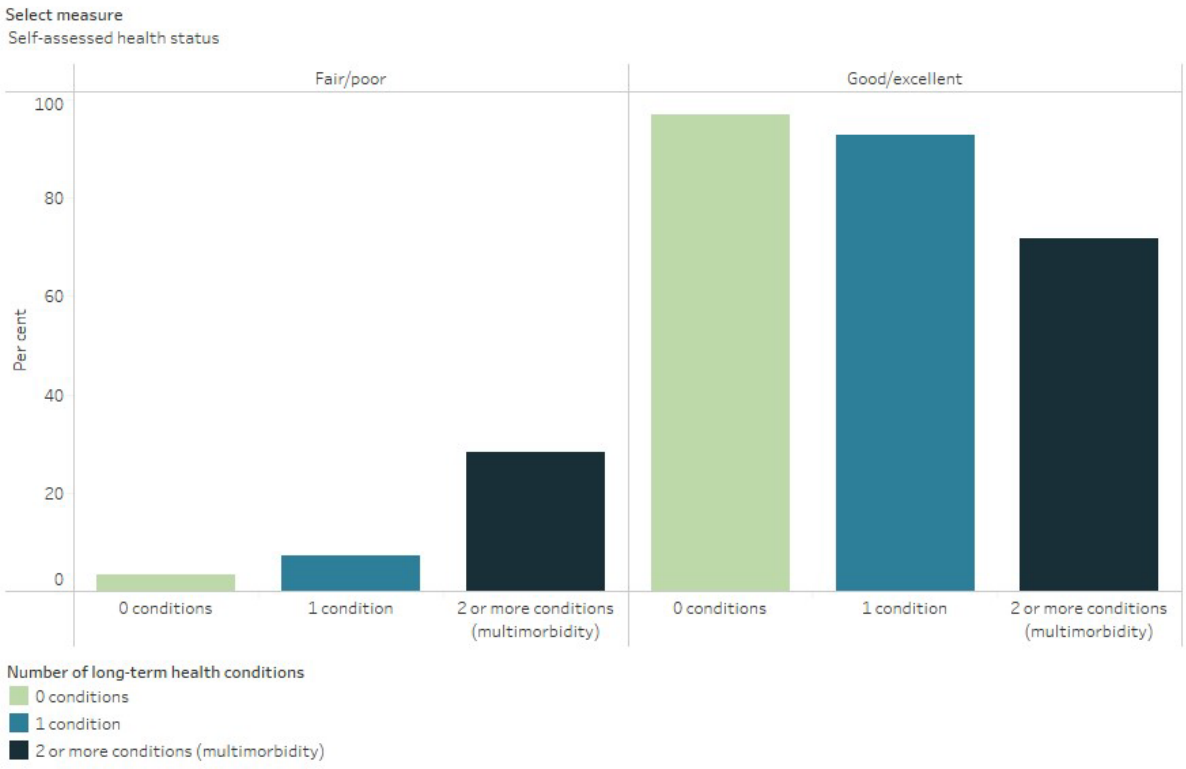
Based on self-reported data from the 2022 NHS, people with multimorbidity were less likely to be in the labour force (working or seeking work) than people with no chronic conditions.

In 2022, the proportion of people aged 18–64 who were working or seeking work was:

- 77% for those with multimorbidity
- 87% for those with no chronic conditions.

These differences remained statistically significant after adjusting for differences in the age structure of the populations being compared.

Figure 4: Impact of long-term health conditions, people aged 18 and over, 2022



Notes
1.Data are self-reported.
2.Analysis includes individuals who identified as male or female. The ABS 2022 National Health Survey uses the Standard for Sex, Gender, Variations of Sex Characteristics and Sexual Orientation Variables, 2020 to collect the Sex at birth variable used in this data table. Due to small numbers and the need to protect privacy, people who reported sex at birth as a term other than male or female are not reported separately or included in the total Persons category.
3.Confidence interval: a range determined by variability in data, within which there is a 95% chance that the true value of an estimate lies.
4. For the list of long-term health conditions included in analysis see Table 1.
5. Bodily pain experienced in the last 4 weeks prior to interview.
Source: AIHW analysis of ABS 2023a.
https://www.aihw.gov.au

Treatment and management

People living with multimorbidity have more frequent and longer medical appointments and more medications to manage than those without multimorbidity (RACGP 2023). This

increases the complexity of patient care and can require ongoing management and co-ordination of care across multiple parts of the health system.

Co-ordinated care for people with chronic and complex health conditions and multimorbidity is supported by:

- Medicare-subsidised chronic disease management services – in 2022–23, 16% of the Australian population
  (4.1 million people) accessed multidisciplinary care (see glossary) through a general practitioner (GP) chronic disease management plan (AIHW 2024).
- medication reviews (see glossary) for people taking 5 or more medications – there were 152,000 medication review services provided in 2022–23 (Services Australia 2023).
- the *MyMedicare*- external site opens in new window voluntary patient registration model that gives patients access to greater continuity of care by providing additional funding to their nominated regular care team to manage their care – as at 10 April 2024 there were over 1.0 million patients (3.9% of all patients) and 5,800 practices (91% of all practices) registered with *MyMedicare* (Department of Health and Aged Care, personal communication, 17 April 2024).

Multimorbidity estimates vary

Estimates of multimorbidity vary depending on the number and type of conditions included in analysis, as well as the source of data used.

Using self-reported NHS data, the ABS estimated that 22% of Australians (5.6 million people) had 2 or more of 10 selected chronic conditions in 2022 (ABS 2023b).

A more detailed list of conditions is used in analysis for this report that includes all chronic conditions from the Australian Burden of Disease study (AIHW 2021) that can be reasonably identified in the NHS data (72 conditions). This detailed list captures mental health conditions such as depression, anxiety and drug and alcohol problems- external site opens in new window individually so that an individual with more than one of these long-term health conditions is counted as having multimorbidity. It also includes conditions commonly diagnosed among younger people, such as attention deficit hyperactivity disorder (ADHD) and migraine to better describe multimorbidity across all ages.

Conditions are self-reported to the NHS and may differ from estimates based on different data sources and sets of conditions. The scope of the NHS will also affect estimates of multimorbidity compared with estimates from other sources. For instance, the NHS captures information on residents living in private dwellings, excluding those in residential aged care facilities, hospitals or prisons. This may exclude people likely to experience long-term health conditions or multimorbidity and lead to the underestimation of certain conditions, such as dementia. The NHS does not capture people living in very remote parts of Australia and discrete Aboriginal and Torres Strait Islander Communities.

For more information see the National Health Survey methodology- external site opens in new window.

Table 1. Long-term health condition groups and prevalence among people of all ages

Condition group	Inclusions[(a)]	Prevalence (%)[(b)(c)]
Cancer	Bowel or colorectal cancer, brain cancer, breast cancer, cancer of female genital organs, cancer of male genital organs, cancer of other digestive organs, cancer of other respiratory and intrathoracic organs, Hodgkin's disease, leukaemia, non-Hodgkin's lymphoma, oesophageal or stomach cancer, skin cancer, lung cancer, cancer site unknown, other malignant tumours, in situ neoplasms, benign neoplasms & neoplasms of uncertain nature	2.3
Cardiovascular diseases	Heart failure, ischaemic heart diseases (including angina, heart attack and other ischaemic heart diseases), stroke, other heart diseases, other heart stroke and vascular diseases	5.5

Condition group	Inclusions[a]	Prevalence (%)[b][c]
	(including other cerebrovascular diseases, oedema and diseases of arteries, arterioles and capillaries), other diseases of circulatory system (including rheumatic heart disease)	
Chronic respiratory	Asbestosis, asthma, chronic obstructive pulmonary disease (chronic airflow limitation, chronic bronchitis, emphysema)	12.3
Endocrine disorders	Type 1 diabetes, Type 2 diabetes and diabetes type unknown	5.3
Gastrointestinal	Diseases of the liver, diseases of the oesophagus (including gastro oesophageal reflux disease), inflammatory bowel disease (enteritis and colitis)	1.7
Genitourinary	Chronic kidney disease (including Glomerular diseases, Renal failure or Kidney disease, Renal tubulo-interstitial diseases), non-	2.7

Condition group	Inclusions[a]	Prevalence (%)[b][c]
	inflammatory female pelvic conditions (including endometriosis)	
Hearing and vision disorders[d]	Deafness or hearing loss (complete, partial, deaf mutism and other deafness or hearing loss nec.), other hearing and vestibular disorders (including, otosclerosis, Meniere's disease, tinnitus, other diseases of the middle ear and mastoid, other ear and mastoid)	8.9
	Cataracts, glaucoma, macular degeneration, refractive errors (including long sight or hyperopia, short sight or myopia, astigmatism, presbyopia, other disorders of ocular muscles, binocular movement, accommodation and refraction) and other vision disorders (including complete and partial blindness, colour blindness, retinal disorders or defects, other diseases of the eye and adnexa)	

Condition group	Inclusions[a]	Prevalence (%)[b][c]
Infectious diseases	AIDS (Auto Immune Deficiency Syndrome) or HIV (Human Immunodeficiency Virus), post COVID-19 conditions	0.1
Infant and congenital conditions	Birth complications (including respiratory problems related to birth and other conditions originating in the perinatal period), cerebral palsy, congenital brain damage or malformation (including spina bifida), Down syndrome, other chromosomal abnormalities, other congenital conditions (including deformities of joints or limbs, other congenital malformations and deformations)	0.8
Mental and substance use	ADHD, anxiety disorders (including feeling anxious nervous or tense, obsessive compulsive disorder, panic attack, panic disorder, phobic anxiety disorders, post-traumatic stress disorder), autism	25.9

Condition group	Inclusions[a]	Prevalence (%)[b][c]
	spectrum disorders, bipolar affective disorder (including mania), conduct disorders, depression (including feeling depressed and other mood affective disorders), harmful use or dependence on alcohol, harmful use or dependence on drugs (including prescription drugs and other substances), intellectual impairment, schizophrenia (including psychosis), other mental health conditions (including dyslexia, dyslalia, speech impairment, other behavioural, cognitive and emotional problems with usual onset in childhood or adolescence and other mental and behavioural problems)	
Musculoskeletal	Back problems (including sciatica, disc disorders and curvature of the spine), gout, osteoarthritis, rheumatoid arthritis, other musculoskeletal and connective tissue conditions (including	28.7

Condition group	Inclusions[a]	Prevalence (%)[b][c]
	acquired deformities of joints and limbs, soft tissue disorders, other arthritis and type unknown, other arthropathies, other diseases of the musculoskeletal system)	
Neurological	Dementia (including Alzheimer's disease), epilepsy, migraine, motor neurone disease, multiple sclerosis, Parkinson's disease, other disease of the nervous system (including chronic fatigue syndrome, muscular dystrophy, narcolepsy, Huntington's disease)	8.8
Skin	Dermatitis and eczema, psoriasis	4.1

a. Each inclusion in the condition group is counted separately to determine the number of long-term health conditions a person has.

b. Population prevalence estimates are based on information 'as reported' by NHS respondents and may differ from those reported from other sources due to differences in the method of data collection (for example, self-report survey compared with diagnostic survey).

c. The NHS is not conducted within institutions, such as residential aged care facilities, hospitals or prisons. This may exclude people likely to experience chronic conditions, leading to the underestimation of certain conditions, such as dementia. For more information see the National Health Survey methodology- external site opens in new window.

d. Vision conditions corrected with glasses are excluded from analysis.

Source: AIHW analysis of ABS 2022 (ABS 2023a).

Where do I go for more information?

For further information on chronic conditions and multimorbidity see:

- *Australia's health 2024: data insights* article The ongoing challenge of chronic conditions in Australia
- Chronic conditions
- Physical health of people with mental illness
- Chronic condition multimorbidity
- ABS National Health Survey, 2022- external site opens in new window

For more on this topic, visit the Australian Centre for Monitoring Population Health.

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Oral health and dental care

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

On this page

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 24,600 registered dental practitioners in Australia in 2020.

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 2021–22:

- 44.8 million dental services were subsidised by private health insurance providers (APRA 2022) – for more information refer to chapter on Private health insurance.
- 4.7 million services were subsidised under the Australian Government's Child Dental Benefits Schedule (Services Australia 2023) 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 2021–22 (ABS 2022) found that for people aged 15 and over, it is estimated that:

- Nearly half (49%) visited a dental professional in the last 12 months
- Of those who needed to and saw a dental professional, the majority (57%) visited more than once in the last 12 months
- Around 1 in 10 (9.9%) people who saw a dental professional received public dental care
- Around 1 in 3 (33%) 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 6 (16%) 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 78,800 hospitalisations for dental conditions that potentially could have been prevented with earlier treatment in 2021–22. The rate of potentially preventable hospitalisations for dental conditions was highest in those aged 5–9 years (10.8 per 1,000 population). For more information refer to chapter on Hospitalisations.

Spending

In 2020–21, around $11.1 billion was spent on dental services in Australia. The majority of this cost (around $6.5 billion, or 59%) was paid by patients directly, with individuals spending on average $253 on dental services over the 12-month period, not including premiums paid for private health insurance (AIHW 2022). Private health insurance providers financed around $2.2 billion (20%) of total expenditure for dental services (AIHW 2022). For more information refer to chapter on Costs.

Impact of COVID-19 on dental services

The 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 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

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/mental-health/physical-health-of-people-with-mental-illness

On this page:

Key points

People living with mental illness are **more likely to experience poorer physical health** than the general population.

People living with mental illness, and especially severe mental illness, **tend to die earlier** than the general population.

Almost **80% of premature deaths** of people with mental illness are due to preventable physical health conditions.

People living with mental illness, and in particular severe mental illness (SMI), are more likely to experience comorbidity of physical conditions, more likely to be hospitalised for potentially preventable reasons and tend to die earlier than the general population (Sara et al. 2021; Lawrence et al. 2013).

For more information on mental illness, see the Mental Health Online Report.

Reporting on the physical health of people with mental illness

There is information on the prevalence of physical illness among people living with mental illness from population-based data sources, such as the National Study of Mental Health and Wellbeing- external site opens in new window (NSMHW), National Health Survey- external site opens in new window (NHS) and the Census of Population and Housing- external site opens in new window. One challenge in reporting on the physical health of people experiencing mental illness is a lack of consistent health systems data. Initiatives and programs that monitor the physical heath of Australians with mental illness may provide insight, but they are not consistent across jurisdictions and different health settings.

How common is physical illness among people with mental illness?

According to the 2020–2022 NSMHW, an estimated 4.3 million Australians aged 16–85 years, or 22% of this population, had experienced a mental disorder in the 12 months prior to the study. Of these, 2 in 5 (39%) also had a long-term physical health condition. This represents an estimated 1.7 million people or 1 in 12 (8.4%) adults experiencing both a mental illness and a long-term physical health condition (ABS 2023).

The 2021 Australian Census results – which include people of all ages – showed a notable overlap between physical health and mental health problems: people who reported having a mental illness were more likely to report having a long-term health condition (Figure PHYS.1) (ABS 2022). Among the most common long-term conditions reported by those with a mental illness were arthritis, asthma and diabetes (Figure PHYS.1). Furthermore, given that the Census relies on people self-reporting conditions, this is likely to be an underestimate as many people did not respond to this item or may not be aware that they have a long-term health condition. Refer to Chronic conditions and multimorbidity for more information.

Figure PHYS.1: Long-term health conditions reported by persons with and without mental illness in 2021

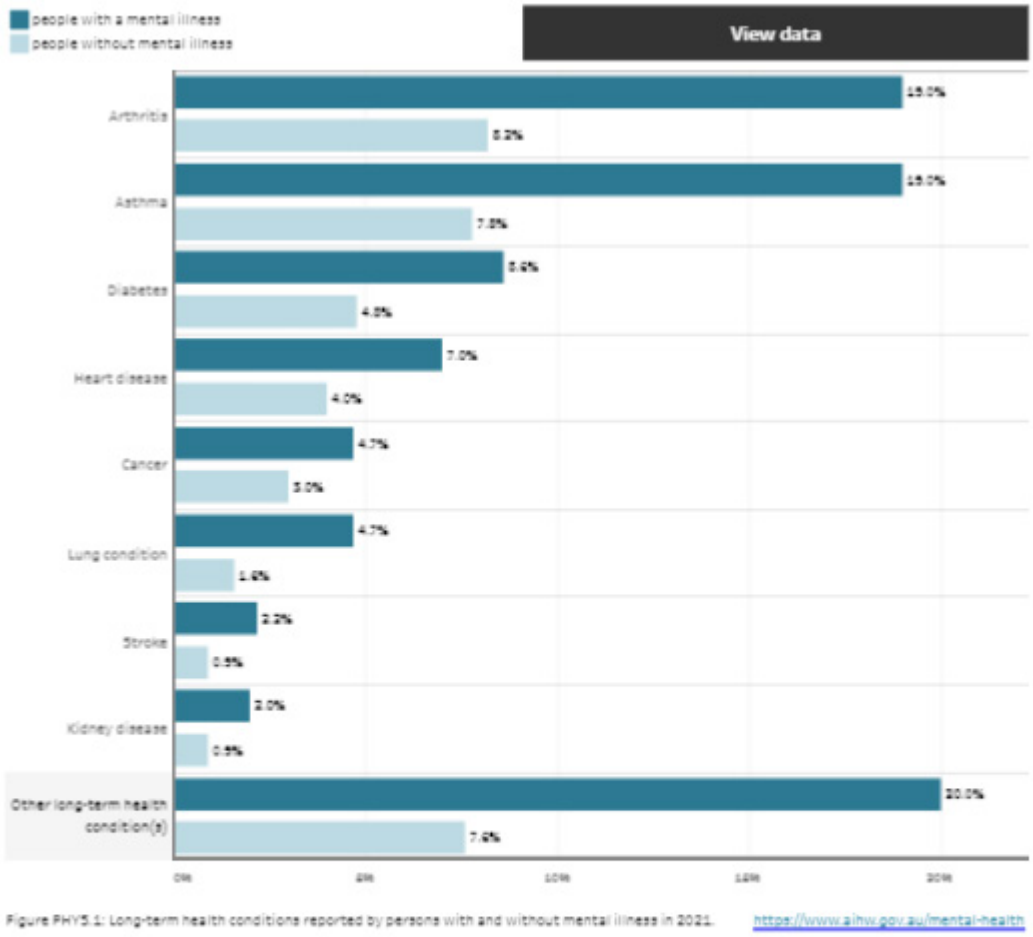

Figure PHYS.1: Long-term health conditions reported by persons with and without mental illness in 2021. https://www.aihw.gov.au/mental-health

Notes

1. Mental illness includes anxiety and depression.
2. *Diabetes* excludes gestational diabetes; *Cancer* includes remission; *Heart Disease* includes heart attack and angina; *Lung condition* includes Chronic obstructive pulmonary disease (COPD) or emphysema; *Other long-term health condition(s)* excludes dementia, Alzheimer's disease and mental illness.

Source: ABS 2022.

A recent study of Australian general practice records examined the prevalence of physical health conditions and biomedical risk factors among people with SMI. Similarly, it showed a notable overlap between mental and physical illness (Belcher et al. 2021). The prevalence of all surveyed biomedical risk factors was higher among patients with SMI than patients without. These included:

- dyslipidaemia (high cholesterol) (25% among those with SMI compared with 18% in patients without)
- hypertension (27% compared with 22%)
- obesity (29% compared with 19%).

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

- back pain (35% among those with SMI compared with 19% in patients without)
- cardiovascular disease (10% compared with 6.7%)
- gastro-oesophageal reflux disease (29% compared with 15%)
- arthritis (27% compared with 19%)
- cancer (19% compared with 15%).

Almost three-quarters (71%) of patients with SMI had at least one of the surveyed physical health conditions, compared with over half (54%) of people without.

The second national survey of People Living with Psychotic Illness also provided estimates on the physical health of Australians living with a psychotic illness (Morgan et al. 2012). Chronic back, neck or other pain was the most common chronic physical condition (32% compared with 28% for the general population) identified among people with a psychotic illness 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 a psychotic illness were at high risk of cardiovascular disease, almost half (45%) were obese and almost two-fifths (38%) reported gaining weight as a medication side effect. Physical activity levels were markedly lower in people with a psychotic illness, 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. 2012).

Causes of physical illness among people with mental illness

Mental health is known to affect physical health. For example, there is a long-established association between depression and heart disease. Multiple studies across various types of populations have shown that people with depression but no history of heart disease when the depression is assessed are at markedly higher risk for coronary heart disease or cardiac mortality (Carney and Freedland 2003). Similarly, among patients who have just experienced a major cardiac event, such as a heart attack, those with depression are at an increased risk of another cardiac event or cardiac mortality compared to non-depressed patients (Dhar and Barton 2016). While the association between the depression and coronary heart disease is well known, researchers have only recently begun to understand the biological mechanisms behind this relationship (Dhar and Barton 2016). Yet the reasons people with mental illness and especially SMI are more likely to experience poorer physical health and reduced life expectancy compared to the general population go beyond the physiological changes associated with mental illness.

According to the Royal Australian and New Zealand College of Psychiatrists, the reasons people living with severe mental illness experience poorer physical health include:

- greater exposure to the known risk factors for physical disease such as lower socio-economic status, smoking, poor nutrition, reduced physical activity and higher sedentary behaviour

- reduced access to and quality of health care due to financial barriers, and stigma and discrimination among health care 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
- adverse effects of psychotropic medication, in particular their contribution to metabolic syndrome, obesity, cardiovascular disease and type 2 diabetes
- impacts from polypharmacy (the prescription of multiple medications) and prescribing practices
- lack of capability among both generalist and specialist health care 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 (RANZCP 2015).

For some people living with mental illness, symptoms may interfere with receiving medical care or compromise effective communication of physical symptoms with health care workers (Melamed et al. 2019).

In addition to poorer physical health and shorter life expectancy, higher rates of physical comorbidity among people with SMI can lead to higher levels of ongoing disability, reduced participation in the workforce and a greater likelihood of poverty and welfare dependency (RANZCP 2015).

Life expectancy

That people living with mental illness have a reduced life expectancy compared with the general population has been extensively documented around the world (Chang et al. 2011; Walker et al. 2015; Plana-Ripoll 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 in 2005 was 15.9 years for men and 12.0 years for women (Lawrence et al. 2013). This research also indicated that the mortality gap for people living with mental illness had increased from 1985, by 2.5 years for men and 1.6 years for women since 1985, with the increase largely driven by gains in life expectancy for the general population (Lawrence et al. 2013) . This finding aligns with studies from other high-income countries suggesting that the mortality gap for people with mental illness may be increasing over time, in part due to gains in life expectancy for the general population not experienced (or at least not experienced in equal measure) by those with mental illness and especially SMI (Neilsen et al 2013; Hayes et al 2017; Laursen et al 2019).

Rather than a direct result of mental illness or death by suicide, almost 80% of premature deaths of people with mental illness are due to potentially preventable physical health comorbidities (Lawrence et al. 2013). These include type 2 diabetes, respiratory diseases, cancer and cardiovascular disease (De Hert et al. 2009). Compared to the general population, people with SMI have a 2- to 3-fold risk of developing hypertension and metabolic syndrome and, if under the age of 50, a 3-fold risk of dying from coronary heart disease (De Hert et al. 2009; Osborn et al. 2007). If diagnosed with

cancer, people living with SMI experience higher rates of mortality compared to the general population (Launders et al. 2022; Charlesworth et al. 2023).

Substance use and mental illness

Use of alcohol, tobacco and illicit drugs can trigger or worsen mental health issues and are strongly associated with physical health conditions including cancer, cirrhosis, and cardiovascular disease (AIHW 2022).

The relationship between mental illness and substance use is complex. A mental illness may make a person more likely to use drugs as an attempt to self-medicate symptoms associated with their mental illness. Conversely, substance use may be a contributing factor for the initial symptoms of mental illness. Certain substances may cause a substance-induced psychosis which can last for days or weeks after the end of intoxication. However, if someone has a pre-disposition to developing a psychotic illness, such as schizophrenia, the use of illicit drugs may bring on the first episode of what can be a longer-lasting psychotic illness (NDARC 2011). Critically, this does not mean that mental illness necessarily causes substance use and vice versa: common risk factors (such as trauma, personality traits, genetic influences and the childhood environment) may cause substance use and mental illness to independently develop in the same individual (UNODC 2022).

Among people living with mental illness, there are higher rates of alcohol, tobacco and other drug use compared with people without mental illness (refer to Figure PHYS.2).

Alcohol

According to the 2019 National Drug Strategy Household Survey (NDSHS) (AIHW 2020), people who were diagnosed or treated for a mental illness in the previous 12 months were about 20% more likely to report recent or lifetime drinking at risky levels than people who had not (Figure PHYS.2). Similarly, Australian general practice records in 2021 showed that the prevalence of moderate to heavy drinking among patients with SMI was more than double that for the population without (4.7% compared with 2.3%) (Belcher et al. 2021). For more information on alcohol use, refer to Alcohol.

Tobacco

In the NDSHS, people who reported a mental illness were twice as likely to smoke daily as those who had not been diagnosed with, or treated for, a mental illness (20% compared with 9.9%; Figure PHYS.2) (AIHW 2020). Likewise, according to Australian general practice records, 47% of people with SMI are current or past smokers, compared with about 30% of the population without (Belcher et al. 2021). Two-thirds (66%) of people with psychosis smoke, with an average of 21 cigarettes per day (Morgan et al. 2012). For more information on Tobacco use, refer to Tobacco and e-cigarettes.

Illegal drugs

Illicit drug use is also more common among people with mental illness. In the NDSHS, compared with people with no mental illness, people with a mental illness 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 prescription pharmaceuticals for non-medical purposes (Figure PHYS.2) (AIHW 2020). The lifetime rate of any illicit substance use or dependence in people with psychosis was at 55%, 6 times the general population rate of 9% (Morgan et al. 2012). For more information on illicit drug use, refer to Illicit drug use.

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

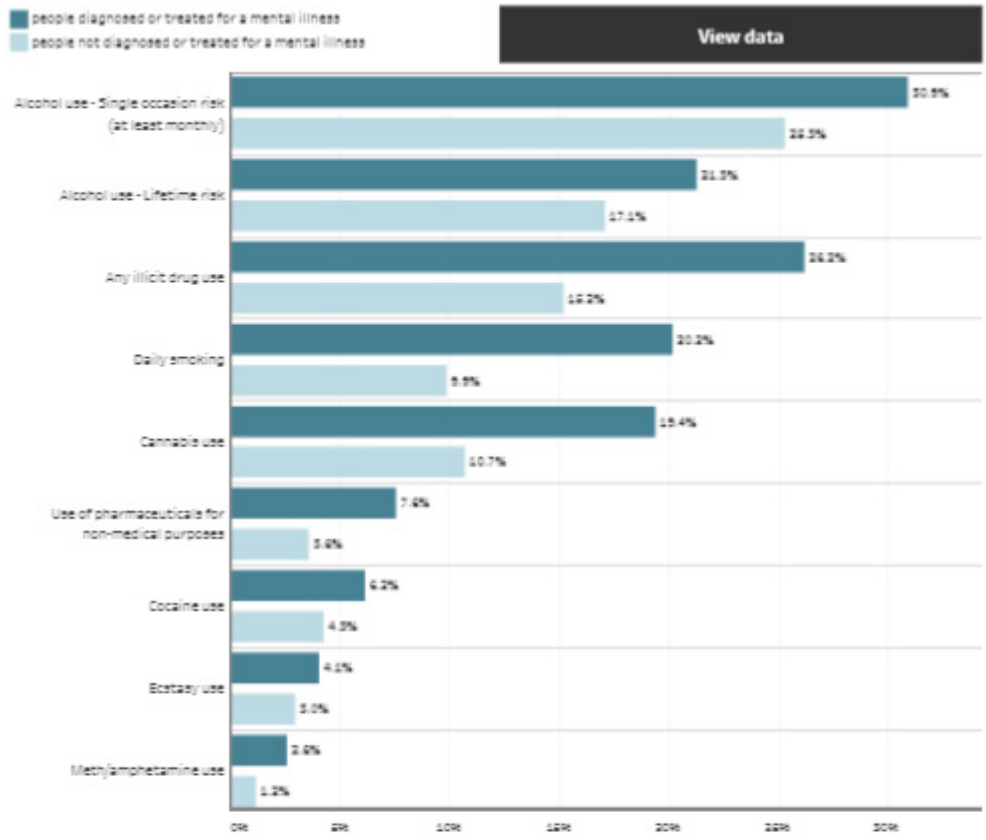

Figure PHYS.2 Percentage of people aged 18 years and older who use alcohol, tobacco and illicit drugs by mental health status in 2019. https://www.aihw.gov.au/mental-health

Notes

1. Mental illness includes depression, anxiety disorder, schizophrenia, bipolar disorder, an eating disorder and other forms of psychosis.
2. Alcohol data are reported against the 2009 Australian alcohol guidelines.
   a. 'Lifetime risk' is defined as the accumulated risk from drinking either on many drinking occasions, or on a regular (for example, daily) basis over a lifetime. Drinking no more than 2 standard drinks on any day reduces the lifetime risk of harm from alcohol-related disease or injury.
   b. 'Single occasion risk' refers to more than 4 standard drinks on a single occasion.

Source: AIHW 2020.

Comorbidity between substance use disorder – which itself is categorised as a mental disorder – and other kinds of mental disorders is common (Mills et al. 2019). According to the NSMHW 2020–2022, while 8.8% of people who met the diagnostic criteria for an anxiety or affective disorder also met the criteria for a substance use disorder, almost half (46%) of people who met the diagnostic criteria for substance use disorder also met the criteria for an anxiety or affective disorder (ABS 2023).

While mental illness is associated with a reduced life expectancy, research has shown that comorbid substance use disorder alongside other mental disorders is associated with markedly higher mortality rates and larger reductions in life expectancy (Plana-Ripoll et al. 2020).

For more information, refer to Alcohol, tobacco and other drug use among people with mental health conditions.

Impact of COVID-19 on 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 in other parts of the world, the pandemic and related restrictions had significant impacts on the mental health of Australians. Multiple sources of data indicated increased and more widespread psychological distress compared with pre-pandemic levels and increased use of mental health services and mental health prescriptions (ABS 2021; Biddle and Gray 2021; Butterworth 2020; AIHW 2023). Those aged 18–35 years, women, people with a disability, renters, and people who report having a mental health condition were 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), many people delayed access to health care which can lead to acute and long-term health consequences for individuals (White et al. 2021). Issues 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, people experiencing high levels of psychological distress were 6 times more likely to choose not to consult a health professional when needed than those who were not (Zhang et al. 2020).

For people living with SMI – a group which generally has less access to health care – pandemic-related restrictions may have worsened physical health due to challenges particularly affecting this group (Melamed et al. 2020). People with SMI were already overrepresented in acute physical health care episodes in hospitals prior to the pandemic, therefore the burden placed on acute health care settings from the pandemic may have disproportionally affected this group (Melamed et al. 2020; Sara et al. 2021).

Future directions

Data linkage, for example through the National Integrated Health Services Information (NIHSI) data asset (also known as the National Health Data Hub), may provide further insights into the relationships between mental illness and physical comorbidities among the Australian population. While separate data collections provide a limited view on peoples' overall health, data linkage between collections allows for analysis of the impact of mental illness on physical health conditions from across different service settings and types of service usage. This data could assist in identifying areas of disadvantage in broader health settings and barriers to service usage for

people with mental illness, which is critical as this population group accesses health services at a lower rate than the general population.

Where can I find more information?

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

- Equally Well Improving the physical health of people living with mental illness- external site opens in new window
- Victoria University Being equally well: A national policy roadmap to better physical health care and longer lives for people living with serious mental illness- external site opens in new window
- 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- external site opens in new window
- World Health Organization (WHO) Management of physical health conditions in adults with severe mental disorders, WHO Guidelines- external site opens in new window

Key concepts

Key concept	Description
Comorbidity	**Comorbidity** refers to occurrence of more than 1 condition/disorder at the same time. Comorbidity is common among those with mental illness. It can involve more than 1 mental disorder, or 1 mental disorder and 1 or more physical conditions.
Data linkage	**Data linkage** brings together information derived from different sources but relating to the same individual, place or event in a single file. Data linkage has been used for studies of epidemiology, health service outcomes and use, and needs analysis.
Metabolic syndrome	**Metabolic syndrome** is an accumulation of health conditions, which together raise the risk of an individual developing atherosclerotic cardiovascular disease, insulin resistance, and diabetes mellitus, and vascular and neurological complications such as a cerebrovascular accident.
Mortality gap	**Mortality gap** is the disparity in life expectancy between the general population and a specific group of interest.
Severe mental illness (SMI)	**Severe mental illness** – often used interchangeably with the terms **serious mental illness** and **severe and persistent mental illness** – commonly includes diagnoses of schizophrenia, major affective disorders and some personality disorders resulting in lifelong disabling conditions that severely impair personal and social functioning, and require ongoing and long-term support and treatment. These terms lack consensus definition but are commonly characterised by the combination of diagnosis, disability and duration (see Zumstein and Riese 2020).

Key concept	Description
Substance use disorder	**Substance use disorder** is the persistent use of drugs (including alcohol and tobacco) despite serious harms and negative consequences associated with their use. In the International Statistical Classification of Diseases and Related Health Problems,10th revision- external site opens in new window, substance use disorders come under the block *Mental and behavioural disorders due to psychoactive substance use.* This block contains a wide variety of disorders that differ in severity and clinical form but that are all attributable to the use of one or more psychoactive substances, which may or may not have been medically prescribed.

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Suicide and intentional self-harm

This topic summary is part of the Suicide & self-harm monitoring subsite.

On this page:

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- external site opens in new window Call 13 11 14
- Text (SMS) 0477 13 11 14
- Online chat- external site opens in new window

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 on the Mindframe website- external site opens in new window.

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

There is a lag between the occurrence of a death by suicide and the reporting of that death within national suicide monitoring counts.

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 2023). Visit ABS Causes of Death- external site opens in new window for more information.

Suicide registers operational in New South Wales, Victoria, Queensland, South Australia, Tasmania, and the Australian Capital Territory 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 Suicide registers to learn more about suicide register data.

How common is suicide?

In 2022, there were 3,249 deaths by suicide – an average of about 9 deaths per day. The age standardised rate was 12.3 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 (ABS 2023).

For more information, visit Deaths by suicide in Australia.

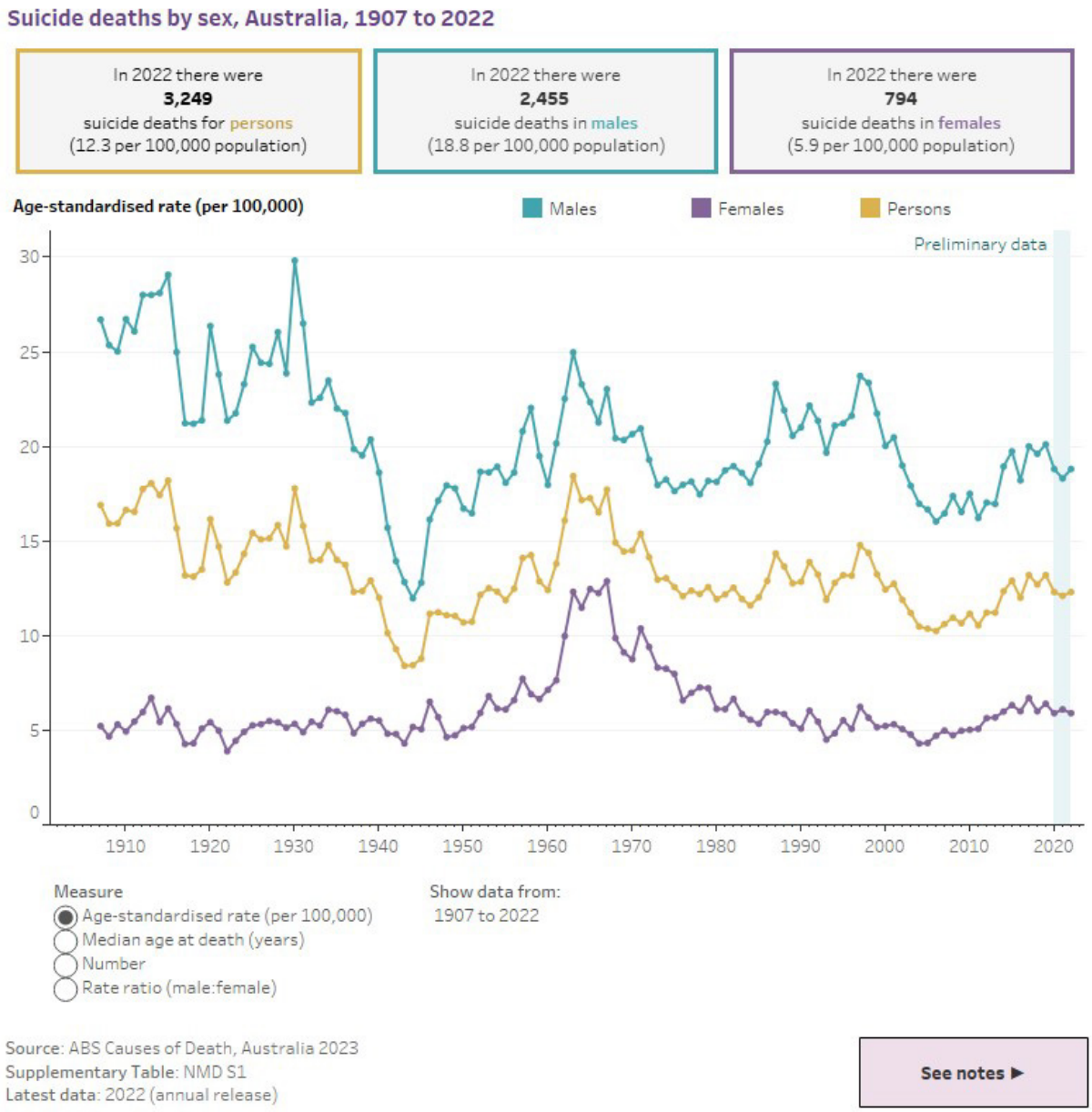
Did rates of suicide change during COVID-19?

There has been considerable commentary since the start of the pandemic on its potential to impact on the incidence of deaths by suicide. Much of this commentary has been based on modelling using previous experience including the relationship between unemployment and deaths by suicide. However, data covering the period up until the end of 2021 does not indicate an increase in suicide deaths in Australia during the pandemic.

National mortality data published by the ABS show that the rate of death by suicide in Australia was lower in 2020 (12.1 per 100,000 population) and 2021 (12.0) than in 2019 (13.1), see Deaths by suicide over time. That said, ABS coding of psychosocial risk factors associated with deaths by suicide in 2020 determined that 3.2% of these deaths had the pandemic mentioned in either a police or pathology report or a coronial finding. In 2021, the percentage of suicide deaths where the pandemic was mentioned, decreased to 2.6%. In most of these cases, other risk factors for suicide were also present. In 2021, the pandemic appeared to impact on people in different ways, including through job loss and financial insecurity as well as general concern or anxiety about societal changes or contacting the virus (ABS 2023).

See Suicide registers and 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 2022



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 2022, 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 2022, the rate was 12.3 deaths per 100,000 population – down from a post-2006 high of 13.2 in 2017 and 2019. It is important to note that deaths registered in 2022 and 2021 are preliminary and as such, are subject to revision (ABS 2023).

For more information, visit Deaths by suicide over time.

Sex and age differences

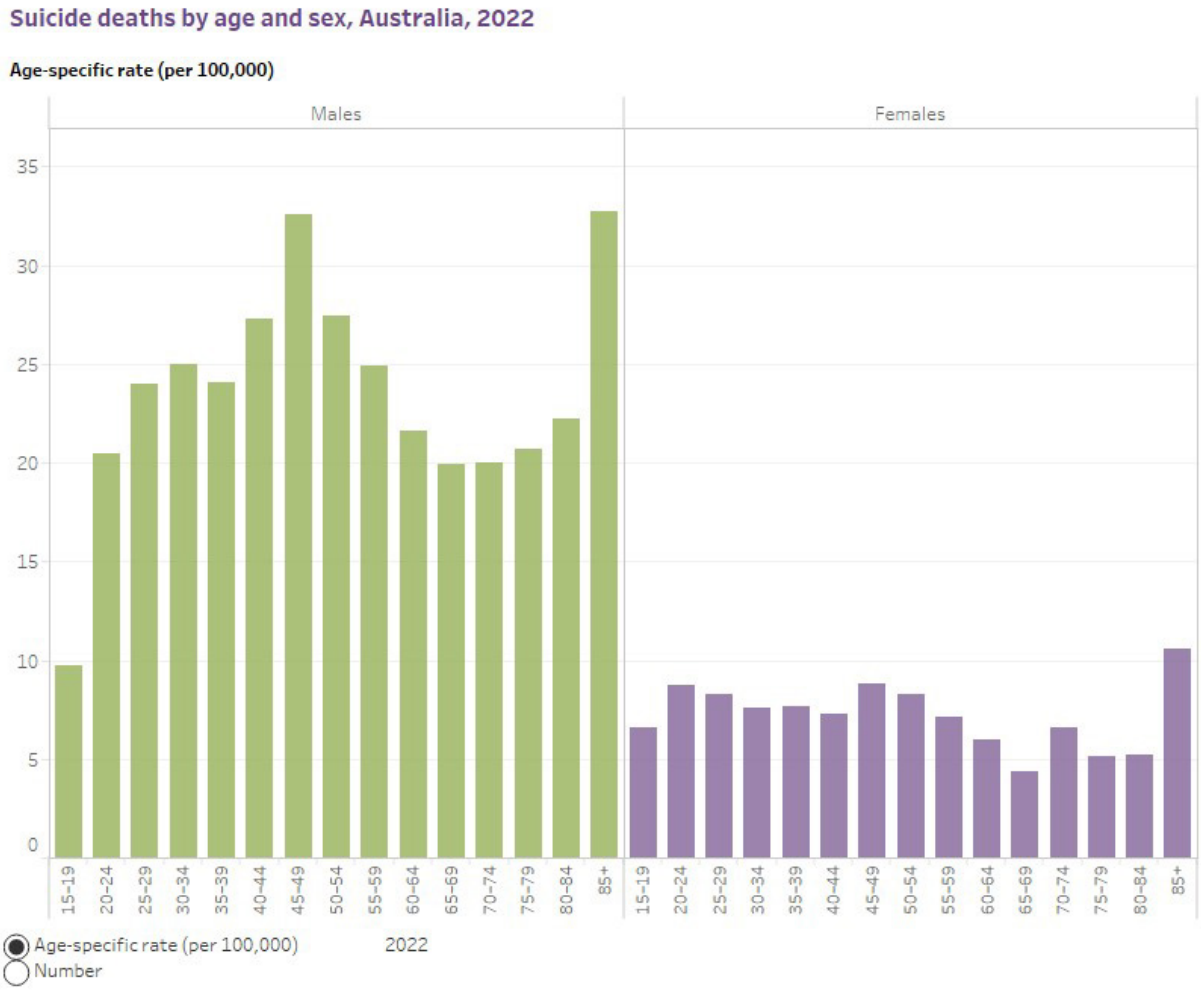
Figure 2 shows age-specific suicide rates for males are higher than those for females across all reported age groups for all years.

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 (54.6%) in 2022 occurred in people aged 30–59 with 1,774 deaths, while 24.5% of suicide deaths occurred in people aged 60 and over (797 deaths), and 20.5% occurred in people aged 15–29 (665 deaths). Suicide was the leading cause of death among people aged 15–44 in 2022 (ABS 2023).

The highest suicide rate for males in 2022 occurred in those aged 85 and over (32.7 deaths per 100,000 population). This is followed by males aged 45-49 (32.6), and males aged 50–54 (27.4). The highest suicide rate for females was also among those aged 85 and over (10.6 deaths per 100,000 population), and the lowest was for females aged 65-69 (4.4).

For information, visit Deaths by suicide over time.

Figure 2: Suicide deaths by age and sex, Australia, 2022



Note: Age-specific rates may refer to a small number of deaths.
Source: ABS Causes of Death, Australia 2023
Supplementary Table: NMD S2
Latest data: 2022 (annual release)

See notes ▶

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 2022, the age-standardised suicide rate ranged from 10.8 per 100,000 population in New South Wales to 20.5 in the Northern Territory. The highest number of deaths by suicide was in New South Wales (911), followed by Queensland (773), Victoria (754), Western Australia (377) and South Australia (242) (ABS 2023).

For more information, visit Suicide deaths by states & territories and Suicide & self-harm by geography.

First Nations people

Age-standardised rates of deaths by suicide for Aboriginal and Torres Strait Islander (First Nations) people have increased over time, from 22.7 per 100,000 population in 2013 to 29.9 in 2022. This is more than double the rate for non-Indigenous suicide deaths in 2022 (11.7). In 2022, 212 First Nations people died by suicide.

In the five years from 2018 to 2022, suicide rates for First Nations people were highest for those aged 25–44 with 50.0 per 100,000 population. In comparison, the suicide rate across 2018 to 2022 for non-Indigenous people in the same age group was 15.9 per 100,000 population.

Suicide rates for young First Nations people, aged 24 years and under, in the five years from 2018 to 2022 (16.0 per 100,000 population) were more than 3 times as high as non-Indigenous Australians in the same age-group for this period (5.2 per 100,000 population) (ABS 2023).

For more information, see Deaths by suicide amongst First Nation Australians and Indigenous health and wellbeing.

How common is hospitalisation for intentional self-harm?

In Australia, there were around 26,900 cases of intentional self-harm hospitalisations in 2021–22 (AIHW, 2023).

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- external site opens in new window (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. Other possible contributing factors include the fact that some self-harm occurs with no suicidal intent and that differentiating out suicide attempts from other types of self-harm cannot be easily identified in the current national emergency department data collection (Figure 3).

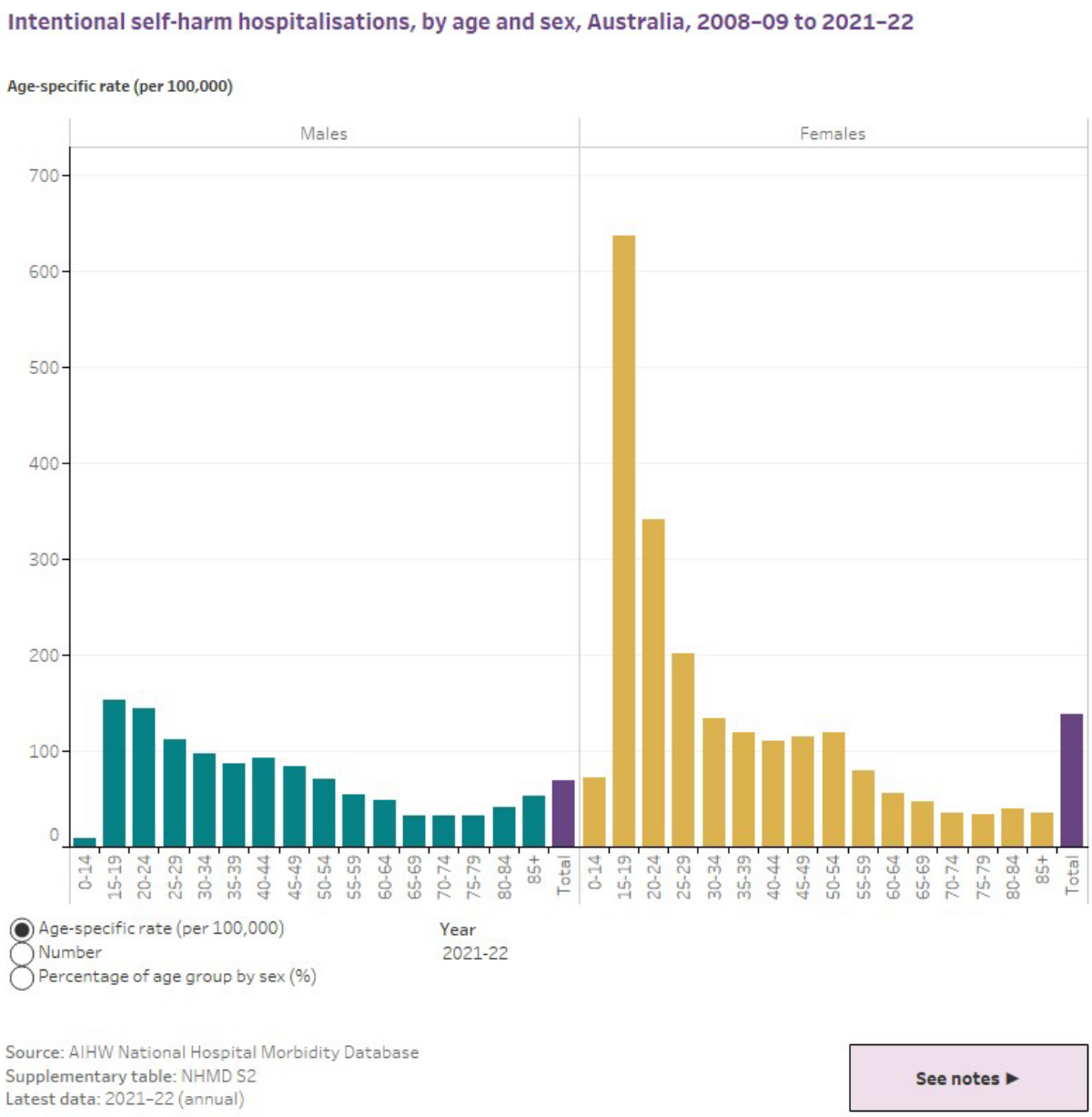
In 2021–22:

- Two-thirds of people (67%) hospitalised for intentional self-harm injuries were female (around 18,000 hospitalisations).
- The rate of intentional self-harm hospitalisations was higher for females than males (139 per 100,000 population compared with 69 per 100,000 population).
- The rate for females aged 0–14 increased from 41 per 100,000 population in 2019–20 to 72 in 2020–21 (AIHW, 2023).

Young people have the highest rates of hospitalisation for intentional self-harm

In 2021–22, the age and sex-specific rate was highest for females aged 15–19 (637 hospitalisations per 100,000 population), followed by females aged 20–24 (342 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 2021–22



How do intentional self-harm hospitalisations vary across states and territories?

The rate of intentional self-harm hospitalisations varied between states and territories in 2021–22, with the Northern Territory reporting the highest rate (238 hospitalisations per 100,000 population), which is more than double the national rate (105 hospitalisations per 100,000 population). The lowest rate was recorded in New South Wales (68 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 2021–22:

- Residents of *Very remote* areas recorded a rate of 193 hospitalisations per 100,000 population, compared to that of residents in *Major cities* (97 per 100,000 population) which recorded the lowest rate.
- The majority of intentional self-harm hospitalisations were residents of *Major cities* (66%).
- Young people aged 15–19 had the highest rates of intentional self-harm hospitalisations in each remoteness area except *Very Remote* where 20–24-year-olds had the highest rate.
- The highest rate of intentional self-harm hospitalisations overall was in the 15-19 age group in *Remote* areas (608 hospitalisations per 100,000 population), followed by the same age group in *Outer Regional* areas (566 per 100,000 population) (AIHW, 2023).

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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Notes

This page was last updated 27 October 2023. All information on this page is the most recent available, as at that date.

Understanding health and health data

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/australias-health/what-is-health

On this page

Good health supports Australians to live fulfilling lives and engage and participate in their community, education and/or employment (Department of Health 2021).

This page provides an overview of health including health determinants, health inequalities and the role the health system plays in supporting health. It also covers information on how we measure health – to help us know if Australians are in good health overall and how that is changing over time – and the importance of timely and reliable health data in Australia.

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). For Aboriginal and Torres Strait Islander (First Nations) people and other diverse communities, health also includes cultural wellbeing (Department of Health 2021). For more information, see Health and wellbeing of First Nations people and Culturally and linguistically diverse Australians.

For information about how health, welfare and wellbeing are related, see Health and welfare links.

Understanding illness and injury

People may experience ill health (morbidity) as a disease/disorder or injury. There are many diseases that can afflict the human body, ranging from colds to cancers. The 2 main

categories of disease are infectious (communicable or not) and chronic, and some diseases are both, such as HIV (see glossary). People may experience 2 or more chronic conditions at the same time, referred to as multimorbidity (see glossary). Injury, on the other hand, refers to harm or damage to the body. An injury may be unintentional (such as an accidental fall) or intentional.

For information on the leading causes of ill health in Australia, see the Australia's health topic summary domain: Health status. Analysis of chronic health conditions are explored in the *Australia's health 2024: data insights* article The ongoing challenge of chronic conditions in Australia.

Understanding how many people die in a given time period and what caused their death (mortality) is also very useful for understanding health. Patterns and trends in deaths can help explain differences and changes in the health of a population. For more information, see Life expectancy and causes of death.

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). Health is influenced by a wide range of factors including general socioeconomic and environmental conditions; cultural factors; living and working conditions; social and community networks; and health behaviours and biological factors. These many factors interact to influence the health and health outcomes of individuals and communities. Also known as 'health determinants', they may be risk or a protective factors (see glossary). Preventing risk factors and improving protective factors can help support people to lead healthy lives (Department of Health 2021).

Some determinants of health relate to broad features of society and the environment (such as the natural environment and the built environment) while others relate to a person's health behaviours (such as tobacco and e-cigarette use, physical activity), psychosocial factors (such as stress and trauma) and own bodily state (including biomedical risk factors such as blood pressure and cholesterol). Socioeconomic characteristics can also influence health, such as income, employment, education, housing, social connections and support (see Australia's welfare and Social determinants of health). The link between a health determinant and a health outcome varies and the impact may not be direct. The pathways between determinants and health outcomes are complex and many are inter-related.

For more information and to view AIHW's framework for determinants of health, see What are determinants of health? For the latest data and analysis on these factors, see the Australia's health topic summary domain: Determinants of health.

How does the health system support our health?

Australia's health system supports people's health by providing programs, services and initiatives which aim to prevent and treat disease and illness and maintain health. A functioning health system provides safe, effective, accessible and appropriate treatment

and other services to help people to remain as healthy as possible, for as long as possible. The health system facilitates this by providing services including primary care (such as general practice and allied health services), specialist services and hospital care. Health promotion and health protection (including immunisation and vaccination and screening services) is a crucial part of the system that supports people's health. So too are diagnostic services. Medicines contribute to our health and quality of life by preventing and treating disease and illness.

Access to services and treatment are often subsidised through Medicare and provided by an extensive health workforce covering many occupations. The provision of care by the health system is supported by standards and safeguards (for example the Australian Charter of Healthcare Rights) and guided by research and policy.

For a summary of health-system services available and who is responsible for them, see Health system overview. For more information on how Australia's health system works, who funds it, the key services provided and the composition of the workforce that delivers it, see the Australia's health topic summary domain: Health system.

Differences in health across population groups

There are known avoidable differences in the health of some population groups within Australia (Commission on Social Determinants of Health 2008).

What are health inequities?

Health inequities are 'differences in health status or in the distribution of health resources between different population groups, arising from the social conditions in which people are born, grow, live, work and age' (WHO 2018).

They are unfair, with social and economic costs, but they can be reduced through the right mix of interventions and policy (WHO 2018).

Health inequities may influence a person's health status and outcomes (see glossary), as well as their access to and use of the health system. Health inequities can lead to the burden of disease (see glossary) being experienced more acutely by certain population groups.

For example, in Australia, health inequities are experienced by:

- First Nations people
- people living in rural and remote areas
- people experiencing socioeconomic disadvantage
- people living with mental illness
- people with disability
- lesbian, gay, bisexual, transgender, queer or questioning, intersex and/or other sexuality and gender diverse people

- people from culturally and linguistically diverse backgrounds (Department of Health 2021).

Data play a key role in understanding these differences such as their cause, prevalence and impact. This information is critical to support efforts to reduce and remove these disparities. One example of this is interactive mapping identifying which chronic conditions and their risk factors are most common in local regions across Australia (see Geographical variation in disease). It allows for geographical variations in disease to be highlighted, in particular identifying local areas where the prevalence of particular conditions – such as diabetes – are much higher than average. This mapping is used by health professionals to guide more targeted chronic disease prevention and management and improve services for patients in local communities across Australia.

For more information, see the Australia's health topic summary domains: Health of population groups and Aboriginal and Torres Strait Islander people.

How do we measure health?

Many measures can be used to describe and assess the health, or health status, of an individual or a population. These measures help us know if Australians are in good health and how that is changing over time. 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 or rate 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 opinion about their health at a given point in time.

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.

For more information, see the Australia's health topic summary domains: Health status and Health of population groups.

Measuring health and wellbeing using indicators

Health indicators are an important way to assess the health of the population and the performance of the health system. An indicator is something that points to, measures or otherwise provides a summary overview of a specific concept (QRI 2023). Indicators are usually reported in sets and a collection of health-related indicators can:

- offer insights into the health of Australians and the quality of the health system at a point in time (and allow different population groups, different regions and different countries to be compared)
- provide information on the effectiveness of changes to policies or new practices and programs (when measured consistently over time)
- improve accountability and transparency of service provision, and support consumer choices relating to health care
- encourage ongoing improvement in service delivery by highlighting areas of innovation and where better performance is needed.

In Australia, there are a number of indicator 'sets' for health or including health measures, and many are associated with national agreements. For instance, the National Agreement on Closing the Gap (2020) uses a set of indicators to measure how well governments are tracking against the agreements with the aim to overcome the inequality experienced by First Nations people and achieve life outcomes equal to all Australians. The indicators are wide ranging and include health measures such as life expectancy and access to health services. For more information, see the Productivity Commission.

Similarly, Australia's *Measuring what matters* framework includes 'healthy' as one of 5 wellbeing themes. 'Healthy' is based on a society in which people feel well and are in good physical and mental health, can access services when they need, and have the information they require to take action to improve their health. The framework uses indicators on access to care and support services, access to health services, life expectancy, mental health, and prevalence of chronic conditions for measuring the health of Australians. For more information, see The Treasury.

Health indicators for Australia can also be compared with other countries to help understand how Australia's heath and health system are faring. Comparing health data between similar countries also supports policy planning and decision-making and enables international health-related research, analysis and collaboration. For more information, see Measures of health and health care for Australia and similar countries.

The importance of health data in Australia

To get a clear picture of Australia's health, we depend on data. Accurate, comparable, and comprehensive data enable authorities to identify health trends, assess the effectiveness of existing programs, allocate resources efficiently and equitably, and develop targeted strategies for improving health outcomes. Moreover, such data can facilitate early intervention, preventive measures and better-informed patient care, ultimately contributing to the overall wellbeing and quality of life for the population.

Data about the current health of Australians is extremely important. The more recent and complete data is, the more likely it provides a reliable picture of today. Combining the most up-to-date data with time series information can provide not only information about today, but also an understanding of the journey to this point, and how things have changed. For information about techniques to provide more timely data when the most recent data are several years old, see *Australia's health 2024: data insights* article Using nowcasting and projections for statistical understandings in health .

COVID-19 and health data

The COVID-19 pandemic made the value of health data more prominent and visible, while also enabling data sharing improvements and more timely release of data. The commitment to establish the Australian Centre for Disease Control (ACDC) reflects the importance of streamlining data sharing processes and using linked data to monitor communicable diseases and understand people's health outcomes. The ACDC is intended to ensure ongoing pandemic preparedness and support work to prevent and manage disease outbreaks in Australia.

For more information on monitoring communicable disease and the future of data, see *Australia's health 2024: data insights* articles Enhancing communicable disease monitoring in Australia through data linkage and Australia's health data landscape.

Data gaps

The health information landscape has a growing volume of data, and technological advancements are driving opportunities in how information is managed. Despite these enhancements, the issue of inadequate information on various aspects of health and the health system, remains.

Data gaps exist where there are no national or timely data available or where data collected are not comprehensive (limited in coverage or quality) or not in a format that can be analysed or used meaningfully. These gaps 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:

- information about the health conditions managed and outcomes of individuals in primary care (general practice and allied health services) or private hospitals or private health care providers

- dementia data – such as prevalence and incidence, clinical diagnosis as well as risk and protective factors (see Dementia data improvements)
- routinely collected data about oral health status and dental services
- demographic information that accurately identifies priority population groups – such as information about people who are sex, gender and bodily diverse; and people from culturally and linguistically diverse backgrounds (for more information, see Culturally and linguistically diverse Australians and LGBTIQ+ communities).

For more information, including what the AIHW is doing to fill some of these gaps, see *Australia's health 2024: data insights* articles Australia's health data landscape and Australia's dental data landscape.

Dementia data improvements

Dementia (see glossary) is a significant and growing health and aged care issue in Australia. It is also an example of how the absence of reliable data can restrict policy and service planning and prevent an accurate sense of the full impact of dementia.

The AIHW report Dementia data gaps and opportunities, identified considerable gaps that limit monitoring and reporting. The recent investment of funding in the national dementia monitoring program and dementia data improvements and developments will be used to address these gaps over the next decade, to improve future planning for dementia programs and services.

For more information, see Bringing together data on dementia and *Australia's health 2024: data insights* article Improving Australia's dementia data for national action.

Data linkage

Data linkage – 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. Linkage has played an important role at the AIHW since the AIHW was in established in 1987. From this time, the AIHW has been linking cancer data with mortality data to calculate cancer survival rates. Demand continues to grow both for one-off and more enduring data linkages to answer complex cross-sector and cross-jurisdictional health questions.

Current and emerging linked data sets

The following are examples of existing or emerging linked data sets that contain health related information.

National Health Data Hub and Person Level Integrated Data Asset

The AIHW-managed National Health Data Hub (NHDH), formerly known as the National Integrated Health Services Information (NIHSI) Analysis Asset, and the Person-Level Integrated Data Asset (PLIDA) overseen by the Australian Bureau of Statistics are examples of current large-scale linked data assets being utilised to answer complex cross-sector health questions. For more information, see NHDH and PLIDA.

COVID-19 Register

The AIHW's COVID-19 Register is a linked data set using person-based information to provide insights into the long-term impacts of COVID-19 – both on the health of the Australian population and the health system – and assist with future planning. The utility of this data set can be seen in analysis of Health outcomes after diagnosis. For more information, see *Australia's health 2024: data insights* article Enhancing communicable disease monitoring in Australia through data linkage.

National Disability Data Asset

Work is underway by the Australian, state and territory governments and the disability community to design the National Disability Data Asset. The disability data asset will link previously disparate data assets across government to better understand the life experiences of people with disability (see glossary). Linking data from multiple sources can provide new insights into how people with disability interact across multiple support services and programs. This information will help improve programs and services for people with disability. The AIHW is working with the Australian Bureau of Statistics to design and deliver the technical aspects of the disability data asset. The Department of Social Services is leading the project, overseen by the Disability Reform Ministerial Council. For more information, see the National Disability Data Asset website.

Where do I go for more information?

For more information about health and health data, visit:

- World Health Organization (WHO)
- Organisation for Economic Co-operation and Development Health topic
- Department of Health and Aged Care National Preventive Health Strategy 2021–2030
- Department of Health and Aged Care About health data in Australia
- Australian Bureau of Statistics Health statistics.

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Health system

Alcohol and other drug treatment services

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/alcohol-other-drug-treatment-services/alcohol-and-other-drug-treatment-services

On this page:

Alcohol and other drug (AOD) use is linked to increased risk of injury, mental illness, preventable disease, road trauma and death (AIHW 2023). AOD treatment agencies across Australia provide a range of services and support to people who received treatment for their own drug use, as well as their families and friends.

There are many treatment types available in Australia to assist people with drug and alcohol use. Most treatments aim to reduce harm, coordinate care, and provide intensive interventions, for example:

- withdrawal management (detoxification)
- psycho-social counselling
- rehabilitation
- pharmacotherapy.

Reducing harm from alcohol, tobacco and other drugs may include ceasing use, reducing use, or changing use patterns to be less harmful (including reducing the severity of dependence) (Department of Health 2019).

Opioid pharmacotherapy (see glossary) 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).

For information on use of alcohol and other drugs, see Alcohol and Illicit use of 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 2024a, 2024b).

Who uses alcohol and other drug treatment services?

Data from the AODTS NMDS indicate that around 131,500 clients aged 10 and over received AOD treatment in 2022–23. These clients received just over 235,500 closed treatment episodes (see glossary) from 1,280 publicly funded AOD treatment agencies.

In 2022–23:

- 3 in 5 (60%) clients of AOD treatment services were male and half (50%) were aged 20–39 years.
- Just under 1 in 5 (18%) clients were Aboriginal and Torres Strait Islander (First Nations) people.
- Over 9 in 10 (94%) clients received treatment for their own drug use.

The number of people who received treatment from publicly funded AOD treatment agencies increased by 15% between 2013–14 (114,436 or 564 per 100,000 people) and 2022–23 (131,516 or 568 per 100,000). Between 2020–21 and 2021–22, the number of clients decreased by 6% (from 139,271 to 130,525) before slightly increasing by 0.8% in 2022–23 (131,516).

Who receives opioid pharmacotherapy treatment?

Data from the NOPSAD collection showed that around 53,300 clients received opioid pharmacotherapy treatment from just under 3,100 dosing point sites, across Australia on a snapshot day in mid–2023 (excluding Western Australia). Data for Western Australia were not available for the 2023 NOPSAD collection.

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 2023:

- 2 in 3 (67%) opioid pharmacotherapy clients were male, and nearly 3 in 5 (58%) were aged 30–49.
- Just over 1 in 10 clients (12%) were First Nations people.

Between 2011 and 2022, the number of clients receiving opioid pharmacotherapy treatment increased by 20% (from around 46,400 clients to 55,700). Across the same period, after adjusting for population growth, the rate of clients accessing opioid pharmacotherapy treatment remained stable at around 21 clients per 10,000

population. In 2023, the total rate of clients was 22 per 10,000 population, including all states and territories except Western Australia.

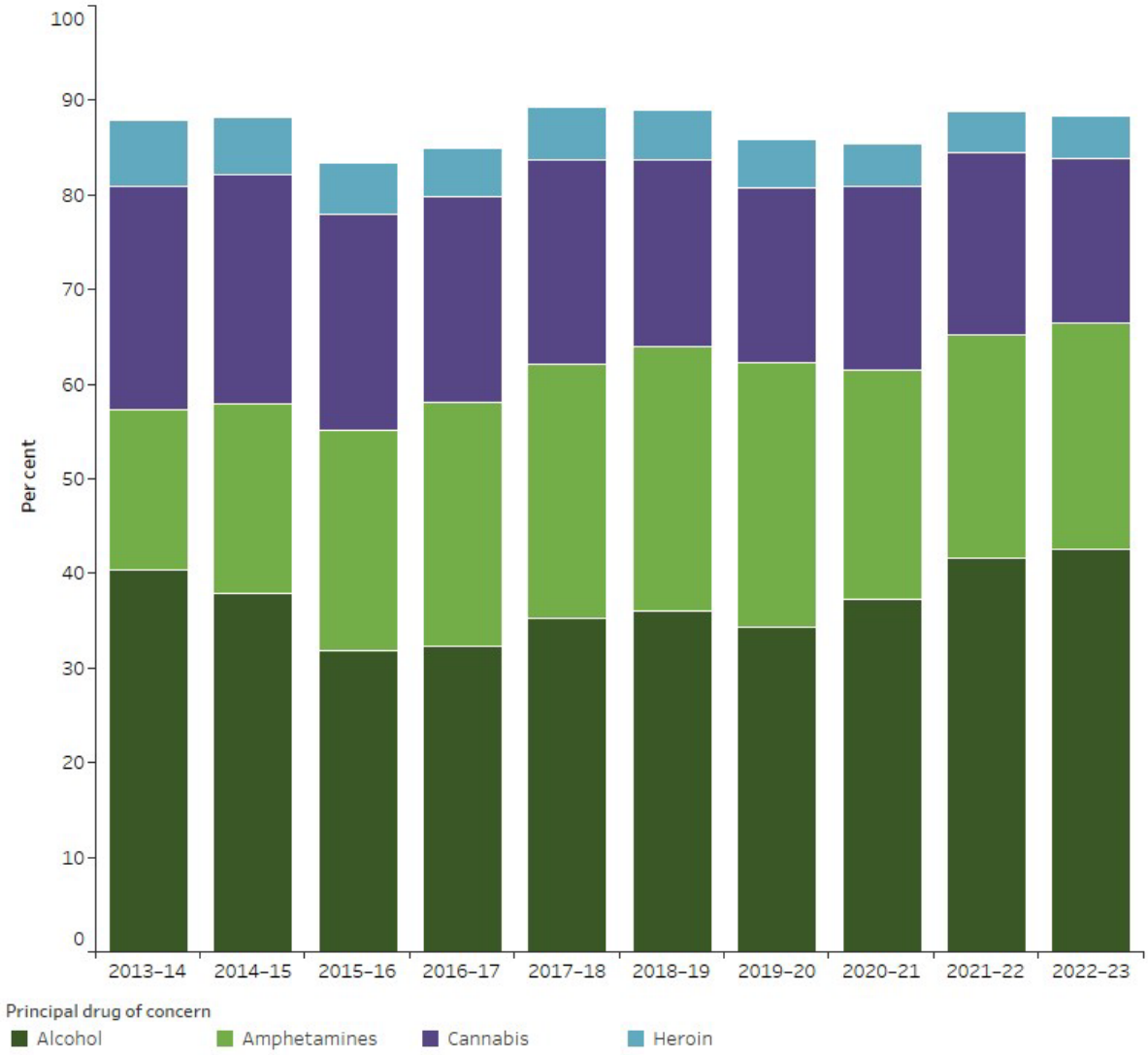
What drugs do people seek treatment for?

Data from the AODTS NMDS indicate that for clients who received treatment for their own alcohol or drug use, alcohol continued to be the most common principal drug of concern (PDOC) (see glossary) in 2022–23.

Between 2013–14 and 2022–23:

- The proportion of closed treatment episodes provided for alcohol as a PDOC decreased from 40% in 2013–14 to 32% in 2015–16 before increasing to 43% in 2022–23 (in relation to all PDOCs).
- The second most common PDOC in 2022–23 was amphetamines. The proportion of closed treatment episodes for amphetamines rose from 17% in 2013–14 to 24% in 2022–23 (Figure 1).

Figure 1: Proportion of closed treatment episodes for clients' own drug use, by most common principal drugs of concern, 2013–14 to 2022–23



Title: Figure 1: Proportion of closed treatment episodes for clients' own drug use, by most common principal drugs of concern, 2013–14 to 2022–23
http://www.aihw.gov.au

Notes

SA reports a high proportion of treatment episodes where amphetamines are the principal drug of concern due to the SA Police Drug Diversion Initiative (PDDI). In addition, adult cannabis offences are not included in the PDDI due to the SA Cannabis Expiation Notice legislation.

Victoria reported relatively high incidences of 'All other drugs' due to service provider reporting practices and limitations with the data reporting system. This system was replaced in 2019–20. In 2019–20 and 2020–21, Victoria continued to report high levels of miscellaneous episodes coded as 'Other drugs' or 'Not stated' as principal drugs of concern due to service provider reporting practices with the new data reporting system.

In Queensland, the level of cannabis reported as the principal drug of concern is a result of the police and illicit drug court diversion programs operating in the state.

In the Australian Capital Territory, data collection improvements at government-operated services resulted in fewer 'Not stated' responses in the 2022–23 collection. Removal of criminal penalties for possession of small quantities of cannabis in the ACT at the end of January 2020 reduced the number of cannabis-related diversions recorded as treatment episodes to low levels (mainly under-18s). One large ACT program discontinued reporting in the second half of 2022–23 which may influence trend comparisons.

The AODTS NMDS also collects data on a client's additional drugs of concern, but this variable is not included in these data visualisations.

Data are subject to minor revisions over time.

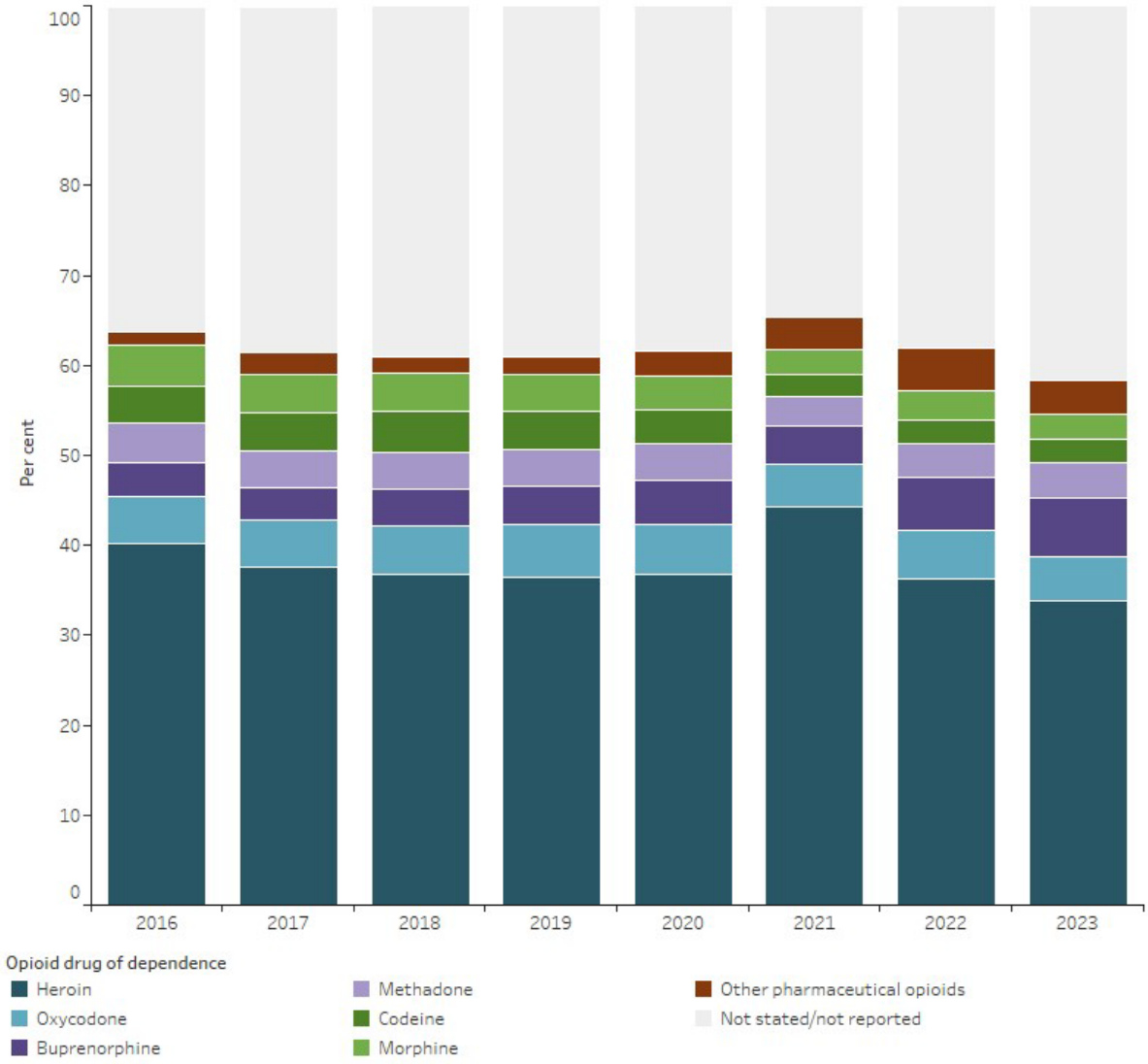
Components of tables may not sum to totals due to rounding.
Source: AIHW 2024a.

AODTS NMDS data indicate that there is variation in treatment episodes across age groups in terms of the most common PDOC. In 2022–23:

- Cannabis was the most common PDOC for young people, accounting for 64% of episodes provided to clients aged 10–19 and 30% for clients aged 20–29.
- Amphetamines was the most common PDOC for people aged 20–29 and 40–49 (25% each) and 30–39 (32%).
- Alcohol was the most common PDOC for older people, accounting for 48% of episodes for those aged 40–49, 63% for those aged 50–59, and 77% for those aged 60 and over.

Data from the NOPSAD collection show that in 2023, heroin remained the most common opioid drug of dependence among opioid pharmacotherapy clients (34%). Consistent with previous years, there was a high proportion of clients with 'Not stated/not reported' as the opioid drug of dependence (42%) (Figure 2).

Figure 2: Proportion of clients receiving opioid pharmacotherapy treatment on a snapshot day, by opioid drug of dependence, 2016 to 2023



Title: Figure 2: Proportion of clients receiving opioid pharmacotherapy treatment on a snapshot day, by opioid drug of dependence, 2016 to 2023
http://www.aihw.gov.au/

Notes

'Not stated/not reported' also includes 'Inadequately described' responses.

Prior to 2023, NSW counted ‘buprenorphine-naloxone’ and ‘buprenorphine LAI’ as ‘buprenorphine’. In 2023, these formulations were reported separately for the first time. Trend data are not comparable.

In 2020 and 2021, the increase in NSW client numbers could be attributed to the introduction of buprenorphine LAI (reported in the NOPSAD collection for the first time in 2020). Additional prescribing of buprenorphine occurred in correctional facilities, with the introduction of depot buprenorphine LAI during the year contributing to an increase in access to treatment. Some NSW Local Health Districts also reported having capacity to increase the number of new patients due to buprenorphine LAI.

In 2020, the increase in Vic client numbers may have been influenced by the implementation of the Victorian Governments SafeScript initiative. SafeScript has identified people with risky prescription opioid use who were previously undetected.

In 2021, changes to coding practices in Vic may have led to a decreased number of clients with 'Not stated/not reported' as the drug of dependence, and corresponding increases for some other drug categories (for example, heroin).

In 2021, data for Qld were not available. Total excludes Qld.

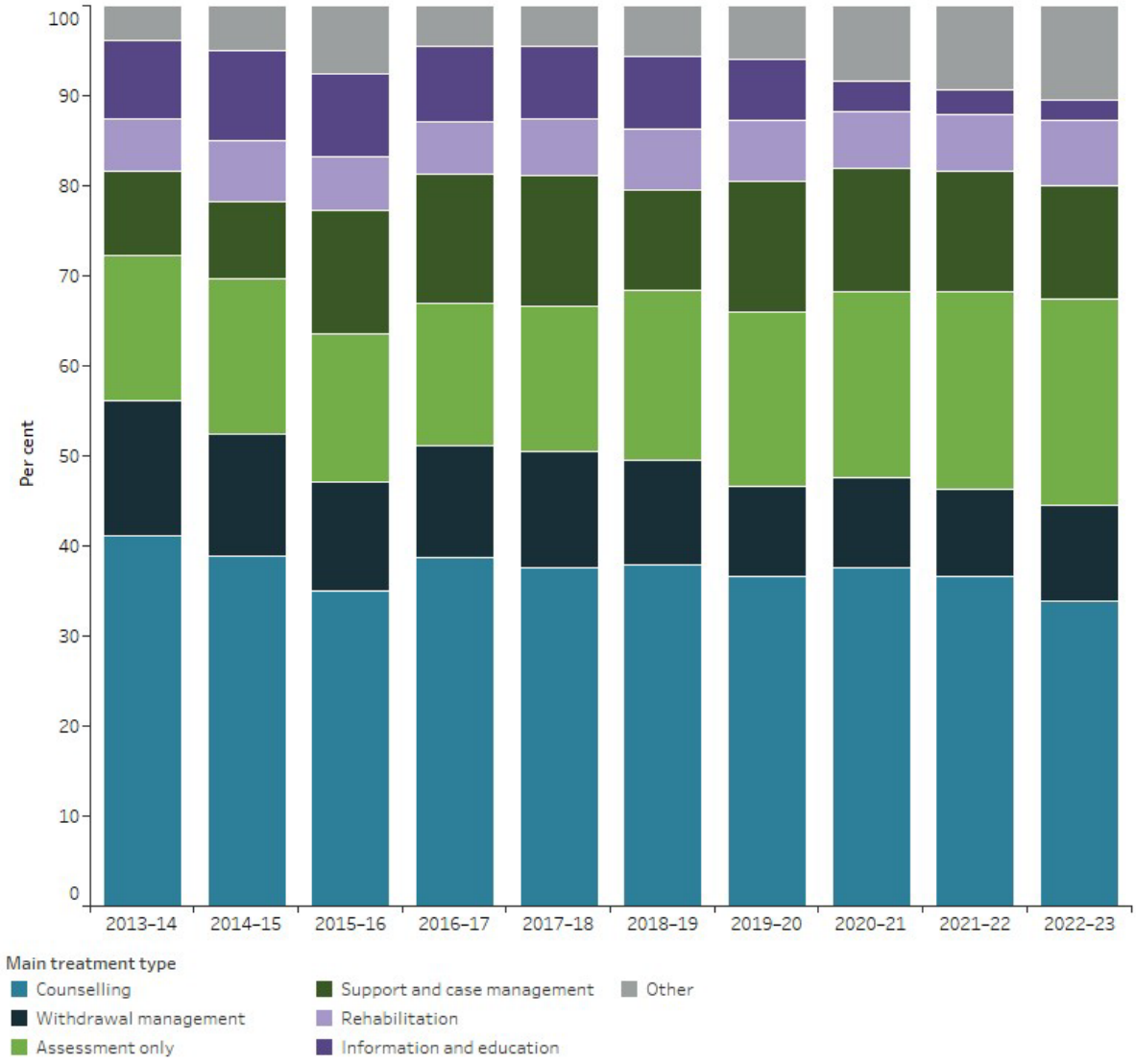
In 2023, data for WA were not available. Total excludes WA.

Source: AIHW 2024b.

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 who received treatment for their own alcohol or drug use, 34% of treatment episodes in 2022–23 involved counselling as a main treatment and 23% involved an assessment only (Figure 3).

Figure 3: Proportion of closed episodes for clients' own drug use, by main treatment type, 2013–14 to 2022–23



Title: Figure 3: Proportion of closed episodes for clients' own drug use, by main treatment type, 2013–14 to 2022–23
http://www.aihw.gov.au

Notes

'Other' includes pharmacotherapy.

Rehabilitation, withdrawal management (detoxification), and pharmacotherapy are not available for clients who received treatment for someone else's alcohol or other drug use.

In 2019–20, changes were made to categories under Main Treatment; the word 'only' was removed from support and case management and information and education. The removal of the word 'only' from support and case management and information and education, changed reporting rules for agencies; allowing agencies to be able to report and more accurately capture these items as an additional treatment in conjunction with a main treatment type.

The AODTS NMDS also collects data on a client's other treatment types, as well as main treatment type, however, this variable is not included in these data visualisations.

SA reports a high proportion of Assessment only treatment episodes due to legislated client assessments under the state's Police Drug Diversion Initiative and child protection programs.

Data are subject to minor revisions over time.

Components of tables may not sum to totals due to rounding.

Source: AIHW 2024a.

Data from the NOPSAD collection show that buprenorphine opioid drug formulations have now overtaken methadone as the most common opioid pharmacotherapy treatment provided to clients (see glossary). On a snapshot day in 2023, 50% of clients received a buprenorphine formulation as pharmacotherapy treatment and 47% received methadone (excluding Western Australia). Between 2013 and 2023, the proportion of clients receiving methadone has fallen from 67% to 47% and the proportion receiving a buprenorphine formulation has risen from 33% to 50%. This in part reflects the availability of new buprenorphine formulations such as buprenorphine long-acting injections.

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

For more on this topic, visit Alcohol & other drug treatment services.

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Cancer screening

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/australias-health/cancer-screening-and-treatment

On this page

Cancer is a major cause of illness and death in Australia – there are over 1.2 million people alive in Australia who are either living with or have lived with cancer. Latest data (2015–2019) 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 2023a).

Understanding and avoiding the risk factors associated with cancer can help to reduce the chance of getting the disease. Improvements in treatments and care are also important contributors to improvements in survival. Some cancers can be detected through screening. Cancer screening programs aim to reduce illness and death from certain cancers by allowing for early detection, intervention, and treatment.

This page focuses on cancer screening programs in Australia. For information on cancer incidence, mortality, prevalence, and survival, see Cancer.

What is cancer screening?

Population-based cancer screening involves testing for signs of cancer or conditions that cause cancer before a person has symptoms. Early detection of cancer allows for early intervention and treatment, which can improve outcomes.

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 certain groups where evidence shows that screening helps to reduce ill health and deaths from cancer.

Breast cancer screening

Breast cancer screening on this page refers only to breast cancer screening undertaken through BreastScreen Australia.

BreastScreen Australia began in 1991 targeting women aged 50–69. The inclusion of women aged 70–74 was phased in from 1 July 2013. The program provides free 2-yearly screening mammograms (see glossary) to women aged 40 and over, and actively targets women aged 50–74.

The term 'participant' is respectfully used to denote a person who has breast tissue that is suitable for breast cancer screening and who screens through BreastScreen Australia. Participants may include women, transgender men, transgender women, non-binary people, or other gender diverse people.

Participation in BreastScreen Australia

Over the 2 years 2021–2022, more than 1.8 million participants aged 50–74 were screened through BreastScreen Australia – 50% of the target population (AIHW 2023b).

The age-standardised participation rate remained between 53% and 54% from 2014–2015 to 2018–2019 and decreased to 49% and 47% in 2019–2020 and 2020–2021, respectively, due to the impact of the COVID-19 pandemic (AIHW 2023b).

Participation in BreastScreen Australia varied between population groups and across areas of Australia in 2020–2021:

- 35% of Aboriginal and Torres Strait Islander (First Nations) women aged 50–74 participated in BreastScreen Australia (25,000 participants). After adjusting for age, participation was 26% lower for First Nations women than for non-Indigenous women.
- 37% of women who spoke a language other than English at home participated in BreastScreen Australia (250,000 participants). After adjusting for age, participation was 25% lower for women who spoke a language other than English at home than women who spoke only English at home.
- After adjusting for age, participation was 31% higher for participants living in *Outer regional* areas than for participants living in *Very remote* areas (AIHW 2023b).

Detection of breast cancer

In 2021, almost 5,600 participants aged 50–74 had an invasive cancer detected through BreastScreen Australia and 59% of those breast cancers were small (≤15 mm). Small breast cancers are associated with more treatment options and improved survival (AIHW 2023b).

Cervical screening

People with a cervix are at risk of cervical cancer and are the eligible population for cervical screening. People with a cervix may include women, transgender men, intersex

people, and non-binary people, hereafter respectively referred to as 'people' or 'participants'.

All cervical screening is undertaken through the National Cervical Screening Program (NCSP).

From its commencement in 1991 to 30 November 2017, the NCSP offered 2-yearly Papanicolaou tests, or 'Pap tests' (see glossary) for the target age group 20–69.

Since December 2017, a renewed NCSP offers 5-yearly human papillomavirus (HPV) (see glossary) tests for the target age group 25–74. The cervical screening test (CST) (see glossary) detects the presence of cancer-causing HPV.

Participation in the National Cervical Screening Program

Over the 5 years 2018–2022, more than 5.2 million participants aged 25–74 were screened through the NCSP, which is an estimated 77% of the eligible population (AIHW 2023c).

Trend data are not yet available for participation in the renewed NCSP. However, towards the beginning of the COVID-19 pandemic (April 2020), there was a disproportionate drop in cervical screening tests not observed in later years over the same month (AIHW 2023c).

Participation in the NCSP varied between population groups and across areas of Australia in 2018–2022:

- After adjusting for age, participation was 16% higher for participants living in *Major cities* than for participants living in *Very remote* areas.
- After adjusting for age, participation was 20% higher for participants living in the highest socioeconomic areas than for participants living in the lowest socioeconomic areas (AIHW 2023c).

Detection of cervical abnormality

In 2022, for every 1,000 participants screened, 14 participants had a high-grade abnormality detected, providing an opportunity for treatment before possible progression to cervical cancer (AIHW 2023c).

Bowel cancer screening

Bowel cancer screening on this page refers to the screening managed by the National Bowel Cancer Screening Program (NBCSP).

The NBCSP was established in 2006, offering screening using a free immunochemical faecal occult blood test (iFOBT) (see glossary) to people at 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.

Participation in the National Bowel Cancer Screening Program

Over the 2 years 2021–2022, of the 6.0 million people invited, 40% participated in the program. Participation was higher for women than men (42% and 38%, respectively) (AIHW 2024).

Since the expansion of the program from 2014, the NBCSP participation rate increased from 39% in 2014–2015 to 44% in 2019–2020. There was a small decline in the participation rates following the COVID-19 pandemic to 41% in 2020–2021 and 40% in 2021–2022 (AIHW 2024).

Participation in the NBCSP varied between population groups and across areas of Australia in 2021–2022:

- The participation rate was highest for people living in *Inner regional* areas (42%) and lowest for people living in *Very remote* areas (26%).
- The participation rate was highest for people living in the highest socioeconomic areas (45%) and lowest for people living in the lowest socioeconomic areas (35%) (AIHW 2024).

Detection of bowel cancer

In 2022, 5.7% of participants aged 50–74 who returned a valid kit had a positive iFOBT test (see glossary). Of those with a positive result, 86% had record of a diagnostic assessment (colonoscopy) to follow up the positive screening result.

The return of NBCSP forms is not mandatory and as a result, diagnostic assessment data are incomplete. However, with the data available for participants who underwent a diagnostic assessment after a positive screen in 2022:

- 4.1% were diagnosed with a confirmed or suspected bowel cancer
- 14% were diagnosed with an adenoma (pre-cancerous tumour) (AIHW 2024).

First Nations people, 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 2024).

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).

Key findings included:

- 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 3 data linkage projects:

- one will provide more detailed analysis of breast screening behaviour and cancer outcomes, including among First Nations women
- a second will allow more complete monitoring of bowel and cervical screening programs as well as monitoring the impact of HPV vaccination
- another will examine adverse events after NBCSP-related colonoscopy.

Where do I go for more information?

For more information on cancer screening, see:

- BreastScreen Australia monitoring report 2023
- National Cervical Screening Program monitoring report 2023
- National Bowel Cancer Screening Program: monitoring report 2024
- Analysis of cancer outcomes and screening behaviour for national cancer screening programs in Australia
- Cancer screening and COVID-19 in Australia
- Cancer screening programs: quarterly data
- Cancer data in Australia

For more on this topic, visit Cancer screening and Cancer.

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Digital Health

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

On this page

Australia's health system has a long history of using new technologies (or tools) to improve healthcare. Digital health supports a health system that:

- is more affordable, convenient, accessible and equitable for all Australians
- supports healthcare consumers and providers to prevent disease, better manage care and improve health outcomes
- uses and reuses data to support collaboration, research, innovation, investment and policy.

This page highlights why digital health is important, the progress of digital health in Australia, and the challenges and opportunities for the use of digital health.

What is digital health?

Digital health refers to systems, tools and services based on information and communications technology that can be used to treat patients and collect and share a patient's health information. Digital health in Australia has a broad scope, and includes (but is not limited to):

- mobile health and applications (such as SMS reminders via mobile messaging, wellness apps, My Health app and Medicare Online)
- digital medicines including electronic prescribing and electronic medication charts
- healthcare identifiers
- electronic health records (including My Health Record)
- telehealth and telemedicine
- wearable devices (such as fitness trackers and monitors)
- robotics and artificial intelligence
- electronic referrals
- access to trusted data.

Digital health can increase the quality and efficiency of information sharing between healthcare consumers and providers across the health system.

Healthcare consumers

Digital health empowers healthcare consumers to actively participate in and make informed decisions about their own care. For example, remote consultations via telehealth and telemedicine services can reduce some physical, distance and time barriers. Wearable devices and online tools can assist users to track their activity, symptoms, and measures such as heart rate and weight. Continuous blood glucose monitors can provide real-time readings to personal digital devices for people living with diabetes. Healthcare consumers can upload information for health practitioner assessment and can use the information to make healthy life choices in areas such as diet, activity and sleep.

Healthcare organisations and professionals

Digital health can improve communication between healthcare providers, healthcare services and healthcare consumers. Digital health can support patient care, improve patient safety and reduce wait times by:

- enabling near-real-time access to consumers' health data and information across different health care settings and borders
- supporting real-time evidence-based clinical decision-making
- providing digitally enabled patient screening and medication alerts
- providing data-driven insights for better practice planning, resourcing and continuous quality improvements.

Health systems

Digital health underpins a modern learning health system and supports a continuous cycle of improvement. Timely and accurate information-sharing is key to enabling the health system to be responsive to public health emergencies and other challenges. Digital health innovation, including telehealth, point-of-care testing, electronic records, electronic prescribing and digital communication were key to respond to the COVID-19 pandemic, including through reducing the risk of infection between healthcare workers and at-risk patients, supporting care for chronic and acute health conditions and supporting the mental health of the population (Sturgiss et al. 2022).

The consistent recording, use and reuse of data will enable researchers, innovators, collaborators and industry to contribute to growing a learning health system. Greater connection through better utilisation of data will also support public health planning and investment, identify opportunities for workforce efficiencies, inform system planning and optimise resource allocation.

Case study: A healthcare user's journey in digital health (Part 1)

Chris* has some symptoms they are concerned about, so decides to look them up on the healthdirect Symptom Checker which can be accessed through the my health app. Chris also uses the my health app to make an appointment with a local general practitioner (GP) and receives an appointment reminder by SMS beforehand. Chris attends the appointment. Following a discussion and assessment, the GP provides an electronic prescription and uploads a shared health summary to Chris' My Health Record to reflect the medication change, which Chris can review through their my health app. Chris attends a local pharmacy and provides an e-token to the pharmacist, who dispenses the required medicine. Additionally, the GP has suggested 30 minutes of light activity each day to support Chris' wellbeing: Chris uses a smartwatch and a fitness application on the smartphone to track activity and heart rate. On follow-up 6-months later Chris' overall fitness has improved and the symptoms that were of concern have abated.

Chris's digital health journey highlights the tools that are available and accessible to both the healthcare user and providers, and the good health outcomes that can be achieved through the interconnectedness of healthcare data.

*Fictional person

Digital tools in the Australian health system

Technical developments are supported by initiatives such as My Health Record and the establishment of the Australian Digital Health Agency. Recent developments in digital health tools and services in Australia include:

- Electronic prescribing, which allows the optional use of electronic rather than paper prescriptions. Electronic prescribing is part of the broader digital health and medicines safety framework.
- Medicare online, a portal to claim, update, and access health statements through an online account.
- Secure messaging of clinical information, which allows for the secure, encrypted exchange of information between health professionals.
- My Health Record, a secure digital health record where key health information can be stored and accessed by a patient and their authorised healthcare providers. When kept up to date, it can provide a more complete picture of a patient's health, and is available when and where it is needed, including in an emergency. Healthcare consumers can review their record using the my health app or the healthdirect app and Electronic National Residential Medication Charts.

Telehealth

In response to the COVID-19 pandemic, the Australian Government added a number of Medicare-subsidised items to help healthcare providers deliver, and patients receive, telehealth services via phone or video call (Department of Health and Aged Care 2023). Healthcare providers able to provide telehealth services to healthcare consumers include

GPs, specialists, allied health providers, mental health professionals, nurse practitioners and participating midwives.

Between 13 March 2020 and 31 July 2022, 118.2 million telehealth services were delivered to 18 million patients, and more than 95,000 practitioners used telehealth services (Australian Digital Health Agency 2022).

Challenges and opportunities

Digital health tools offer many benefits to health and healthcare services delivery in Australia and globally. Australia already has strong foundations to support a digitally enabled health system. These foundations need to be expanded on and embedded over the coming years to support truly connected care for all Australians.

Key shared challenges include:

- Equity of access, not everyone has the same opportunity or ability to employ the tools required to use digital information and services.
- Interoperability and data standards, to ensure seamless and accurate transfer of information with shared meaning between different 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.

Equity of access

Healthcare providers' and patients' engagement with digital health tools relies on having access to the internet and to devices that are up-to-date and secure. Providers and patients also need the knowledge and confidence to effectively use information.

People may face other barriers to use of digital health tools such as socioeconomic disadvantage, disability, complex health problems, and lack of experience with new and emerging technologies.

The National Digital Health Strategy 2023–2028 notes that all health consumers should benefit from digital health. The strategy's priorities are to improve access and use for all population groups, regardless of socioeconomic status, disability or other potential barriers.

Interoperability and data standards

Advances in digital health tools have made it possible for Australians to better access, transmit and record health information (Services Australia 2021). Ensuring systems are connected, and can easily share information with shared meaning are key to these improvements and are supported under the National Digital Health Strategy, the Digital Health Blueprint 2023–2033 and the National Healthcare Interoperability Plan (the Plan). The Council for Connected Care (the Council) has been established to provide strategic

advice on matters related to interoperability and support national implementation of the Plan, including monitoring progress against the Plan's actions.

The Plan outlines the current state of interoperability in Australia's healthcare system and identifies priority actions to foster a more connected healthcare system. It sets the direction for a nationally coordinated future state that leverages current activities and creates opportunities for future innovation. The Plan was developed under the governance of a national steering committee and was informed by national consultations undertaken in 2019, and engagement with health departments and other key stakeholders in 2020 and 2021.
The main goal of interoperability is to support high quality and safe care through 'a connected healthcare system that conveniently and seamlessly shares high-quality data with the right people at the right time'.

Key priorities of the Plan include:

- Adopting healthcare identifiers to ensure that individuals, healthcare providers and healthcare provider organisations are uniquely and correctly identified when exchanging health information.
- Increasing information exchange between healthcare providers and individuals by making information discoverable and accessible, with consideration of an individual's safety, consent, privacy and data quality.
- Driving interoperability through future innovations that apply interoperability principles to new digital health initiatives and functional enhancements.
- Driving digital transformation through effective leadership and a sustainable approach to standards governance to ensure that digital health standards, specifications and terminology are developed consistently and collaboratively, and are fit for purpose, widely adopted and implemented using relevant conformity assessment schemes.

As part of the 2023–24 federal Budget, $15 million in funding was provided to establish a national partnership between the Australian Government, the Australian Digital Health Agency, the CSIRO and HL7 Australia, that has launched Australia's first Fast Healthcare Interoperability Resource (FHIR) accelerator, Sparked. Sparked aims to deliver a core set of FHIR standards for use in Australian settings over the next two years, developed by and for the community.

The AIHW Metadata Online Registry (METEOR), is a key asset to improve access to and the utility of consistent health (and other sector) data definitions in an increasingly digital environment.

Data literacy and data citizenship

Active participation with digital health tools empowers people to share access to, and engage with, technologies as part of their own healthcare and wellbeing journey. Factors that encourage participation include:

- data literacy (the ability to interpret and understand health data)

- data citizenship for the healthcare user (engaging with and using own health data in a meaningful, informed, consented and empowered manner)
- data citizenship for the healthcare provider (the ethics, governance and legal requirements for health data management understanding).

For more information, see What are determinants of health?

Security and privacy

With heightened community awareness around data collection and 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's *Privacy Act 1988* and the Australian Privacy Principles within the Act, which apply to all private sector healthcare providers throughout Australia. For public healthcare 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 help to ensure appropriate use of health information.

There are also privacy and legislative frameworks specific to national digital health infrastructure. The *My Health Records Act 2012*, My Health Records Rule 2016 and My Health Records Regulation 2012 create the legislative framework for the My Health Record system.

The My Health Records Act limits when and how health information included in a My Health Record can be collected, used and disclosed. Unauthorised collection, use or disclosure of My Health Record information is both a breach of the My Health Records Act and an interference with privacy.

The Office of the Australian Information Commissioner (OAIC) is the independent regulator of the privacy aspects of the *Healthcare Identifiers Act 2010* (HI Act) and the Healthcare Identifiers Regulations 2010 (HI Regulations). The HI Act implements a national system for assigning unique identifiers to individuals, healthcare providers, and healthcare provider organisations. The identifiers are assigned and administered through the Healthcare Identifiers Service (HI Service), currently operated by the Chief Executive Medicare.

Case study: A healthcare user's journey in digital health (Part 2)

Chris* experienced some health problems and chose to seek out programs and apps within the digital health environment. Like many others, Chris is interested in what happens to their personal health information once it enters the digital sphere.

By using the my health app to access their My Health Record, Chris learns that information can be securely stored and transferred digitally (system interoperability), and understands personal data could be accessed and used by their treating healthcare providers who understand the ethics, governance and legal requirements for managing health data (data citizenship). Chris also learns this 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' own ability to interpret and understand health data (data literacy) has improved and Chris feels empowered to use this data in a meaningful and informed way (data citizenship). Chris also knows the importance of security and privacy in the digital health environment and understands how this sensitive information is protected.

*Fictional person

Where do I go for more information?

For more information on digital health, see:

- Australian Digital Health Agency My Health Record
- Australian Digital Health Agency my health app
- Australian Digital Health Agency National Digital Health Strategy
- Australian Digital Health Agency National Healthcare Interoperability Plan
- Department of Health and Aged Care Electronic National Residential Medication Charts
- Department of Health and Aged Care, Electronic Prescribing
- Department of Health and Aged Care Health technology and digital health
- healthdirect healthdirect Symptom Checker

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General practice, allied health and other primary care services

Find the most recent version of this topic summary at: https://www.aihw.gov.au/reports/primary-health-care/general-practice-allied-health-primary-care

On this page:

What is primary care?

Primary health care is often the first contact a person has with the health system and can be delivered in various settings, by a range of providers. It may be provided by general practitioners (GPs) within general practice or in an aged care or community setting, by public or private service providers. Nursing care, midwifery, pharmacy, dentistry, Aboriginal health services, and allied health care are also examples of primary care services.

Comprehensive data on primary care are limited, but robust existing sources include claims information relating to Medicare-subsidised health services, patient-reported experiences of primary care and primary care expenditure.

Information on this page comes from the:

- Department of Health and Aged Care Medicare Benefits Schedule (MBS) claims data collection
- Australian Bureau of Statistics Patient Experience Survey- external site opens in new window
- AIHW Health and Welfare Expenditure Database.

Primary care service use

In 2022–23, there were around 197 million Medicare-subsidised primary care services in Australia, up from around 185 million in 2018–19. This includes:

- 166 million GP attendances, an increase of 5.0% from 2018–19 (158 million)
- 27 million allied health attendances, an increase of 11% from 2018–19 (24 million)
- 4.3 million services provided by nurses and Aboriginal health workers, an increase of 21% from 2018–19 (3.5 million) (AIHW 2020b; AIHW 2024).

Trends over time

Between 2018–19 and 2022–23, the proportion of people who received a primary health care service fluctuated and was likely impacted by the COVID-19 pandemic (Figure 1).

There was a peak in the proportion of those who received a service from a nurse and Aboriginal health worker (8.3%) in 2020–21, but a low in GP attendances (85%). For more information about how COVID-19 may have impacted the data reported in this report, see Primary care services and the effects of COVID-19.

Figure 1: Proportion of people who received a primary care service, 2018–19 to 2022–23

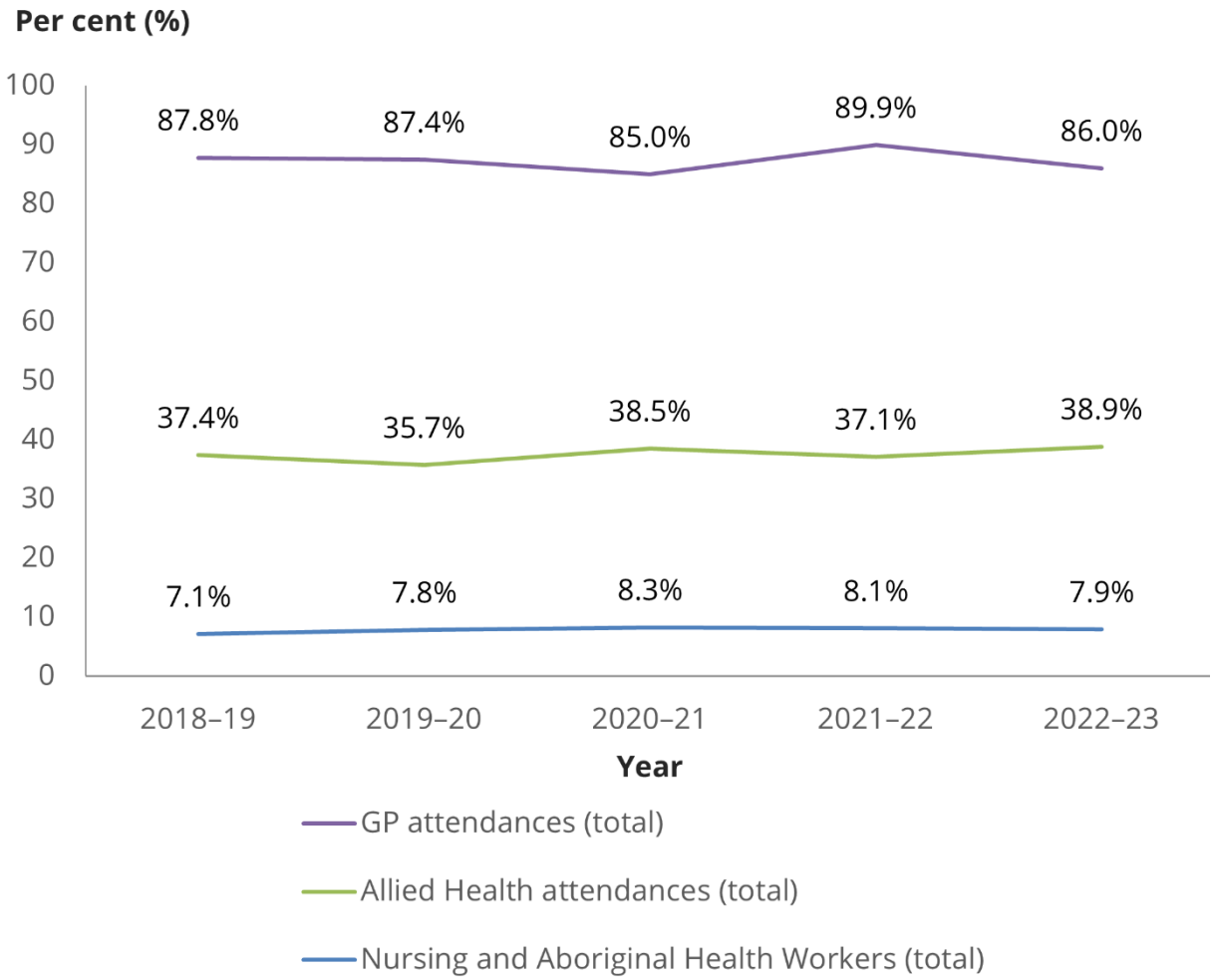

Chart: AIHW. Source: AIHW analysis of Department of Health and Aged Care Medicare Benefits Schedule (MBS) claims data, 2018–19, 2019–20, 2020–21, 2021–22, 2022–23

Between 2018–19 and 2022–23, the rate (per 100 people) of primary health care service provision also changed (Figure 2). The rate of services provided by an allied health nurse and Aboriginal health worker peaked in 2020–21 (104 and 17 services per 100 people,

respectively). In 2021–22, a peak in the rate of GP services was recorded (735 services per 100 people). This could be in response to the expansion and uptake of Medicare-subsidised telehealth and COVID-19 vaccinations during this time (AIHW 2022).

Figure 2: Rate (per 100 people) of primary care service provision, 2018–19 to 2022–23

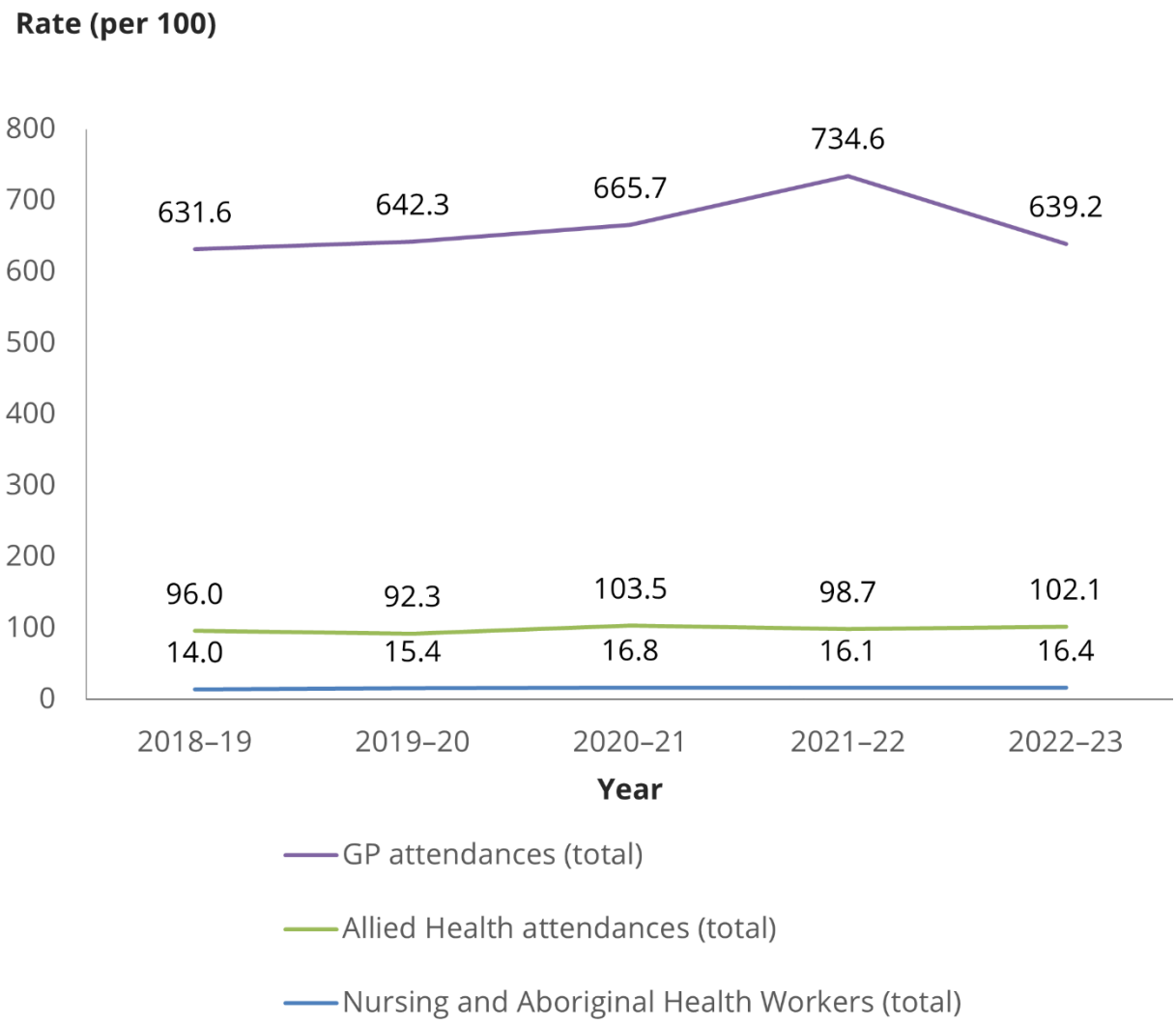

Chart: AIHW. Source: AIHW analysis of Department of Health and Aged Care Medicare Benefits Schedule (MBS) claims data, 2018–19, 2019–20, 2020–21, 2021–22, 2022–23.

Primary care services and the effects of COVID-19

The COVID-19 pandemic had a severe impact on various aspects of everyday life, including health care. The pandemic demonstrated how a health crisis can drastically influence the delivery of primary care services within the community, as seen by changes in consultation styles with patients and the uptake of digital health advancements.

Telehealth in primary care during the COVID-19 pandemic was an essential measure that enabled continuity of care. Between March 2020 and March 2022, around

17 million Australians used over 100 million telehealth consultations (Department of Health and Aged Care 2023b).

Many MBS telehealth items introduced on a temporary basis in response to the COVID-19 pandemic have now been made permanent, including telehealth services provided by GPs, medical practitioners, nurse practitioners, participating midwives, and allied health providers (Department of Health and Aged Care 2022). For more information, see the Department of Health and Aged Care- external site opens in new window.

The introduction of electronic prescribing has allowed continuity of care as well as reduced administrative burden for health care providers through more effective management of prescription refill requests (ADHA 2023). As at October 2023, over 175 million electronic prescriptions have been issued since May 2020 by more than 73,000 GP and nurse practitioner prescribers (ADHA 2023). Electronic prescribing is now widely available and forms part of the broader digital health and medicines safety framework in Australia. For more information, see Digital health.

The effects of the COVID-19 pandemic also highlighted the need to further investigate ways to support all Australians' access to primary care services. The use of telehealth services and digital health information was found to be least accessible to those from culturally and linguistically diverse communities, those with low literacy levels, low socioeconomic status and people living in rural and remote areas (NHMRC 2022).

General practice

A GP is often the first point of contact in the health system, and over time, Australians are seeing GPs more often. From Medicare's inception in 1984 until 2022, the yearly GP services attendance rate has increased from 3.8 to 6.8 visits per person (AIHW 2023b).

Between 2015–16 and 2019–20, almost 9 in 10 Australians received at least one Medicare-subsidised GP attendance (AIHW 2020a, 2020b). This figure dropped to 85% in 2020–21 as COVID-19 restrictions were introduced in response to the pandemic (AIHW 2021). In 2021–22, it increased to 90% of Australians, with the expansion and uptake of Medicare-subsidised telehealth and COVID-19 vaccinations (AIHW 2022). In 2022–23, it decreased to 86% of Australians who received at least one Medicare-subsidised GP attendance (AIHW 2024). This was reflected in a reduction in short (Level A) consultations, which includes straightforward services, such as vaccinations. While there were 9.1 million short (Level A) consultations in 2021–22, this decreased to 7.9 million in 2022–23: a reduction of 13% or around 1.2 million services.

The reasons for changes in rates of GP services over time are multifaceted and can include:

- the inclusion and cessation of additional telehealth and COVID-19 vaccination MBS items provided in response to the pandemic
- differing access to appropriate and affordable care for vulnerable population groups
- the availability of bulk billing to patients, such as increased bulk billing incentives for GPs during the COVID-19 pandemic (Department of Health and Aged Care 2023c).

In Australia in 2022–23, females (90%) were more likely to see a GP than males (82%) and received more Medicare-subsidised GP attendances per person (7.3, compared with 5.4 for males). This was similar to 2018–19 for females (91% saw a GP and there were 7.2 attendances per person), but a decrease for males (84% and 5.5). There was a decrease in GP attendance after hours for males over this period.

The rate of Medicare-subsidised GP services per person increased with age and was highest for those aged 80 and over (17.3 services per person) in 2022 –23. This was an increase from 16.1 services per person for those aged 80 and over in 2018–19.

A higher proportion of people living in metropolitan Primary Health Network (PHN) areas had a Medicare-subsidised GP attendance after hours (20%), compared with those in regional PHN areas (9%). This was a decrease from 2018–19, where 28% of people living in metropolitan PHN areas and 15% of those in regional PHN areas had an attendance (AIHW 2020, 2024).

Of the 166 million GP attendances in 2022–23, the most common type of attendance was a Level B consultation (a standard consultation that lasts less than 20 minutes) (107 million attendances). This was also the case in 2018–19 (99 million attendances).

Allied health

The allied health sector comprises a range of services provided by health practitioners who are generally university qualified and have specialised expertise in preventing, diagnosing and treating a range of conditions and illnesses. Allied health services include Aboriginal health workers, Aboriginal and Torres Strait Islander Health Practitioners, audiologists, chiropractors, diabetes educators, dietitians, exercise physiologists, mental health workers, occupational therapists, osteopaths, physiotherapists, podiatrists, psychologists and speech pathologists.

Allied health services subsidised by the MBS do not cover all allied health treatments. Allied health services are also accessed and funded through many arrangements, such as those subsidised by private health insurance or the Department of Veterans' Affairs.

For more information, see Health of veterans.

In Australia in 2022–23:

- About 2 in 5 (39%) Australians received at least one Medicare-subsidised allied health service, up from 37% in 2018–19.
- Females (44%) were more likely to see an allied health professional than males (33%) and received more Medicare-subsidised services per person (1.2, compared with 0.8 for males), consistent with 2018–19.
- 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), consistent with 2018–19.
- People living in metropolitan PHN areas received 105 Medicare-subsidised allied health services per 100 people – those living in regional PHN areas received 96 per 100 people. Compared with 2018–19, there was a greater increase in Medicare-

subsidised allied health services where people were living in metropolitan PHN areas (97 per 100 people), than for those living in regional PHN areas (95 per 100 people) (AIHW 2020b; AIHW 2024).

Of the 27 million Medicare-subsidised allied health services provided in 2022–23:

- The most common type of service was optometry (11 million). This was also the case in 2018–19 (9.8 million).
- Mental health care (including psychologists and other allied mental health) accounted for around 6.9 million services, podiatry 3.6 million, and physiotherapy 3.0 million services.
- Other allied health services including dietetics, occupational therapy, speech pathology, diabetes education and audiology accounted for around 760,000 services (AIHW 2024).

Nursing 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 2022–23, 7.9% of Australians received at least one Medicare-subsidised nursing or Aboriginal health worker service, up from 7.1% in 2018–19 (AIHW 2020b, 2024).

In Australia, in 2022–23, the following Medicare-subsidised services were provided:

- Nurse practitioners provided more than 1 million services (3.9 services per 100 people). This is up from around 570,000 services (2.3 per 100 people) in 2018–19
- There were over 210,000 midwifery services, an increase from 2018–19 (97,000)
- There were 3.0 million practice nurse/Aboriginal health worker services provided on behalf of a medical practitioner, representing 12 services per 100 people. This is up from around 2.8 million services (11 services per 100 people) in 2018–19 (AIHW 2020b, 2024).

Limitations of MBS data

Health care claims data are generated and collected from the MBS. Most data relates to health goods and services received or performed (indicated by an item number), limited demographics of the patients who received them, who provided the services and at what cost (Department of Health and Aged Care 2020).

Medicare does not cover all health care services and Medicare claims data are limited in being able to indicate the reasons why a patient visited a health care provider or the

actions taken to assist them. This kind of data, as well as data relating to the outcomes and quality of services provided is needed to ensure appropriate and high value care is being delivered.

Barriers to GP service use and experience of care

Australians may delay or not visit a GP due to cost, service availability and waiting times (ABS 2023).

In 2022–23:

- 23% of people delayed seeing a GP for reasons such as service availability, being too busy or experiencing long waiting times. This was a decrease from 2021–22 (25%).
- 7.0% of people who needed to see a GP delayed or did not see a GP due to cost. This was an increase from 2021–22 (3.5%).
- People with a long-term health condition were more likely to delay or not use GP services when needed than those without a long-term health condition (34% compared to 25%, respectively). Of these people, 7.8% cited cost as a reason for delaying or not seeing a GP when needed, compared with 5.9% for people without a long-term health condition.
- 29% of people delayed or did not see a GP for their own mental health when needed. Of these, 10% reported that cost was a reason.
- 30% of people felt they waited longer than acceptable for a GP appointment, compared to 23% in 2021–22 (ABS 2023).

In 2022–23, most people who needed to and saw a GP reported positive experiences:

- 71% reported their GP always listened carefully
- 80% reported their GP always showed respect
- 71% reported their GP always spent enough time with them (ABS 2023).

Expenditure on primary care services

According to the AIHW Health Expenditure Database, in 2021–22 and during the height of the COVID-19 pandemic, approximately one-third ($84.1 billion) of all health spending in Australia was for primary care. Of this:

- $13.6 billion was for unreferred medical services (mainly general practice)
- $13.4 billion was for benefit-paid pharmaceuticals
- $12.6 billion was for other medications (AIHW 2023a).

In 2021–22 there was an $8.3 billion (10.9%) increase in spending in real terms on primary health care from 2020–21. This increase was associated with spending related to the pandemic, such as:

- $7.6 billion on public health, including spending on COVID-19 vaccines, rapid antigen test kits and personal protective equipment products

- $1.1 billion on community health and other, including psychosocial program support (AIHW 2023a).

According to the Department of Health and Aged Care MBS claims data, in 2022–23, around $10.6 billion was paid in Medicare benefits for primary care services, including:

- GP attendances ($8.7 billion)
- allied health ($1.8 billion)
- nursing and Aboriginal health workers ($89 million) (AIHW 2024).

Primary health care data development

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, patient experience and expenditure data sources with national coverage. However, these sources do not provide complete nor comprehensive insight into primary health care in Australia. Nationally consistent primary health care data is a known information gap for effective population health monitoring, research, policy, and planning. The AIHW is committed to a work program that aims to fill this gap.

The AIHW is leading the development of processes for the governance, standardisation, collection, analysis and reporting of a National Primary Health Care Data Collection (NPHCDC), with the initial focus being on general practice. The initial scope of the NPHCDC will be the collection, analysis and reporting of general practice data, with a view to develop and incorporate broader primary health care data. This work program aims to improve primary health care data and address information gaps relating to why a patient went to a primary health care provider, what occurred during the consultation, what actions were recommended and taken, and with what outcome.

This work program also supports the Department of Health and Aged Care with the Primary Health Care 10 Year Plan and Strengthening Medicare Taskforce; the purposes of these are outlined below. These create national direction for those in the policy and data sectors and provide tangible recommendations to work towards.

The AIHW also releases information from the national Practice Incentives Program Quality Improvement (PIPQI) Eligible Data Set, bringing together data provided by Primary Health Networks from general practices across 10 Quality Improvement Measures.

Primary Health Care Plan

In August 2019, the Australian Government commissioned the development of a Primary Health Care 10 Year Plan- external site opens in new window (the Plan). Finalised in 2022, the Plan focusses on Australia's primary health care services and integration of primary health care with hospitals and other parts of the health system, including aged care, disability care and social care systems (Department of Health and Aged Care 2023b). An action area of the Plan includes data-driven quality improvement

to support person-centred care data development and linkage projects through collaboration with the AIHW and other peak organisations.

Strengthening Medicare

To support the Plan, the Australian Government brought together health leaders to form the Strengthening Medicare Taskforce- external site opens in new window (the Taskforce), with a focus on strengthening Medicare to lay the foundations for longer-term reform and investment in the primary care system (Department of Health and Aged Care 2023c).

In December 2022, the Taskforce released the *Strengthening Medicare Taskforce Report* which details recommendations on increasing access to, and modernisation of, primary care in Australia (Department of Health and Aged Care 2023c). Recommendations included:

- modernising My Health Record to significantly increase the health information available to individuals and their health care professionals
- better connecting health data across all parts of the health system
- investing in better health data for research and evaluation of models of care and to support health system planning
- providing an uplift in primary care IT infrastructure, education and support to primary care practices
- making it easier for all Australians to access, manage, understand and share their own health information (Department of Health and Aged Care 2023c).

In response to these recommendations the Australian Government announced a $824 million investment in digital health within the 2023–24 May Budget, including to modernise the My Health Record system and fund other digital health initiatives (Department of Health and Aged Care 2023d). The Australian Government is also introducing the MyMedicare- external site opens in new window voluntary patient registration system to strengthen the relationship between patients, their general practice, GPs and primary care teams to produce better continuity of care.

Ongoing work to improve primary health care data, including establishing linked primary health care data, will enhance the evidence for policy, planning, research and practice.

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
- Department of Health and Aged Care 10 Year Primary Health Care Plan- external site opens in new window

For more on this topic, visit Primary health care.

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Health care safety and quality

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/health-care-quality-performance/health-care-safety-and-quality

On this page

The safety and quality of 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 in the delivery of that care (ACSQHC 2020).

This page provides an overview of some key elements of the healthcare safety and quality monitoring arrangements in Australia.

Defining safety and quality

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).

Ensuring and improving safety and quality

Australia's health system is often considered relatively high performing when compared with other countries (OECD 2023; The Commonwealth Fund 2021). However, in any health care system there are ongoing challenges and areas for improvement, and the need for monitoring of different aspects of the delivery and outcomes of care.

Ensuring the safety and quality of health care in Australia is a shared responsibility of a number of agencies, professional groups and regulatory bodies and is an important focus of government policies and community discussion. Some of the key agencies that play a role include the:

- Australian Commission on Safety and Quality in Health Care (ASQHC) which provides leadership to improve the safety and quality of health care at the national level, including through the development of clinical care and quality standards and overseeing model national accreditation schemes for healthcare services
- Australian Health Practitioner Regulation Agency which administers the national registration system for health professionals
- Therapeutic Goods Administration which regulates aspects of the supply, manufacturing and advertising of goods used in healthcare such as prescription medicines, vaccines, medical devices and blood products.

Other bodies that play a role include:

- specialist teams in states and territories and in individual health services that work to monitor and improve the safety and quality of the care being provided across the system or in their organisation,
- various agencies involved in accrediting health services, and
- the Independent Health and Aged Care Pricing Authority, which aims to ensure the efficiency of public hospital services, while ensuring the safety and quality of care delivered.

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 Australia's 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
- reporting on indicators in the Australian Health Performance Framework
- MyHospitals, which includes detailed information on the characteristics and performance of the hospital system at the national, state and local levels.

Some specific measures of hospital safety reported on the MyHospitals safety and quality pages include:

- healthcare-associated *Staphylococcus aureus ('golden staph') bloodstream infections*
- hand hygiene compliance
- 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.

Patient reported measures

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 their patient's perspectives on the care provided and their experiences as a patient.

Patient reported experiences

The Australian Bureau of Statistics also conducts an annual Patient Experience Survey covering various aspects of the health system, including hospitals and dental professionals.

In 2022–23, most people reported positive experiences of health care provided by their health care practitioners (ABS 2023). For example:

- A high proportion of people who saw a general practitioner (GP) felt that their GPs always listened carefully to them (71%), 80% felt their GPs always showed respect, and 71% felt their GPs always spent enough time with them.
- In relation to medical specialists, 78% of people felt that their specialists always listened carefully to them, 83% felt their specialists always showed respect, and 79% felt their specialists always spent enough time with them.

Recent Patient Experience Surveys have also included questions about patients' experiences using telehealth services. For those who had had a telehealth consultation with a healthcare practitioner for their own health in the last 12 months (28% of people aged 15 and over), 81% reported that their telehealth practitioners always listened carefully, 84% reported that their telehealth practitioners always showed respect, and 79% reported that their telehealth practitioners always spent enough time with them.

The AIHW also reports on patient experiences with mental health services, through the Your Experience of Service (YES) survey. For information on this survey and other information about patient experiences with mental health services, see Mental health services in Australia.

Patient reported outcome measures

Patients can also contribute directly to the effectiveness (and hence, the overall quality) of health services through participation in activities to collect patient-reported outcome data associated with their care. These measures are used to obtain information from patients on their health status, using standardised and validated questionnaires, reflecting the things that are important to them.

When used before and after (or throughout) a course of health care, information on the self-reported changes in health status are considered to be measures of health outcomes. Typically, the surveys used would measure aspects such as overall health

status, severity of symptoms such as pain, measures of daily functioning and psychological symptoms.

Patient reported outcome measures have long been used as part of clinical quality registries and research activities to evaluate health interventions. But they are increasingly being used and promoted in real-world healthcare settings as part of the routine delivery of care. For example:

- Through the Australian Palliative Care Outcomes Collaboration program, palliative care providers can use standardised validated clinical assessment tools to periodically measure and benchmark patient outcomes and information about the care setting. This information can be used by clinicians to improve their own clinical practices and also inform clinical practices more generally. For more information, see Palliative care outcomes.
- The National Outcomes and Casemix Collection is a nationally agreed data collection for the routine collection and reporting of changes in clinical outcomes for people receiving care from Australian public mental health services. The standardised clinical measures used are completed by the clinician or the consumer. For more information, see Consumer outcomes in mental health care.

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
- Australian Commission on Safety and Quality in Health Care
- Independent Health and Aged Care Pricing Authority National Benchmarking Portal
- Australian Bureau of Statistics' Patient experiences

For more information on this topic, see Health care quality and performance.

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Health expenditure

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/health-welfare-expenditure/health-expenditure

On this page

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
- capital expenditure.

Data sources

Health expenditure database

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. 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 is Health expenditure Australia 2021–22.

Government COVID-19 health spending

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 to 2021–22, including:

- 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 and Aged Care programs (including Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Schedule (PBS)).

Data do not include state and territory governments' spending outside the scope of the NPCR.

International comparison of health spending

Data for comparing health spending across selected countries are sourced from the Organisation for Economic Co-operation and Development (OECD, 2021). 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 2021). 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- external site opens in new window.

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). Capital spending is non-recurrent spending which is treated differently while research is not included in the SHA scope. The most updated comparable data used on this page are for 2021 (the 2021–22 financial year).

In 2018, the OECD issued a guideline paper on accounting and mapping of long-term care (LTC) expenditure under the SHA, in which LTC expenditure should be split into LTC health and LTC social (OECD 2018).

Since 2021, Australia started to report both LTC health and LTC social expenditure including all aged care expenditure (and funding of home care and residential aged care for younger people with a disability) to the OECD-SHA for 2019 with back casting to 2014 based on the availability of information.

Data for LTC expenditure in Australia were sourced from Productivity Commission's Report on Government Services (RoGS) in which LTC expenditure funded by the Australian Government and State and territory governments was reported.

Health spending in 2021–22

Australia spent an estimated $241.3 billion on health goods and services in 2021–22 – an average of approximately $9,365 per person. The real growth (adjusted for inflation) in total health spending (recurrent and capital) was 6.0% more than in 2020–21. This was higher than the average yearly growth rate over the decade to 2021–22 (3.4%).

In 2021–22, health spending accounted for 10.5% of the gross domestic product (GDP) in Australia, approximately 0.2 percentage points lower than in 2020–21.

For more information, see Overview.

In 2021–22, governments funded $176.0 billion of the total health expenditure (72.9%) with non-government sources funding the remaining $65.3 billion (27.1%).

Spending by source of funds

Of the total government funding in 2021–22, the Australian Government contributed $105.8 billion, with state and territory governments contributing $70.2 billion. In 2021–22, non-government sources spent $65.3 billion on health, a 2.4% decrease in real terms compared to the previous year. Individuals contributed $33.7 billion, just over half (51.5%) of non-government health spending, private health insurance providers $17.5 billion (26.8%) and other non-government sources $14.2 billion (21.7%).

For more information, see Spending trends by sources .

Areas of health spending

During 2021–22, the greatest increases in recurrent spending were for:

- primary health care, a $8.3 billion (10.9%) increase in real terms, which was associated with increased spending related to the pandemic, such as the COVID-19 vaccines, and personal protective equipment.
- hospitals, a $4.2 billion (4.6%) increase in real terms. This growth in hospital spending was partially driven by an increase in hospitalisations involving a COVID-19 diagnosis.

For more information, see Spending trends by areas of spending.

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 and Aged Care. Over the period 2019–20 to 2021–22, there was an estimated $45.0 billion spent through these programs ($24.9 billion on the NPCR and $20 billion on the Department of Health and Aged Care programs) in current prices (see glossary).

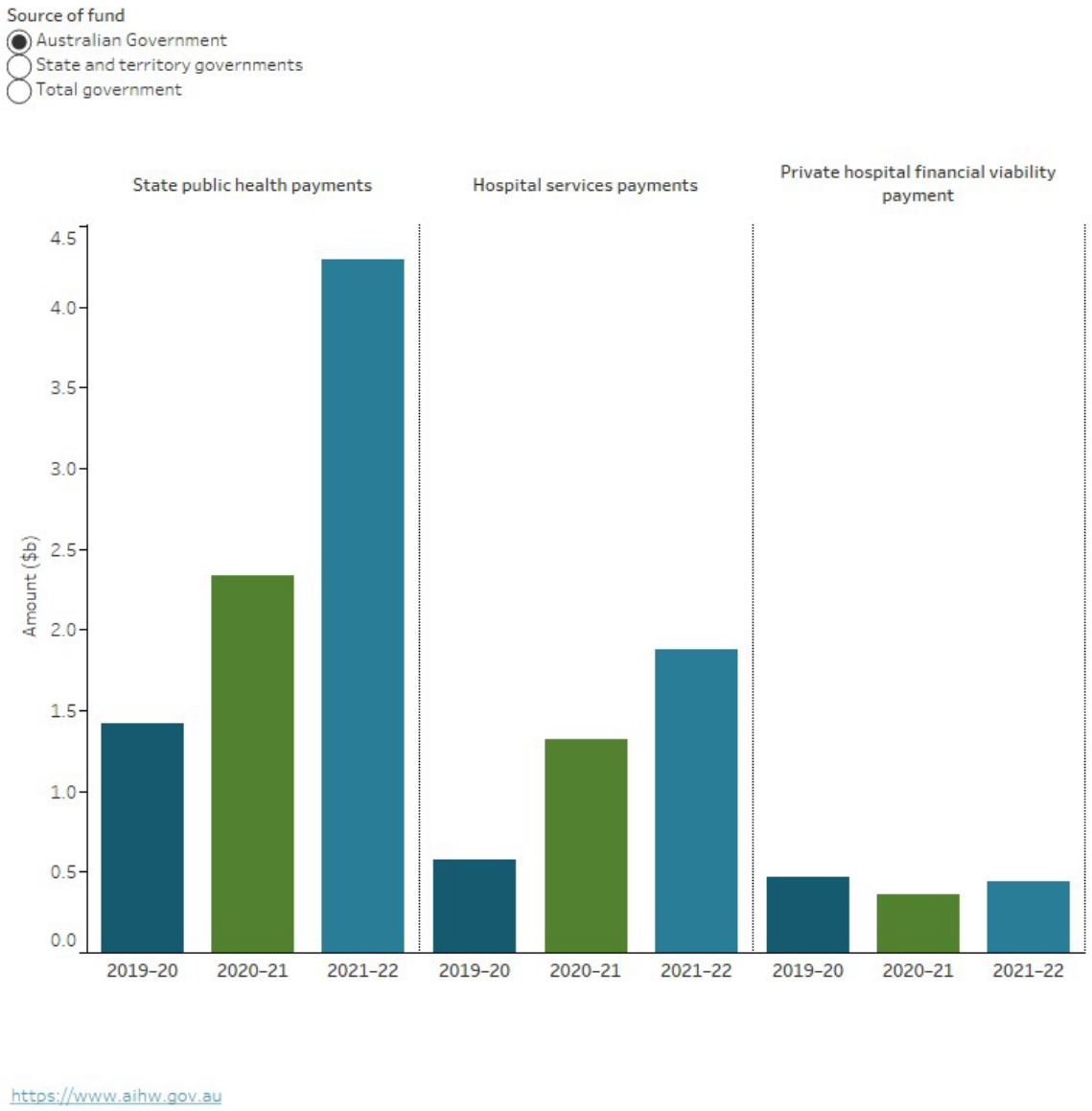
Spending on the National Partnership on COVID-19 Response

During the first 2 years of the COVID-19 pandemic period (2019–20 to 2020–21), spending on the NPCR was estimated to be $12.1 billion in current prices ($4.5 billion 2019–20 and $7.7 billion in 2020–21). Please note that the pandemic only started about 4 months before the end of the 2019–20 financial year. In 2021–22, the spending through NPCR was estimated to be $12.8 billion ($6.6 billion by the Australian Government and $6.2 billion by state and territory governments) (Figure 1). The components of the Australian Government spending in 2021–22 were:

- hospital services payments ($1.9 billion, or 28%)
- state public health payments ($4.3 billion, or 65%)
- private hospital financial viability payment ($0.4 billion, or 6.7%).

As part of the NPCR, state and territory governments also funded $1.9 billion on hospital services payments and $4.3 billion on state public health payments.

Figure 1: Health spending on the NPCR, current prices, 2019–20 to 2021–22



Source: Administrator's Jurisdictional Advisory Committee, NHFB (2023).

Australian Government spending on COVID-19 through Department of Health and Aged Care programs

Total Australian Government spending through specific COVID-19 Department of Health and Aged Care programs (outside the NPCR) up to 2021–22 was estimated to be $20 billion in current prices ($1.7 billion in 2019–20, $6.2 billion in 2020–21 and $12.1 billion in 2021–22) (Figure 2).

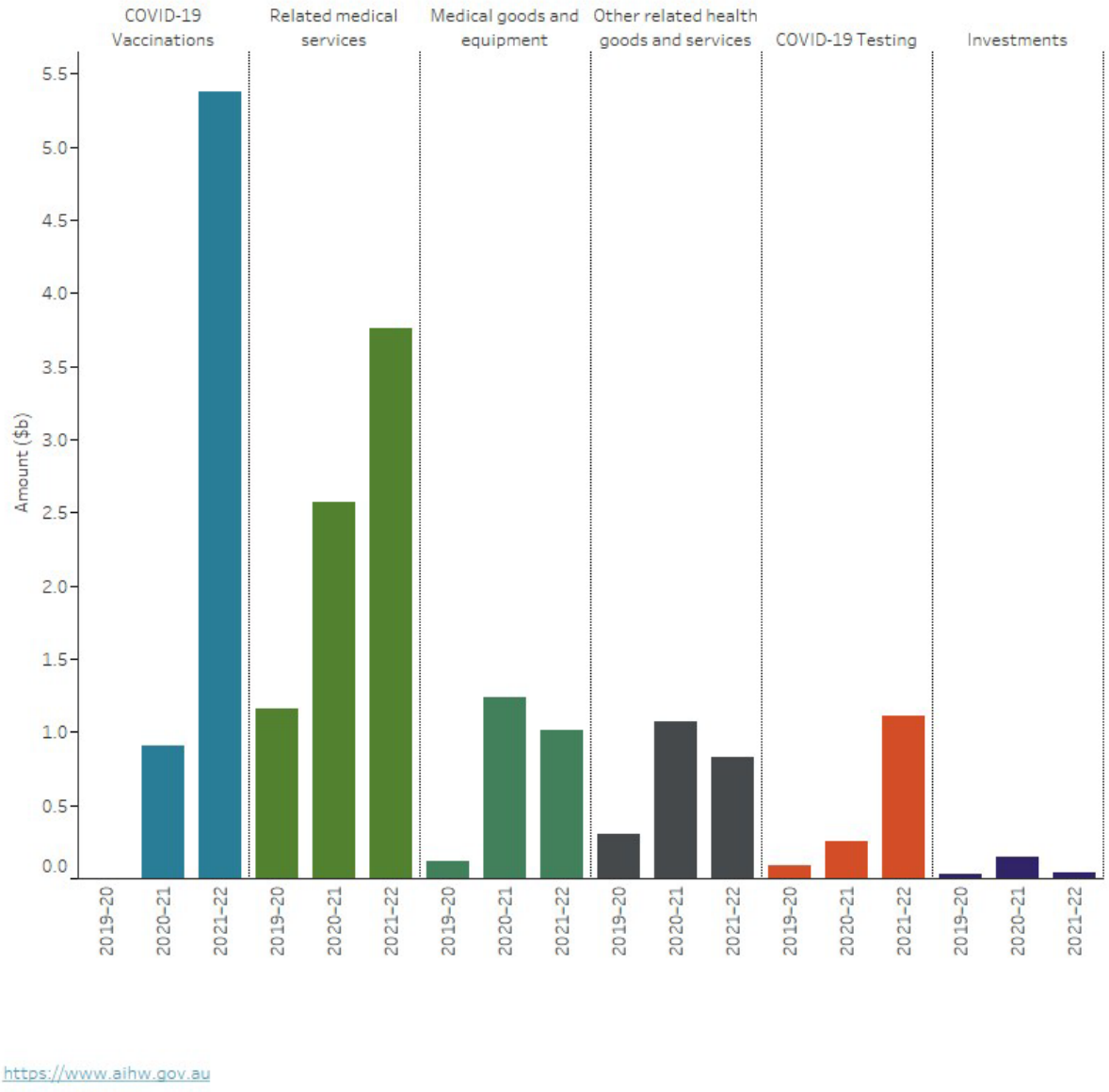
The distribution of spending in 2021–22 included:

- 44% ($5.4 billion) on COVID-19 vaccinations (mainly provided access to, and delivery of, COVID-19 vaccines).

- 31% ($3.8 billion) on COVID-19–related medical services (mainly related to COVID-19 vaccine suitability assessment services, as well as other referred and unreferred medical services through MBS-funded telehealth)
- 9.2% ($1.1 billion) on COVID-19 testing (mainly through MBS-funded COVID-19 testing including rapid antigen tests)
- 8.4% ($1.0 billion) on COVID-19 medical goods and equipment (mainly related to distributions of masks and personal protective equipment products for the national medical stockpile)
- 6.8% ($0.8 billion) on Other COVID-19–related health spending (largely related to mental health programs, communication programs for health protection and awareness, and public health mainly related to primary care respiratory clinics and crisis support)
- 0.3% ($0.03 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-external site opens in new window.

Figure 2: Australian Government spending on COVID-19 through Department of Health and Aged Care programs, by areas of spending, current prices, 2019–20 to 2021–22



Source: AIHW Health Expenditure Database.

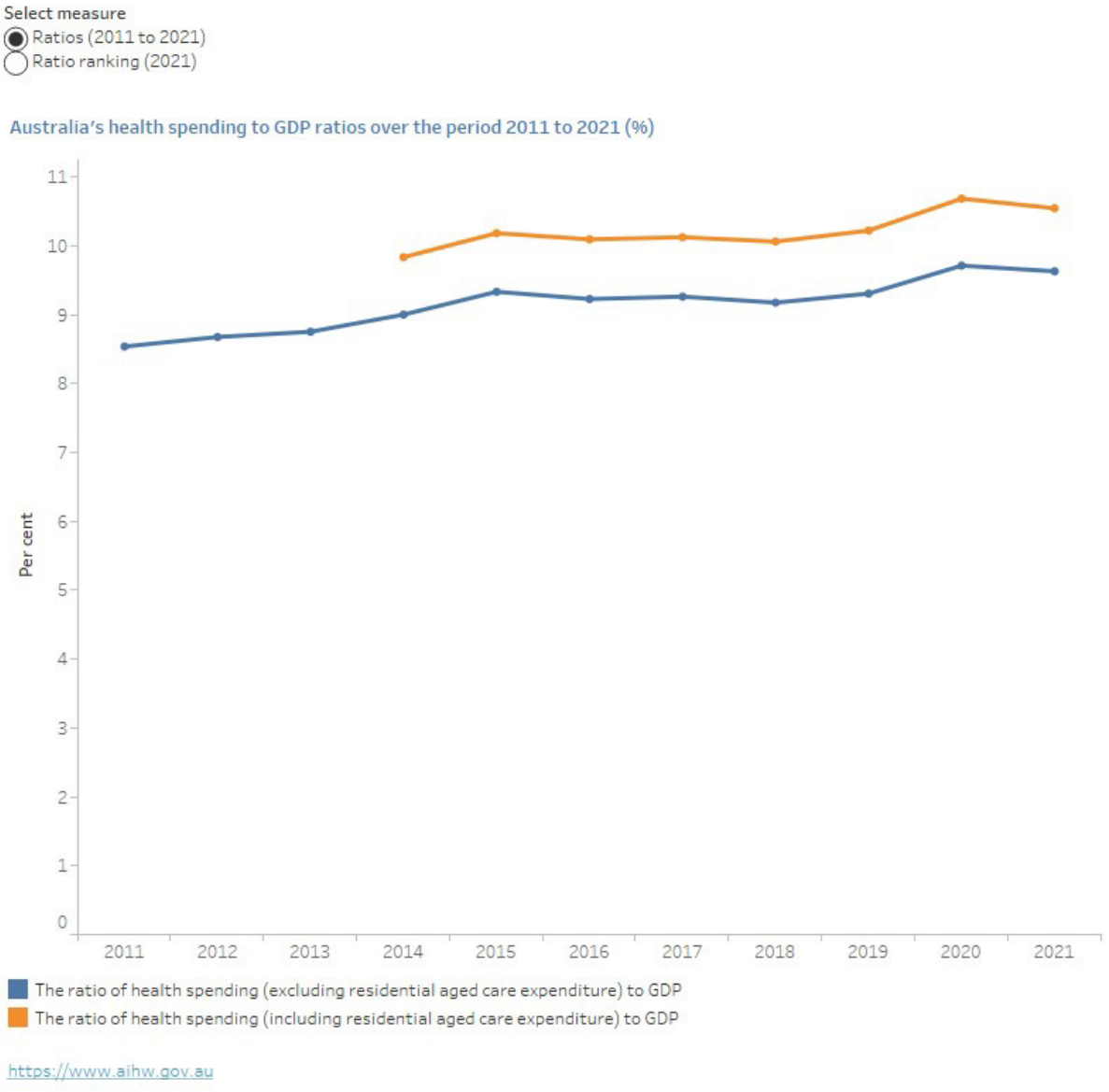
Australia's health spending ranking across OECD countries

Using the OECD-SHA, Australia's health spending (excluding spending by providers of residential aged care facilities) to GDP ratios ranged between 8.5% and 8.8% from 2011 to 2013 (Figure 3). Then, Australia's residential aged care expenditure was reported in OECD Health expenditure in the period 2014 to 2021. As a result, these ratios of

health spending to GDP shifted up between 9.8% and 10.1% from 2014 to 2018 before increasing to 10.7% in 2020 during the COVID-19 pandemic period.

In 2021, Australia's health spending to GDP ratio ranked 15th with a ratio of 10.5% compared with the OECD median of 9.5%, among 38 OECD member countries.

Figure 3: Health spending to GDP ratios and Australia's rank among OECD countries, current prices and local currencies, 2011 to 2021



Notes

1. Australia's health spending figure in 2021 was preliminary estimated by AIHW. Then, the figure may be different with the one published by OECD.

2. Due to difference in the scope and methodology, Australia's health spending figures in international comparisons are not comparable with data in Health expenditure Australia report.

3. Due to the data revisions from some OECD member countries, these ratios and rankings for OECD countries are not comparable to the previous reports.

4. Due to 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 2023.

Where do I go for more information?

For more information on health expenditure, see:

- Health expenditure Australia 2021–22
- Australia's health expenditure: an international comparison
- Disease expenditure in Australia 2019–20

For more on this topic, visit Health & welfare expenditure.

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Health promotion and health protection

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

On this page

A fundamental aim of any health system is to prevent disease, intervene early, and reduce ill health so that people remain as healthy as possible for as long as possible. Health promotion is a broad term that has as its foundation the process of enabling people to have control over and improve their health (WHO 1986). Health promotion activities seek to enhance the social, educational, environmental, political and economic conditions needed to promote health, while recognising the wider determinants of health, for example social, environmental, commercial and systemic (see What are determinants of health?). Achieving equity in health is a key aspect of health promotion, that is, reducing the differences in health status and ensuring equal opportunities and resources to all people to ensure optimal health (WHO 1986).

Health promotion activities such as education, social marketing, legislation and regulation, are an important part of early intervention and disease prevention and can be used to help build social and physical environments that support healthy behaviours.

Health protection refers to a subset of health promotion and is concerned with protecting individuals, groups and populations through preventing and controlling health threats related to infectious diseases, the environment, and natural and 'human-made disasters' (Department of Health and Aged Care 2023a; NSW Ministry of Health 2021). Health protection examples include monitoring and enforcing compliance with state and territory food acts to ensure the safe sale of food, and statements on preparing for the winter influenza season.

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 (WHO 2018). 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 2021–2030 refers to these groups of people, as 'priority populations' which include, but are not limited to:

- Aboriginal and Torres Strait Islander (First Nations) people (see Health and wellbeing of First Nations people; Profile of First Nations people; and Determinants of health for First Nations people)
- Culturally and Linguistically Diverse (CALD) people (see Chronic health conditions among culturally and linguistically diverse Australians, 2021;Reporting on the health of CALD populations in Australia)
- Lesbian, gay, bisexual, trans/transgender, intersex, queer, and/or other sexuality (including asexual), gender and bodily diverse people (see LGBTIQ+ communities)
- People with mental health conditions (see Mental health)
- People in low socioeconomic groups (see Social determinants of health)
- 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 play 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 them taxes on items like tobacco, e-cigarettes and alcohol to deter people from buying– as part of a broader strategy (see Tobacco and e-cigarette control). Launched in late 2021, the National Preventive Health Strategy 2021–2030, provides the long-term approach to prevention in Australia.

States and territories have their own public health legislation, which aim to protect, promote and improve the health and wellbeing of the public in that jurisdiction. State and territory 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.

Local governments have responsibility for a range of local public health and environmental issues including community services and waste disposal. Being closely connected to their community, local governments implement policies and programs that serve to improve health and reduce health inequities, but may respond differently depending on resources and local needs (Schultz et al. 2023). They are also responsible 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. For more information, see Built environment and health.

What role do non-government organisations play?

Health promotion activities are also undertaken outside of the government sector. Cancer Council Australia, for example, plays a key role in preventing cancer through their health promotion activities, particularly around sun safety and anti-smoking campaigns. Nutrition Australia is a non-government organisation that promotes healthy eating through their information and education services.

Health promotion practitioners may work on a range of activities including health education, community development and community engagement processes, advocacy and lobbying strategies, and social marketing. The Australian Health Promotion Association is Australia's professional association specifically for people interested or involved in the practice, policy, research and study of health promotion.

Current health promotion and health protection activities

There are key health promotion activities undertaken in Australia to address some of the main contributors to disease burden: tobacco smoking and e-cigarette use and overweight and obesity. Disease burden is the quantified impact of living with and dying prematurely from a disease or injury. For more information, see Burden of disease.

Health promotion and protection activities targeting the reduction of disease burden are at varying stages of development. Notable successes include the reduction in tobacco smoking over recent decades, while a range of strategies and activities are in progress to tackle the increasing rates in overweight and obesity, and e-cigarette use.

Health literacy (see glossary) relates to how people access, understand and use health information in ways that benefit their health. Health literacy is an important factor associated with other determinants of health (see What are determinants of health?) and is key to disease prevention and control, as people with low health literacy are at higher risk of worse health outcomes and poorer health behaviours (AIHW 2024c; Coughlin et al. 2020).

Tobacco and e-cigarette control

Tobacco use is the leading risk factor contributing to fatal disease burden and deaths in Australia, with almost 20,500 attributable deaths (13% of all deaths) in 2018 (AIHW 2021). Smoking remains a major risk factor in contributing to health inequalities experienced by certain population groups. A study estimating the smoking attributable mortality for First Nations people found that smoking causes half of deaths in older First Nations populations (Thurber et al. 2021). For more information, see First Nations people's use of alcohol, tobacco, e-cigarettes and other drugs.

The National Preventive Health Strategy 2021–2030 sets out targets to achieve a national daily smoking prevalence from 11% to less than 10% by 2025 and 5% or less for adults (aged 18 years and over) by 2030. There is also a target to reduce the daily smoking rate among First Nations people aged 15 and over to 27% or less by 2030. Progress against

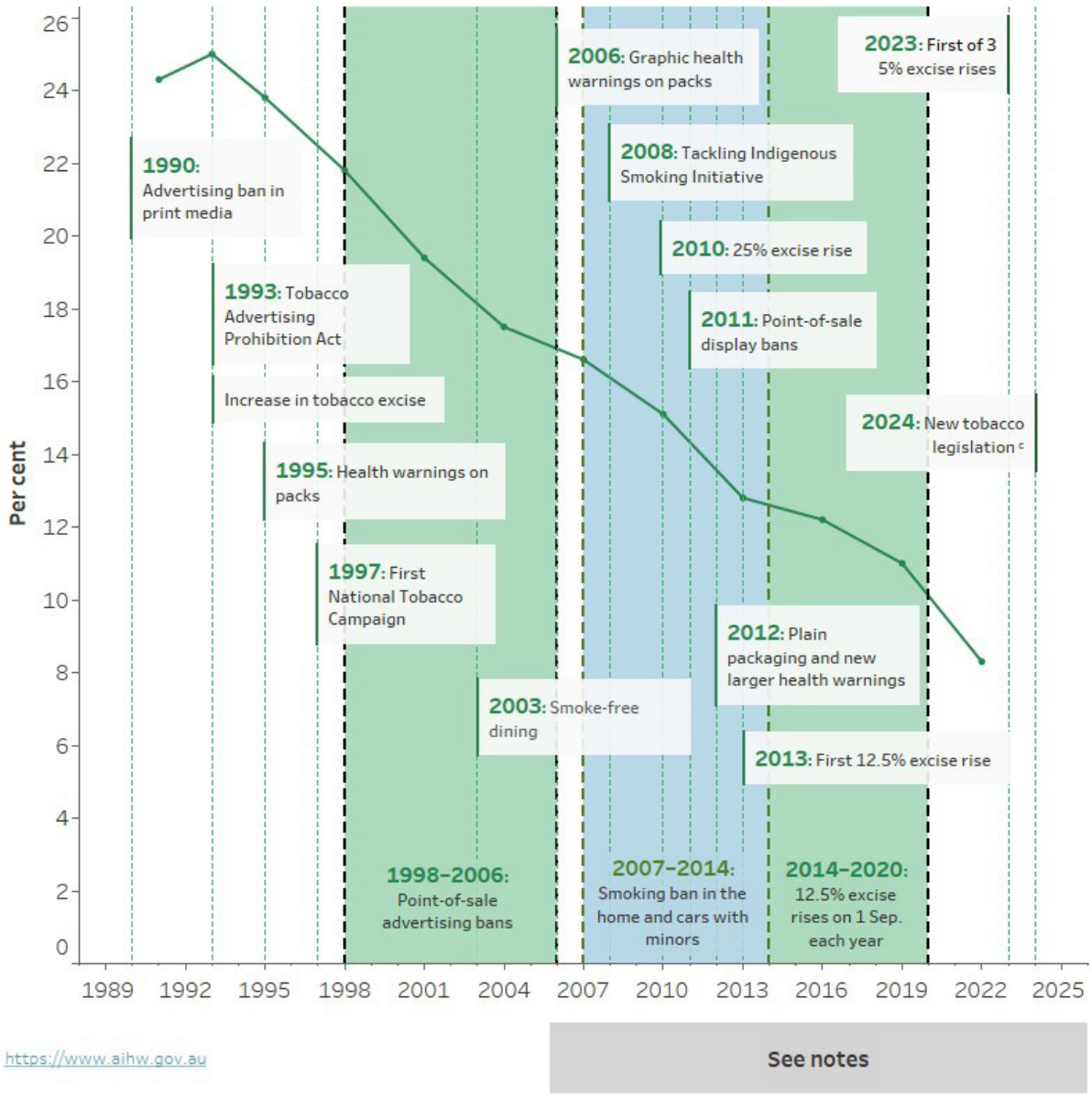
the National Preventive Health Strategy is measured using data from the National Health Survey and the National Aboriginal and Torres Strait Islander Health Survey; the latter found the daily smoking rate among First Nations people aged 15 and over is declining from 41% in 2012–13 to 37% in 2018–19 (ABS 2019).

The tobacco control measures of all Australian governments and public health organisations have been key to Australia's success in tobacco control. The latest data from the National Health Survey 2022 estimates that 11% of Australians aged 18 and over are daily smokers, which represents a steady decline since 1995 where 24% of adults were daily smokers (ABS 2023c). For more information on Australia's smoking and e-cigarette use rates, see Tobacco and e-cigarettes.

Reducing the use of tobacco and e-cigarettes is a key priority of the Australian Government with the 2023–24 Federal Budget including $737 million to fund measures to protect Australians against the harm caused by tobacco and e-cigarette products (Department of Health and Aged Care 2023d). In recent decades, Australia has progressively implemented a 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 people who smoke to quit (Department of Health and Aged Care 2024).

Figure 1: Daily smokers aged 14 and over and key tobacco control measures in Australia, 1990 to 2022–2023 (per cent)



These measures also form part of Australia's National Tobacco Strategy 2023–2030, which 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.

Despite Australia's success in reducing the prevalence of tobacco use, significant challenges remain. Of particular concern is the continued and increased investment by the tobacco industry in e-cigarettes and a range of novel and emerging products (Mathers et al. 2019). Normalisation of e-cigarette marketing and use is undermining population health and has the potential to disrupt the significant achievements Australia has made in tobacco control to date (Department of Health and Aged Care 2023b).

Novel and emerging products, such as e-cigarettes (also known as vapes), present new challenges to prevent and reduce nicotine addictions (Department of Health 2021).

The liquids used in e-cigarettes may contain a range of toxic chemicals including those that add flavour, and sometimes contain nicotine even if labelled 'nicotine free'. Hazardous substances have been found in e-cigarette liquids and in the aerosol produced by e-cigarettes, including known cancer-causing agents. While the long-term effects are currently unknown, the short-term effects can include inhalation toxicity (including seizures), nicotine dependence, increased heart rate and blood pressure, e-cigarette associated lung injury, cough, throat irritation and nausea (Banks et al. 2023). For more information on Australia's smoking and e-cigarette use rates, see Tobacco and e-cigarettes.

Rates of e-cigarette use have increased rapidly in recent years, particularly among children and young people. The 2022–2023 National Drug Strategy Household Survey (NDSHS) shows that lifetime use of e-cigarettes among people aged 14 and over, increased significantly from 8.8% in 2016 to 19.8% in 2022–2023, with over half (54%) reporting that the last e-cigarette they used contained nicotine (AIHW 2024b).

Between 2016 and 2022–2023, there was a significant increase in the proportion of non-smokers who had tried e-cigarettes in their lifetime (from 4.9% to 16.4%) (AIHW 2024b).

In 2022–23, use of e-cigarettes was even higher among young people:

- Around half (49%) of people aged 18 to 24 had used an e-cigarette in their life, up from 26% in 2019.
- For people aged 14 to 17, lifetime use of e-cigarettes nearly tripled to 28%, up from 9.6% in 2019 (AIHW 2024b).

The trends for current use of e-cigarettes were similar; people aged 18 to 24 were the most likely to currently use e-cigarettes in 2022–2023 (21%), up from 5.3% in 2019 (AIHW 2024b).

In partnership with the states and territories, the Commonwealth Government is taking action to reduce smoking and vaping rates through stronger legislation, enforcement, education and support. From 1 January 2024, a ban on the importation of disposable single use vapes commenced. From 1 March 2024, the following regulations commenced:

- cessation of the personal importation of vapes
- a ban on the importation of non-therapeutic vapes
- a requirement for therapeutic vape importers and manufacturers to notify the Therapeutic Goods Administration (TGA) of their product's compliance with the relevant product standards
- a requirement for importers to obtain a licence and permit from the Government's Office of Drug Control before the products are imported (Department of Health and Aged Care 2023c).

Further reforms are being introduced to prohibit the import of non-prescription vapes, and to prevent domestic manufacture, advertisement, supply and commercial possession of non-therapeutic and disposable single use vapes. During 2024, a range of reforms are being implemented to strengthen the product standards for therapeutic vapes, including the limit of flavours, reducing permissible nicotine concentrations, requiring pharmaceutical-like packaging and banning single use disposable vapes. Further information on the reforms and other health promotion activities to increase e-cigarette and smoking cessation support can be found at Vaping hub | Therapeutic Goods Administration (TGA).

Overweight and obesity

Overweight and obesity continues to present a public health challenge in Australia. Excess weight, especially obesity, is a major risk factor for cardiovascular disease, type 2 diabetes, some musculoskeletal conditions and some cancers (Forouzanfar et al. 2015). In 2022, 66% of adults aged 18 and over, and 28% of children and adolescents aged 5 to 17 were living with overweight or obesity (ABS 2023b). The most recent data available (2018) show that overweight and obesity is a risk factor that contributed the most to non-fatal disease burden in both males and females (7.4%) (AIHW 2021).

The National Obesity Strategy 2022–2032 offers a framework for action to prevent, reduce, and treat, overweight and obesity in Australia. Two key aims of the strategy are:

- creating supportive, sustainable and healthy environments
- empowering people to stay healthy (Department of Health 2022).

The first of these focuses on changing the systems, environments and commercial determinants that affect Australians' opportunities to live active and healthy lives. Strategies include:

- creating a healthier food system through funding innovation
- making healthy food and drinks more accessible through food reformulation (see Partnership Reformulation Program)
- improving the nutrition information provided on food products (see Health Star Rating system)
- reducing exposure to unhealthy food and beverage marketing and sponsorship
- creating safe community spaces to encourage physical activity.

Also recognised is the important role of schools through the curriculum and wider school environment.

Strategies to empower individuals include communication activities to promote healthy eating and physical activity, and supporting local communities and organisations to develop and lead their own healthy eating and physical activity initiatives.

The National Obesity Strategy 2022–2032 and the National Preventive Health Strategy 2021–2030 share two ambitious goals:

- Halt the rise and reverse the trend in the prevalence of obesity in adults by 2030 – after adjusting for age, the proportion of adults aged 18 and over living with obesity has remained stable at 31% from 2017–18 to 2022 (ABS 2023a).
- Reduce overweight and obesity in children and adolescents aged 2–17 years by at least 5 percentage points by 2030 – the proportions of children and adolescents living with overweight and obesity have not changed significantly from 2017–18 (25%) to 2022 (26%) (ABS 2018, 2023d; Department of Health 2021, 2022).

Current progress against these targets has shown a stable trend but further monitoring is required to determine whether Australia will meet these targets by 2030.

For more information, see Overweight and obesity.

Health promotion and health protection 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 4.6 per 100,000 in 2022 (BITRE 2010, 2023).

There have been other notable successes. 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 Australia's national HIV strategies, such as partnerships between government and non-government organisations, clinicians, researchers and political parties, and participation from affected communities (Smith et al. 2016). This partnership approach has helped Australia achieve a relatively low HIV prevalence by international standards (Brown et al. 2014). In 2022, the estimated prevalence of HIV in Australia remained low and stable at 0.14% since 2017 (Kirby Institute 2018, 2023).

Mandatory folic acid fortification of flour for making bread was introduced in Australia in 2009 to help prevent neural tube defects (serious birth defects). Following this initiative, the rate of neural tube defects to 2011 fell by 14.4%, from 10.2 to 8.7 per 10,000 conceptions that resulted in a birth (AIHW 2016). The decrease was largest for teenagers (54.8% reduction) and First Nations women (74.2% reduction). The reduction in neural tube defects in the First Nations population is of particular note given that previous strategies to increase folic acid intake and reduce neural tube defects in this population were limited in success (D'Antoine and Bower 2019).

Where do I go for more information?

For more information on health promotion, see:

- Department of Health and Aged Care 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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On this page

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 across a range of organisations. These include Australian and state and territory government and private sector service providers. Collectively, the health system works 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.

For information on how much is spent on health goods and services, the sources of health funding and trends in the distribution of health spending, see Health expenditure.

The health system is not the only system playing a part in health outcomes. Health can be influenced by many other factors, including social and economic factors like education, housing and employment. For more information, see Social determinants of health and What are determinants of health?

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, GP surgeries, pharmacies and medical practices, specialist clinics, dental clinics as well as providing private health insurance products (Department of Health 2019).

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 Aboriginal and Torres Strait Islander health workers, paramedics and administrative and other support staff. For more information, see Health workforce.

A variety of organisations support health services. Government health departments and other agencies are responsible for policy and service planning. Government departments, and research and statistical organisations collect and publish information on Australians' health status and health conditions, use of health services and the performance of the health system. 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 fundraising for research and awareness raising through health advocacy programs.

Australia also has Primary Health Networks, which are independent organisations funded by the Australian government to support local communities connecting with the health services they need, where and when they need them. Primary Health Networks work directly with GPs, other primary care providers, secondary care providers and hospitals (Department of Health 2021b).

Role of government

Through the Health Ministers' Meeting (HMM), state and territory government health ministers, together with the Australian Government Minister for Health and Aged Care, work together to shape Australia's health system with the aim of improving health outcomes and ensuring the sustainability (Department of Health and Aged Care 2023a).

The main roles of each level of government in Australia's health system are:

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
- 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 address complaints.

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 care, which is often a person's first contact with the health system. It comprises frequently accessed services including general practice, allied health and other primary care services, 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. 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, where health services are provided to admitted and non-admitted patients (outpatient clinics and Emergency Department care).

Most Australians have exposure to preventive health measures across their life, from educational campaigns to free vaccines. Australians can utilise health services as needed, dependent on their health needs and personal circumstances.

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 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 currently available to Australian and New Zealand citizens, permanent residents in Australia, and people from countries with reciprocal agreements (Department of Health 2019). People outside these categories have to pay full fees for health services or take out private health insurance (Private Health Insurance Ombudsman n.d.).

For more information, see Medicines in the health system, Referred medical specialist attendances, Pathology, imaging and other diagnostic services and General practice, allied health and other primary care services.

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 health care costs (Department of Health 2021a). 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 an appropriate level of private patient hospital cover (ATO 2023).

Hospitals

Hospitals are an important part of the health system, providing a range of services to many people in need. Australians admitted to public hospitals should have access to fee-free treatment as public patients (Department of Health and Aged Care 2023b). Public hospitals are largely owned and managed by state and territory governments. The Australian Government contributes to state and territory public hospital funding through the National Health Reform Agreement (Department of Health and Aged Care 2023c).

Private hospitals are owned and run by the private sector, including both for-profit companies and not-for-profit organisations. Private hospitals charge for their services and receive income from:

- private health insurers
- patients (who pay out-of-pocket expenses not covered by their health insurance policy, and any excess payments based on their policy)
- the Australian Government (through private health insurance rebates, the Department of Veteran's Affairs and Medicare Benefits Schedule claims)
- state and territory governments when they contract private hospitals to deliver public hospital services (Department of Health and Aged Care 2023d).

For more information, see Hospitals.

Health system challenges

Australia's health system faces complex challenges. Some have the potential to influence patient experiences, the delivery of services and quality of care. The COVID-19 pandemic is a recent example of this. The pandemic transformed the way Australians used health services and how they were delivered. Throughout the pandemic, some services were suspended and/or forced to transition to telehealth. Hospitals experienced increased demand as COVID-19 cases and admissions rose and some people were hesitant to seek health care for fear of contracting COVID-19 (AIHW 2022).

Examples of other health system challenges in Australia include:

- Digital health technologies: Australia's health sector has a long history of using innovative technologies to improve health care delivery, empower health care users and providers to better manage health outcomes, and strengthen data systems. However, not all health providers and consumers have the same access to and experience with digital technologies. For more information, see Digital health.
- Good health data: While there are good quality health data available in Australia, some health data gaps remain. These gaps in comprehensive and quality information in crucial areas of the health system can limit the capacity for population health monitoring, research, planning and policy development. It can also create an imbalance in understanding the health system as a whole. For example, the relative lack of data for primary health care makes it difficult to assess the positive impact of the primary health care sector on the health of Australians or to identify where improvements are needed. Data linkage can support more meaningful insights by enabling data from one database to supplement data in another. For more information, see *Australia's health 2024: data insights* article Australia's health data landscape.
- Ageing population: As life expectancy and the number of older people in Australia continues to grow, understanding the diversity within older population groups and catering to changes in health care needs and the demand for health care is becoming even more important. For more information, see Health of older people.
- Chronic conditions: Chronic conditions are a leading cause of poor health, disability and premature death in Australia and continue to place a large demand on both the primary care and hospital system. As the proportion of people living with 2 or more chronic conditions continues to rise, so does the need for services from multiple

providers, across multiple systems such as aged care, disability, education and social services. For more information see, *Australia's health 2024: data insights* article The ongoing challenge of chronic conditions in Australia.

For more information, see COVID-19, Social determinants of health, What are determinants of health? and *Australia's health 2024: data insights* article Enhancing communicable disease monitoring in Australia through data linkage.

National Health Reform Agreement

The National Health Reform Agreement (NHRA) serves as a foundation for cooperation and financial agreements between the Australian Government and the state and territory governments, facilitating the delivery of health services. Its overarching goal is to establish a unified, effective, fair and sustainable healthcare system nationwide (Department of Health and Aged Care 2023c).

A comprehensive mid-term review of the NHRA Addendum 2020–2025 in 2023 put forward 45 recommendations. These recommendations aim to capitalise on the existing strengths of the NHRA while introducing innovative reforms to fortify the health system against current and future challenges. The review highlights key recommendations separated into 10 themes. These are considered pivotal for ensuring the security and sustainability of Australia's healthcare system and include:

1. A shared whole of health system agreement with the right architecture and governance.
2. A focus and platform for intersectoral collaboration
3. Optimal models of care
4. Enabling transparency, adequacy and risk sharing through financing reform
5. Progressing long-term health reforms
6. Rural and remote service delivery that is for purpose
7. Clear commitment to closing the gap for First Nations people
8. Embedding workforce and digital health as key enablers of the health system
9. Measuring the success of the Agreement
10. Learning from COVID-19 and preparing for future events

For more detailed information on the key recommendations of the NHRA, see Mid-Term Review of the National Health Reform Agreement Addendum 2020–2025.

Where do I go for more information?

For more information on the health system, see:

- Australia's Health Performance Framework
- Department of Health and Aged Care The Australian health system

- Department of Health and Aged Care Mid-Term Review of the National Health Reform Agreement Addendum 2020-2025: Key recommendations from the Review

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Health workforce

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On this page

The health workforce in Australia is large and diverse and includes a wide range of professionals and support staff working to provide healthcare services to the population. 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 for the other professional groups, this page presents information on health practitioners registered with Ahpra.

The Australian Health Practitioner Regulation Agency

Ahpra is the statutory authority responsible for administering the National Registration and Accreditation Scheme (Ahpra 2023).

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, paramedics, 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 and Aged Care (Department of Health and Aged Care 2023a). 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.

Health workforce supply

Overview of registered health professionals

In 2022, the health workforce represented 5.0% of the total employed workforce in Australia. During that year, over 688,000 healthcare professionals were actively working in their respective registered professions. Nurses, account for 54% of total health industry employment (around 372,000 registered nurses in 2022) (Table 1).

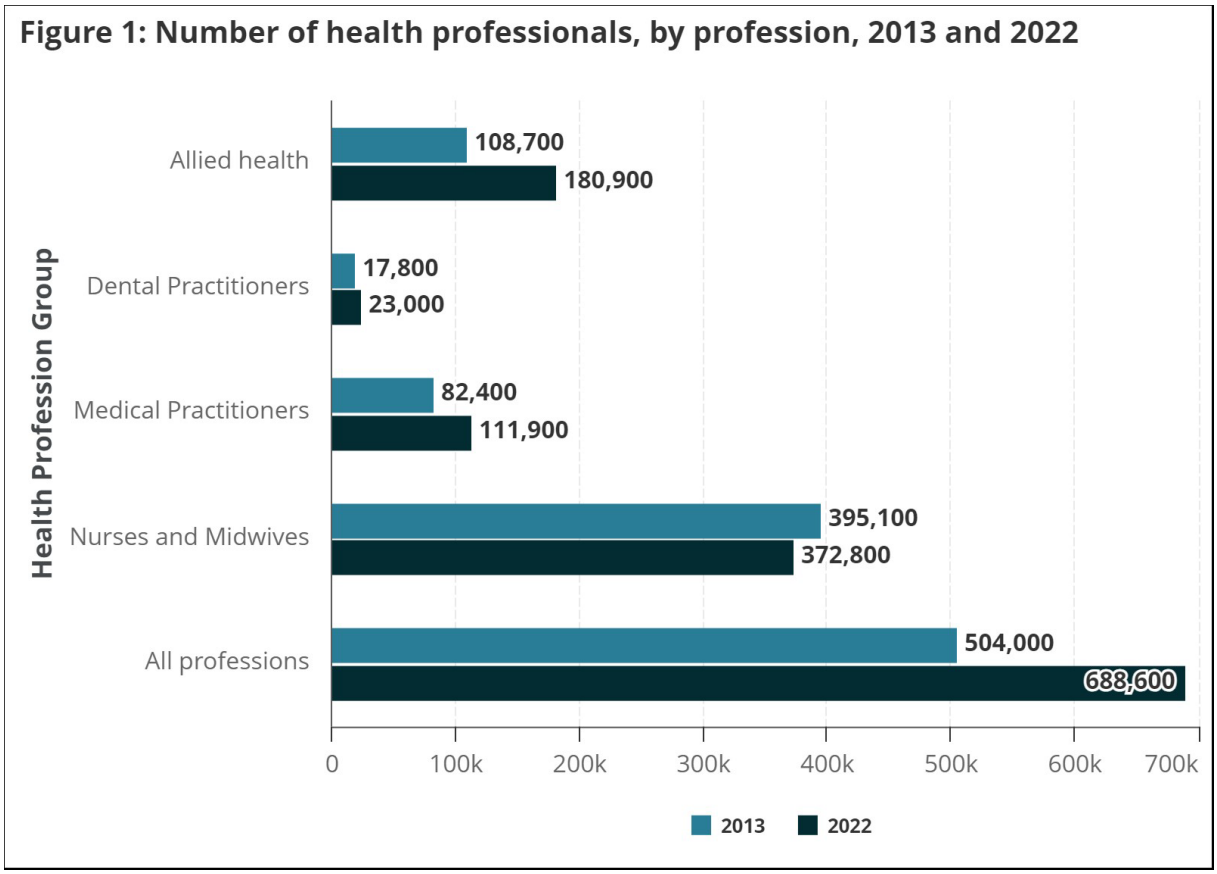
Trends

On this page, health professions are categorised into 4 profession groups: Allied Health, Dental Practitioners, Medical Practitioners, and Nurses and Midwives.

Between 2013 and 2022, the number of registered healthcare professionals actively working in their field in Australia increased by 37% (184,000 professionals) (Department of Health and Aged Care 2023a). Allied health professions had the highest total growth (67%) followed by Medical Practitioners (41%), Dental practitioners (29%) and Nurses and Midwives (26%) (Figure 1).

In the Australian Bureau of Statistics (ABS) Labour Force Survey over the same period, the Health Care and Social Assistance industry grew by almost 50%, to employ 2.1 million people in 2022. In comparison, the entire workforce grew by 21% to employ 13.8 million people (ABS 2024).

Figure 1: Number of health professionals, by profession, 2013 and 2022



Source: Department of Health and Aged Care 2023a

How is FTE calculated?

The full-time equivalent (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 number of FTE health professionals per 100,000 population (FTE rate) has increased by 25% (from around 2,000 FTE per 100,000 in 2013 to 2,500 FTE in 2022) (Figure 2). Relative to the Australian population, allied health workers showed the highest growth in FTE rate from 2013 to 2022 (an increase of 226 FTE per 100,000 people) (Table 1). The inclusion of Paramedicine Practitioners as a new registered health profession (since 2019) has contributed to this increase, accounting for 92 FTE per 100,000 people in 2022.

Figure 2: Full time equivalent rate (per 100,000 people), by profession, 2013 and 2022

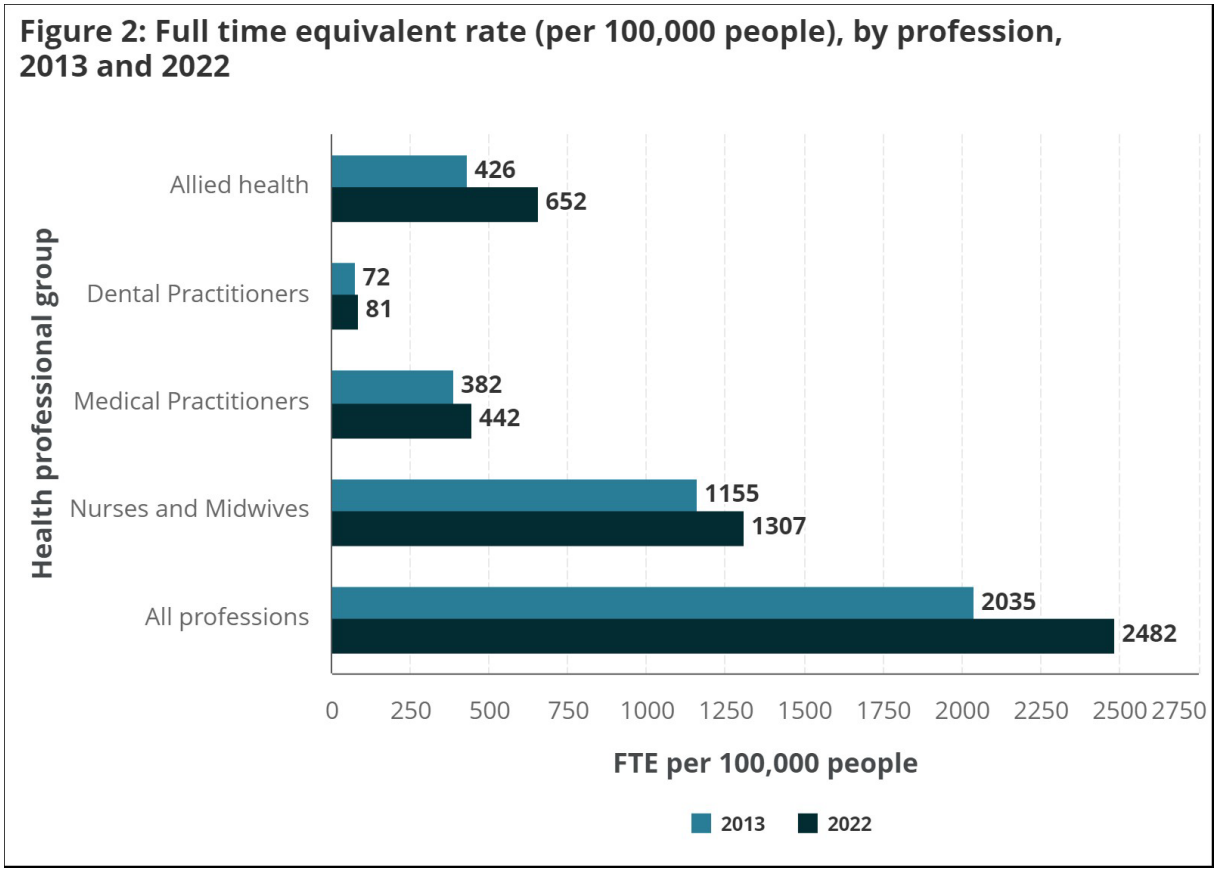


Table 1: Key workforce statistics by health profession, 2013 and 2022

Profession	Measure	2013	2022	% change
Allied health (a)	**Number of practitioners**	108,680	180,924	66.5
	FTE total	98,545	169,526	72.0
	FTE per 100,000 population	426	652	53.1
Dental Practitioners (b)	**Number of practitioners**	17,874	22,964	28.5
	FTE total	16,604	21,157	27.4
	FTE per 100,000 population	72	81	12.5
Medical Practitioners (excluding GP)	**Number of practitioners**	56,173	79,273	41.1
	FTE total	62,676	85,189	35.9
	FTE per 100,000 population	271	328	21.0
General Practitioner (GP)	**Number of practitioners**	26,235	32,635	24.4
	FTE total	25,706	29,626	15.2
	FTE per 100,000 population	111	114	2.7
Nurses and Midwives	**Number of practitioners**	295,060	372,759	26.3
	FTE total	267,164	339,883	27.2
	FTE per 100,000 population	1,155	1,307	13.2
All professions	**Number of practitioners**	503,995	688,555	36.6
	FTE total	470,695	645,381	37.1
	FTE per 100,000 population	2,035	2,482	22.0

(a) 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.

(b) Dental practitioners registered with Ahpra include oral health therapists, dental hygienists, dental therapists, dental prosthetists, and dentists.

Notes

1. Under the *Health Practitioner Regulation National Law 2009*, a medical practitioner is a person who holds registration with the Medical Board of Australia.

2. General Practitioner is a Medical Practitioner with the job area of General Practitioner.

3. Full-time equivalent (FTE) is based on 40 hours per week for medical practitioners and 38 hours per week for all other professions.

Source: ABS 2023; Ahpra 2023; Department of Health and Aged Care 2023a.

Demographics

There have been notable changes in Australia's health workforce demographics between 2013 and 2022.

Age

Between 2013 and 2022:

- the health workforce has gotten younger. For example, 33% of health professionals were aged between 20−34 years in 2022 compared with 28% in 2013. Medical Practitioners represent the highest proportion of health professionals working within the age range of 65–74 (8% in 2022).
- the FTE rate of all health professionals aged 20–34 and 35–44 increased by 47% (from 594 to 871 FTE per 100,000 people) and 31% (from 469 to 613 FTE per 100,000 people), respectively. The FTE rates of health professionals aged 45–54 and 55–64 decreased slightly over the same period.
- the increase in FTE rate for Nurses and Midwives was highest (53%) in the 20−34 age group (from 290 to 443 FTE per 100,000 people).
- for allied health practitioners and Dental Practitioners, the increase in FTE rate was highest in the 35–44 age group 66% (from 98 to 162 FTE per 100,000 people) and 42% (from 16 to 23 FTE per 100,000 people), respectively (Figure 3).

Sex

On average, Australia's health workforce is predominantly female (74% in 2022), although health professions with higher income levels tend to have a higher representation of males. For example in 2022, 88% of Nurses and Midwives were female compared with 45% Medical Practitioners. Other roles with underrepresentation of females include, general practitioners (48% female), periodontists (37% female) and specialists (36% female).

While there are more males than females among medical practitioners, between 2013 and 2022, the FTE rate of:

- female Medical Practitioners increased by 38% (from 133 to 184 FTE per 100,000 people) and 36% for Dental Practitioners (from 30 to 41 FTE per 100,000 people).
- male Medical Practitioners increased by 3% (from 249 to 257 FTE per 100,000 people) and for Dental Practitioners decreased by 2.7% (from 42 to 41 FTE per 100,000 people).

- male nurses increased by 28% (from 133 to 171 FTE per 100,000 people) (Figure 3).

In 2022:

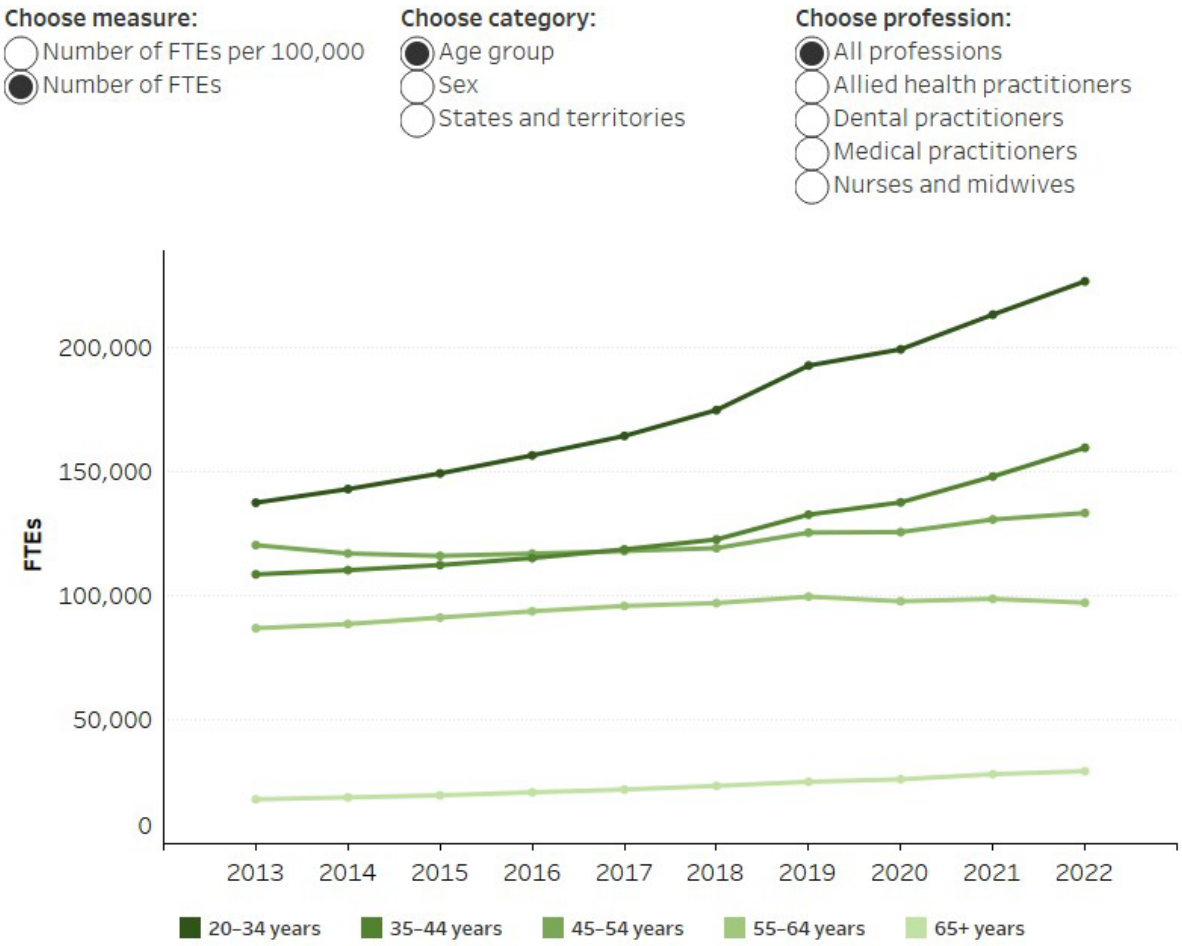
- the female/male ratio of the overall number of health professionals was 2.9, with a total of around 512,000 females and 177,000 males registered and employed in Australia's health workforce.
- 54% of Dental Practitioners were female.
- the FTE rate of health professionals who were female remained at around 2.5 times that of males (Figure 3).

Jurisdiction

The FTE rate varies by jurisdiction:

- In 2022, the Northern Territory had the highest FTE rate of health professionals (2,874 FTE per 100,000 people) this can be explained due to the high FTE rates of Nurses and Midwives, and medical practitioners.
- New South Wales had the lowest FTE rate across all professions (2,285 FTE per 100,000 people).
- Between 2013 and 2022, Queensland had the highest growth in FTE rate (30%), compared to its population growth (14%) over the same time period. The Queensland allied health practitioner FTE rate also grew by 63% (Figure 3).

Figure 3: Total FTE and FTE rates, by profession, state and territory, age, and sex, 2013 to 2022



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. Full-time equivalent (FTE) is based on 40 hours per week for medical practitioners and 38 hours per week for all other professions.

Source: ABS 2023; Department of Health and Aged Care 2023a.

https://www.aihw.gov.au

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 of clinical hours provided by health professionals per 100,000 people.

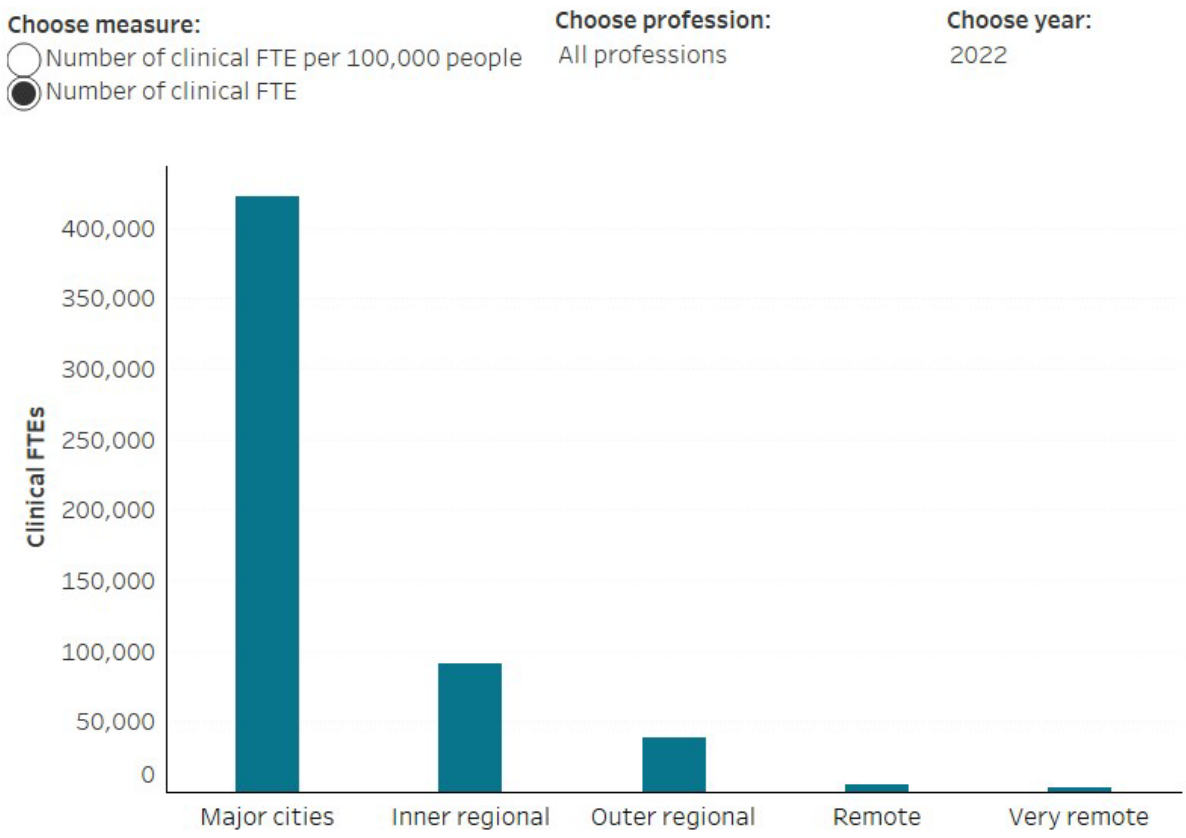
People living in *Remote* and *Very remote* areas generally have poorer access to health services than people in regional areas and *Major cities* (AIHW 2018). This is

demonstrated by the low numbers of clinical FTE provided by Medical Practitioners. For instance in 2022, there were 205 FTE clinical Medical Practitioners per 100,000 people in *Very remote* areas compared with 427 FTE per 100,000 people in *Major cities* (Remoteness Area ASGS 2021classification was used in this analysis).

Relative to the populations in these areas, *Major cities* had the highest clinical FTE per 100,000 people in 2022 than each of the other remoteness areas (Figure 4):

- *Major cities* had 2,248 FTE per 100,000 people.
- *Inner regional* areas had 1,980 FTE per 100,000 people.
- *Outer regional* areas had 1,862 FTE per 100,000 people.
- *Remote* areas had 1,938 FTE per 100,000 people.
- *Very remote* areas had 1,846 FTE per 100,000 people.

Figure 4: Total clinical FTEs and clinical FTE rate, by profession and remoteness, 2013 to 2022



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.
4. Full-time equivalent (FTE) is based on 40 hours per week for medical practitioners and 38 hours per week for all other professions.

Source: ABS 2023; Department of Health and Aged Care 2023a.
https://www.aihw.gov.au

In contrast to other profession groups, *Remote* and *Very remote* areas both have a greater number of registered and working clinical FTE Nurses and Midwives relative to the population in these areas. In 2022, there were 1,232 FTE clinical Nurses and Midwives per 100,000 people in *Very remote* areas compared with 1,159 in *Major cities*. People living in remote areas who need specialised treatment, may need to travel long distances or relocate in order to attend health services or receive specialised treatment. Medicare claims indicates that rural and remote populations rely more on general practitioners to provide health care services, due to less availability of local specialist services (AIHW 2023). In 2022, there were 160 FTE specialist clinical medical professionals per 100,000 people in *Major cities* compared with 53 in *Remote* and *Very remote* areas.

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 with 62% of surveyed medical students indicating a preference to work in capital cities in 2022 (Table 2). In contrast, 21% of students indicated a preference to work in regional cities, small towns, or small communities. The main reason for not opting to work in rural areas was the lack of career opportunities. However, in the last 2 years there has been a slight increase in medical students indicating a preference to work outside capital cities (MDANZ 2023).

Table 2: Graduating medical student first preference region of future practice, by region 2013 to 2022

Year	First preference region of future practice	Capital city	Major urban centre	Regional city or large town	Smaller town	Small community	Total
2013	Number	1818	427	335	111	54	2745
	Per cent	66.2	15.6	12.2	4.0	2.0	100
2014	Number	1693	352	266	78	33	2422
	Per cent	69.9	14.5	11.0	3.2	1.4	100
2015	Number	1240	367	231	84	36	1958
	Per cent	63.3	18.7	11.8	4.3	1.8	100
2016	Number	1406	361	266	97	32	2162
	Per cent	65.0	16.7	12.3	4.5	1.5	100
2017	Number	1324	357	260	86	34	2061
	Per cent	64.2	17.3	12.6	4.2	1.6	100
2018	Number	1376	379	275	87	29	2146
	Per cent	64.1	17.7	12.8	4.1	1.4	100
2019	Number	1316	373	228	65	26	2008
	Per cent	65.5	18.6	11.4	3.2	1.3	100

2020	Number	1113	288	202	69	24	1696
	Per cent	65.6	17	11.9	4.1	1.4	100
2021	Number	1121	358	243	77	35	1834
	Per cent	61.1	19.5	13.2	4.2	1.9	100
2022	Number	1214	348	283	95	35	1975
	Per cent	61.5	17.6	14.3	4.8	1.8	100

Source: MDANZ 2023.

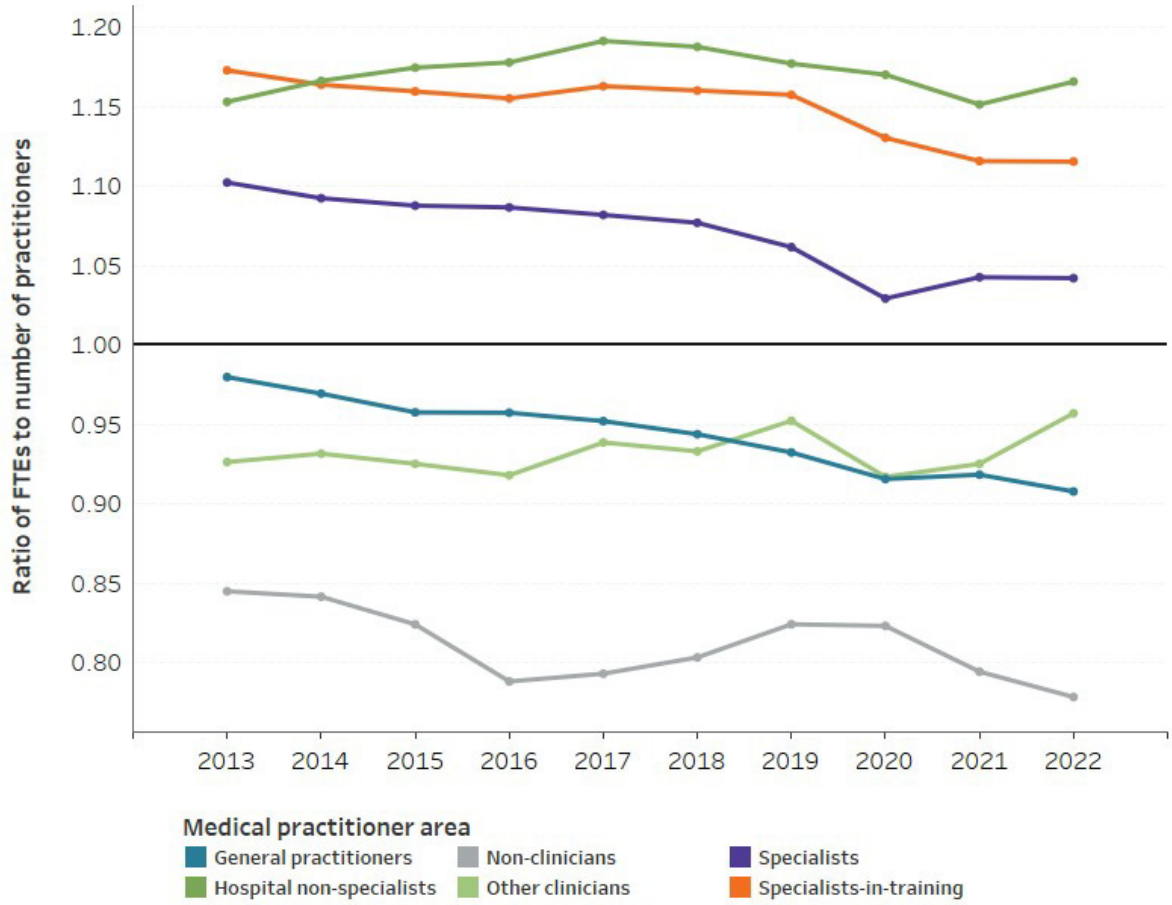
Occupations working the most hours

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 2013 and 2022, Medical Practitioners (excluding GPs) 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 greater use of part-time working arrangements for these practitioners.

As shown in Figure 5, specialists, specialists-in-training, and hospital non-specialists (see glossary) worked longer hours (ratio was greater than 1) than general practitioners, non-clinicians and other clinicians.

Figure 5: Ratio of FTE total to number of practitioners among medical practitioners, by job area, 2013 to 2021

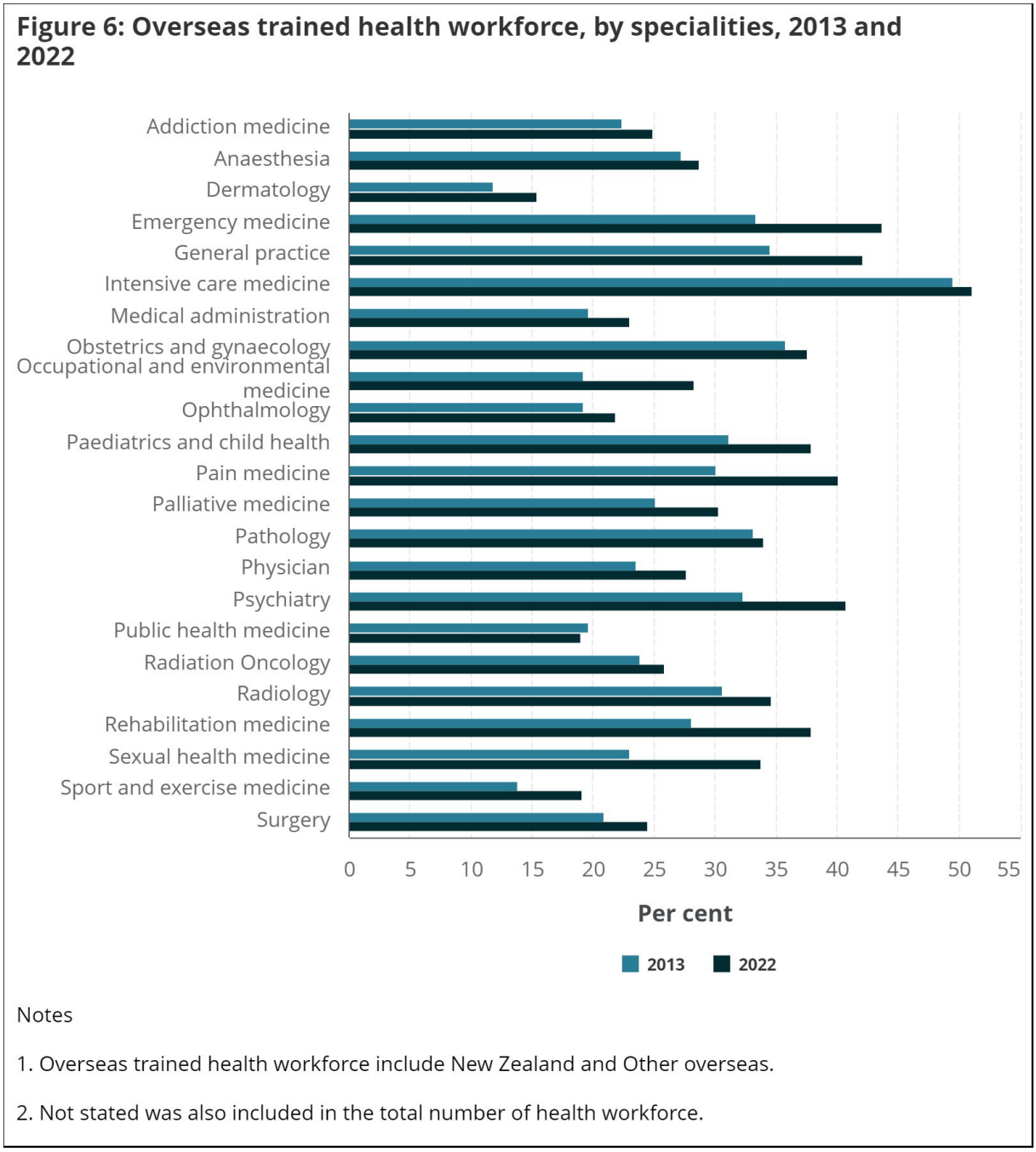


Note: Full-time equivalent (FTE) is based on 40 hours per week for medical practitioners.
Source: AIHW analysis of Department of Health (2021a) data.
https://www.aihw.gov.au

Overseas trained health workforce

Australia relies heavily on internationally recruited health professionals, in particular Medical practitioners. In 2013, 29% of Medical practitioners had received their training overseas, while from 2018 to 2022, around 32% of Medical practitioners were internationally trained. In 2022, Intensive Care Medicine (51%), Emergency Medicine (44%) and General Practice (42%) were the specialities with the highest proportion of health professionals who had received their training abroad (Figure 6).

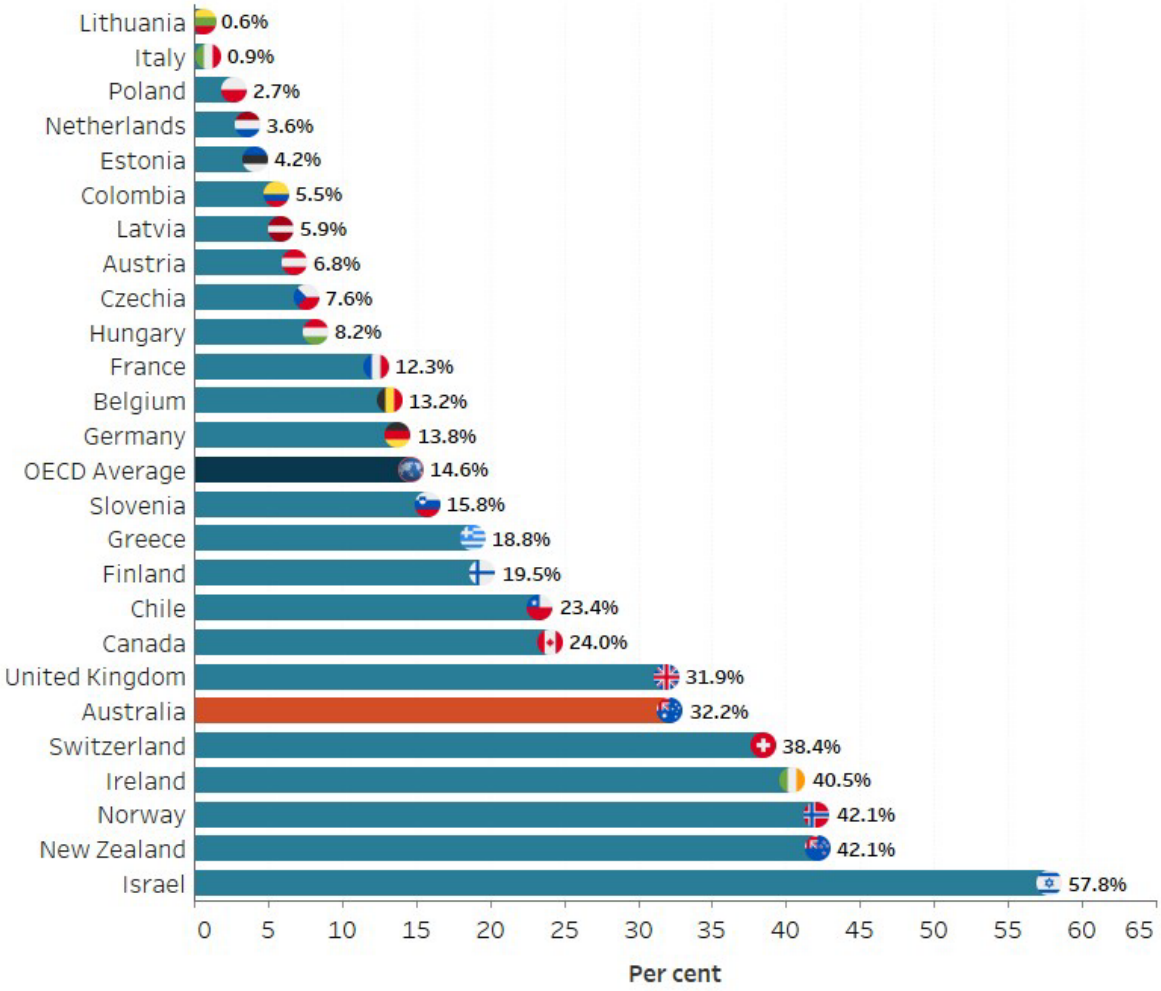
Figure 6: Overseas trained health workforce, by specialities, 2013 and 2022



Source: Department of Health and Aged Care 2023a

Australia ranked sixth highest of 38 countries in the Organisation for Economic Co-operation and Development (OECD) for the percentage of the medical workforce trained overseas (Figure 7) and 21st lowest in the OECD for the number of domestically trained doctors per capita (Go8 2023, OECD 2023).

Figure 7: Proportion of overseas trained doctors, by OECD country, 2021



Notes

1. 25 of the 38 OECD countries reported on overseas trained doctors in 2021.
2. The percentage of overseas trained doctors for Greece was calculated by AIHW.

Source: OECD 2023

https://www.aihw.gov.au

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, dietitians, clerical workers, health information managers, welfare professionals, service workers, cleaners, and gardeners. Also, some health professionals (such as dieticians, audiologists, speech pathologists) are self-regulated by their professional association to ensure that high safety and quality standards are maintained.

According to the ABS Labour Force Survey – more than 2.1 million people reported working in the Health Care and Social Assistance industry in November 2022 (ABS 2024).

Challenges for the Australian health workforce

The Department of Health and Aged Care and Jobs and Skills Australia have identified several challenges for the health workforce in Australia (Department of Health and Aged Care 2023c; JSA 2023). These challenges encompassed both current issues and those anticipated to impact the future workforce.

Increasing demand for health workforce

The demand for the health workforce in Australia is influenced by various factors, reflecting the nation's evolving healthcare landscape and demographic changes. Some of the key contributors to the demand for healthcare professionals include:

- Population growth and aging: Australia's growing and aging population places increased demand on healthcare services. By 2050, it is projected that older people (aged 65 and over) in Australia will make up around 22% of the total population compared to 17% in 2022 (ABS 2023). As people age, there is a higher prevalence of chronic conditions and a greater need for medical care, leading to an elevated demand for healthcare professionals.
- Policy changes: Changes in healthcare policies by the government are designed to impact workforce demand as well as workforce supply and distribution. For example, The Stronger Rural Health Strategy, which aims to improve the health of people in Australia through the supply of a quality health workforce that is distributed across the country according to community need (APH 2022; Department of Health and Aged Care 2023b).

It is crucial to monitor that the supply of healthcare professionals aligns with the evolving needs of the Australian population.

Shortages in health workforce supply

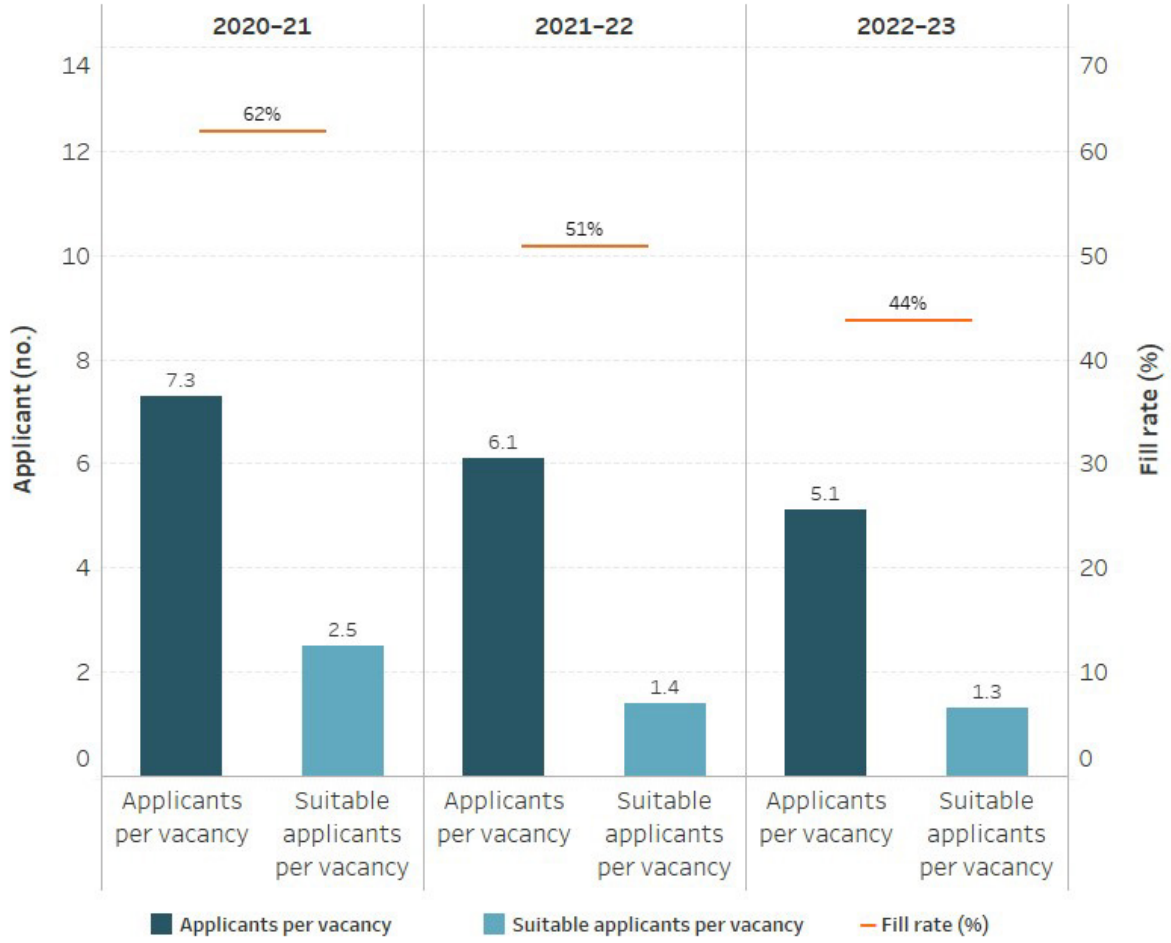
The Skills Priority List (SPL) 2023 report shows that more than 4 in 5 health professional occupations (82%) were in shortage in 2023. Workforce shortages exist in certain specialities, such as general practice, mental health, Registered Nurse occupations and specific allied health professions. Projected demand for healthcare services may also exacerbate shortages (JSA 2023).

In the 2023 SPL period, the fill rate for Health Professionals was 44%, with 1.3 suitable applicants per vacancy. This was lower compared with the 2022–23 financial year's average fill rate of approximately 60% and an average of 2.3 suitable applicants per vacancy (Figure 8). The Survey of Employers who have Recently Advertised (SERA) data shows that the main reason for which an applicant was found unsuitable for the occupation is the lack of specific skills or experience (JSA 2023).

Moreover, Australia competes globally for healthcare professionals, leading to recruitment challenges and potential reliance on overseas-trained staff. Continued global competition may impact the ability to attract and retain healthcare professionals domestically.

Addressing these challenges requires a multifaceted and collaborative approach involving government agencies, healthcare institutions, educational providers and professional associations.

Figure 8: Proportion of vacancies filled and number of suitable applicants per vacancy for Health Professionals, 2020–21, 2021–22 and 2022–23



Source: Jobs and Skills Australia, Survey of Employers who Recently Advertised, 2020–2023
https://www.aihw.gov.au

Health workforce reforms

Health workforce reforms are essential for addressing future workforce demand and for building a more resilient, responsive and patient-centred healthcare system. Several health workforce reforms have been implemented in Australia such as:

- The Stronger Rural Health Strategy: the Australian government continues to implement the Stronger Rural Health Strategy, aimed at addressing healthcare challenges specific to rural and remote areas. The strategy encompasses a range

of initiatives to improve access to healthcare services, attract and retain healthcare professionals in rural regions, support and build the capacity and capability of the health workforce trialling multidisciplinary models of care and enhance the overall health outcomes for residents in these areas. It will deliver 3,000 extra doctors and 3,000 extra nurses by 2028 (Department of Health and Aged Care 2021).

- The National Medical Workforce Strategy 2021–2031: The National Medical Workforce Strategy (NMWS) was endorsed by all Health Ministers in December 2021 and was released in January 2022. The NMWS is guiding long-term collaborative medical planning across Australia and identifies practical actions to build a highly trained and well-distributed medical workforce. The NMWS consists of five complementary priority areas to drive the actions – these include collaborating on planning and design, rebalancing supply and distribution, reforming the training pathways, building the generalist capability of the medical workforce and building a flexible and responsive medical workforce.
- Primary Health Care Reforms: Australia's Primary Health Care 10 Year Plan 2022–2032 is about strengthening primary healthcare services, with a focus on preventive care and early intervention. Reforms aim to enhance the role of general practitioners, nurses, and other primary care providers in the delivery of comprehensive and coordinated healthcare. This will require the expansion of the scope of practice for certain healthcare professionals to optimise their contributions to patient care. This includes exploring the roles of nurse practitioners, pharmacists, and other allied health professionals in providing a broader range of services (Department of Health and Aged Care 2022a). An independent review of health practitioner regulatory settings: Given Australia's reliance on internationally trained health professionals, ongoing efforts have been made to streamline the recognition of overseas qualifications and facilitate the integration of skilled professionals into the workforce (Department of Finance 2023). On 6 December 2023, National Cabinet endorsed and committed to implement the final report of the Independent Review of Australia's Regulatory Settings Relating to Overseas Health Practitioners (Kruk Review). The review recommends reforms to streamline regulatory settings to make it simpler, quicker, and cheaper for international health practitioners to work in Australia. These reforms will drive productivity dividends for entrants, employers, and communities, while maintaining health care quality and safety. The Government is already working on various initiatives to address these challenges including identifying opportunities for expanded fast track registration pathways, and aligning English language standards with countries such as the United Kingdom and New Zealand (Department of Finance 2023).
- Nurse Practitioner Workforce Plan: highlights the significant opportunity to increase utilisation of nurse practitioners to meet consumer needs. It details how to remove the barriers currently facing the workforce and build the nurse practitioner workforce, while increasing access to care for all Australian communities (Department of Health and Aged Care 2024).

- Strategies to address under-representation of Aboriginal and Torres Strait Islander (First Nations) health workforce: First Nations health workers are under-represented in the health workforce. The largest gap in representation between First Nations and non-Indigenous Australians nationally exists among registered nurses and general practitioners. Growing the number of First Nations health workers is vital in delivering better health outcomes for First Nations people. A number of strategies are underway to address this challenge including the *National Aboriginal and Torres Strait Islander Health Workforce Strategic Framework and Implementation Plan 2021–2031* (the Plan). The Plan was developed in genuine partnership with First Nations people, with a target to increase the number of First Nations health professionals working across the health system by 2031 (Department of Health and Aged Care 2022b).

Impact of the COVID-19 pandemic on the health workforce

The healthcare system was already facing challenges before the COVID-19 pandemic due to the demands of an aging population and individuals with progressively complex care needs. The COVID-19 pandemic exacerbated the impact of work and the work environment on the mental health and overall wellbeing of healthcare workers (Willis et al. 2021).

During the COVID-19 pandemic from 2020 to 2022, the annual growth rate in the number of Medical Practitioners saw a decline, reaching 3.2%, compared to the 3.6% growth experienced between 2013 and 2019.. For Nurses and Midwives, the growth rate between 2020 and 2022 remained consistent with pre-pandemic trends (2.6%)%, (Department of Health and Aged Care 2023).

As shown in Table 3, there is fluctuation in the year on year annual change for each profession. Annual growth is calculated as the percentage change in the number of registered practitioners from the previous year

The annual change for Medical Practitioners reached its peak in 2016 and 2017, and then held steady between 2018 and 2020. In 2021and 2022, the annual growth for Medical Practitioners declined compared to the previous year.

Nurses and Midwives had the lowest growth rates among all professions in most of the years, except for 2021, when they had the highest growth rate of 4.9%.

Table 3: Annual change in number of Health workforce, by profession (%)

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Allied Health	4.3	4.4	3.4	4.2	4.5	17.8	5.7	4.3	4.5
Dental Practitioners	3.8	2.8	2.3	2.4	3.2	3.5	1.1	2.3	4.2

Medical Practitioners	3.7	2.9	3.8	4.2	3.4	3.5	3.4	3.0	3.1
Nurses and Midwives	1.7	2.1	2.8	2.5	3.4	3.3	1.3	4.9	1.7
All professions	2.7	2.8	3.1	3.2	3.6	6.6	2.8	4.3	2.7

Note: In 2019, Paramedicine practitioners emerged as a new career path of registered health professionals in Australia as seen by the significant increase in registrations for Allied Health.

Source: Department of Health and Aged Care 2023a

The growth rate in total FTE for the health workforce was higher during the pandemic period (3.9% between 2020 and 2022), compared with 3.4% between 2013 and 2019. This growth rate in total FTE during these pandemic years was mainly contributed by Nurses and Midwives (an FTE growth rate of 3.8% between 2020 and 2022) (Department of Health and Aged Care 2023a).

COVID-19 has shown the significance of prioritising the wellbeing of healthcare workers for the effective functioning of our health system. Failure to safeguard the wellbeing of healthcare workers may result in an unsustainable workforce, which will have wider implications for the quality and sustainability of all services provided within the health system (AHHA 2022).

Some positive work practices introduced during COVID-19 included:

- Creating a workplace that is psychologically safe and supportive of healthcare workers, to support their emotional wellbeing.
- Enhancing work conditions by improving job design, managing workloads, and ensuring there are enough workers.
- Using more digital tools to help healthcare workers connect better with patients and each other, making them more efficient and productive. For example, the Australian Government offered free online, tailored COVID-19 training to nurses which rapidly increased their nursing knowledge, skills and confidence.

The COVID-19 pandemic has emphasised the critical need for regular data collection on employee wellbeing in the workplace to inform decision-making processes. Monitoring employee wellbeing acts as an early alert mechanism enabling organisations to advocate for the timely implementation of protective measures to prevent potential issues from arising (AHHA 2022).

Where do I go for more information?

For more information on the health workforce, see:

- Department of Health and Aged Care Health workforce data tool
- Medical Deans Australia and New Zealand Medical schools outcomes database reports

For more on this topic, see Workforce.

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Hospitals

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/hospitals/australias-hospitals-at-a-glance

On this page

Hospitals play an important role in Australia's health care system, providing care to millions of Australians each year. Services are provided both to admitted patients and non-admitted patients (through outpatient clinics and emergency departments).

Australia has public and private hospitals. Public hospitals are largely owned and managed by state and territory governments, with funding also provided by the Australian Government. Private hospitals are owned and managed by private organisations, some of which are non-profit. Private hospitals are funded by charges to patients that are often subsidised by government and private health insurance payments.

Overview

On average per day, Australian hospitals:

in 2021–22:

- employ 181,000 nurses and 54,000 doctors in public hospitals
- cost $263 million to run public and private hospitals

in 2022–23:

- record 33,200 hospitalisations in public and private hospitals
- record 410 hospitalisations with a hospital-acquired complication in public and private hospitals

- provide 113,000 services to non-admitted patients
- record 5 Staphylococcus aureus bloodstream infections in public hospitals
- treat 24,100 people in emergency departments at public hospitals
- record 2,000 admissions to public hospitals from elective surgery waiting lists

Source: HEA 2021–22, NPHED 2021–22, NHMD 2022–23, NNAPEDCD 2022–23, NESWTD 2022–23, NNAPCD 2022–23, NSABDC 2022–23.

Spending on hospitals

Public and private hospitals are funded from sources including the Australian Government, state and territory governments, private health insurance funds and out-of-pocket payments by individuals. Hospitals vary in the types of services they provide, the patients they treat, funding sources, and other factors.

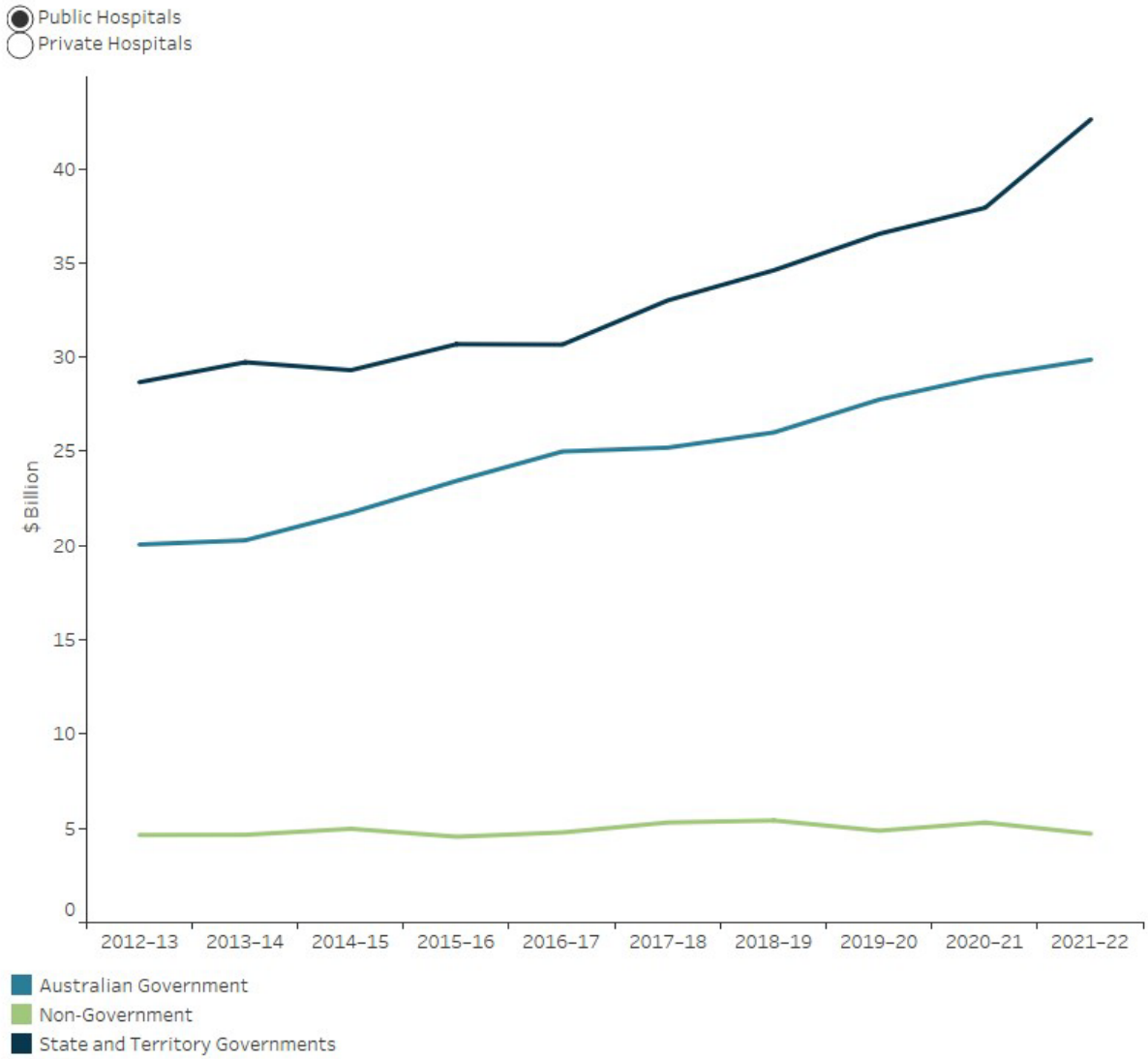
How much is spent on hospital care?

In 2021–22, $96.0 billion ($3,725 per person) was spent on hospital care in Australia (AIHW 2023). Individual spending per person on hospital care increased by an average of 0.3% per year between 2016–17 and 2021–22, after adjusting for inflation.

The $96.0 billion spent on hospitals in 2021–22 accounted for 40% of all health expenditure ($241.3 billion) and is comprised of an estimated:

- $43.8 billion (46%) from state and territory governments
- $34.9 billion (36%) from the Australian Government
- $17.2 billion (18%) from non-government sources (Figure 1).

Figure 1: Expenditure ($ billion) on public and private hospitals, by source of funds, constant prices, 2012–13 to 2021–22



Source: AIHW Health Expenditure Australia 2021–22
http://www.aihw.gov.au/

Public hospitals

In 2021–22, a total of $77.2 billion was spent on public hospitals in Australia by:

- state and territory governments – $42.6 billion (55%)
- the Australian Government – $29.9 billion (39%)
- non-government entities – $4.7 billion (6.1%) (including individuals and private health insurers).

State and territory governments, which have primary responsibility for administering public hospitals, contributed the most funding.

Between 2011–12 and 2021–22, Australian Government expenditure on public hospitals increased 3.8% per year on average and state and territory expenditure increased 4.1% per year on average.

Private hospitals

In 2021–22, an estimated total of $18.8 billion was spent on private hospitals by:

- private health insurance providers – $8.9 billion (47%)
- the Australian Government – $5.1 billion (27%)
- individuals – $2.2 billion (12%)
- other non-government – $1.4 billion (7.4%)
- state and territory governments – $1.2 billion (6.5%).

Sixty-seven per cent ($12.5 billion) of private hospital spending came from the non-government sector.

Between 2011–12 and 2021–22, total funding for private hospitals increased by an average of 2.6% each year. The proportion of funding provided by the Australian Government increased 0.3% and funding from state and territory governments increased, on average, 7.0%.

For more information, see Health expenditure Australia 2021–22.

Australian Government expenditure on hospital care listed in this section excludes Medicare Benefits Schedule (MBS) and some Pharmaceutical Benefits Scheme (PBS) spending that relates to services provided in hospitals and that have not historically been treated as hospital spending.

Hospital workforce

Who works in our hospitals?

The hospital workforce in Australia is large and diverse, covering many occupations including medical officers, nurses, diagnostic and allied health professionals (such as physiotherapists and occupational therapists), administrative and clerical staff, and domestic and other personal care staff.

Public hospitals

In 2021–22, there were 438,500 full-time equivalent (FTE) staff employed in public hospitals. The number of FTE staff has increased 3.8% per year on average since 2017–18.

Table 1: Staff and average salaries, public hospitals, 2021–22

Type of staff	Average number of full-time equivalent staff	Average salary (per year)
Nurses	181,004 (41%)	$115,244
Administrative and clerical staff	83,478 (19%)	$91,232
Diagnostic and allied health professionals	72,912 (17%)	$103,100
Salaried medical officers	53,946 (12%)	$241,168
Domestic and other personal care staff	47,176 (11%)	$74,192

The workforce described here includes people employed to manage and deliver public hospital services in public hospitals themselves, as well as within local hospital networks (LHNs) and state/territory health authorities. These staff numbers do not include visiting medical officers in public hospitals who are generally employed by the hospital on a contractual, rather than salaried basis.

For more information, see Hospital workforce.

Hospital activity

In 2022–23 there were:

- 12.1 million hospitalisations (admitted patient care)
- 8.8 million presentations to emergency departments
- 735,000 admissions from public hospital elective surgery waiting lists.
- 41.1 million non-admitted patient (outpatient) services delivered.

Emergency department care activity

How much care do our emergency departments provide?

In Australia, there are 293 public hospitals that have purpose-built emergency departments that are staffed 24 hours a day and provide care to patients who require urgent medical, surgical, or other attention.

In 2022–23, there were 8.8 million presentations to emergency departments – 334 presentations per 1,000 population. This has increased from 330 presentations per 1,000 population in 2018–19 – an increase of 0.3% a year.

In 2022–23, 70% of presentations occurred between 8 am and 8 pm. The busiest days for emergency department visits were Sundays, Mondays and Tuesdays.

How urgent was the care?

When a patient presents to the emergency department, they are assigned a triage category by a registered nurse or medical practitioner that reflects the urgency of the patient's need for medical and nursing care (Table 2).

Table 2: Emergency department presentations by triage category, 2022–23

	Resuscitation (should be seen immediately)	Emergency (within 10 minutes)	Urgent (within 30 minutes)	Semi-urgent (within 60 minutes)	Non-urgent (within 2 hours)	Total
Presentations	77,230	1,431,840	3,557,510	3,135,480	596,140	8,800,919
Proportion of all presentation (%)	0.9%	16.3%	40.4%	35.6%	6.8%	100%

In 2022–23, 26% of patients arrived at the emergency department by ambulance or air rescue service, with the remaining 74% arriving by other forms of transport, including by private car.

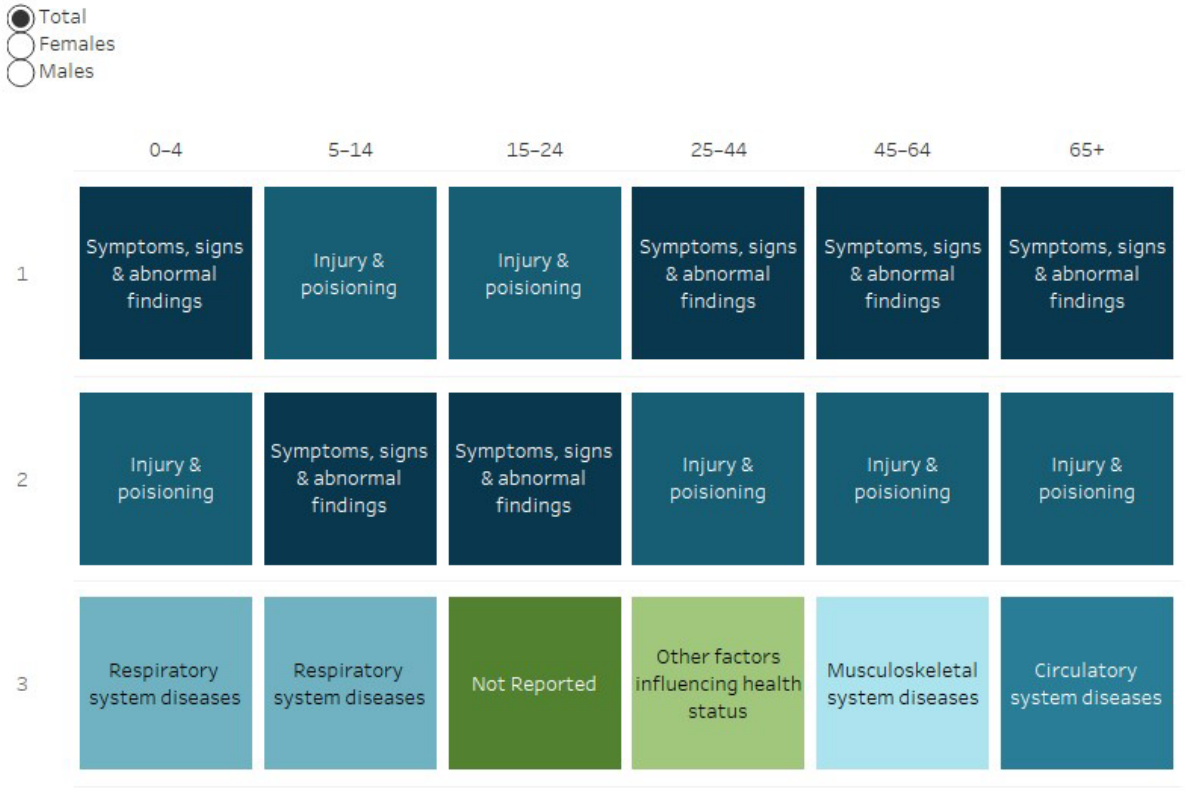
Why do people present to emergency departments?

A patient's diagnosis is established at the end of the patient's emergency department stay and identifies the main reason for their visit to the emergency department.

In 2022–23, the most common reason for a presentation at an emergency department was for 'Symptoms, signs, and abnormal findings' – accounting for 26% of presentations. 'Symptoms, signs, and abnormal findings' are symptoms such as abnormalities of heartbeat, abnormalities of breathing, chest pain, nausea and vomiting, headache, and convulsions that are not attributable to a specific diagnosis based on the information available at the time of the care.

The most common diagnoses recorded for emergency department presentations vary by the age of the patient (Figure 2).

Figure 2: Top 3 reasons people present to emergency departments, by ICD-10-AM chapter and age-group, 2022–23



Source: AIHW National Non-Admitted Patient Emergency Department Care Database
http://www.aihw.gov.au/

For more information, see Emergency department care.

Admitted patient care activity

How many hospitalisations were there?

Admission to hospital is an administrative process that follows a doctor's decision that a patient needs to be admitted for appropriate management or treatment of their condition, and/or for appropriate care or assessment of their needs. Patients may be admitted and discharged on the same day or may stay in hospital for one or more nights.

In 2022–23, there were 12.1 million hospitalisations (415 per 1,000 population). Public hospitals provided 59% (7.1 million) of hospitalisations and private hospitals provided 41% (5.0 million) (Table 3).

Since 2018–19, hospitalisations have increased from around 11.5 million (6.8 million in public hospitals and 4.6 million in private hospitals). The rate of hospitalisations per 1,000 population over the same period decreased in public hospitals from 254 to 247 per 1,000 population and increased slightly in private hospitals from 167 to 168 per 1,000 population.

Collectively, hospitals provided 33.2 million days of patient care in 2022–23. This was an increase compared with 2018–19 when 30.9 million days of patient care were provided.

Table 3: Characteristics of admitted patient care, public, private and all hospitals, 2022–23

	Public hospitals	Private hospitals	All hospitals
Hospitalisations	7.1 million	5.0 million	12.1 million
Medical	5.0 million	1.6 million	6.6 million
General intervention (Surgical)	1.1 million	1.7 million	2.8 million
Specific intervention (Other)	477,000	1.0 million	1.5 million
Childbirth	218,000	64,200	282,000
Mental health care	136,000	218,000	354,000
Sub-acute and non-acute care	217,000	383,000	600,000
Same-day versus overnight	56% same-day stays	74% same-day stays	63% same-day stays
Number of days of patient care	22.8 million (average increase of 2.4% per year since 2018–19)	10.4 million (average increase of 0.7% per year since 2018–19)	33.2 million (average increase of 1.% per year since 2018–19)
Average length of stay (for overnight stays)	6.0 days	5.1 days	5.7 days

Why do people go to hospital?

People experience different health issues at different times of their lives, so the reasons for hospitalisation vary by age and by sex (Figure 3). For example, in 2022–23:

- babies and children under 5 were hospitalised most often for *Respiratory system diseases,* whereas children aged 5–14 were most often hospitalised for *digestive system diseases*
- males aged 15–24 were most often hospitalised for diagnoses related to *Injury and poisoning*, however, females in this age group were most often hospitalised for diagnoses related to *Pregnancy, childbirth and the puerperium*
- adults aged 45 and over were most often hospitalised for *Other factors influencing health status*.

Figure 3: Top 3 reasons for hospitalisation, by ICD-10-AM chapter, sex and age-group, 2022–23

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

For more information, see Admitted patients.

Elective surgery activity

How many people are admitted from elective surgery waiting lists?

In 2022–23, 735,000 patients were admitted for surgery from public hospital elective surgery waiting lists – an 18% increase compared with 2021–22, and an average decrease of 0.8% per year since 2018–19.

Figure 4: Admissions from public hospital elective surgery waiting lists, by clinical urgency category and month, 2022–23

Source: AIHW Elective Surgery Waiting Times Data Collection
http://www.aihw.gov.au/

For more information, see Elective surgery.

Non-admitted patient activity

How many services are provided in the outpatient setting?

Every year many Australians receive services via 'outpatient' or non-admitted patient clinics. These services are often associated with an emergency or admitted patient episode for which diagnostic or follow-up care is required without needing the person to be admitted to hospital.

In 2022–23, 41.1 million non-admitted patient care service events were provided for public patients.

This comprised of:

- 19.6 million (48%) services provided in *Allied health and/or clinical nurse specialist intervention clinics*, which provide services by an allied health professional or clinical nurse specialist
- 12.8 million (31%) services provided in *Medical consultation clinics*, which provide services by a medical or nurse practitioner and may include input from allied health personnel and/or clinical nurse specialists
- 5.3 million (13%) services in *Diagnostic service clinics*, which provide imaging, screening, clinical measurement and pathology
- 3.3 million (8%) services in *Procedural clinics*, which provide minor surgical and non-surgical procedures (that do not require the patient to be admitted) by a surgeon or other medical specialist.

For more information, see Non-admitted patients.

Hospital safety and quality

Regulatory systems and arrangements to ensure the safety and quality of hospital services in Australia include those for:

- medicines and devices
- health facilities
- the health workforce
- clinical standards and guidelines
- clinical governance arrangements.

Monitoring and improvement of care quality for particular illnesses and procedures also occurs, for example, through research projects, clinical quality registers and routinely collected health system data, such as the AIHW's National Hospital Morbidity Database (NHMD). Patient experience surveys can also provide an indication of the quality of care provided from the patient's perspective.

Hospital safety and quality measures reported include:

- *Staphylococcus aureus* blood stream infections (SABSI) acquired in hospital
- hospital-acquired complications such as birth trauma
- patient experience survey results.

Staphylococcus aureus bloodstream infections

Staphylococcus aureus (also *S. aureus*, or 'Golden staph') is a type of bacteria that can cause bloodstream infection.

SABSI can be acquired after a patient receives medical care or treatment in a hospital. Contracting a *Staph. aureus* bloodstream infection while in hospital can be life-threatening and hospitals aim to have as few cases as possible. The nationally agreed benchmark for healthcare-associated *Staphylococcus aureus* bloodstream infections is no more than 1 case of healthcare-associated SABSI per 10,000 days of patient care for public hospitals in each state and territory.

In 2022–23, there were 1,668 SABSI cases occurring during 22.5 million days of patient care under surveillance. This represents a rate of 0.74 SABSI cases per 10,000 patient days.

Most SABSI cases (84%) were methicillin-sensitive and therefore treatable with commonly used antimicrobials.

Hospital-acquired complications

A hospital-acquired complication is a complication that arises during a patient's hospitalisation which may have been preventable, and which can have a severe impact on both the patient and the care required.

Hospital-acquired complications include pressure injuries, healthcare-associated infections, malnutrition, neonatal birth trauma, cardiac complications, and delirium. They may affect a patient's recovery, overall outcome and can result in a longer length of stay in hospital. A patient may have one or more hospital-acquired complications during a hospitalisation.

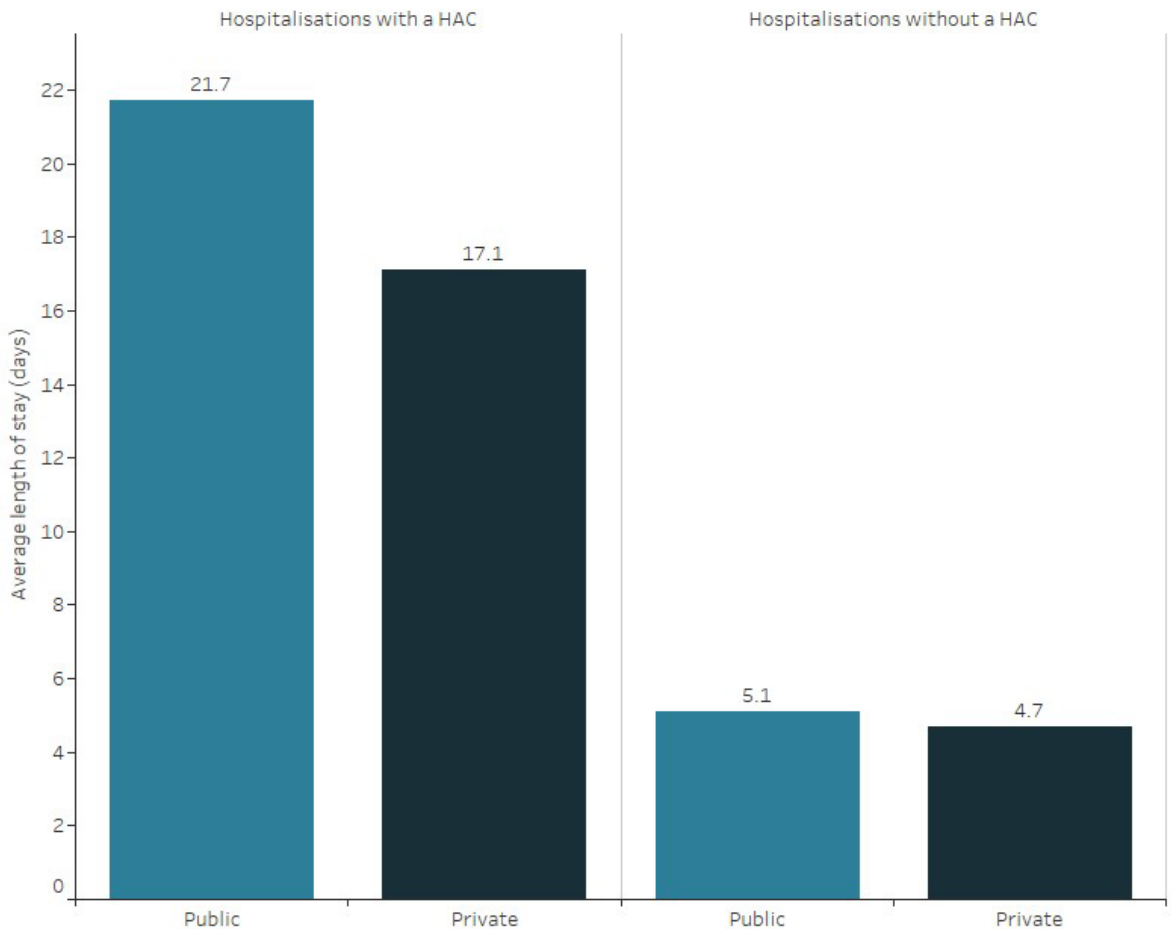
In 2022–23, 115,000 hospitalisations (2.0 per 100 hospitalisations) in public hospitals had at least one hospital-acquired complication, and 34,200 hospitalisations (0.8 per 100 hospitalisations) in private hospitals had at least one hospital-acquired complication.

In 2022–23, the most common hospital-acquired complications were related to:

- healthcare associated infections (62,400 in public hospitals and 15,000 in private hospitals)
- delirium (19,600 in public hospitals and 6,300 in private hospitals)
- cardiac complications (17,200 in public hospitals and 7,300 in private hospitals).

In 2022–23, the average length of stay (ALOS) for overnight hospitalisations with at least one hospital-acquired complication was 21.7 days in public hospitals and 17.1 days in private hospitals, longer than the ALOS without a hospital-acquired complication reported (5.1 days and 4.7 days, respectively) (Figure 5).

Figure 5: Average length of stay (days) for overnight hospitalisations with and without a hospital-acquired complication (HAC), 2022–23



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

What do patients say about their hospital experience?

The Australian Bureau of Statistics (ABS) conducts an annual survey, *Patient Experiences,* to monitor the experiences of Australians who use a range of healthcare services. People who have received hospital care or emergency department care are asked about their experiences with health professionals (ABS 2022).

Emergency department

Among people who attended an emergency department in 2022–23:

- 82% of patients responded that emergency department doctors 'always' or 'often' listened carefully to them.
- 85% of patients responded that emergency department doctors 'always' or 'often' showed respect.
- 77% of patients responded that emergency department doctors 'always' or 'often' spent enough time with them.
- 87% of patients responded that emergency department nurses 'always' or 'often' listened carefully to them.

- 89% of patients responded that emergency department nurses ‘always’ or ‘often’ showed respect.
- 82% of patients responded that emergency department nurses ‘always’ or ‘often’ spent enough time with them in the emergency department.

Admitted patients

Among people who received hospital care in 2022–23:

- 91% of patients responded that hospital doctors ‘always’ or ‘often’ listened carefully to them.
- 92% of patients responded that hospital doctors ‘always’ or ‘often’ showed respect.
- 86% of patients responded that hospital doctors ‘always’ or ‘often’ spent enough time with them.
- 92% of patients responded that hospital nurses ‘always’ or ‘often’ listened carefully to them.
- 93% of patients responded that hospital nurses ‘always’ or ‘often’ showed respect.
- 88% of patients responded that hospital nurses ‘always’ or ‘often’ spent enough time with them.

For more information see:

- Hospital safety and quality
- Australian Commission on Safety and Quality in Health Care- external site opens in new window
- Australian Bureau of Statistics Patient Experiences, 2022–23- external site opens in new window

Access to hospitals

Providing access to appropriate and timely hospital care is an integral component of health care. In essence, it is about being able to get the health care you need, when you need it.

A person’s ability to access appropriate and quality health care is influenced by their own health needs as well as factors such as where they live, their socioeconomic circumstances, and their cultural background (WHO 2006).

This section explores hospital accessibility by looking at the:

- number of services available, including hospitals and emergency departments
- location of services and hospitals
- waiting times to access elective surgery and emergency department care
- remoteness, socioeconomic characteristics and Indigenous status of the people who use hospital services.

Where are hospitals and beds located?

The number and type of hospitals, and the beds available, are measures of access to health care services. Public hospitals in *Major cities* are more likely to be larger and to offer a broader range of services, whereas hospitals in more remote areas tend to be smaller and offer fewer services. This can affect the timeliness and availability of services for people living in more remote areas.

In 2021–22, there were 697 public hospitals which varied in location, size, and services provided. Of these public hospitals, 185 were in *Major cities*, 401 were in *Inner regional* and *Outer regional* areas, and 111 were in *Remote* or *Very remote* areas.

There were 63,400 public hospital beds available, on average, in 2021–22 – representing 2.5 beds per 1,000 population. This ranged from 2.3 per 1,000 population in *Major cities* to 3.9 per 1,000 population in *Remote and Very remote* areas.

Since 2017–18, the number of beds per 1,000 population in public hospitals has fallen by an average of 0.6% every year.

A majority of larger public hospitals and therefore a majority of hospital beds are located in more populated areas – 27% of hospitals and 67% of hospital beds are located in *Major cities*, 58% of hospitals and 30% of hospital beds are in *Inner regional* and *Outer regional* areas, and 16% of hospitals and 3.1% of hospital beds in *Remote and very remote* areas.

Access to admitted patient care

In 2022–23, hospitalisation rates varied across socioeconomic levels and remoteness for public and private hospitals.

Patterns of hospitalisations varied by socioeconomic levels – when the level of disadvantage increases, hospitalisations in public hospitals generally increased, while hospitalisations in private hospitals decreased.

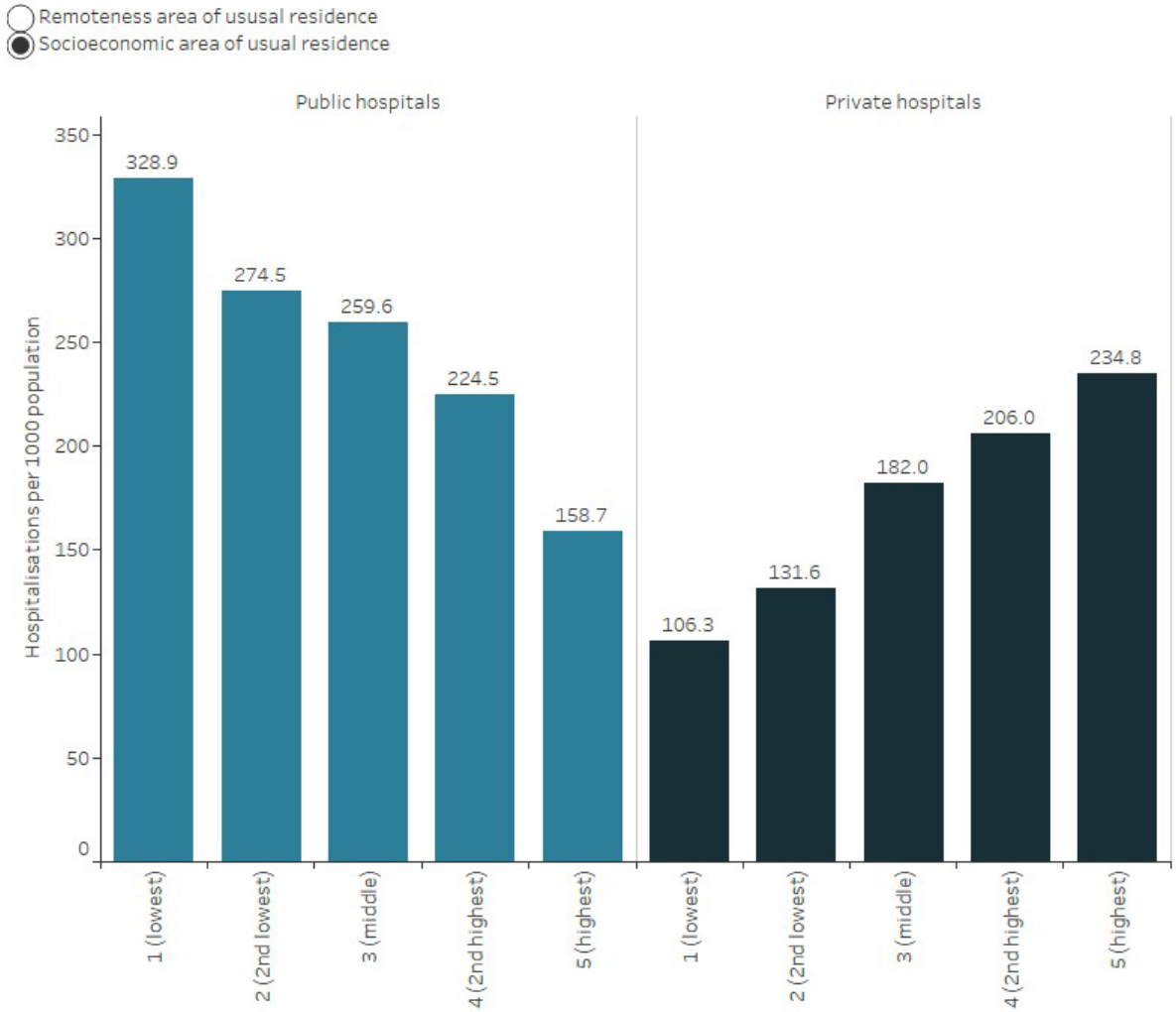
For public hospitals, the highest rates of hospitalisation were for patients living in the highest socioeconomic areas (329 hospitalisations per 1,000 population) whereas for private hospitals, the highest rates were for patients living in the lowest socioeconomic areas (235 hospitalisations per 1,000 population).

Patterns of hospitalisations varied by remoteness area – hospitalisations in public hospitals increase with increasing remoteness of the patient's area of residence, while hospitalisations in private hospitals generally decreased with increasing remoteness of the patient's area of residence.

The highest rates of hospitalisation in private hospitals were for patients whose area of residence was in Major cities (183 hospitalisations per 1,000 population), whereas the

highest rates of hospitalisations in public hospitals were for patients whose area of residence was in Very remote areas (678 hospitalisations per 1,000 population) (Figure 6).

Figure 6: Hospitalisations per 1,000 population by socioeconomic area and remoteness, 2022–23



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

For more information, see Admitted patient access.

Access to emergency department care

Waiting times

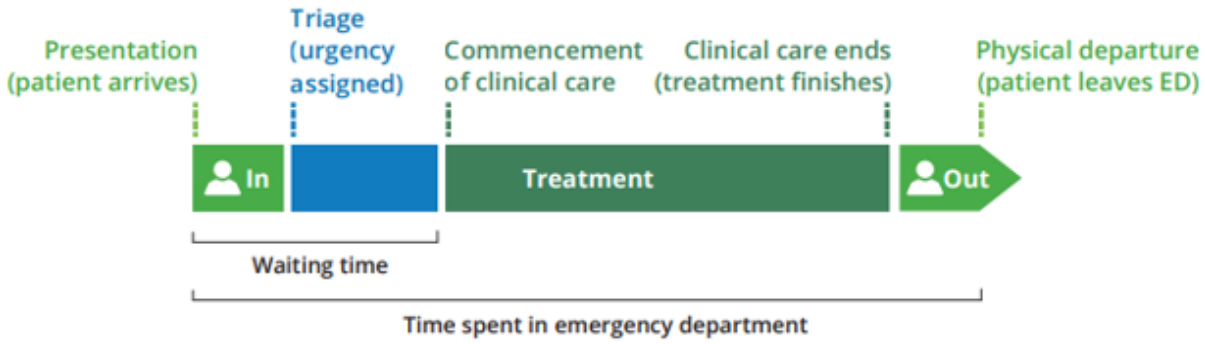
How long people wait in the emergency department before they receive care (waiting time) can be used as a measure of the accessibility of emergency department care.

Waiting time statistics are presented here as:

- the 50th percentile (median) waiting time, which represents the time within which half of all people are seen
- proportion 'seen on time' for their triage category.

Emergency department waiting time measures represent the time elapsed from presentation to commencement of clinical care (Figure 7).

Figure 7: Time spent in emergency department



Note: the length of the segments is illustrative only.

Across all emergency presentations to emergency departments in 2022–23, 50% of patients were seen within 20 minutes.

The median waiting time has stayed relatively consistent since 2018–19, when 50% of patients were seen within 19 minutes.

In 2022–23, 65% of presentations to emergency departments were 'seen on time'.

The proportion of patients seen on time for their triage category has declined slightly since 2021–22 when 67% of patients were seen on time. In 2022–23, the percentage of patients who were seen on time ranged from 100% of patients requiring immediate care (Resuscitation) to 58% of patients who needed care within 30 minutes (Urgent).

In 2022–23, 50% of emergency department presentations were completed within 3 hours and 39 minutes, and 90% were completed within 10 hours and 32 minutes.

For patients who were not subsequently admitted to hospital, 90% completed their care within 7 hours and 19 minutes, but for patients subsequently admitted to hospital, 90% completed their care within 18 hours and 23 minutes.

The time spent in the emergency department for 90% of patients also varied by triage category – ranging from 4 hours and 54 minutes for patients who needed care within 120 minutes (Non-urgent) to 15 hours and 30 minutes for patients requiring immediate care (Resuscitation).

For more information, see Emergency department care access.

Access to surgery

People can be admitted to hospital for emergency surgery, or for less urgent procedures they can be booked in as part of an 'elective' (or planned) admission to hospital (elective in this context refers to there being some flexibility around the timing of the procedure, not whether the procedure itself is optional).

Access to surgical services can be affected by issues such as the person's geographical location, the availability of other healthcare services, and how many people are on public hospital elective surgery waiting lists.

Emergency hospitalisations involving surgery

In 2022–23:

- 382,000 hospitalisations were emergency admissions that involved surgery
- 87% (332,000) were in public hospitals and 13% (49,500) were in private hospitals
- the 3 most common reasons for emergency admissions involving surgery were appendicitis, fractured femur, and heart attack
- people living in *Very remote* areas were twice as likely to have an emergency admission involving surgery as people living in *Major cities* (26 compared with 13 hospitalisations per 1,000 population).

Elective hospitalisations involving surgery

In 2022–23:

- 2.5 million hospitalisations were elective admissions involved surgery
- 68% (1.7 million) were in private hospitals and 32% (785,000) were in public hospitals
- the 3 most common reasons for elective admissions involving surgery were cataracts, skin cancer and procreative management
- People living in *Major cities* were nearly one and a half times as likely to have an elective admission involving surgery as people living in *Very remote* areas (85 compared with 55 hospitalisations per 1,000 population).

Admissions from public hospital elective surgery waiting lists

> In 2022–23, 735,000 patients were admitted for elective surgery from public hospital waiting lists.

Removal of cataracts was the most common procedure (10.3%), followed by *Cystoscopy* (7.5%). The most common surgical specialty was *General surgery* (20.3%), followed by *Urological surgery* (14.6%) and *Ophthalmology surgery* (13.9%).

For the 25 most common intended procedures in 2022–23, people living in Remote areas had the highest rate of admissions from public hospital elective surgery waiting lists (30 hospitalisations per 1,000 population) followed by people in Inner regional and

Outer regional areas (28.3 and 28.2 hospitalisations per 1,000 population respectively). People living in Major cities had the lowest rate of admissions from public hospital elective surgery waiting lists (22 hospitalisations per 1,000 population).

Waiting times for admission to elective surgery

In 2022–23:

- 50% of patients admitted to hospital from public hospital elective surgery waiting lists waited for 49 days or less, and 90% waited for 361 days or less
- 9.6% of people admitted for surgery waited more than 365 days compared to 6.3% just a year before
- 50% of Aboriginal and Torres Strait Islander (First Nations) people were admitted to hospital within 56 days, compared with 50% of non-Indigenous Australians being admitted within 49 days
- the time within which 50% of patients were admitted for their awaited procedure ranged 41 days in *Remote* areas to 51 days in *Outer regional* areas for the 25 most common intended procedures
- the time within which 50% of patients were admitted ranged from 31 days for patients living in the highest socioeconomic areas to 14 days for people living in the lowest socioeconomic areas socioeconomic areas for the 25 most common intended procedures.

The 50th percentile waiting time increased from 41 days in 2018–19 to 49 days in 2022–23. The 90th percentile waiting time increased from 279 days in 2018–19 to 361 days in 2022–23.

For more information, see Elective surgery access.

Impact of COVID-19 on hospital care

The COVID-19 pandemic has had an ongoing impact on emergency department, admitted patient and elective surgery activity since its emergence in Australia at the start of 2020.

Impact of COVID-19 on emergency department activity

Emergency department activity in 2019–20, 2020–21 and 2021–22 was influenced by COVID-19 restrictions and the changes affecting health care provision commencing in February 2020. Also, during 2020–21, some jurisdictions operated COVID-19 fever clinics within emergency departments. Comparatively large increases in emergency department activity observed between 2019–20 and 2020–21 in some jurisdictions may be driven, in part, by this additional activity.

Compared with 2018–19, in 2019–20 the number of emergency department presentations decreased by 1.4% – in contrast to the 4.2% increase seen between 2017–18 and 2018–19. In the following year (2020–21) the number of presentations increased by 6.9% – from 8.23 million in 2019–20 to 8.81 million in 2020–21. In 2021–22, the

number of presentations decreased by 0.2% to 8.79 million compared with the previous year. Emergency department presentations between 2021–22 and 2022–23, remained relatively stable, increasing by 0.1% overall.

For more information on the impacts of COVID-19 on emergency department activity from 2019–20 to 2022–23, see Emergency department care activity.

Impact of COVID-19 on admitted patient activity

Australia's hospital system has played a significant role in managing and treating people with COVID-19. Between January 2020 and June in 2023, there were over 454,000 hospitalisations involving a COVID-19 diagnosis (183,400 in 2021–22).

Before the COVID-19 pandemic, there was an upward trend in national hospital admissions, with an average annual increase of 3.3% from 2014–15 to 2018–19. The onset of the pandemic and the ensuing preventative measures resulted in a decrease in hospitalisations in 2019–20 and 2021–22 compared to the respective preceding years. However, in 2022–23, hospitalisations rebounded, showing a 4.6% increase from the previous year, rising from 11.6 million to 12.1 million.

For more information about the impact of COVID-19 on hospital activity and hospitalisations involving COVID-19, see Admitted patient activity.

Impact of COVID-19 on elective surgery activity

As a result of the restrictions on elective surgery introduced in early 2020, overall, there was an 8.3% decrease in elective admissions involving surgery in public hospitals and a 5.7% decrease in private hospitals between 2018–19 and 2019–20.

In addition, there was a 9.2% decrease in admissions from elective surgery waiting lists between 2018–19 and 2019–20.

Delays to elective surgery resulted in a subsequent increase in waiting times for most intended procedures between 2019–20 and 2020–21. The greatest increases in median waiting times occurred for *Tonsillectomy* (123 day increase over 2019–20), *Varicose vein treatment* (94 day increase over 2019–20) and *Total knee replacement* (85 day increase over 2019–20).

The proportion of patients waiting more than 365 days for their elective surgery also increased between 2019–20 and 2020–21 from 2.8% to 7.6% with the greatest increase for *Total knee replacement* (11% to 32%) and *Septoplasty* (18% to 36%).

Although, the median waiting times increased in 2022–23, it has decreased for n *Cataract extraction* (25 days) – from 158 days in 2021–22 to 133 days in 2022–23.

For more information about the impact of COVID-19 on public hospital elective surgery activity, see Elective surgery activity.

Where do I go for more information?

For more information on Australia's hospitals go to MyHospitals.

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Archived content

https://www.aihw.gov.au/getmedia/8c50762e-f614-438d-86d5-713d19203686/aihw-hse-253-Hospitals-at-a-glance-Dec23.pdf

https://www.aihw.gov.au/getmedia/d1d8e15a-bf2c-4cfd-8f8e-2baf9d62d430/Australia-s-hospitals-at-a-glance-2021-22.pdf

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Immunisation and vaccination

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/australias-health/immunisation-and-vaccination

On this page

Immunisation is a safe and effective way to protect against harmful infectious 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.

The Australian Government provides free vaccines to eligible people, including young children, older Australians, Aboriginal and Torres Strait Islander (First Nations) 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.

For more information, see Infectious and communicable diseases.

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).

Some vaccines may also have effects beyond the immediate and future burden of diseases for which vaccines are provided, including protective and therapeutic effects against post-acute infection conditions (Byambasuren et al. 2023).

Childhood immunisation coverage

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 certain specific vaccine or antigen (component of vaccine) doses appropriate for their age.

What is meant by 'fully immunised'?

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 2023, the following definitions applied:

- At 1 year, 'fully immunised' included vaccinations for hepatitis B, diphtheria, tetanus, pertussis (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).

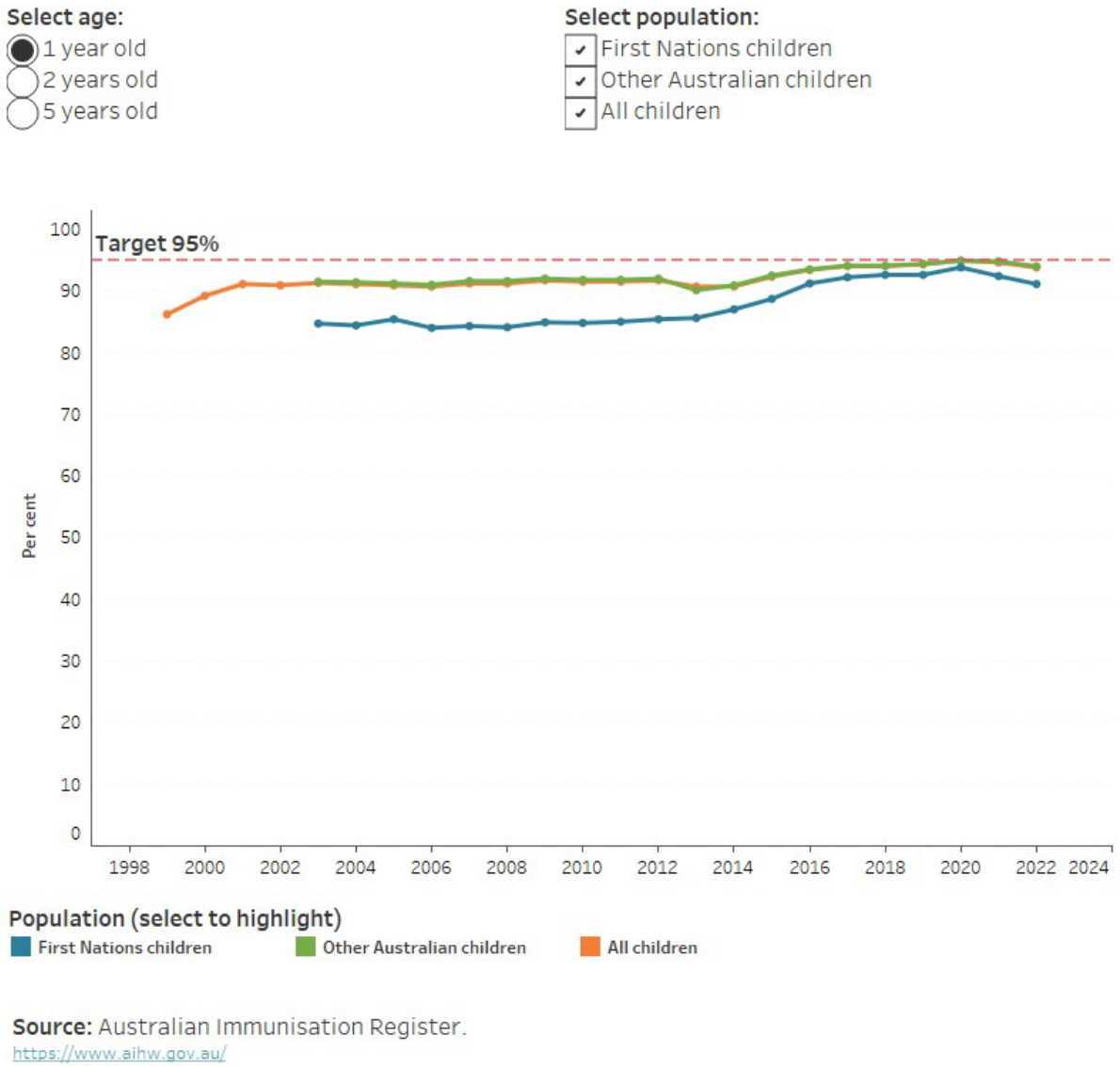
The immunisation coverage rate for:

- 1-year-olds remained relatively stable between 2001 and 2012. The slight fall in rates in 2013 and 2014 may have been due to a change in the definition of 'fully immunised'. The coverage rate has steadily increased from 92.3% in 2015 to 94.6% 2021, before slightly declining to 93.8% in 2022. The slight decline in the rate for 2022 may reflect the impact of COVID-19 on routine childhood vaccination.
- 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. Despite the significant impact of COVID-19, we have only seen a slight decrease in the rate from 92.6% in 2021 to 92% in 2022.
- 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 coverage rate has slightly decreased from 95% in 2021 to 94.3% in 2022.

For First Nations children in 2022, the national immunisation coverage rates for children aged 1 and 2 were lower than the coverage rates for other Australian children, at 91.1% and 89.1%, respectively, compared with 94.0% and 92.2% (Figure 1). In contrast, the coverage rate for 5-year-old First Nations children (96.1%) was higher than the coverage rate for other Australian children (94.1%). Vaccine coverage rates declined notably in 2022 compared with 2021 among First Nations children aged 1 and 2. For First Nations children aged 1, vaccine coverage declined by 1.3% during this period, compared with 0.8% for other Australian children. For First Nations children aged 2, vaccine coverage declined by 2.3%, whereas it decreased by 0.5% for other Australian children during the same period (AIHW & NIAA 2024).

Figure 1: Childhood immunisation coverage rates by Indigenous status for children aged 1, 2 and 5, 1999 to 2022



Source: Australian Immunisation Register.
https://www.aihw.gov.au/

For more information, see Health of children.

Adolescent immunisation coverage

HPV is a common viral infection that is sexually transmitted. HPV can cause cancers in both men and women, particularly cancer of the cervix (in females), other anogenital cancers and certain cancers of the mouth and throat (in both males and females). 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 2022, 85.3% of girls and 83.1% of boys had received

at least one dose of HPV vaccine before their 15th birthday. Coverage rates among First Nations adolescents were lower, with 83.0% of girls and 78.1% of boys having received at least one dose of HPV vaccine before their 15th birthday in 2022 (NCIRS 2023).

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 2022, 86.9% had received an adolescent dTpa dose (NCIRS 2023). Coverage rates for First Nations adolescents were lower at 82.6%. In 2022, 75.9% of all adolescents compared with 65.6% of First Nations adolescents turning 17 years had received a dose of meningococcal ACWY vaccine (NCIRS 2023).

Coverage rates for HPV vaccination were slightly lower in 2022 than in 2021 for all adolescents, which is likely due to nation-wide COVID-19 pandemic-related disruption to school-based programs. However, among First Nations adolescents, pandemic-related disruptions have resulted in notable declines in HPV vaccination coverage (HPV vaccination coverage declined by over 3% for First Nations girls and 2.5% for First Nations boys during this period) (NCIRS 2023).

For more information, 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 was renamed following its expansion in 2016 to cover all vaccinations. It is mandatory for vaccination providers to report all COVID-19, influenza, National Immunisation Program (NIP) and Japanese encephalitis virus vaccinations to the AIR (Department of Health and Aged Care 2024).

Data on adult vaccination coverage from the AIR showed that:

- Zoster (shingles) vaccine coverage among adults aged 70 increased from 38.7% in 2021 to 41.3% in 2022. Zoster vaccine coverage for First Nations adults aged 70 increased from 32.9% in 2021 to 36.5% over the same period.
- 13-valent pneumococcal conjugate vaccine (13vPCV) for pneumococcal disease coverage rose from 23.9% in 2021 to 33.8% in 2022. 13vPCV coverage in First Nations adults increased from 25.1% in 2021 to 37.7% in 2022.

- Influenza vaccine coverage in adults aged 20–49 years increased from 23.9% in 2021 to 30.5% in 2022. It increased from 38.2% in 2021 to 46.8% in 2022 in adults aged 50–64, from 62.1% to 67.5% in adults aged 65–74, and from 68.5% to 73% in adults aged 75 and over (NCIRS 2023).

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 (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, First Nations people aged 55 and over, and people aged 18 and over with disability or an underlying high-risk medical condition. The rollout was later 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 was initially 2 doses, with a third dose in people who were considered severely immunocompromised. A booster dose was recommended for people aged 16 and over. For older people, residents of disability or aged care facilities, and people aged 16 and over who were severely immunocompromised, a second booster dose delivered 4 months after the first was recommended to increase vaccine protection over winter (ATAGI 2022). A COVID-19 vaccination status for individuals aged 16 and over was initially displayed on an individual's immunisation history statement. This status was removed in 2023 as the vaccine rollout progressed. By February 2023, over 95% of Australians aged 16 and over had received at least 2 doses and more than 70% had received 3 doses. About 45% of the eligible population (aged 30 over) had received a fourth dose (Department of Health and Aged Care 2023a).

The 2023 COVID-19 Booster program formally commenced on 20 February 2023, in accordance with latest policy advice from the Australian Technical Advisory Group on Immunisation (ATAGI). The program counts the number of vaccine doses administered to individuals aged 18 years and over who have received their third or higher dose in sequence in 2023 (Department of Health and Aged Care 2023b). Between October 2023 and March 2024, 36% of Australians over 75 years of age (over 687,000 individuals), and 21% of individuals aged 65 to 74 years (over 519,000 individuals) received a 2023 Booster dose (Department of Health and Aged Care 2023b).

For more information, see COVID-19 and *Australia's health 2022: data insights* article The impact of a new disease: COVID-19 from 2020, 2021 and into 2022.

Where do I go for more information?

For more information on immunisation and vaccination, see:

- The burden of vaccine preventable diseases in Australia
- Department of Health and Aged Care National Immunisation Program

- Department of Health and Aged Care COVID-19 vaccines
- Department of Human Services Australian Immunisation Register
- National Centre for Immunisation Research and Surveillance website

For more on this topic, see Immunisation.

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Medicines in the health system

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/medicines/medicines-in-the-health-system

On this page

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 and Aged Care 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.

What is the PBS and the RPBS?

The Pharmaceutical Benefits Scheme (PBS) and the Repatriation Pharmaceutical Benefits Scheme (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, while 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 2023, 928 different medicines in 5,261 brands used to treat a wide range of health conditions, were listed on the Schedule of Pharmaceutical Benefits (Department of Health and Aged Care 2023a). 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.

What is the 'safety net'?

Once a patient (or patient's family) reaches a particular spending amount on PBS medicines in a given calendar year, the patient can access cheaper medicines for the remainder of that year. This amount is called the PBS Safety Net threshold.

- For general patients in 2023, the safety net threshold was $1,563.50. Medicines cost up to $30.00 until the threshold is reached. After this point, the medicine costs up to $7.30 (the concessional co-payment).
- For concessional patients in 2023, the safety net threshold was $262.80. Medicines cost up to $7.30 until the threshold is reached. After this point, the medicine is free.

For more information on the current and historical safety nets, see the PBS.

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 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. At 1 January 2023, the general patient co-payment was reduced from $42.50 to $30.00 while the co-payment for concessional patients increased from $6.80 to $7.30. For example:

- Assuming the total cost of a prescription is $100.00 (and 2023 amounts):
    - a general patient pays a co-payment of $30.00 and the cost to the government for the prescription is $70.00.
    - a concessional patient pays a co-payment of $7.30 and the cost to the government for the prescription is $92.70.
- Assuming the total cost of a prescription is $15.00:
    - The cost of the prescription is below the maximum general co-payment and the general patient pays $15.00. In this instance, the cost to the government for the prescription is $0.00.

- A concessional patient only pays the concessional co-payment amount of $7.30, and the Government covers the rest of the cost.

Note that these examples assume the patient has not reached their respective Safety Net thresholds for the calendar year and do not include any special patient contributions (for example, brand price premiums) or optional fees imposed at the discretion of the dispensing pharmacy (all payable by the patient).

For more information on the current and historical co-payments, see the PBS.

Medicines in Australia 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 patients in hospital outpatient departments
- purchased over the counter from community pharmacies or other outlets (such as supermarkets).

Presently a complete data source for all medicines dispensed (including over-the-counter) in Australia is not available. The information presented on this page focuses on medicines supplied under the PBS and RPBS. The data used on this page were extracted by the AIHW from the PBS subsidised prescriptions data in the Australian Government Department of Health and Aged Care's Enterprise Data Warehouse on 12 January 2024. The data presented relate to prescriptions dispensed between July 2017 to June 2023. Information on expenditure for private prescriptions is also included.

Medicines must meet the criteria for PBS listing (for example, safety, clinical and cost effectiveness) and most of the listed medicines are dispensed by pharmacists and used by patients at home. Some medicines, because of their clinical use or other special features, need medical supervision (such as chemotherapy medicines) and are only accessible at specialised medical services, usually hospitals.

Typically, PBS and RPBS listed medicines are dispensed through community pharmacies, but are also available through private hospitals, public hospitals and approved medical practitioners 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.

The PBS and RPBS data collection does not contain information on private prescriptions, over-the-counter medicines, off-label prescribing information or on medicines supplied to public hospital in-patients (with some exceptions, see above paragraph).

Spending on prescription medicines

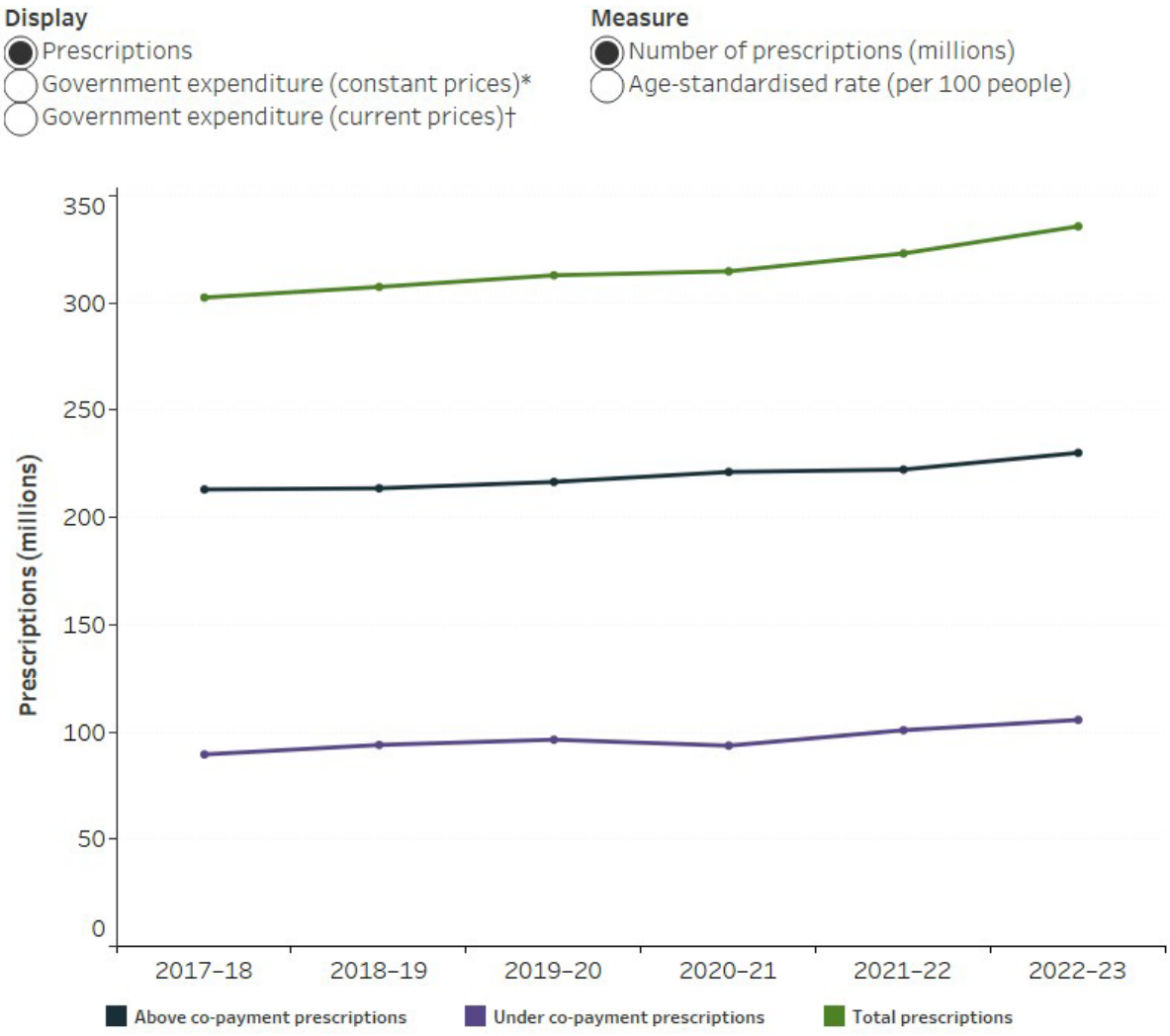
In 2022–23, the total spending (government costs plus patient contributions) on all PBS and RPBS medicines by both the Australian Government and consumers was $20.4 billion. This spending was for 335.8 million prescriptions that were dispensed under the PBS and RPBS – an increase of 3.9% compared with 2021–22.

Consumers paid a total of $3.4 billion towards PBS and RPBS prescriptions (for both above and under co-payment prescriptions), which was 17% of the total expenditure on PBS and RPBS medicines in 2022–23. This was an increase of 1.0% in consumer spending compared with 2021–22. The Australian Government contributed the remaining 83% ($17.0 billion) of total expenditure in 2022–23.

The Australian Government recorded $17.0 billion in spending on all PBS and RPBS medicines (PBS accounted for 98%) or $655 per person in 2022–23. This was an increase of 15.4% in spending compared with 2021–22. After adjusting for inflation, Australian Government spending increased 4.3% between 2021–22 and 2022–23, which was higher than the average of the annual growth rates between 2017–18 and 2022–23 of 3.3%. This increase in expenditure (compared to changes in previous years) may be due to a variety of factors, including the reduction of the general co-payment amount from $42.50 to $30.00 at the start of 2023 (Pharmaceutical Benefits Scheme, 2023a), a lowering of the Safety Net threshold from 1 July 2022 (Pharmaceutical Benefits Scheme, 2022) and more expensive medicines becoming available on the PBS (including COVID-19 antivirals).

For all prescriptions dispensed in 2022–23, 68.5% (230.2 million) were above the co-payment threshold, indicating the patient paid the relevant co-payment and the remaining cost was subsidised by the Australian Government (Figure 1). The remaining 31.5% (105.6 million) of medications were under the co-payment threshold meaning the patient paid the full cost of the medicine with no government subsidy attracted.

Figure 1: PBS and RPBS prescriptions and benefits, 2017–18 to 2022–23



Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health and Aged Care; ABS 2011; ABS 2023.
https://www.aihw.gov.au

Types of prescribed medicines dispensed

In 2022–23, medicines used to treat cardiovascular conditions were the most commonly dispensed. These medicines accounted for 110.6 million PBS and RPBS prescriptions (33% of all PBS and RPBS prescriptions in 2022–23), and 7.4% of government expenditure (Figure 2). Cardiovascular medicines, including antihypertensives and cholesterol-lowering medicines (including statins; as high cholesterol is considered as a major risk factor), are often prescribed for cardiovascular disease. For more information see Biomedical risk factors.

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. For further information on the ATC

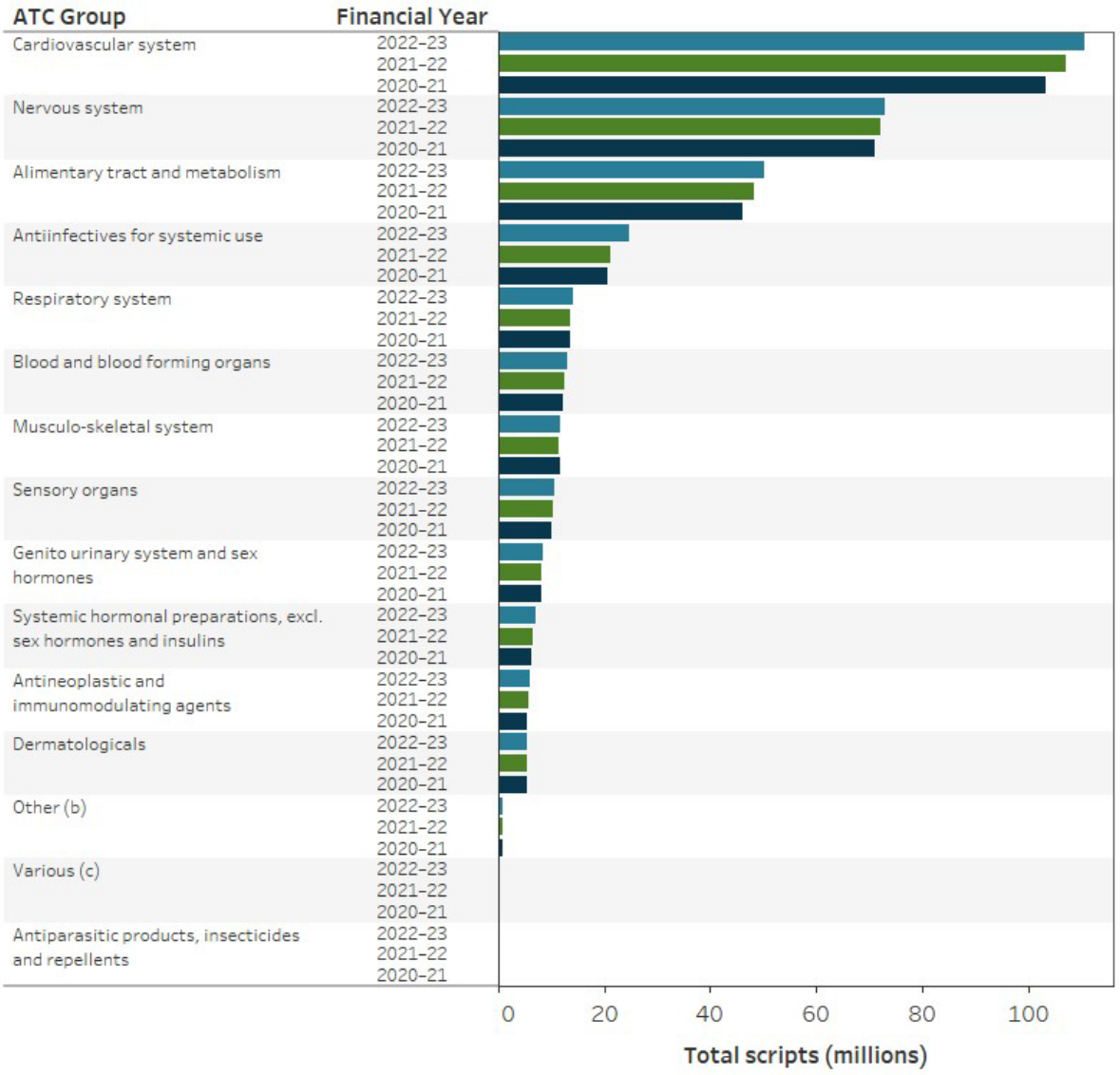
classification system, see World Health Organization Collaborating Centre for Drug Statistics Methodology.

Also dispensed in high volumes were nervous system medications (22% of all PBS and RPBS prescriptions), which include analgesics (painkillers), antipsychotics and antidepressants. While antineoplastic and immunomodulating agents accounted for only 1.8% of all prescriptions, they had the highest government expenditure (39% of total government expenditure) in 2022–23. 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, 2020–21 to 2022–23

Display
- (●) Total prescriptions
- ( ) Above co-payment prescriptions
- ( ) Government expenditure (constant prices)*
- ( ) Government expenditure (current prices)†

Measures
- (●) Number of prescriptions (millions)
- ( ) Age-standardised rate (per 100 people)



Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health and Aged Care; ABS 2011; ABS 2023.
https://www.aihw.gov.au

Top 10 prescribed medicines by volume and expenditure

Medicines used to treat cardiovascular conditions account for the highest volume of PBS and RPBS prescriptions compared with other ATC groups between 2017–18 and 2022–23. Consistent with this, the medicines with the most prescriptions over this same period were the cholesterol-lowering medicines rosuvastatin and atorvastatin. After these medicines, pantoprazole and esomeprazole (medicines used to treat gastro-oesophageal reflux and ulcers) had the highest number of prescriptions; these fall under the alimentary tract and metabolism ATC group (Figure 3).

Molnupiravir was the medicine with the highest government expenditure in 2022–23, with the fixed dose combination of elexacaftor/tezacaftor/ivacaftor & ivacaftor having the second highest government expenditure. In 2020–21, aflibercept was the medicine with the highest government expenditure. However in 2022–23, this medicine has the third highest government expenditure.

New medicines are regularly approved for listing on the PBS. Since 2020–21, recent newly available medicines included:

- two oral COVID-19 antivirals
    - molnupiravir (Lagevrio®)
    - the composite product of nirmatrelvir & ritonavir (Paxlovid®)
- the fixed-dose combination of elexacaftor/tezacaftor/ivacaftor & ivacaftor (Trikafta®) for the treatment of cystic fibrosis
- and dupilumab (Dupixent®) used to treat severe atopic dermatitis (eczema).

These additional medicines may have contributed to an increase in government expenditure ($17 billion in spending on PBS/RPBS medicines in 2022–23 compared with $14.8 billion in 2021–22, Figure 1) and have resulted in a change in the structure of the top 10 medicines by government expenditure since 2017–18. Biologic medicines now account for 6 out of 10 of the most expensive medicines on the PBS in 2022–23 (Figure 3).

What are biologic medicines?

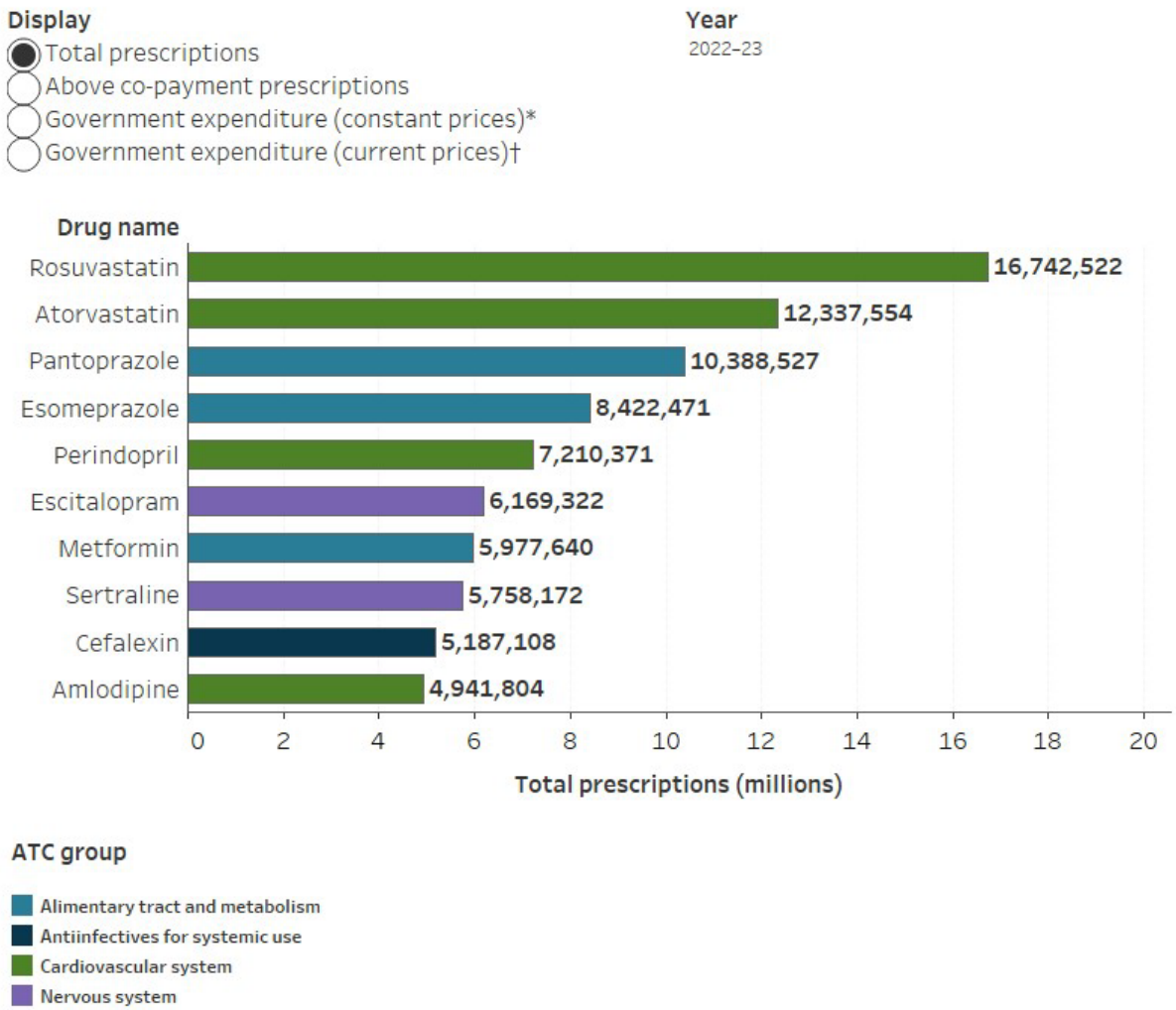
Biologic medicines contain substances that are made by living cells or organisms. They are different from medicines made via chemical process. Chemical medicines are usually available as pills or tablets. Biologic medicines are often administered by an injection at home or an infusion in a hospital or 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, 2017–18 to 2022–23



Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health and Aged Care.
https://www.aihw.gov.au

Medicines made available under special arrangements

In addition to medicines available under normal PBS arrangements, a number of medicines are also available as PBS pharmaceutical benefits under alternative arrangements provided for under section 100 (s100) of the *National Health Act 1953*. These s100 medicines can be more conveniently or efficiently supplied under these

arrangements. For example, some medicines may require special storage or dispensing, specialist monitoring during treatment, or administration in a hospital outpatient setting. 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 programs include the followings:

- Highly Specialised Drugs (HSD)
- Efficient Funding of Chemotherapy (EFC)
- Botulinum Toxin
- Growth Hormone
- In Vitro Fertilisation
- Opiate Dependence Treatment
- Closing the Gap – PBS Co-payment
- Take Home Naloxone
- Paraplegic and Quadriplegic
- Medication Program for Homeless People
- Remote Area Aboriginal Health Services.

The 2 largest of these programs are HSD and EFC. In 2022–23, the HSD and EFC programs accounted for 49% and 40% respectively of government expenditure for s100 programs (Department of Health and Aged Care 2023a).

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 medicines and new indications (new use of existing medicines for different conditions) on the PBS. After adjusting for inflation, spending grew by 32% between 2017–18 and 2022–23, which equates to an average annual increase of 5.9%. In contrast, spending on medicines through normal PBS arrangements increased by 2.4% 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 2022–23, GPs prescribed the majority of PBS and RPBS medicines – around 88% of all prescriptions dispensed. Table 1 shows the most commonly dispensed medicines by authorised PBS prescriber groups.

Table 1: Most common medicines by prescriptions dispensed, by selected PBS prescriber groups, 2022–23

PBS prescriber groups	Most common medicines	Used to treat
GPs (88% of all prescriptions dispensed in 2022-23)	Rosuvastatin, Atorvastatin; Pantoprazole, Esomeprazole	High cholesterol; Gastro-oesophageal reflux and ulcers
Referred medical specialists (11%)	Methylphenidate; Rosuvastatin	Attention deficit hyperactivity disorder; High cholesterol
Dentists (<1%)	Amoxicillin	Bacterial infections
Optometrists (<1%)	Latanoprost; Hyaluronate sodium	Glaucoma and other eye diseases; Dry eye syndrome
Nurse practitioners (<1%)	Esomeprazole, Pantoprazole; Rosuvastatin, Atorvastatin	Gastro-oesophageal reflux and ulcers; High cholesterol
Endorsed midwives (<1%)	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?

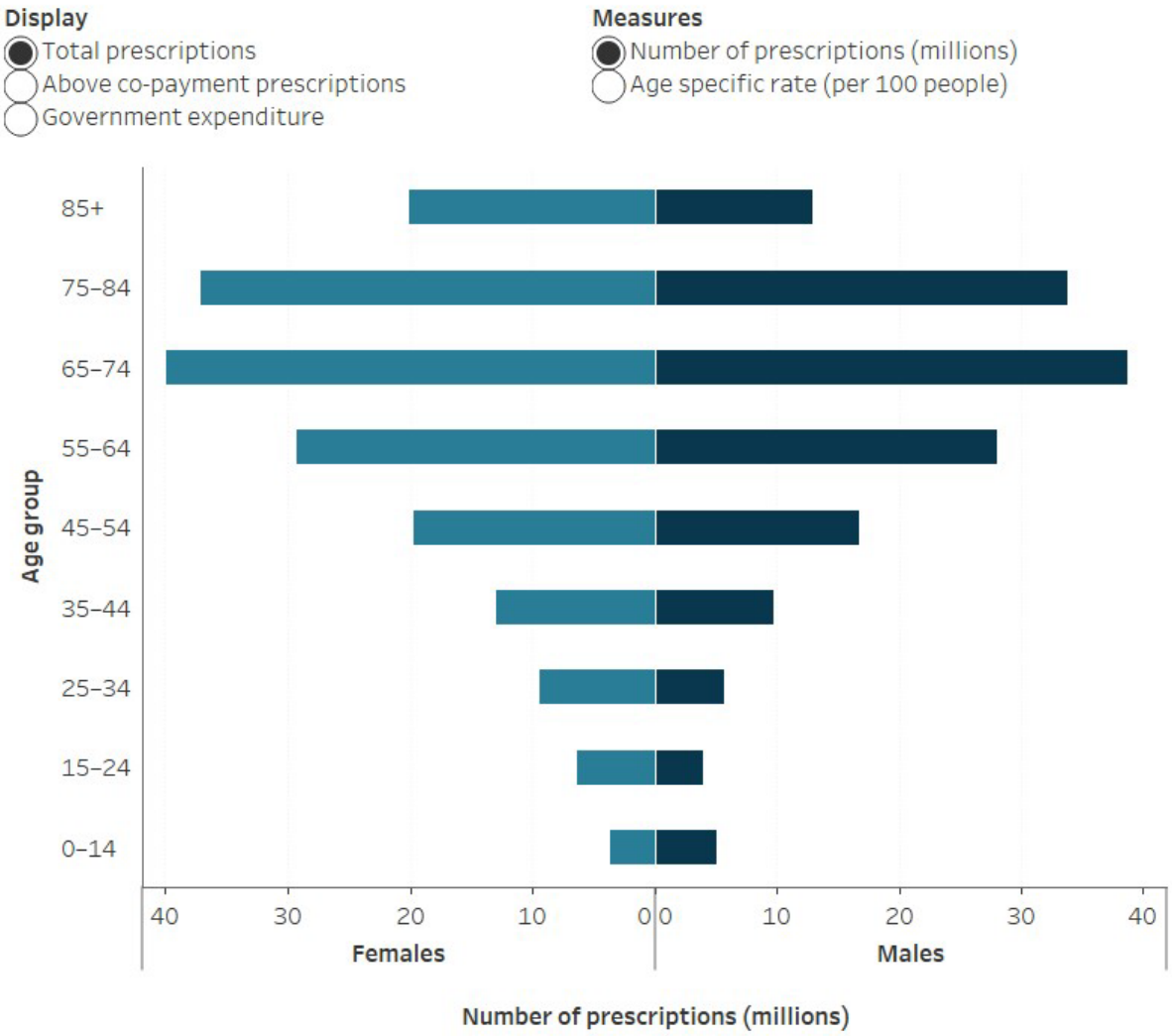
In 2022–23, PBS prescriptions were dispensed to 17.8 million individual Australians (67% of the population). Population dispensing rates increased with age – young people aged 0–14 had the lowest rates of dispensed prescriptions (184 prescriptions per 100 people aged 0–14), and the highest rates were among those aged 85 and over (6,031 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 (58%) in 2022–23. Within this age group, 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 remained stable (a 0.4% change downwards from 1,097 to 1,093 prescriptions per 100 people) between 2017–18 and 2022–23 (Figure 1). This was similar for above co-payment prescriptions, where age-standardised dispensing rates per 100 people remained stable (a change downwards of 5% from 755 to 718 per 100 people). The age-standardised rate of the number of people dispensed one or more prescriptions over the same period also remained stable – a slight decrease of 1.4% (from a rate of 69% to 68%). When looking at above co-payment prescriptions only, the age-standardised rate of patients increased slightly by 2.7% (from a rate of 37% to 38%).

Between 2017–18 and 2022–23, there was an increase in prescription rates in younger age groups. This change was most apparent in the 15–24 age group, where the prescribing rate increased by 9.7%. PBS utilisation showed an increase of 1.3 million prescriptions in the 15–24 group. The driver of the observed increase might be related in part to the utilisation of medicines for the nervous system (this class of medicines includes medicines used to treat mental health conditions, anaesthetics and analgesics (including opioids)). In 2022–23 among the 15–24 group, 3.3 million prescriptions were for nervous system medicines, and this represented the most common medicine dispensed (40.5%) for this age group. This is a change from 2017–18, where the most common medicines dispensed among the 15–24 group (31.4%) were for antiinfectives for systemic use (including antibiotics).

Figure 4: Total prescriptions and government expenditure, by age and sex, 2022–23



Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health and Aged Care; ABS 2023.
https://www.aihw.gov.au

Impact of recently available higher cost medicines

New medicines are regularly approved for listing on the PBS and in 2022–23, some of these newly available medicines included medicines whose individual costs to government were comparatively high. The average total price for a PBS subsidised prescription in 2022–23 was $81.93 (Department of Health and Aged Care 2023a). The individual costs of the following 5 medicines were above this average total price and the impact of adding these medicines to the PBS combined with high utilisation (in some cases) may have contributed to an increase in government expenditure in 2022–23 (Figure 3):

- onasemnogene abeparvovec (Zolgensma®) and nusinersen (Spinraza®) used to treat spinal muscular atrophy
- two COVID-19 antivirals (Lagerivo® and Paxlovid®)

- a fixed-dose combination of Trikafta®
- and dupilumab (Dupixent®) used to treat severe atopic dermatitis (eczema).

Onasemnogene abeparvovec (Zolgensma®) and nusinersen (Spinraza®)

In 2021, the TGA approved the use of Zolgensma® for babies under 9 months to stop the progression of spinal muscular atrophy as a one-off authority required treatment (TGA 2021b). A recent government announcement in October 2023 expanded the eligibility criteria for prescribing Zolgensma® to treat more babies with genetically diagnosed spinal muscular atrophy who are yet to show any symptoms (Department of Health and Aged Care 2023b).

Spinraza® is prescribed to patients diagnosed with spinal muscular atrophy (Department of Health and Aged Care 2022a, 2022b). Spinraza® was listed on the PBS Schedule in June 2018 (Pharmaceutical Benefits Scheme 2023b) and typically costs the Australian Government $110,000 per vial (based on the Dispensed Price for Maximum Quantity, DPMQ) (Pharmaceutical Benefits Scheme 2023c).

While Zolgensma® is an expensive medicine (approximately $2.5 million per one-off treatment) (Pharmaceutical Benefits Scheme 2023d), there were only 13 occurrences of Zolgensma® being prescribed on the PBS in 2022–23. There were 598 occurrences of Spinraza® being prescribed on the PBS in 2022–23.

Molnupiravir (Lagevrio®) and nirmatrelvir & ritonavir (Paxlovid®)

The 2 COVID-19 antivirals were approved by the TGA and listed on the PBS Schedule in early 2022 (TGA 2022a, TGA 2022b). Oral COVID-19 antivirals can be prescribed to select patients who have mild to moderate COVID-19 and who can start treatment within 5 days of symptom onset if (RACGP 2022) the patient:

- is aged 70 years or older
- is aged 50 years or older with at least two risk other factors for severe disease
- identifies as Aboriginal and Torres Strait Islander (First Nations) and are 30 years or older with at least one other risk factor for severe disease
- is 18 years or older and are moderately to severely immunocompromised.

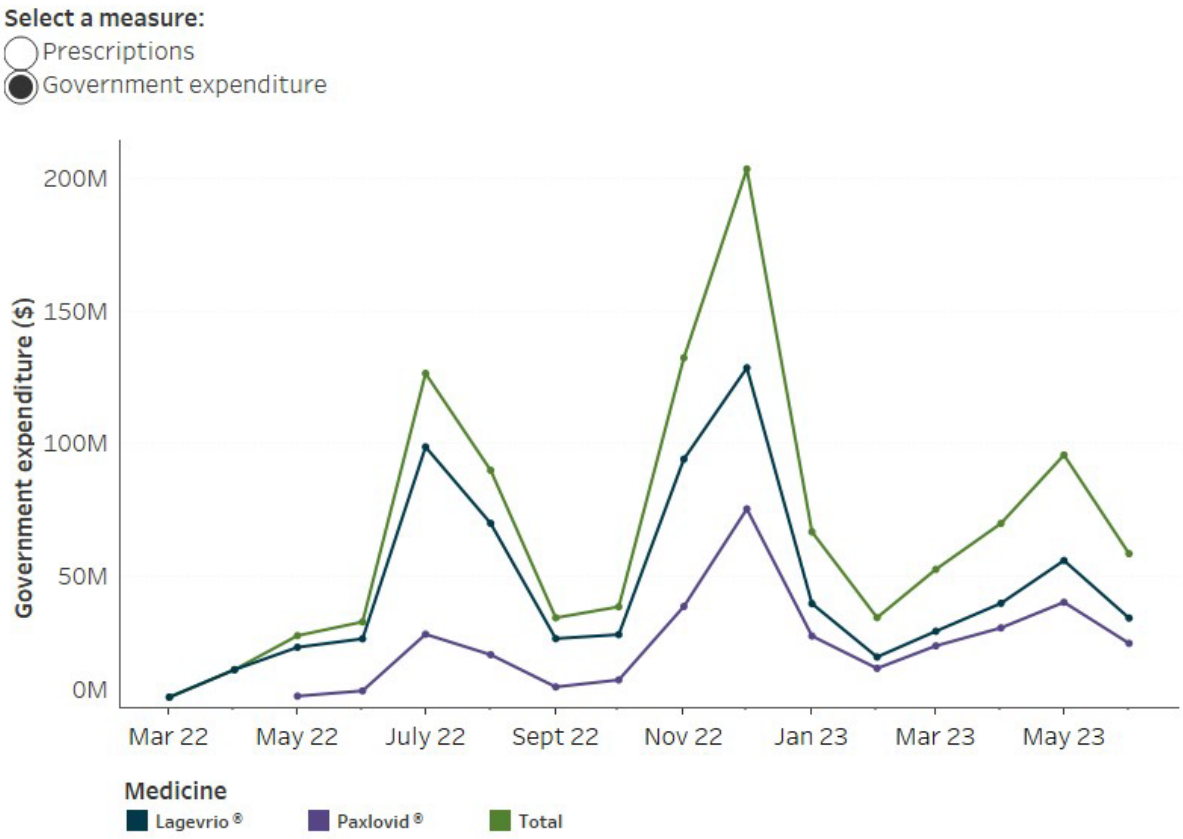
The eligibility criteria for prescribing of these COVID-19 antivirals were expanded in 2022 (July and November) and further in 2023 (January and April) (Department of Health and Aged Care 2023c). Oral COVID-19 antivirals typically cost the Australian Government

approximately $1,100 per pack (based on the DPMQ, (Pharmaceutical Benefits Scheme 2023e, Pharmaceutical Benefits Scheme 2023f)).

In 2022–23, there were 891,000 prescriptions for COVID-19 antivirals combined, and a total government expenditure of $1.0 billion (Figure 3). This consisted of 595,000 prescriptions for Lagevrio® and an associated government expenditure of $661.2 million. Paxlovid® prescriptions numbered 296,000 and the government expenditure was $339.5 million (Figure 3). Out-of-pocket PBS expenses for consumers for these 2 COVID-19 antivirals over the period 2022–23 was $1.3 million (AIHW 2023a).

Prescription volumes and government expenditure for COVID-19 antivirals (Figure 5) showed cyclic peaks in July 2022, December 2022 and May 2023. These peaks coincided with Omicron waves of COVID-19 and the winter influenza season (Department of Health and Aged Care 2023d; 2023e). Volume and expenditure peaks also aligned with Australian Government announcements of increased eligibility criteria for prescribing of COVID-19 antivirals. Periods of increased case numbers of COVID-19 may have caused increased costs to the PBS, due to the associated rise in demand for COVID-19 antivirals during these periods.

Figure 5: Total prescriptions and government expenditure for COVID-19 antivirals, by month, 2022 to 2023



Notes:
1. Government expenditure figures expressed in current prices. Current price is the actual expenditure in a given year. Changes in expenditure in current prices reflect changes in both volume and price. An alternative term is 'nominal expenditure'.
2. Prescription volumes are totals for all forms/strengths of Lagevrio® or Paxlovid®.

Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health and Aged Care.
https://www.aihw.gov.au

Elexacaftor/tezacaftor/ivacaftor & ivacaftor (Trikafta®) and dupilumab (Dupixent®)

The fixed-dose combination Trikafta® was approved by the TGA in March 2021 (TGA 2021a) and listed on the PBS Schedule in April 2022 for patients aged 12 years and older (Department of Health and Aged Care 2022c). The eligibility criteria were expanded to include children aged 6–11 years in May 2023 (Department of Health and Aged Care 2023f). Trikafta® is prescribed for the treatment of cystic fibrosis in patients who have at least one F508del mutation in the cystic fibrosis transmembrane conductance regulator gene (TGA 2021b). Trikafta® typically costs the Australian Government approximately $21,000 per pack (based on DPMQ, Pharmaceutical Benefits Scheme 2023g).

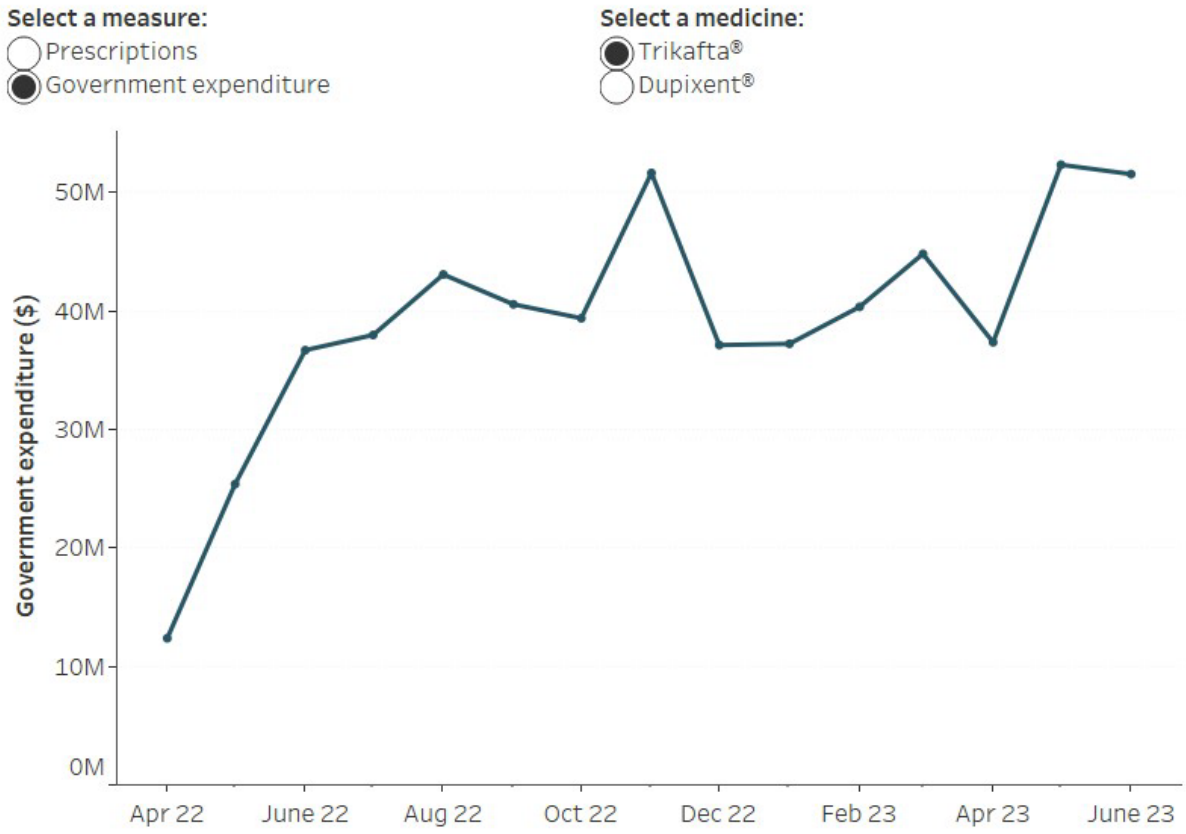
Dupixent® can be prescribed for patients 12 years and older with severe atopic dermatitis (eczema) and was listed on the PBS Schedule in March 2021 (Department of

Health and Aged Care 2021). Dupixent® typically costs the Australian Government approximately $1,600 to $1,700 per pack (based on DPMQ, Pharmaceutical Benefits Scheme 2023h).

In 2022–23, there were 24,000 prescriptions for Trikafta® and the government expenditure was $513.2 million (Figure 3). Prescription volumes for Trikafta® rose steadily in the first five months from listing on the PBS and plateaued to approximately 1,700–2,500 prescriptions per month from August 2022 (Figure 6). Government expenditure has shown a similar pattern and stabilised at approximately $40–$60 million.

In 2022–23, there were 130,000 prescriptions for Dupixent® and the government expenditure was $224.2 million. Prescription volumes and government expenditure for Dupixent® have been steadily rising since 2021.

Figure 6: Total prescriptions and government expenditure for Trikafta® and Dupixent®, by month



Notes:
1. Government expenditure figures expressed in current prices:
a) Current prices: The actual expenditure in a given year. Changes in expenditure in current prices reflect changes in both volume and price. An alternative term is 'nominal expenditure'.
2. Prescription volumes are totals for all forms/strengths of Trikafta® and Dupixent®.

Source: AIHW analysis of PBS and RPBS data maintained by the Australian Government Department of Health and Aged Care.
https://www.aihw.gov.au

Non-PBS/RPBS subsidised medicines

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-label use; and are provided to consumers who are not eligible for PBS.

Private prescriptions expenditure for 2020–21 and 2021–22 was estimated at $964.8 million and $960.1 million (current prices) respectively, representing a decline of 0.5% (AIHW 2023b).

Over-the-counter (OTC) medicines

It is acknowledged that consumers purchase OTC medicines (for example, for pain management, contraceptives, coughs and colds, allergy and vitamin supplements) from various sources, including pharmacies, supermarkets and online. Reporting on OTC and complementary medicines sold has been removed from this page due to accurate capture and reporting on the complete pharmacy market being unavailable. Data on supermarket, health food outlets and on-line (internet) orders of medicines is also unable to be reliably captured.

Where do I go for more information?

For more information on medicines in the health system, see:

- Services Australia Medicare Statistics
- Department of Health and Aged Care PBS Statistics
- Pharmaceutical Benefits Scheme

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 subsite.

On this page:

What mental health services are available?

People with mental illness can access a variety of support services, which are funded and/or delivered by both the public and private sectors. Mental health care and support is provided across a range of settings and services, including:

- specialised hospital services – public and private
- specialised residential mental health services
- specialised 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 (GP)
- psychiatrists and other medical practitioners
- psychologists
- nurses
- social workers
- occupational therapists
- other allied health professionals
- mental health consumer and carer workers
- other personal care staff.

What do we know about mental illness?

Mental illness is a major health concern in Australia, with an estimated 43% of people aged 16–85 experiencing a mental disorder during their lifetime (ABS 2023). Systemically, *Mental and substance use disorders* have been responsible for around 15% of the total disease burden (AIHW 2023a). For more information, refer to Prevalence and impact of mental illness section.

Mental health services activity

Timely information on mental health systems is crucial in providing an early picture of activity across the system and meaningful comparisons to historical data. Service activity monitoring can provide insights into how the mental health system is delivering services and responding to changing population needs and events, such as the COVID-19 pandemic, natural disasters and policy changes. National services activity data are presented on this page for the December quarter 2023.

Medicare-subsidised mental health-specific services

Medicare-subsidised services are provided by psychiatrists, GPs, psychologists and other allied health professionals. They are delivered across a range of settings including hospitals, consulting rooms and at home (for example, home visits and telehealth).

Pharmaceutical Benefits Scheme prescriptions

The Pharmaceutical Benefits Scheme (PBS) and Repatriation Pharmaceutical Benefits Scheme (RPBS) provide access to subsidised prescription medicines. For this report programs will be aggregated and reported as 'PBS'.

In the December quarter 2023, over 12 million PBS-listed mental health-related medications were dispensed. This was 1% higher than the same quarter in 2022 and 3% higher than the same quarter in 2021.

National use of crisis and support organisations

Crisis and support organisations provide support to Australians experiencing mental health issues. There are a range of crisis, support and information services currently operating including Lifeline, Kids Helpline, Head to Health, ReachOut and Beyond Blue. National activity data for these organisations is reported here as contacts, representing service demand, and answered contacts, representing the total number of contacts answered by each organisation. Data for:

- Lifeline relate to phone calls
- Kids Helpline include phone, webchat and email contacts
- Beyond Blue include phone, webchat and email contacts

  - Data from July 2020 to December 2022 includes contacts and answered contacts for both the Beyond Blue main service and dedicated COVID-19 service.
- ReachOut and Head to Health include the average number of website users per day, representing the average daily volume for website activity.

In the December quarter 2023, nationally there were about:

- 257,700 contacts made to Lifeline; per 100,000 population, this was 12% lower than the same quarter in 2022 and 14% lower than the same quarter in 2021
- 72,200 contacts made to Kids Helpline; per 100,000 population, this was 10% lower than the same quarter in 2022 and 16% lower than the same quarter in 2021
- 64,100 contacts made to Beyond Blue; per 100,000 population, this was 21% lower than the same quarter in 2022 and 18% lower than the same quarter in 2021
- 6,600 ReachOut website users per day (on average); per 100,000 population, this was 1% higher than the same quarter in 2022 and 17% higher than the same quarter in 2021
- 1,800 Head to Health website users per day (on average); per 100,000 population, this was 29% lower than the same quarter in 2022 and 1% lower than the same quarter in 2021.

Refer to the Mental health services activity monitoring: quarterly data page for further information on the activity data presented above, including data sources, a list of key events related to activity, and state and territory breakdowns.

Service use

Different types of services are accessed by people with a mental illness each year across the Australian health system. Selected annual findings from the Mental Health Online Report are summarised below (Table 1).

Table 1: Selected annual mental health-related services data

Service type	*Volume*	*Selected findings*
Medicare-subsidised mental health-related services[(a)] For more, refer to Medicare-subsidised services	Over 2.7 million patients accessed almost 13.2 million services in 2022–23	Psychologists provided 49% of these services. 1 in 5 (22%) services were delivered via telehealth. More females (13%) accessed services compared to males (8%).
Mental health-related prescriptions[(b)]	45.6 million prescriptions to 4.8 million patients in 2022–23	85% of prescriptions were through GPs. 73% of prescriptions were for antidepressant medication[(b)].

For more, refer to Mental health prescriptions		
Public sector community mental health care service contacts For more, refer to Community services	9.6 million contacts by nearly 468,800 patients in 2021–22	Aboriginal and Torres Strait Islander (First Nations) patients received community mental health care services at more than 3 times the rate of non-Indigenous patients.
Public sector residential mental health care services For more, refer to Residential services	9,000 episodes of residential care for 7,100 residents in 2021–22	Schizophrenia was the most frequently reported principal diagnosis (22% of episodes). 16% of residents had an involuntary mental health legal status. 58% of episodes lasted 2 weeks or less.
Emergency department (ED) services (public hospitals) For more, refer to Emergency departments	287,500 presentations in 2022–23	75% were classified as urgent or semi-urgent. The most frequent diagnosis among ED presentation was Mental and behavioural disorders due to psychoactive substance use (27%).
Psychosocial disability support services For more, refer to Psychosocial disability support	At 31 December 2021, 53,100 people with a primary psychosocial disability were NDIS active participants.	People with a psychosocial disability formed the third largest primary disability group among NDIS participants. The rate was almost 3 times higher for First Nations people than other Australians (468 and 164 per 100,000 respectively.
Overnight admitted patient hospitalisations For more, refer to Admitted patients	262,200 hospitalisations in 2021–22	Schizophrenia (18%) and Depressive episode (12%) were the most common principal diagnoses for public hospitalisations with specialised psychiatric care.
Same day admitted patient hospitalisations For more, refer to Admitted patients	52,100 hospitalisations in 2021–22	25% of same day hospitalisations with specialised psychiatric care in public hospitals had a principal diagnosis of Depressive episode.

Specialist Homelessness Services (SHS) For more, refer to Specialist Homelessness Services	31% of total SHS clients had a current mental health issue in 2022–23	Main reason identified by clients for accessing services were housing crisis (21%), family and domestic violence (19%) private dwelling conditions (13%).

a. 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.

b. Prescriptions subsidised and under co-payment under the Pharmaceutical Benefits Scheme and Repatriation Pharmaceutical Benefits Scheme.

Source: Mental Health (AIHW 2023b).

Spending

In real terms, about $12.2 billion, or $472 per capita, was spent on mental health-related services in Australia in 2021–22. $11.6 billion of this was government mental health expenditure, representing 7% of total government health expenditure. The total spending in 2021–22 in real terms included around $7.4 billion, or $286 per capita, spent on state and territory specialised services.

In current prices, in 2022–23 about $1.5 billion, or $58 per capita, was spent on Medicare-subsidised services and $635 million, or $26 per capita, was spent on PBS prescriptions.

For more information, refer to Expenditure on mental health-related services.

Workforce

A variety of professions deliver care and support to people with mental illness, including psychologists, psychiatrists, mental health nurses, occupational therapists, social workers, GPs, counsellors and peer workers. Available data for some of these professions indicate that in Australia in 2021 there were about:

- 31,400 psychologists
- 4,000 psychiatrists
- 25,000 mental health nurses
- 2,600 mental health occupational therapists
- 2,600 accredited mental health social workers.

For more information, refer to Mental health workforce.

Facilities

While professionals work across a range of settings, some work in specialised mental health care facilities. These specialised mental health care facilities are a key component in delivering mental health care in Australia. In 2021–22, there were about 37,000 full-time equivalent staff employed in state and territory specialised mental health care services.

For more information, refer to Specialised mental health care facilities.

Safety and quality

Safety and quality are important in all areas of the health system. 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
- change in mental health consumers' clinical outcomes.

Seclusion and restraint

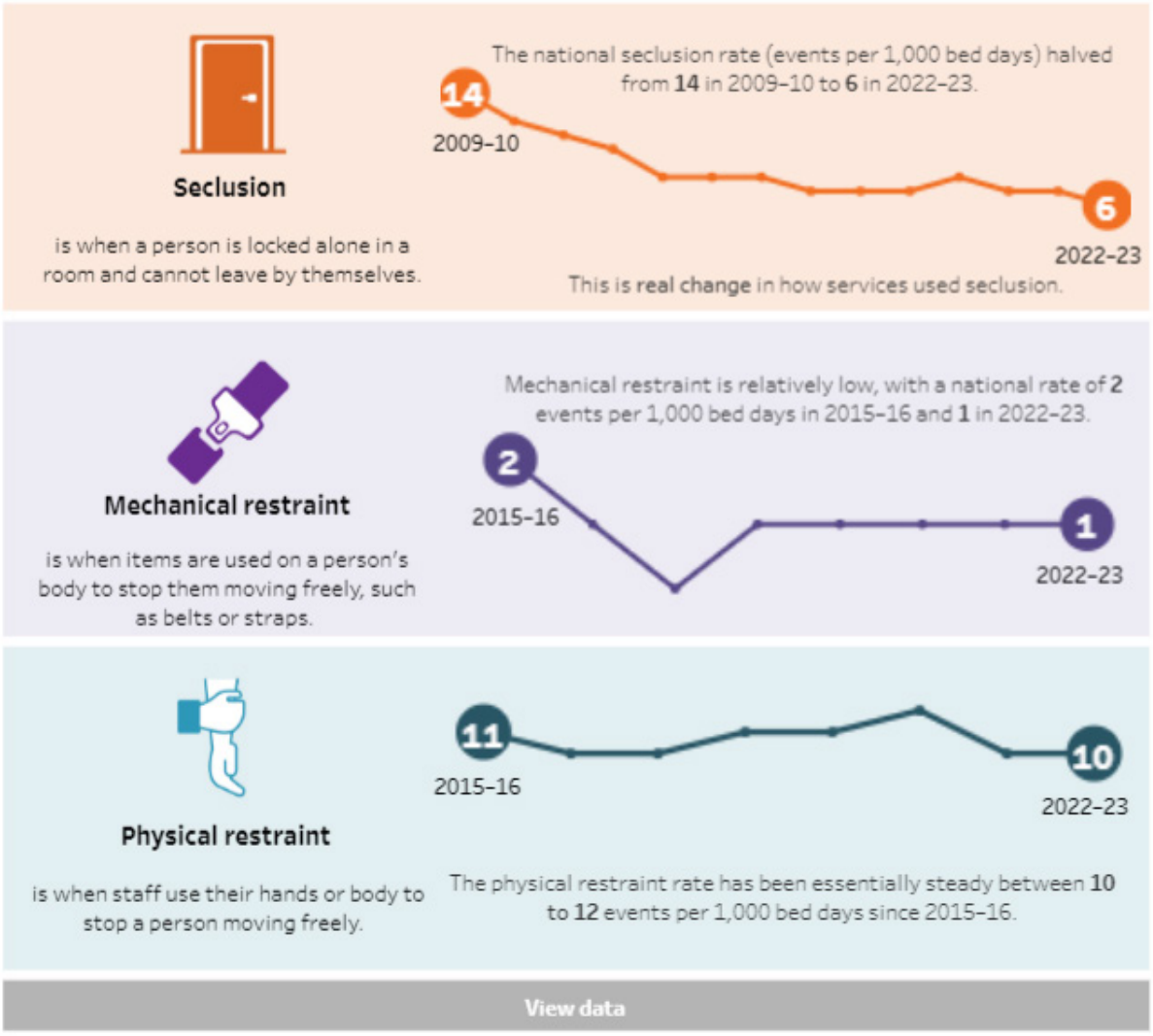
Seclusion is defined as the confinement of a patient alone in a room or area from which free exit is prevented. Restraint is defined as the restriction of an individual's freedom of movement by physical or mechanical means.

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 have more than halved from 14 seclusion events per 1,000 bed days in 2009–10 to 6 events in 2022–23 (Figure 1).

Mechanical restraint events have remained at 1 event per 1,000 bed days of patient care since 2018–19. The use of physical restraint has remained relatively stable since 2015–16, varying between 10 to 12 events per 1,000 bed days of patient care (Figure 1).

Figure 1: Seclusion and restraint in Australia public sector acute mental health hospital services, 2009–10 to 2022–23



Source: National Seclusion and Restraint Database, Tables SECREST.1 and 4.

For more information refer to Seclusion and restraint.

Involuntary treatment

Involuntary treatment is compulsory assessment or treatment of people in mental health services without the person's consent being given. This is a restrictive practice and can be legally approved under certain conditions.

Involuntary treatment is used in Australian mental health services for about:

- 15% of community care contacts
- 16% of residential care episodes
- 45% of hospitalisations in acute units
- 29% of hospitalisations in non-acute units.

For more information refer to Involuntary treatment in mental health care.

Patient-reported experiences of care

Measures of patient-reported experience collect patients' views and observations on aspects of the care they have received. 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 2021–22, more than 24,500 YES survey responses were collected from 86 mental health service organisations across New South Wales, Victoria and Queensland.

It is estimated that:

- 69% of respondents in New South Wales, 51% in Victoria and 47% in Queensland reported a positive experience of admitted care services
- 78% of respondents in New South Wales, 70% in Victoria and 80% in Queensland reported a positive experience of ambulatory (non-admitted) care services
- 80% of respondents in Victoria and 77% in Queensland residential care reported a positive experience of service.

For more information refer to Consumer perspectives of mental health care.

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 care. The National Outcomes and Casemix Collection includes data on outcome measures from all publicly funded or managed mental health services. In 2021–22, information for more than 200,000 people was recorded, representing 42% of consumers of public mental health services.

In 2021–22, clinician-rated measures showed *Improvement* outcomes for patients in:

- admitted (inpatient) care, at 58% (aged 11–17), 72% (aged 18–64) and 73% (65 and older) of episodes.
- ambulatory (non-admitted) care, at 54% (aged 11–17), 50% (aged 18–64), and 47% (65 and older) of episodes.

For more information refer to Consumer outcomes in mental health care.

Performance indicators

A key performance indicator (KPI) is a measure that describes a situation concisely, helps track progress and performance and acts as a guide to inform decision making. In the public mental health sector, these indicators cover different aspects of services. They can inform consumers', service providers' and funders' impressions of service and service performance.

For more information on the latest Key Performance Indicators for Australian Public Mental Health Services and National Healthcare Agreement Indicators, refer to Mental health performance indicators.

Where can I find more information?

For more information on mental health services refer to:

- Australia's mental health system
- Mental Health Online Report.

If you or someone you know needs help please call:

Lifeline- external site opens in new window 13 11 14

Beyond Blue- external site opens in new window 1300 22 4636

Kids Helpline- external site opens in new window 1800 55 1800

Key concepts

Key concept	Description
Admitted care:	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.
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;

Key concept	Description
	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.
Burden of disease and injury:	A term referring to the quantified impact of a disease or injury on an individual or population, using the disability-adjusted life year (DALY) measure.
Hospitalisation:	Synonymous with **admission** and **separation**; that is, an episode of hospital care that starts with the formal admission process and ends with the formal separation process. 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).
Mental health-related medications:	Benefit-paid pharmaceuticals and other medications defined in this section as 5 selected medication groups as classified in the Anatomical Therapeutic Chemical (ATC) Classification System (WHO 2022), namely *antipsychotics* (code N05A), *anxiolytics* (code N05B), *hypnotics and sedatives* (code N05C), *antidepressants* (code N06A), and *psychostimulants*, *agents used for ADHD and nootropics* (code N06B) – prescribed by all medical practitioners (that is, general practitioners (GPs), non-psychiatrist specialists and psychiatrists). Data include PBS-subsidised (above-co-payment) and under-co-payment prescriptions.

Key concept	Description
	More information can be found in the Mental health-related prescriptions section of the Mental Health Online Report.
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.
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: The consumer is alone. The seclusion applies at any time of the day or night. Duration is not relevant in determining what is or is not seclusion. 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.

Key concept	Description
	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.
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.
Specialised mental health care facilities	Specialised facilities that deliver and provide support for mental health care. These can include public and private psychiatric hospitals, psychiatric units or wards in public acute hospitals, Community mental health care services and government-operated and non-government-operated Residential mental health services. More information can be found in Specialised mental health care facilities.

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Palliative care services

This topic summary is part of the Palliative care services in Australia report.

On this page:

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. It is not limited to any specific condition, and it can be delivered at any stage of illness, including with curative treatments. With an ageing and growing population, it is projected that the demand for palliative care and end-of-life care will increase substantially.

One significant challenge is identifying and accessing information on the provision of palliative care services and who is receiving these services. This information is crucial for better understanding the current situation and providing evidence base for future planning.

For further information on the definitions, data, and data sources used on this page, see Glossary and Technical information.

Box 1: 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
- residential and community aged care services.

Identifying palliative care (including end-of-life care) in existing data collections and health settings remain a key issue, particularly for care delivered in community, primary care, and residential aged care settings. For example, limited national data are currently available on community-based palliative care services and Medicare Benefits Schedule (MBS)-subsidised services provided by general practitioners and non-palliative care medical specialists. The data on this page focus on specific settings where systems are in place to record palliative care service, in particular specialist palliative care.

The Australian Institute of Health and Welfare (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* in January 2022. This report outlines an aspirational vision for national palliative care information development over the next decade and articulates priorities aimed at supporting this vision.

Hospitalisations

Palliative care-related hospitalisations are those episodes of admitted patient care where palliative care was a component of the care provided during all or part of an episode of admitted patient care. These hospitalisations can be divided into 2 groups depending on how they are identified in the hospital data:

- primary palliative care hospitalisations: hospitalisations with a recorded care type of palliative care
- other palliative care hospitalisations: hospitalisations with a recorded diagnosis of palliative care, but the care type is not recorded as palliative care (see Technical information: Identifying palliative care-related hospitalisations).

There were 94,800 palliative care-related hospitalisations in public and private hospitals in 2021–22.

In 2021–22, for these palliative care-related hospitalisations:

- males accounted for just over half (53%) and the average age at admission was 75 years
- 51,300 were for primary palliative care and 43,500 for other palliative care, equating to 19.9 and 16.9 per 10,000 population, respectively

- 2 in 5 (40%) had a principal diagnosis of cancer – 1 in 2 (49%) for primary palliative care hospitalisations and almost 1 in 3 (29%) for other palliative care hospitalisations
- average length of stay was almost twice as long as for all overnight hospitalisations (hospitalisations that exclude same-day stays) – 10.3 days (9.3 days for primary palliative care and 11.5 days for other palliative care) compared with 5.7 days for all hospitalisations
- 2 in 3 (67%) primary palliative care hospitalisations ended with the patient dying in hospital compared with 43% for other palliative care hospitalisations.

Between 2015–16 and 2021–22, there was a 29% increase in the number of palliative care-related hospitalisations – this increase was at a steeper rate than for all hospitalisations (10% increase) over the same period.

For more information, see Hospitals – Admitted patient palliative care.

Medicare-subsidised specialist services

Medicare Benefits Schedule (MBS)-subsidised palliative specialist services in this report relate to palliative medicine attendances and case conferences that are both provided by palliative medicine physicians or specialists and are claimed under specialist palliative care MBS item numbers. Note that palliative care physicians and specialists may at times use other MBS items when attending to palliative care patients, and other health professionals also attend to terminally ill patients and provide palliative care. These items are not included in the data here, as they are not claimed specifically as a palliative care-related service and cannot be identified in the MBS data.

There were 13,900 people who received 66,300 Medicare-subsidised palliative medicine attendance and case conference services provided by palliative medicine physicians or specialists in 2022–23.

In 2022–23, for these palliative medicine attendance and case conference services:

- 3 in 4 (77%) were provided to people aged 65 and over, including 21% for those aged 85 and over
- an average of 4.8 services were provided per person
- 4 in 5 services (83% or 55,200) were for attendances in a consulting room or a hospital, 3.8% (2,500) were for attendances in other settings (such as a person's place of residence) and 13% (8,700) were for case conferences (community case conference and discharge case conference).

Between 2013–14 and 2018–19, the number of palliative medicine attendance and case conference services increased by 26% (71,900 to 90,600) and then declined by 27% (90,600 to 66,300) over the next 4 years to 2022–23. This was broadly consistent with the pattern observed for the number of people receiving these services over the same period – increasing by 33% (12,300 to 16,500) between 2013–14 and 2018–19 before declining by 15% in the following 4 years to 2022–23 (16,500 to 13,900).

For more information, see Medicare-subsidised palliative medicine attendance and case conference 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 2020). Palliative care-related prescriptions are defined as those listed in the Palliative Care Schedule under the Pharmaceutical Benefits Scheme (PBS) and Repatriation Pharmaceutical Benefits Scheme (RPBS). This schedule aims to improve access to essential and affordable medications for patients receiving palliative care. For further details, see Technical information: Data sources – May release.

There were 1.3 million palliative care-related prescriptions provided to 454,000 people in 2022–23.

In 2022–23, for these palliative care-related prescriptions:

- an average of 2.9 prescriptions were provided per person
- one million prescriptions were for pain relief, accounting for 78% of all palliative care-related prescriptions
- 9 in 10 (90%) palliative care-related prescriptions were prescribed by general practitioners, with the vast majority (80%) for pain relief.

Between 2016–17 and 2022–23, the number of palliative care-related prescriptions increased by 47% (908,000 to 1.3 million). Meanwhile, the number of people dispensed with palliative care-related prescriptions declined by 8.2% (495,000 to 454,000), leading to an increase in the number of prescriptions per person from 1.8 to 2.9 over this period.

For more information, see Palliative care-related medications.

Residential aged care

The Australian Government subsidises residential aged care services for older Australians who can no longer live in their own homes. The data used here are based on people in permanent residential aged care (PRAC) with an Aged Care Funding Instrument (ACFI)- external site opens in new window appraisal indicating need for end-of-life palliative care and for whom a claim was submitted. Information on actual service provision and palliative care requirements for a longer period (not just end-of-life care) is a considerable national data gap.

There were 4,800 people appraised as requiring palliative care in 2021–22, accounting for 2.0% of all people in permanent residential aged care.

In 2021–22, for people appraised as requiring palliative care in PRAC:

- 3 in 5 (59%) were aged 85 and over

- 1 in 5 (21%) had cancer listed as the first condition on their appraisal, compared with 3.7% for those not appraised as requiring palliative care
- 1 in 2 (50%) exited from PRAC within 8 weeks of admission, compared with 7.9% for those not appraised as requiring palliative care.

Note that a new care funding model (Australian National Aged Care Classification, AN-ACC- external site opens in new window) has replaced the ACFI from 1 October 2022. The Palliative care for people living in residential aged care chapter will be updated when the AN-ACC data is available.

For more information, see Palliative care for people living in residential aged care.

Outcomes

Key measures of quality palliative care are the outcomes that patients, their families and carers achieve. The Australian Palliative Care Outcomes Collaboration (PCOC)- external site opens in new window is a national program that uses standardised validated clinical assessment tools to benchmark and measure outcomes.

> There were 61,100 patients receiving palliative care from the 180 palliative care services voluntarily participating in the Palliative Care Outcomes Collaboration program in 2022.

In 2022, for patients who received palliative care from services participating in the PCOC program:

- 3 in 4 (77%) palliative care episodes ended within 30 days, with most ending within 2 weeks (62%)
- 9 in 10 (87%) unstable phases (urgent needs) were resolved 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 – 89% for pain severity and 88% for distress from pain.

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, breathing problems and family/care problems – 1 in 2 palliative care phases starting with moderate/severe distress reduced to absent/mild by the end of the palliative care phase for fatigue (50%), breathing problems (53%) or family/care problems (52%). The corresponding proportions for pain severity and distress from pain were 61% and 58%, respectively.

For more information, see Palliative care outcomes.

Workforce

The palliative care workforce comprises a broad range 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. Each of

these play a unique role in supporting people with a life limiting illness to receive comprehensive, patient-centred care. However, existing national data sources only capture information on physicians with a primary specialty of palliative medicine (palliative medicine physicians) and nurses working in palliative care (palliative care nurses).

There were 311 palliative medicine physicians and 3,518 palliative care nurses employed nationally in 2021.

In 2021:

- women accounted for 2 in 3 (64%) employed palliative medicine physicians and 9 in 10 (92%) employed palliative care nurses
- 4 in 5 (84%) of employed palliative medicine physicians and 3 in 4 (72%) of employed palliative care nurses worked in *Major cities*
- 3 in 4 (73%) of employed palliative medicine physicians and 1 in 2 (52%) of employed palliative care nurses worked in a hospital setting.

Between 2013 and 2021, there was a 70% increase in the number of employed palliative medicine physicians (from 183 to 311). For employed palliative care nurses, the number increased by 16% (from 3,265 to 3,798) between 2013 and 2020, and then decreased by 7.4% to 3,518 in 2021.

For more information, see Palliative care workforce.

Expenditure

Expenditure data provides important insights in understanding the financial resources used by the health system and how these resources are prioritised.

The Independent Health and Aged Care Pricing Authority (IHACPA) holds the National Hospital Cost Data Collection (NHCDC) that integrates public hospital patient level activity data with the corresponding resources utilised by the hospital in administering care for the patient.

In 2021–22:

- 261 public hospitals reported admitted patient palliative care data to the IHACPA, with a total cost of $532.5 million on admitted palliative care.
- 181 public hospitals reported non-admitted patient palliative care data to the IHACPA, with a total cost of $154.2 million on non-admitted palliative care.

The Australian Government's expenditure through the Medicare Benefits Schedule (MBS) for palliative medicine attendance and case conference services provided by palliative medicine physicians or specialists are based on allocating a unique item number to each service, as well as indicating the scheduled payment amount.

In 2022–23, $5.4 million was paid in benefits for Medicare-subsidised palliative medicine attendance and case conference services provided by palliative medicine physicians or specialists, at an average of $390 per patient.

Under the Pharmaceutical Benefits Scheme (PBS) and Repatriation Pharmaceutical Benefits Scheme (RPBS), the Australian Government pays pharmacies the difference between a patient co-payment and the PBS price of a medicine, as listed on the Schedule of Pharmaceutical Benefits (referred as 'over co-payment' or a 'subsidised prescription'). If a prescription is priced below the co-payment threshold, it is classified as an 'under co-payment prescription' and the consumer pays the total cost.

In 2022–23, the Australian Government spent $36.6 million on palliative care-related medications from the PBS Palliative Care Schedule, at an average of $81 per patient.

For more information, see Expenditure on palliative care.

Where do I go for more information?

For more information on palliative care services, see:

- AIHW topic: Palliative care
- Department of Health and Aged Care – Palliative care- external site opens in new window
- Palliative Care Australia- external site opens in new window
- Medicare Benefits Schedule (MBS Online)- external site opens in new window
- Pharmaceutical Benefits Scheme- external site opens in new window
- Palliative Care Outcomes Collaboration- external site opens in new window
- Reference

- WHO (World Health Organization) (2020) *Global atlas of palliative care*- external site opens in new window, WHO website, accessed 22 February 2024.

Reference

WHO (World Health Organization) (2020) *Global atlas of palliative care*- external site opens in new window, WHO website, accessed 22 February 2024.

Pathology, imaging and other diagnostic services

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/diagnostic-services/pathology-imaging-and-other-diagnostic-services

On this page

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, these services are typically requested for patients by a medical practitioner. Simple basic pathology tests, non-requested type imaging services and many other diagnosis services, do not require a referral to attract a 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, bone densitometry, audiograms and spirometry.

While 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, as these services receive a separate Commonwealth subsidy through the National Health Reform Agreement
- provided under the Department of Veterans' Affairs National Treatment Account
- covered by third party or workers' compensation.

Private health insurance rebates

Some people choose to pay for private health insurance and as such may receive a rebate from their health fund to cover all or some of out-of-pocket costs for private services in hospital, depending on their level of hospital cover.
This page does not include information on rebates from private health insurers because private health rebates are not captured in MBS claims data.

This page focuses on pathology, imaging and other diagnostic services subsidised through the MBS, and based on the financial year of service rendered between 2012–13 and 2022–23.

How many Medicare-subsidised pathology, imaging and other diagnostic services were provided?

Overall, in 2022–23, 17.4 million (67%) Australians accessed 196.9 million Medicare-subsidised pathology services, imaging scans and a range of diagnostic services. Most (91% or 178.6 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 (59% of all people had at least one service) and diagnostic imaging services (39% of people had at least one service) (Table 1). Pathology services are generally split into pathology tests and patient episode initiation items (the collection and transport of specimens) associated with the tests, so are reported separately in the table below. As tests are the most relevant number to measure the provision of healthcare services to the Australian community, this report presents the number of tests as the preferred measure to represent the volume of pathology services hereafter. Furthermore, the cost of patient episode initiation items is included in the pathology tests to reflect the full cost of the tests.

Table 1: Use of Medicare-subsidised pathology, imaging and other diagnostic services, 2022–23

Type of service	Number of patients (million)[(a)]	Proportion of people receiving a service (%)[(b)]	Number of services (million)	Number of services per patient (average)
Pathology – total	15.3	58.8	160.1	10.5
Pathology – tests[(c)]	15.3	58.8	113.9	7.4

Type of service	Number of patients (million)[a]	Proportion of people receiving a service (%)[b]	Number of services (million)	Number of services per patient (average)
Pathology – patient episode initiation[d]	15.2	58.5	46.3	3.0
Diagnostic imaging[e]	10.2	39.4	29.7	2.9
Other diagnostic services[f]	4.0	15.4	7.1	1.8
Total	17.4	66.7	196.9	11.3

(c) This is the number of unique patients, with patients being only counted once in the total, even if they have had services across different categories.

(d) The proportion of people receiving a service is calculated by dividing the total patients by the Australian Estimated Resident Population as at 30 June 2022.

(e) Pathology tests include tests of patient samples, such as blood, urine, stools or body tissues. One sample may result in multiple tests and therefore multiple pathology items. Some pathology items cover multiple tests. Each time a Medicare benefit is paid for a pathology item, it is counted as one test in Medicare benefit statistics. It is not feasible to report statistics on the components of individual items.

Medicare benefits are only payable for the 3 most expensive tests ordered by a general practitioner outside hospital for the same patient on the same day. Tests after the 3 most expensive tests do not appear in Medicare benefits statistics. There are some exceptions to this pathology coning rule.

(f) Patient episode initiation items are for the collection and transport of specimens – not for the pathology tests themselves.

(g) Diagnostic imaging services include X-rays, CT scans, ultrasound scans, MRI scans and nuclear medicine scans.

(h) Other diagnostic services include diagnostic procedures and investigations, such as electrocardiography, allergy testing, audiograms, bone densitometry and sleep studies.

Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health and Aged Care; National, state and territory population, ABS 2023.

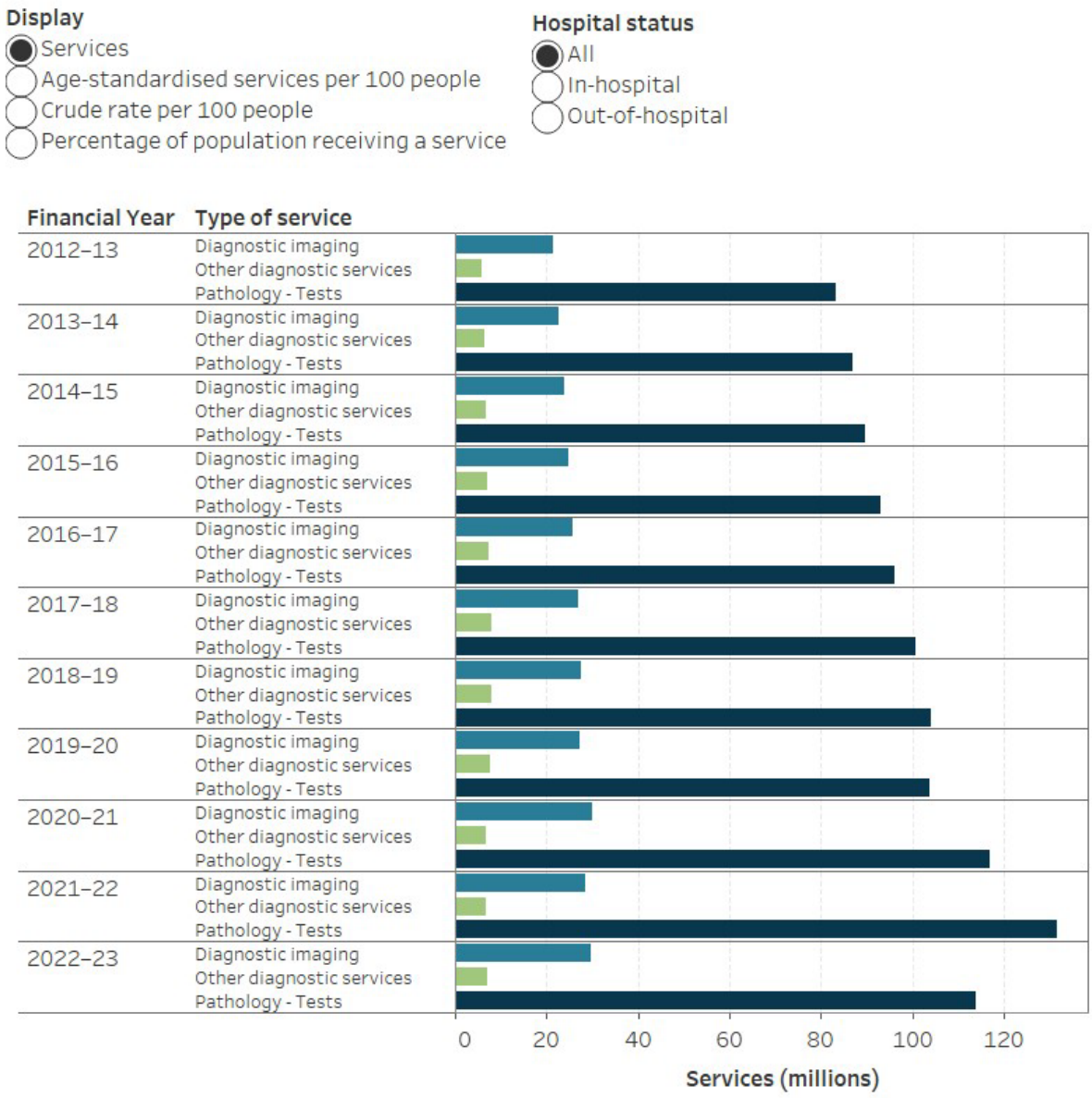
Trends in services

Overall, there was an increase in the proportion of people who had a Medicare-subsidised diagnostic service over the 10 years between 2012–13 and 2022–23. Over this period, the proportion of the population who had a pathology test increased from 53% to 59%, and the proportion who had diagnostic imaging services increased from 36% to

39%. In 2022–23, the number of patients receiving a pathology test reverted to a number more consistent with the long-term trend, compared with 2020–21 and 2021–22 when 62% and 70% of the Australian population received a pathology test, respectively. Much of this previous increase in 2020–21 and 2021–22 was due to the large number of patients receiving a polymerase chain reaction (PCR) test for COVID-19. For more information, see COVID-19 and What types of pathology tests do people use?

The number of diagnostic services per 100 people increased between 2012–13 and 2022–23, from 366 to 438 pathology tests and from 94 to 114 diagnostic imaging services. After adjusting for differences in the age structure of the population, this increase was still observed (348 to 397 pathology tests, and 90 to 104 diagnostic imaging services). Figure 1 shows further details on the volume of pathology tests and diagnostic imaging services.

Figure 1: Pathology, imaging and other diagnostic services, 2012–13 to 2022–23



Note: This figure includes Medicare-subsidised services only.
Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health and Aged Care; ABS 2011 and ABS 2023.
https://www.aihw.gov.au/

Patient characteristics

In 2022–23, older people were more likely to receive at least one Medicare-subsidised diagnostic service with 97% of people aged 65 and over having at least one service, compared with 2 in 3 (67%) people aged 16–64 and 2 in 5 (40%) people aged 15 and under (Figure 2).

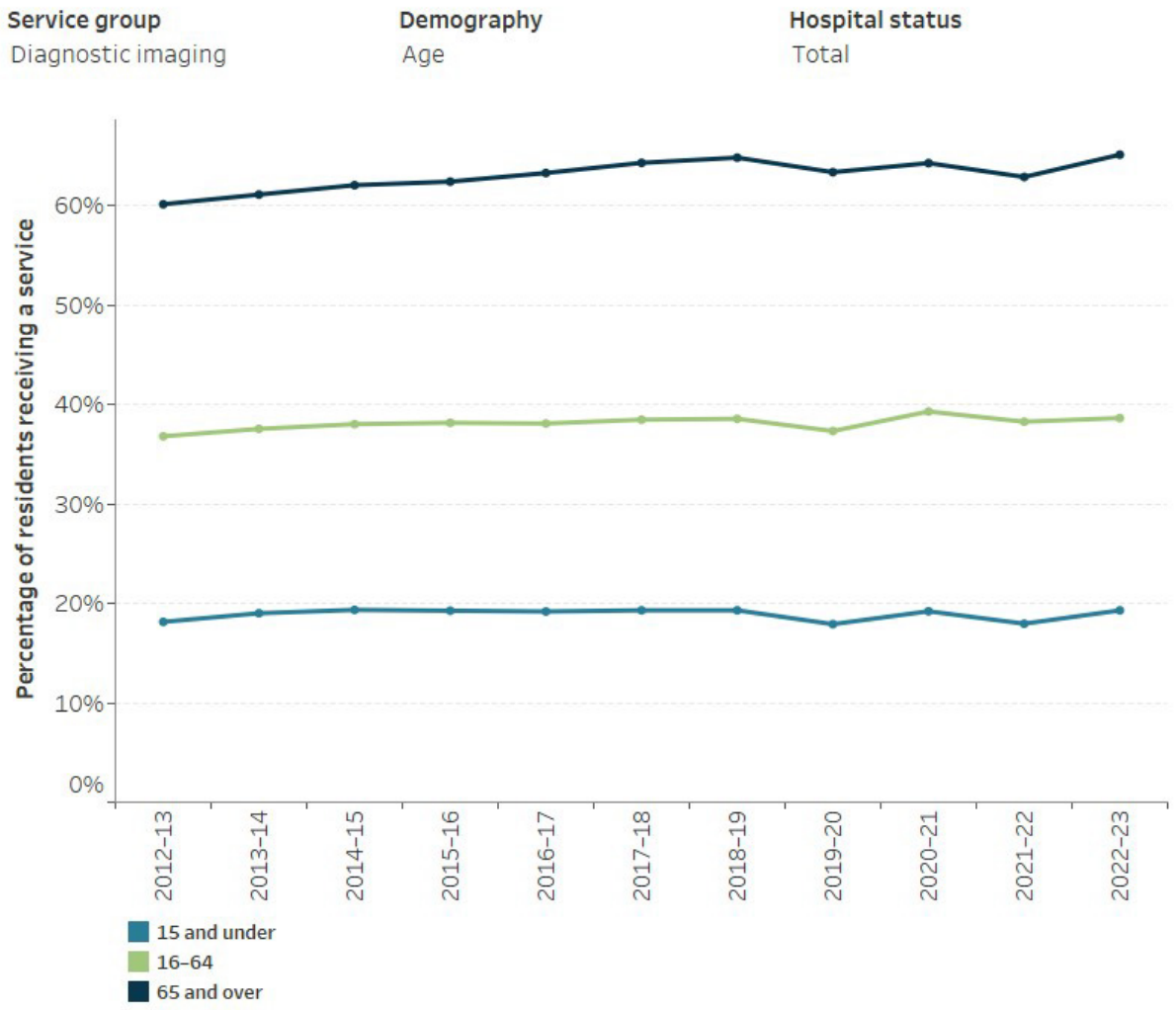
Females were more likely than males to have had one or more Medicare-subsidised diagnostic services (73% compared with 60%). This can mainly be explained by a lower number of males aged 16–64 receiving one or more Medicare-subsidised diagnostic services.

Similar proportions of people living in *Major cities*, *Inner regional* and *Outer regional* areas received these diagnostic services, compared with *Remote* and *Very remote* areas, where lower percentages of people received them. In *Outer regional, Major cities* and *Inner regional* areas, 65%–70% of people received a service, compared with 57% of people living in *Remote* areas and 50% of people living in *Very remote* areas. This effect was broadly present across age groups, with *Remote* and *Very remote* areas having a consistently lower percentage.

The proportion of people receiving a diagnostic service varied across socioeconomic disadvantage areas. A smaller proportion of residents in areas of most disadvantage received a service when compared to areas of least disadvantage. Only 58% of residents living in areas of most disadvantage received at least one service, whereas for areas of least disadvantage, 76% of residents received at least one service.

The age-standardised rates of people receiving diagnostic services across different geographic regions were consistent with the proportion of people residing in those areas receiving the services. In *Major cities* there were 708 age-standardised diagnostic services rendered per 100 people compared to 471 age-standardised diagnostic services rendered per 100 people residing in *Very remote areas*. Similarly, there was an age-standardised rate of 814 services per 100 people residing in areas of least disadvantage, which can be compared to an age-standardised rate of 579 services per 100 people residing in areas of most disadvantage.

Figure 2: Pathology, imaging and other diagnostic services by age, sex, remoteness area and socioeconomic area, 2012–13 to 2022–23



Note: This figure includes Medicare-subsidised services only.
Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health and Aged Care; ABS 2023.
https://www.aihw.gov.au/

Spending

In 2022–23, $9.8 billion was spent on Medicare-subsidised pathology, imaging and other diagnostic services. This comprised:

- $8.7 billion in Medicare benefits paid by the Australian Government
- $1.1 billion in out-of-pocket costs paid by private patients.

The breakdown of the $1.1 billion in out-of-pocket costs by clinical setting consisted of:

- $688.1 million paid by patients in non-hospital settings
- $410.5 million paid by patients in hospital settings.

About $3.8 billion was spent on Medicare-subsidised pathology tests, and $5.3 billion on diagnostic imaging services. The remaining $0.7 billion was for other diagnostic services.

In 2022–23, 172 million (87%) of these diagnostic services were bulk-billed (indicating that patients did not incur costs for these services). Pathology tests contributed a large proportion of this figure. For those who did incur out-of-pocket costs, diagnostic imaging had the highest average cost per patient for all imaging services received in 2022–23:

- $207 per patient in non-hospital settings (an average of $123 per service)
- $271 per patient in hospital settings (an average of $86 per service).

It may seem counterintuitive that the average out-of-pocket cost paid by patients (on a per patient basis) for services in hospital settings is higher than that for services occurring in non-hospital settings, when the average out-of-pocket cost on a per service basis is lower for services occurring in hospital settings. This is because of the different mix of diagnostic imaging items being rendered in hospital settings as opposed to non-hospital settings, the amount of diagnostic imaging services being rendered to each patient and the different pricing models employed between hospital and non-hospital settings.

An example of an item rendered in hospital and non-hospital settings: MBS item 58503 (chest x-ray)

Item 58503 (chest x-ray) accounts for 23% of all diagnostic imaging services in hospital settings, but only 5% of services in non-hospital settings. However, for item 58503 rendered in hospital which incurred out-of-pocket costs, the average out-of-pocket cost is $25 per service, which sits in contrast to $67 in out-of-pocket costs per service for services in non-hospital settings. On average for this item, there were 2.3 services per patient which incurred out-of-pocket costs in hospital settings, compared to only 1.1 services per patient which incurred out-of-pocket costs in non-hospital settings. This demonstrates the different propensity for items to be rendered to patients at different prices in hospital and non-hospital settings.

In contrast, pathology had the lowest average out-of-pocket cost per patient for all tests incurring a cost in the year:

- $76 per patient in non-hospital settings (an average of $23 per test)
- $167 per patient in hospital settings (an average of $20 per test).

Similar to diagnostic imaging services, pathology tests have a higher average out-of-pocket cost paid by patients for tests in hospital settings than that for tests occurring in non-hospital settings, with the opposite being true for the average out-of-pocket cost per test. The reasons for this are similar to the reasons for diagnostic imaging services, with the addition of the pathology coning rule (see note (c) of Table 1) not applying to pathology tests rendered in hospital settings. The absence of episode coning means that Medicare benefits will be paid (and associated out-of-pocket costs captured) for a

greater number of lesser expensive tests, which will also have the effect of driving average out-of-pocket costs on a per test basis lower for tests rendered in hospital settings.

Trends in spending

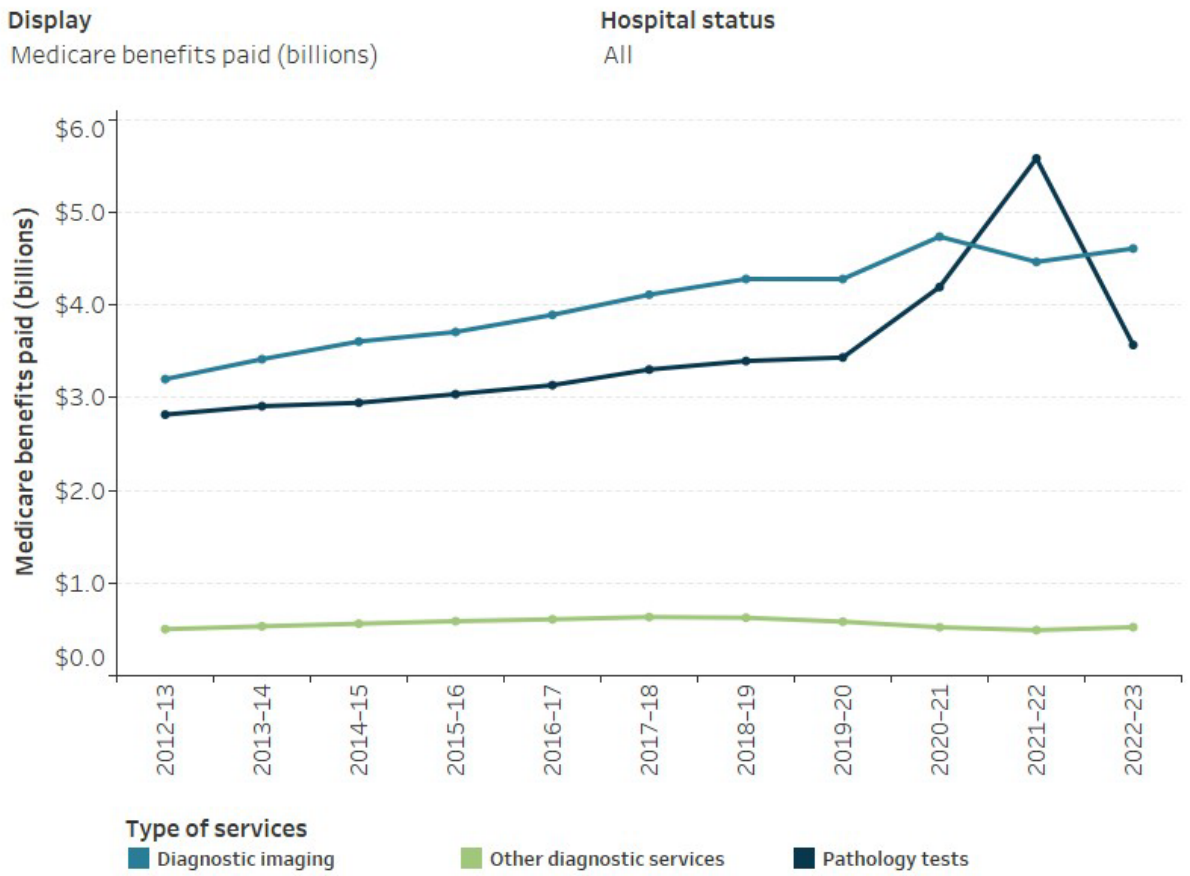
In the 10 years between 2012–13 and 2022–23, spending on Medicare-subsidised pathology, imaging and other diagnostic services increased, with spikes in 2020–21 and 2021–22 attributed to the COVID-19 pandemic:

- Medicare benefits paid by the Australian Government increased in real terms (after adjusting for inflation), from $6.5 billion in 2012–13 to $8.7 billion in 2022–23 (Figure 3). Per patient, this was an increase in real terms from $458 to $501 over the same period.
- Patient out-of-pocket costs in non-hospital settings increased in real terms, from $506.5 million in 2012–13 to $688.1 million in 2022–23. On a per patient basis, there was an increase in real terms from $164 to $186 in this period.
- Patient out-of-pocket costs in hospital settings increased in real terms from $384.3 million in 2012–13 to $410.5 million in 2022–23. On a per patient basis, there was a decrease in real terms from $303 per patient to $269 during this period. The reason for the increase in total out-of-pocket costs paid and the decrease of these costs on a per patient basis is due to the volume of patients increasing at a faster rate (20.5% increase) than the out-of-pocket costs (6.8% increase), resulting in a decrease in the average out-of-pocket cost on a per patient basis.

For pathology tests, the number of patients who had an out-of-pocket cost remained static at about 1.5 million between 2012–13 and 2022–23. Over the same period, the average cost per patient (for those who had out-of-pocket costs) decreased in real terms, from $81 to $76 per patient in non-hospital settings, and from $183 to $167 per patient in hospital settings.

However, for diagnostic imaging services, the number of patients who had an out-of-pocket cost increased from 2.4 million in 2012–13 to 3.1 million in 2022–23 (this represented an increase of 10.8% to 11.9% of the population). The average cost per patient (for those who had an out-of-pocket cost) increased in real terms from $183 to $207 per patient in non-hospital settings but decreased from $288 to $271 per patient in hospital settings.

Figure 3: Spending on pathology, imaging and other diagnostic services, constant prices, 2012–13 to 2022–23



Notes:
1. This figure includes Medicare-subsidised services only.
2. Medicare benefit, provider fees and out-of-pocket costs paid by patients expressed in constant prices (please refer to glossary).
3. Pathology tests include benefits paid, provider fees and out-of-pocket costs paid by patients from pathology patient initiation items.
4. Privately insured patients will generally receive supplementary benefits from their health fund to cover some out-of-pocket costs for in-hospital services.

Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health and Aged Care.
https://www.aihw.gov.au/

What types of pathology tests do people use?

The overall growth in pathology tests was steady between 2012–13 and 2022–23, apart from the large growth as a result of the COVID-19 pandemic in 2020–21 and 2021–22. Among all pathology groups, microbiology group received the largest impact from the pandemic.

Pathology groups

MBS pathology tests are categorised into 9 pathology groups:
Haematology: focuses on diseases which affect the blood such as anaemia, leukaemia, and clotting or bleeding disorders.

Chemical: uses chemical tests to detect abnormalities associated with diseases, for example, diagnosis of a heart attack, high cholesterol or diabetes.

Microbiology: focuses on diseases caused by bacteria, viruses, fungi and parasites, for example, influenza, pneumonia, meningitis and COVID-19.

Immunology: focuses on allergies and auto-immune diseases, for example, testing for allergy antibodies, or monitoring the level of T-lymphocytes which disappear after HIV infection.

Tissue pathology: focuses on the tissue diagnosis of disease, largely for detection and diagnosis of cancer.

Cytology: focuses on the diagnosis of disease by examining single cells and small clusters of cells, mainly for diagnosis and prevention of cancer, for example, testing for human papillomavirus which causes most cervical cancer.

Genetics: focuses on the examination of genetic abnormalities, for example, prenatal diagnosis of Down's syndrome and predictive testing for cancer.

Infertility and pregnancy tests: involve diagnosis of infertility and pregnancy.

Simple basic pathology tests: are non-referred pathology services for simple basic tests performed by a medical practitioner or by a participating nurse practitioner.

Microbiology group

The microbiology group experienced a sharp increase in 2020–21 and 2021–22 and had a subsequent steep decline in 2022–23, which was likely due to a number of factors, including the reduction of mandatory COVID-19 testing, increased availability of rapid antigen tests and rising vaccination rates. Since March 2020, new Medicare items were introduced within the microbiology group to provide funding for COVID-19 PCR testing by accredited public and private pathology laboratories (rapid antigen tests were not funded under Medicare, nor were the mass testing conducted at Government-run testing sites during the pandemic).

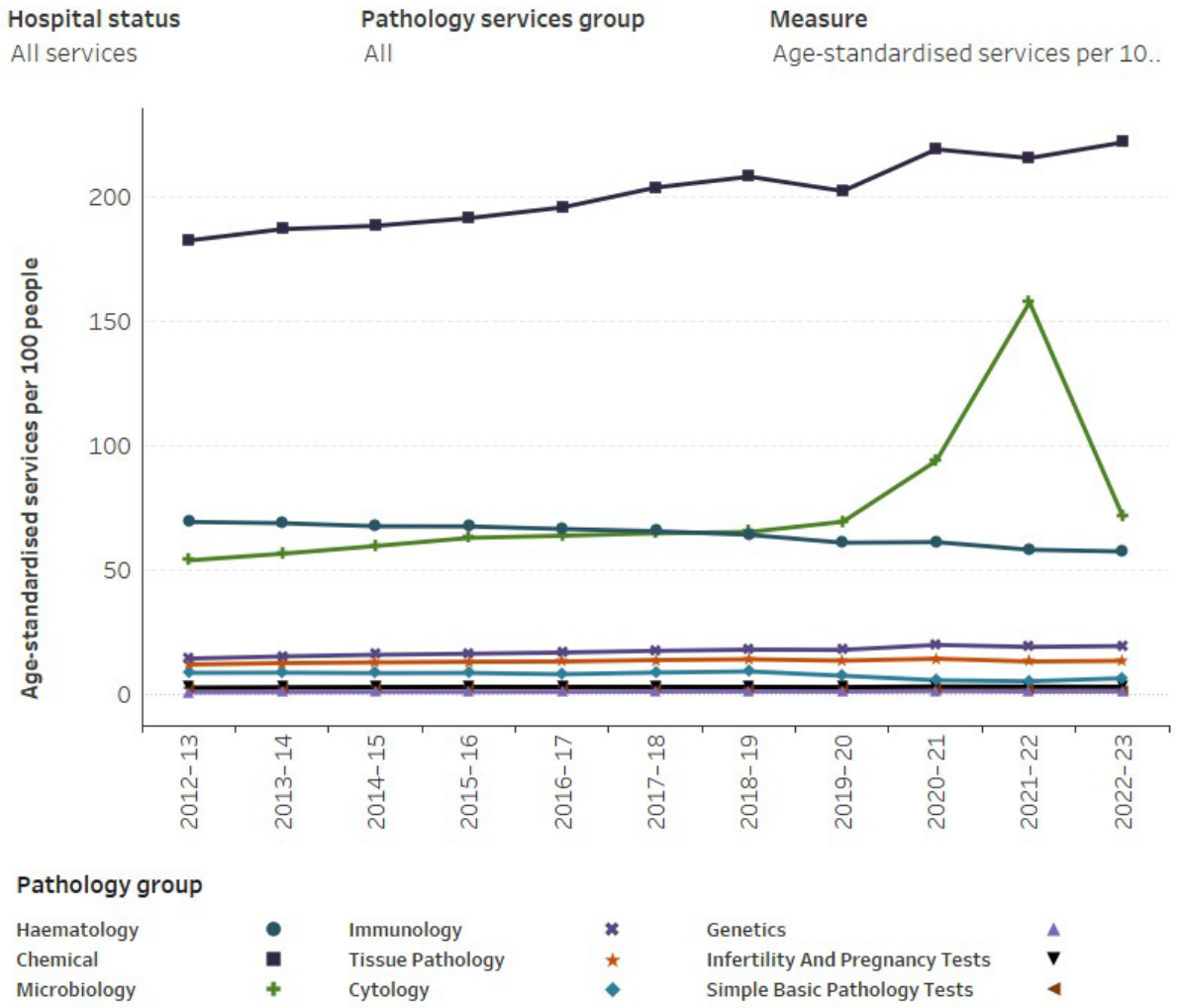
Figure 4 demonstrates between 2012–13 and 2019–20, the number of microbiology tests gradually rose from 12.5 to 18.1 million tests. In 2019–20, there were only a small number of COVID-19 PCR tests rendered to patients. This was likely because during the early stage of the COVID-19 pandemic, COVID-19 testing was limited to only certain groups of patients (for example, those returning from overseas, and healthcare workers).

Over the following 2 years, COVID-19 PCR testing became more readily available and the volume of COVID-19 testing grew rapidly. In 2021–22 this accounted for nearly 63% of all

microbiology tests rendered (and 82% of all microbiology benefits paid). However, 2022–23 saw the decline in the number of COVID-19 tests funded through Medicare to only 18% of the volume of all microbiology tests.

For more information, see COVID-19.

Figure 4: P**athology tests by group**, 2012–13 to 2022–23



Notes:

1. This figure includes Medicare-subsidised services only.
2. Medicare benefit, provider fees and out-of-pocket costs paid by patients expressed in constant prices (please refer to glossary).
3. Privately insured patients will generally receive supplementary benefits from their health fund to cover some out-of-pocket costs for in-hospital services.
4. Medicare benefits, provider fees and bulk billing incentives for patient episode initiation items are not included as these items are unable to be associated with the underlying test. Medicare benefits and provider fees from management of bulk-billed services incentive items (for non-referred services) are included in simple basic pathology tests.

Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health and Aged Care; ABS 2011 and ABS 2023.

https://www.aihw.gov.au/

Cytology group

Another observable change in pathology tests rendered is the cytology group, which includes cervical screening items. The cytology group saw a 40% decrease in the volume of tests rendered between 2018–19 and 2021–22. New cervical screening items were introduced in December 2017, which only needed to be rendered once every 5 years to symptomless patients and replaced the existing 2 yearly Pap test. The large decrease in cytology tests could be attributed to the decreased frequency in cervical screening required by the new items. Medicare benefits paid for cytology tests followed a similar pattern.

Genetics group

The genetics group experienced a large increase in the average out-of-pocket costs per patient between 2020–21 and 2022–23 for tests rendered out of hospital only. In 2020–21, the average out-of-pocket cost per patient for tests in this group was $56 and by 2022–23 it had risen to $192, which represents a 242% increase. This increase was driven by the introduction of items 73387 and 73384 in November 2021, and relate to the genetic analysis of embryonic tissue (item 73387) and for the purpose of providing an assay for pre-implantation genetic testing (item 73384). For more information on pre-implantation genetic testing items, see MBS online.

Infertility and pregnancy tests group

The infertility and pregnancy tests group also experienced a noticeable increase in the total out-of-pocket costs and average out-of-pocket costs per patient between 2019–20 and 2022–23 for tests rendered out of hospital. The existing item predominantly driving the increase in out-of-pocket costs was item 73523 (semen examination). The average out-of-pocket cost per patient for this item increased from $98 in 2019–20 to $134 in 2022–23 (a 36% increase). Furthermore, the total out-of-pocket costs paid by patients for this item has also increased, from $749,000 in 2019–20 to $1.4 million in 2022–23 (an 87% increase).

What types of diagnostic imaging services do people use?

Between 2012–13 and 2022–23, all diagnostic imaging groups experienced an increase in the number of services rendered, although different groups saw the service volumes increase at different rates. In 2018–19 ultrasound services (which had a 52% increase in service volumes over the 10-year period) overtook diagnostic radiology services as the group with the highest number of services rendered (see Figure 5).

Diagnostic imaging groups

MBS diagnostic imaging services are categorised into 5 imaging groups:

Ultrasound: uses high-frequency sound waves to produce moving images of the body's internal structures. It is often used to monitor a pregnant woman and her unborn baby; and to help diagnose unexplained pain, swelling and infection.

Computed tomography (CT): uses multiple X-rays to create detailed images of internal organs, bones, soft tissue and blood vessels. It is often used to detect many different cancers; and to reveal internal injuries and bleeding.

Diagnostic radiography (or X-ray): uses a very small dose of ionising radiation to produce images of the body's internal structures. X-rays are often used to help diagnose fractured bones; look for injury or infection and to locate foreign objects in soft tissue.

Nuclear medicine imaging: uses small amounts of radioactive material, a special camera and a computer to create images inside the body. It helps diagnose many types of cancers, heart disease, gastrointestinal, endocrine, neurological disorders and other conditions. It may detect disease in its earliest stages. Positron emission tomography (PET) is a type of nuclear medicine imaging.

Magnetic resonance imaging (MRI): uses a powerful magnetic field, radio waves and a computer to produce detailed images of the body's internal structures. It is used to evaluate a variety of conditions, including tumours and diseases of the liver, heart, and bowel.

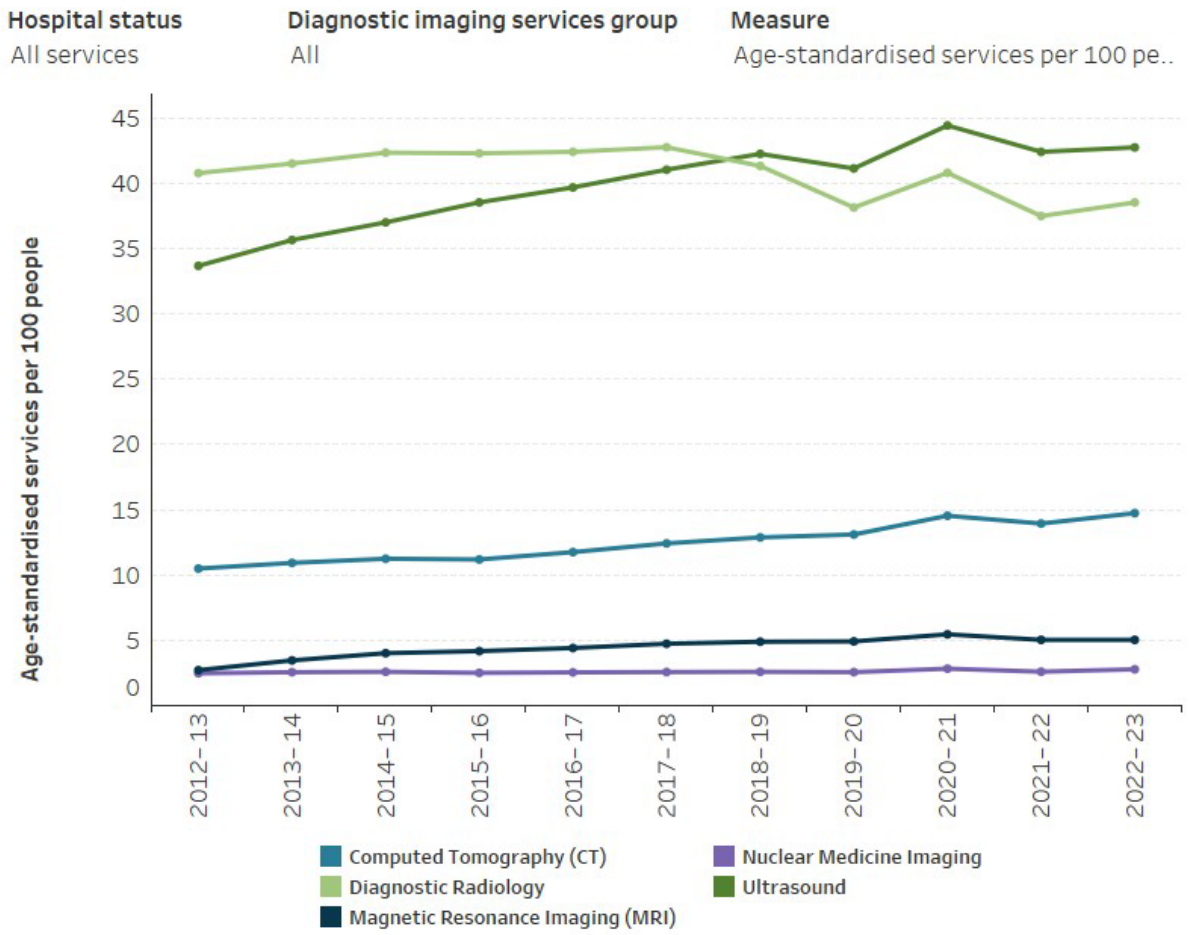
Magnetic resonance imaging (MRI) services experienced the largest increase in the volume of services rendered on a percentage basis. Services volumes increased 120% from 0.6 million to 1.4 million over the 10-year period. This was likely due to an increase of the availability of MRI scanners, as well as the listing of additional Medicare items to provide rebates for MRI services requested by general practitioners in November 2013.

Computed tomography (CT) services also experienced a rather large percentage increase (76% from 2.5 million to 4.5 million) in service volumes over the period. The large increase occurred in 2020–21 (due to new items listed on the MBS in May 2020, in particular, item 56622 for scan of lower limb was a driver for the rise) and 2022–23.

While nuclear medicine imaging services experienced a comparatively smaller rise in service volumes (44% from 0.6 million to 0.9 million between 2012–13 and 2022–23), its subgroup – positron emission tomography (PET) services – did experience a large increase in both services and benefits over the 10-year period. Services volumes increased 350% (from 45,000 to 203,000), and Medicare benefits increased 292% (from $48 million to $189 million) with respect to PET services. Factors likely driving this increase in recent years are the addition of extra PET items to the MBS from 2017–18 onwards, and the availability of more PET scanners.

Although the service volumes of CT, MRI and nuclear medicine imaging were much lower than ultrasound and diagnostic radiology, these high technology forms of imaging are more expensive services. The average out-of-pocket costs per patient for these 3 groups were higher than ultrasound and diagnostic radiology. However, MRI showed a trend of a progressive reduction in average out-of-pocket costs in real terms across both hospital and non-hospital settings. Overall, MRI dropped from $255 per patient in 2018–19 to $219 in 2022–23.

Figure 5: Diagnostic imaging services by group, 2012–13 to 2022–23



Notes:
1. This figure includes Medicare-subsidised services only.
2. Medicare benefit, provider fees and out-of-pocket costs paid by patients expressed in constant prices (please refer to glossary).
3. Privately insured patients will generally receive supplementary benefits from their health fund to cover some out-of-pocket costs for in-hospital services.
4. Medicare benefit and provider fees for bulk billing incentives are not included as incentive items are unable to be associated with the underlying service.

Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health and Aged Care; ABS 2011 and ABS 2023.
https://www.aihw.gov.au/

Where do I go for more information?

For more information on pathology and imaging, see:

- Medicare Benefits Scheme funded services over time.

For more on this topic, visit Diagnostic services.

References

ABS (Australian Bureau of Statistics) (2011) *Australian Demographic Statistics, Jun 2011*, ABS website, accessed 27 November 2023.

ABS (2023) *National, state and territory population, Jun 2022*, ABS website, accessed 27 November 2023.

Referred medical specialist attendances

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/medical-specialists/referred-medical-specialist-attendances

On this page

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 in General practice, allied health and other primary care services, where a referral is not usually required.

The referral requirement is only mandatory to claim Medicare benefits for specialist and consultant physician attendance items. In the event a patient attends a medical specialist without the referral in place, the patient would be able to claim a Medicare rebate for an 'other medical practitioner attendance' item (for example, item 53). It is also possible the patient may receive the attendance outside Medicare completely, and not claim any benefits. Attendances meeting the above 2 criteria are not included on this page.

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.

While 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, as these services receive a separate Commonwealth subsidy through the National Health Reform Agreement
- provided under the Department of Veterans' Affairs National Treatment Account
- covered by third party or workers' compensation.

Private health insurance rebates

Some people choose to pay for private health insurance and as such may receive a rebate from their health fund to cover all or some of out-of-pocket costs for private services in hospital, depending on their level of hospital cover.

This page does not include information on rebates from private health insurers because private health rebates are not captured in MBS claims data.

This page reports on referred medical specialist attendances subsidised through the MBS, and based on the financial year of service rendered between 2012–13 and 2022–23.

How many Medicare-subsidised referred specialist attendances were provided?

In 2022–23, there were 34.5 million MBS-subsidised referred medical specialist attendances (consultations) in a range of settings (Table 1). These attendances were provided to 8.6 million patients (33% of people). Of these attendances, most (77% or 26.4 million services) occurred in non-hospital settings, such as private consulting rooms and private outpatient clinics and were provided to 8.3 million patients.

Table 1: Medicare-subsidised referred medical specialist attendances[(a)] by setting, 2022–23[(b)]

Service setting	Number of patients (million)[(c)]	Proportion of people receiving a service (%)[(d)]	Number of services (million)	Number of services per patient (average)
Referred medical specialist attendances - non-hospital	8.3	31.9	26.4	3.2
Referred medical specialist attendances - in-hospital[(e)]	2.2	8.4	8.1	3.7
Referred medical specialist attendances - total	8.6	33.0	34.5	4.0

(i) 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 can be performed by general practitioners (GPs), and for the purposes of this report, these services have not been regarded as specialist attendances.

(j) Services provided to public inpatients or outpatients are not included in the table.

(k) This is the number of unique patients, with patients being only counted once in the total, even if they have had services across different categories.

(l) The proportion of people receiving a service is calculated by dividing the total patients by the Australian Estimated Resident Population as at 30 June 2022.

(m) Services provided in hospital settings are those involving hospital treatment or hospital substitute treatment (for example, hospital in the home). Most attendances provided to patients in emergency departments of private hospitals do not require hospital treatment and would be classified as non-hospital attendances.

Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health and Aged Care; National, state and territory population, ABS 2023a.

Medical specialties

In 2022–23, 33% of people had at least one Medicare-subsidised referred medical specialist consultation. The most widely accessed specialties (in terms of the percentage of the population receiving at least one service) were:

- anaesthetics (7.1%)
- cardiology (5.1%)
- ophthalmology (4.9%)
- general surgery (3.9%)
- dermatology (3.7%) (Figure 1).

Across all referred medical specialties, there was an average of 4.0 specialist attendances per patient in 2022–23 (patients may have seen different types of specialists). The specialties for which patients received the most repeat services (accessed the same type of specialty more than once) on average within the year included:

- rehabilitation medicine (6.5 services per patient)
- psychiatry (4.9 services per patient)
- medical oncology (4.6 services per patient).

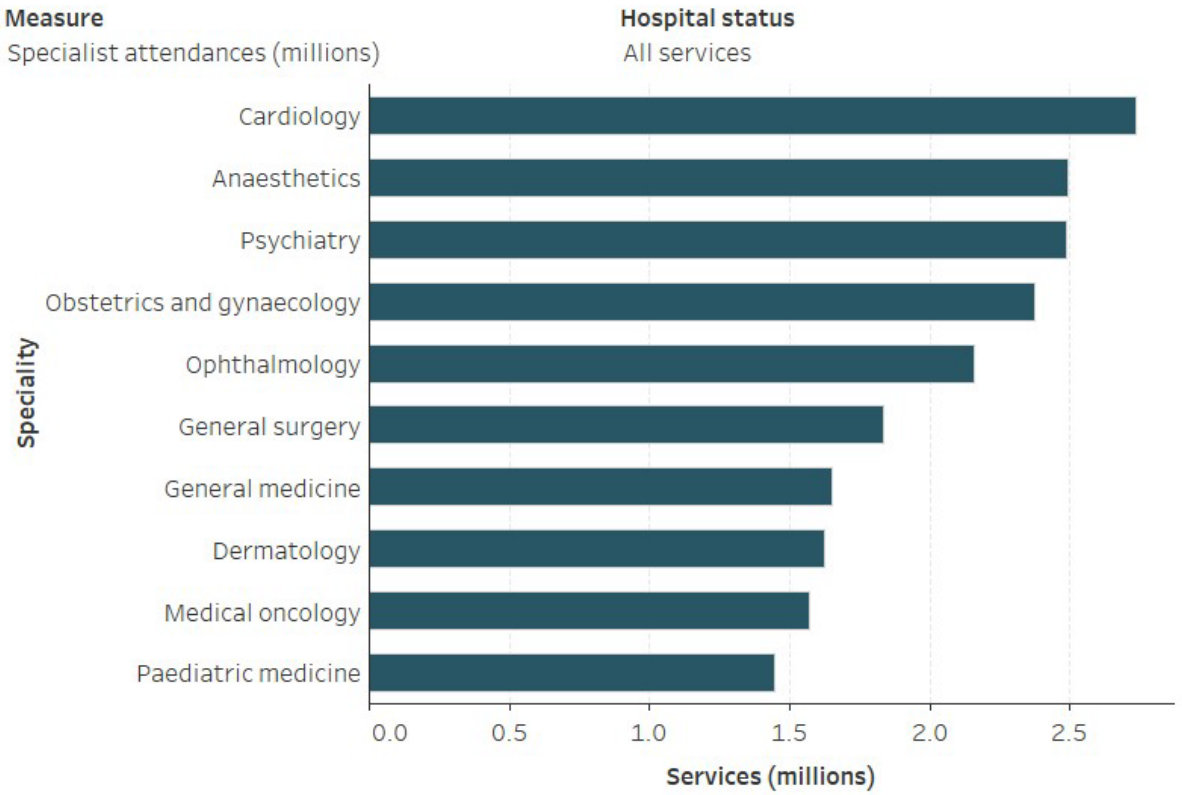
In 2022–23, the specialties with the highest number of consultations subsidised by Medicare within the year were:

- cardiology (2.7 million)
- anaesthetics (2.5 million)

- psychiatry (2.5 million)
- obstetrics and gynaecology (2.4 million)
- ophthalmology (2.2 million)
- general surgery (1.8 million)
- general medicine (1.7 million)
- dermatology (1.6 million).

These 8 specialties accounted for half of all specialist consultations subsidised by Medicare (50%). In total there are over 40 specialist specialties.

Figure 1: Top 10 specialties by various measures, 2022–23



Notes:
1. This figure includes Medicare-subsidised services only.
2. Top 10 specialties defined as those with the highest number of specialist attendances rendered, the highest percentage of the population receiving a service from that specialist type, receiving the highest amount of Medicare benefits, having the highest number of services per patient in that year, or having the highest amount of out-of-pocket costs paid by patients, respectively .
3. Privately insured patients will generally receive supplementary benefits from their health fund to cover some out-of-pocket costs for in-hospital services.

Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health and Aged Care; ABS 2023a
https://www.aihw.gov.au/

Trends in consultations

The number of patients who had a Medicare-subsidised referred medical specialist consultation increased from 7 million in 2012–13 to 8.6 million in 2022–23. However, the

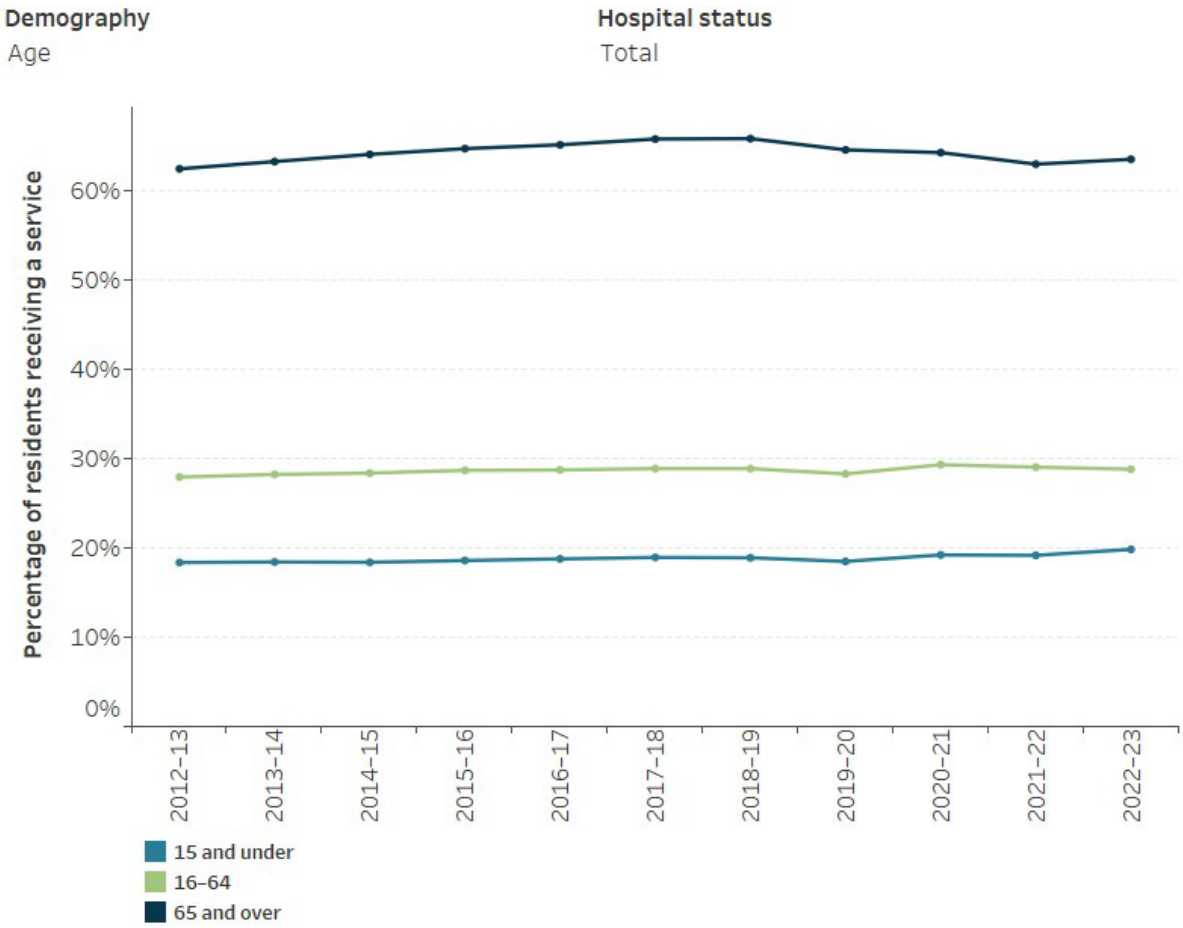
proportion of people who had a consultation with a specialist only increased slightly (30.9% and 33.0% of people respectively).

The number of specialist consultations per 100 people increased between 2012–13 and 2022–23, from 121 to 133 consultations. After adjusting for differences in the age structure of the population, the number of specialist consultations per 100 people increased very slightly in the 10 years to 2022–23, from 115 to 118 consultations.

Patient characteristics

Older people received more Medicare-subsidised referred medical specialist consultations than younger people. In 2022–23, just under 2 in 3 (64%) people aged 65 and over had at least one Medicare-subsidised referred medical specialist consultation, whereas under 1 in 3 (29%) people aged 16–64 and 1 in 5 (20%) people aged 15 and under had at least one consultation (Figure 2).

Figure 2: Specialist attendances by demography group, 2012–13 to 2022–23



Notes:
1. This figure includes Medicare-subsidised services only.
2. Socioeconomic area is based on the Index of Relative Socio-Economic Disadvantage from the Socio-Economic Indexes for Areas product published by the Australian Bureau of Statistics.

Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health and Aged Care; ABS 2023a.

https://www.aihw.gov.au/

Among all patients regardless of age, a higher proportion of females (36%) had at least one specialist consultation than males (30%). Even without pregnancy-related consultations, females still had a higher proportion (35%) than males.

The proportion of Australians who received at least one referred medical specialist consultation 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 (35% and 33%, respectively), but decreased with increasing remoteness to 13% 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 (see Medicare funding of GP services over time).

The utilisation of specialist consultations was also affected by where people lived in terms of the socioeconomic status of their area. The percentage of Australians having at least one specialist consultation increased in areas with less disadvantage. In the least disadvantaged areas (quintile 5), 43% of residents had at least one specialist consultation, compared to 25% of residents living in the most disadvantaged areas (quintile 1). Although areas of higher disadvantage have a lower rate of specialist consultations, residents of these areas may receive these services though public outpatient clinics or as public inpatients, which are not subsidised through MBS arrangements.

Spending

In 2022–23, $5.3 billion was spent on Medicare-subsidised referred medical specialist consultations. By funding source:

- $2.9 billion in Medicare benefits was paid by the Australian Government
- $2.3 billion in out-of-pocket costs was paid by private patients.

The $2.3 billion is comprised of the following out-of-pocket costs by clinical setting:

- $1.9 billion was paid by patients for services rendered in non-hospital settings (for example, specialist consulting rooms)
- $469.5 million was paid by patients for services rendered in-hospital or hospital-substitute settings (for example, hospital in the home).

In 2022–23, 59% or $1.7 billion of Australian Government spending on referred medical specialist consultations was accounted for by 10 specialties (Table 2). Table 2 also shows the top 10 specialties ranked by out-of-pocket costs paid by patients, which accounted for $1.6 billion (or 69%) in total out-of-pocket costs being paid to these 10 specialties.

Table 2: Top 10 specialties **by Medicare benefits paid and by patient out-of-pocket costs, 2022–23**

Specialties based on Medicare benefits paid	Medicare benefits paid (million)	Specialties based on patient out-of-pocket costs	Patient out-of-pocket costs (million)
Psychiatry	$404.5	Obstetrics and gynaecology	$301.0
Cardiology	$257.1	Anaesthetics	$220.3
Paediatric medicine	$178.6	Psychiatry	$202.8
Obstetrics and gynaecology	$168.2	Dermatology	$186.7

Specialties based on Medicare benefits paid	Medicare benefits paid (million)	Specialties based on patient out-of-pocket costs	Patient out-of-pocket costs (million)
General medicine	$147.7	Ophthalmology	$153.9
Ophthalmology	$130.9	Cardiology	$136.5
Gastroenterology and hepatology	$128.3	Orthopaedic surgery	$110.8
Medical oncology	$110.8	Paediatric medicine	$108.8
General surgery	$107.4	General surgery	$103.6
Dermatology	$103.1	Ear, nose and throat (ENT)	$86.6

Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health and Aged Care.

In 2022–23, 39% (10.3 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 (77% of patients or 6.4 million people), on average a patient paid $294 for all non-hospital specialist attendances they received in the year (an average of $117 for one service for those who incurred out-of-pocket costs).

Bulk billing for private patients in hospital

Private patients are unlikely to be bulk billed in public or private hospitals, in approved day hospitals, and for hospital substitute treatment. These patients are most likely to have private health insurance for hospital cover, and are entitled to a standard Medicare rebate, plus a rebate from private health insurance. If these patients are bulk billed, the treating practitioner only receives the standard Medicare rebate.

Private health insurance does not cover Medicare services outside hospital.

In 2022–23, 2.5% (206,000 services) of in-hospital Medicare-subsidised referred medical specialist consultations were bulk-billed. For those who did pay out-of-pocket costs (92% of patients or 2 million people), the average cost per patient for in-hospital specialist attendances was $232 for all services received in the year (an average of $60 per service for those who incurred out-of-pocket costs).

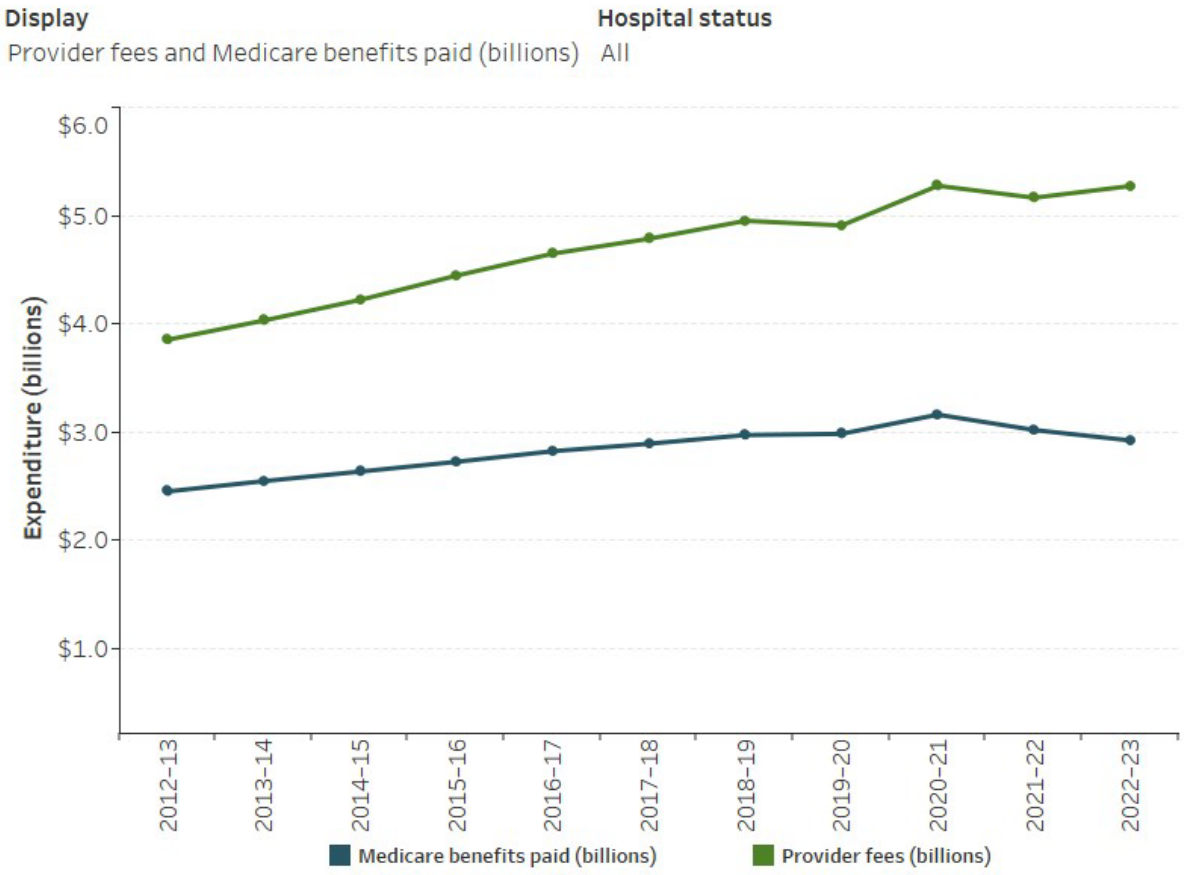
Trends in spending

Overall, spending on Medicare-subsidised referred medical specialist consultations has increased since 2012–13:

- Medicare benefits paid by the Australian Government increased in real terms (after adjusting for inflation), from $2.5 billion in 2012–13 to $2.9 billion in 2022–23 (Figure 3). When accounting for changes in the number of patients, spending had slightly decreased in real terms from $349 to $341 per patient.
- Patient out-of-pocket costs in non-hospital settings increased in real terms from $1.1 billion in 2012–13 to $1.9 billion in 2022–23. On a per patient basis, there was an increase in real terms from $213 per patient to $294 (38%) during this period ($81 to $117 on a per service basis, an increase of 45%).
- Patient out-of-pocket costs in hospital settings increased in real terms from $346.6 million in 2012–13 to $469.5 million in 2022–23. On a per patient basis, there was an increase in real terms from $197 per patient to $232 (18%) during this period ($53 to $60 on a per service basis, an increase of 12%).

In the 10 years to 2022–23, the average referred medical specialist fee per service increased 0.9% per year (on average) in real terms, from $140 in 2012–13 to $153 in 2022–23. The proportion of provider fees covered by Medicare for specialist attendances decreased by 9 percentage points, from 64% in 2012–13 to 55% in 2022–23. This can be attributed to a faster growth in provider fees (37%) than growth in Medicare benefits (19%).

Figure 3: Spending on specialist attendances, constant prices, 2012–13 to 2022–23



Notes:
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2. Medicare benefit, provider fees and out-of-pocket costs expressed in constant prices (please refer to glossary).
3. Privately insured patients will generally receive supplementary benefits from their health fund to cover some out-of-pocket costs for in-hospital services.

Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health and Aged Care.
https://www.aihw.gov.au/

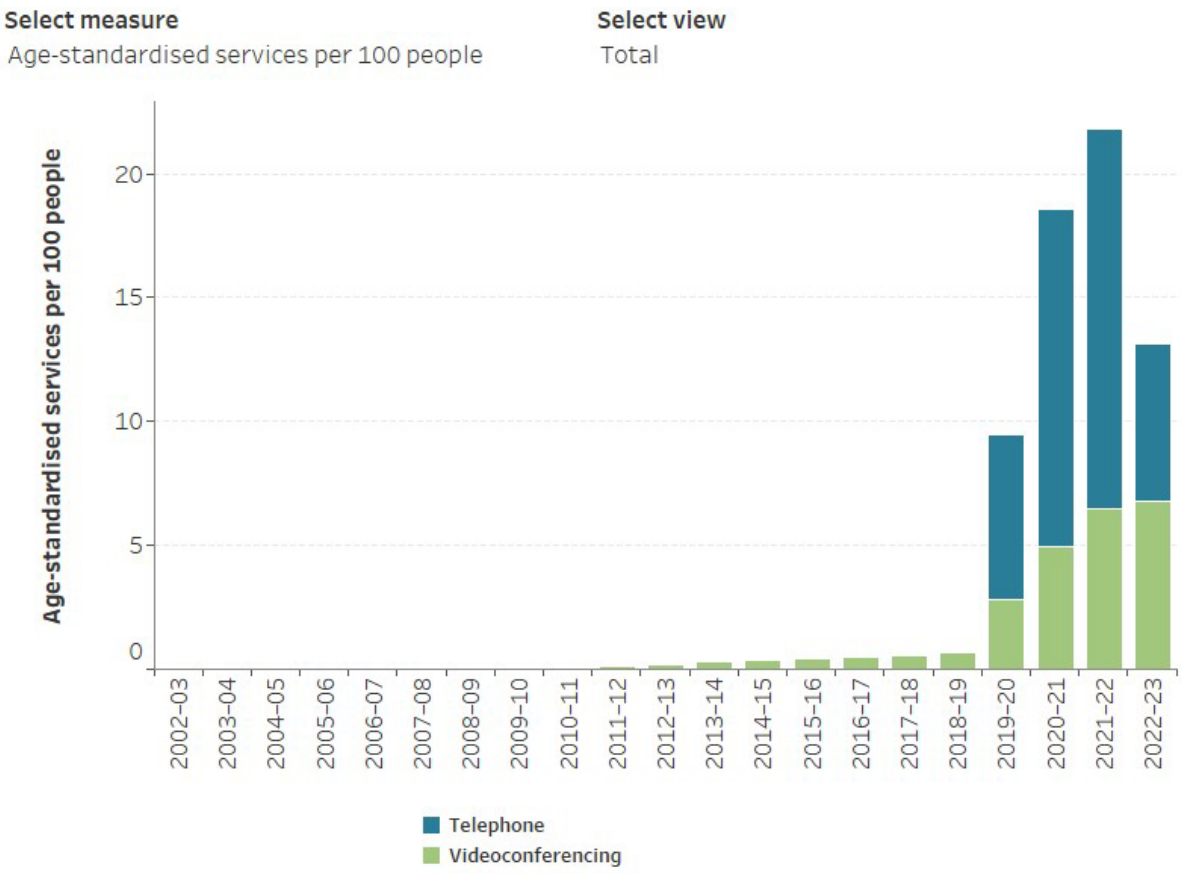
How many specialist attendances were delivered via telehealth?

Since 2002 telehealth items have been introduced to the MBS to facilitate telehealth attendances with medical specialists through 3 main initiatives:

- telepsychiatry program introduced from 2002
- telehealth program introduced from 2011
- COVID-19 temporary MBS telehealth services introduced in 2020 as part of the Australian Government's response to the COVID-19 pandemic (many COVID-19 temporary items are now permanent).

The purposes of the telepsychiatry program and the original telehealth program were to improve patient access to medical specialists through videoconferencing for patients living in remote locations. In 2022, the Medicare items for telehealth attendances with medical specialists were consolidated into a single telehealth program. As a result, many of the preexisting telehealth items, some of which had specific eligibility criteria were discontinued.

Figure 4: Telehealth specialist attendances, 2002–03 to 2022–23



Notes:
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3. Privately insured patients could receive supplementary benefits from their health fund to cover some out-of-pocket costs for in-hospital services.
4. Socioeconomic area is based on the Index of Relative Socio-Economic Disadvantage from the Socio-Economic Indexes for Areas product published by the Australian Bureau of Statistics.

Source: AIHW analysis of MBS data maintained by the Australian Government Department of Health and Aged Care; ABS 2011; ABS 2023a.
https://www.aihw.gov.au/

The take up rates for the telepsychiatry services introduced from 2002 were initially very low (Figure 4). It was not until the start of the telehealth program in 2011 that the number of services rendered started to increase, and by 2015–16 over 100,000 telehealth consultations with medical specialists were being rendered each year.

The next major change occurred in March 2020, when the COVID-19 temporary-MBS telehealth services were introduced in response to the COVID-19 pandemic. Up until this point existing telehealth items only supported services being rendered through videoconferencing (not over the telephone) and had strict eligibility criteria mainly based on the patient's location and distance from the specialist. Through the COVID-19 telehealth initiative, new Medicare items supporting telephone attendances, and new items supporting videoconferencing attendances with wider patient eligibility criteria were introduced. This resulted in 2.6 million telehealth services being rendered in 2019–20, and peaked at 6 million telehealth services rendered in 2021–22, when widespread COVID-19 lockdowns in New South Wales, Victoria and the Australian Capital Territory were introduced.

The take-up of the new telephone attendance items from their introduction in March 2020 to the end of the financial year in June 2020 exceeded the total videoconferencing attendances rendered in the whole 2019–20 financial year (1.8 and 0.7 million attendances respectively). Telephone attendance items drove the overall increase in telehealth attendances rendered during the COVID-19 pandemic (for example, telehealth services increased from 47,000 rendered during the second quarter of 2019 to 2.2 million rendered in the second quarter of 2020, of which 76% were delivered through telephone). After reaching a peak of 4.3 million telephone attendances in 2021–22, the volume of telephone attendances decreased substantially in 2022–23 to 1.8 million once the COVID-19 lockdowns and other public health interventions were lifted, and medical specialist clinics (some of which were only rendering services through telehealth) returned to more standard operations. In contrast, the number of attendances delivered through videoconferencing continued to increase with 1.7 and 1.8 million attendances rendered in 2021–22 and 2022–23 respectively.

Socioeconomic and remoteness areas

Adjusting for the difference in age structure of the population, telehealth services for medical specialist attendances had the highest take up rates in areas of least disadvantage and in *Major cities*, once Medicare telehealth items without patient eligibility criteria were introduced. For example, in 2022–23 there were 18.2 telehealth attendances per 100 people in areas of least disadvantage, with attendance rates declining for areas of increasing disadvantage, with the most disadvantaged areas receiving 9.2 telehealth attendances per 100 people.

While the original telehealth items had criteria that largely limited their claiming to patients in more remote areas, at the height of the COVID-19 pandemic in 2021–22, patients in *Major cities* (many of which were in lockdown) had the highest rate of telehealth attendances with referred medical specialists, with 22.9 attendances per 100 people. This number declined steeply in 2022–23, down to 12.9 services per 100 people.

Remote and *Very remote* areas however experienced a much shallower decline in the rate of telehealth services, indicating the lasting appeal of telehealth to Australians in remote areas.

What were patients' experiences of specialist attendances?

The 2022–23 Patient Experience Survey (ABS 2023b) estimated that for people aged 15 and over who needed to see a medical specialist (in both hospital and non-hospital settings) in the previous 12 months:

- 22.5% delayed their appointment at least once or did not see a medical specialist when needed. Of this 22.5%, 10.5% of patients cited cost as a reason for delaying or not seeing the medical specialist.
- 27.9% waited longer than they felt acceptable to get an appointment with a medical specialist.
- A high proportion reported that the medical specialists they saw 'always' listened carefully, spent enough time with them and showed respect (77.9%, 78.9%, and 82.8% respectively). Smaller proportions reported that the specialists they saw 'often' displayed these behaviours (13.8%, 11.9%, and 11.1% respectively).

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: 2022–23

For more on this topic, visit Medical specialists.

References

ABS (Australian Bureau of Statistics) (2011) *Australian Demographic Statistics, Jun 2011*, ABS website, accessed 29 November 2023.

ABS (2023a) *National, state and territory population, Jun 2022*, ABS website, accessed 29 November 2023.

ABS (2023b) *Patient Experiences, 2022–23*, ABS website, accessed 29 November 2023.

Determinants of health

Alcohol

This topic summary is part of the Alcohol, tobacco & other drugs in Australia report.

On this page

Key findings

In 2019–20, wine accounted for the largest proportion of apparent alcohol consumption (42% of all available alcohol), followed by beer (35%) and spirits (21%)

AVAILABILITY >

In 2022–2023, 31% of people aged 14 and over consumed alcohol in ways that put their health at risk, similar to 2019 (32% of the population)

RISKY DRINKING >

Between 2015 and 2023, the highest rates of alcohol and other drug-related ambulance attendances were related to alcohol intoxication

AMBULANCE ATTENDANCES >

Alcohol accounted for 59% of drug-related hospitalisations in 2021–22, up from 57% in 2020–21

HOSPITALISATIONS >

There were 1,742 alcohol-induced deaths in Australia in 2022

DEATHS >

In 2022–23, alcohol was the most common drug of concern for which people received treatment (43% of episodes)

TREATMENT >

https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/fact-sheets

Australian Guidelines to Reduce Health Risks from Drinking Alcohol

In December 2020, the National Health and Medical Research Council (NHMRC) released revised Australian guidelines to reduce health risks from drinking alcohol. Data on alcohol consumption from the 2022–2023 National Drug Strategy Household Survey (NDSHS) were analysed according to these revised guidelines. All results in this report from 2001 to 2022–2023 have been calculated against the revised guidelines.

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).

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 in Australia are collated by the Australian Institute of Health and Welfare using data on import clearance, excise and domestic alcohol sales (AIHW 2023c). There were 208.8 million litres of pure alcohol available for consumption in Australia in 2019–20, a slight decrease from 210.3 million litres in 2018–19 (Figure ALCOHOL1). This represents around 10 litres per capita, which has remained stable over the past decade (per capita consumption refers to the Australian population aged 15 and over).

In 2019–20, wine accounted for the largest proportion of apparent alcohol consumption (42% of all available alcohol), followed by beer (35%) and spirits (21%) (AIHW 2023c). Trends in apparent alcohol consumption vary by beverage type:

- Wine consumption decreased from 90.4 to 87.0 million litres of pure alcohol between 2018–19 and 2019–20 (or 4.4 to 4.2 litres per capita). This represents the first decline since 2012–13, following an overall rise since the 1960s.
- Beer consumption has steadily fallen since peak in the 1970s, declining from 92.2 to 72.4 million litres of pure alcohol between 1974–75 and 2019–20 (or 9.2 to 3.5 litres per capita).
- Apparent consumption of spirits has fluctuated over time, rising from 35.4 to 44.2 million litres of pure alcohol between 2016–17 and 2019–20 (or 1.8 to 2.1 litres of

pure alcohol). This is the highest level since 2007–08 (38.8 million litres, or 2.3 litres per capita).

- Apparent consumption of spirits has fluctuated over time, rising from 35.4 to 44.2 million litres of pure alcohol between 2016–17 and 2019–20 (or 1.8 to 2.1 litres of per capita). This is the highest level since 2007–08 (38.8 million litres, or 2.3 litres per capita (Figure ALCOHOL1)

In terms of Australian household spending on alcohol, on average households spent $32 on alcoholic beverages per week and this has remained stable between 2009–10 and 2015–16 (ABS 2017, Table 1.1).

Figure ALCOHOL1: Apparent consumption of alcohol by beverage type, 1944–45 to 2019–20 (litres per capita or total volume)

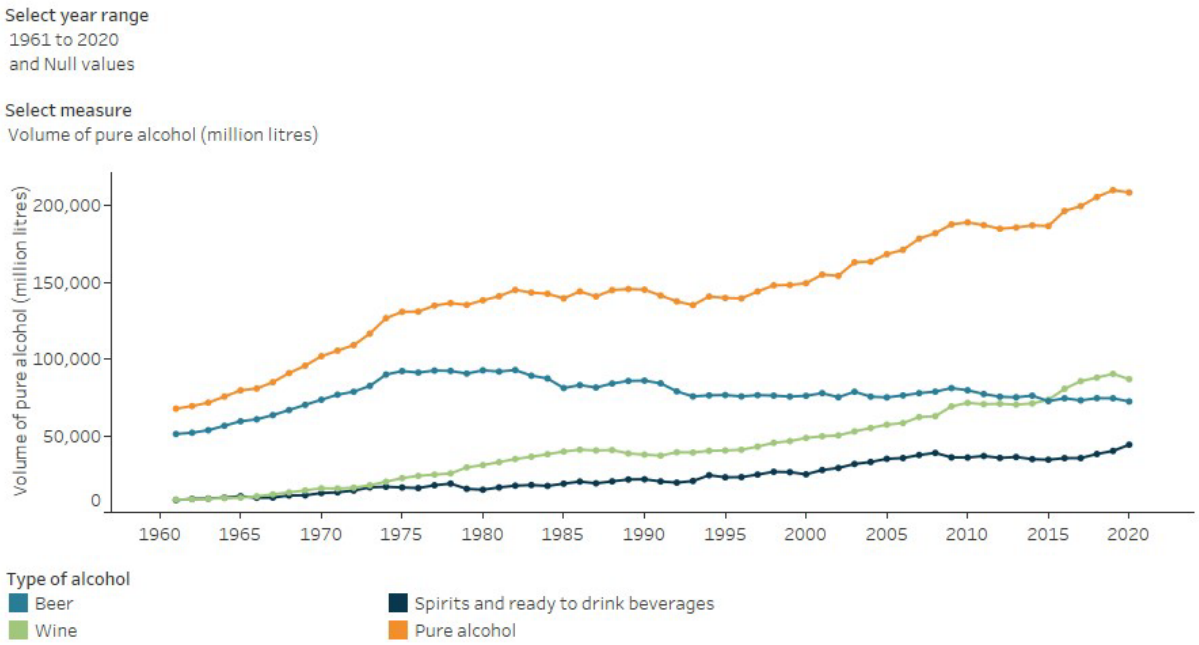


Figure ALCOHOL1: Apparent consumption of alcohol by beverage type, 1960–61 to 2019–20 (total volume or litres per capita).
†Number has been revised from the previous publication.
1. Data represent the annual calculation of the quantity of alcohol being made available for consumption to people living in Australia, rather than quantifying individual drinking habits.
2. Denominator for per capita consumption is persons aged 15 and over. ABS (2022) National, state and territory population, September 2022.
Source: AIHW 2023 and ABS 2019, Table 7.

http://www.aihw.gov.au

https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/data-tables

Consumption

For related content on **alcohol consumption by region**, see also:

Data by region: Alcohol consumption

Apparent consumption of alcohol in Australia

The majority of Australians aged 14 and older have consumed alcohol in their lifetime. The 2022–2023 National Drug Strategy Household Survey (NDSHS) found that of the population aged 14 and over:

- Over two-thirds (69%) had consumed alcohol in the previous 12 months (AIHW 2024b, Table 4.6).
- 14.9% had never consumed a full serve of alcohol (AIHW 2024b, Table 4.1; Figure ALCOHOL2)
- The proportion who consumed alcohol daily remained stable between 2019 (5.4%) and 2022–2023 (5.2%) (AIHW 2024b, Table 4.1).

Figure ALCOHOL2: Alcohol drinking status, people aged 14 and over, 2001 to 2022–2023 (per cent)

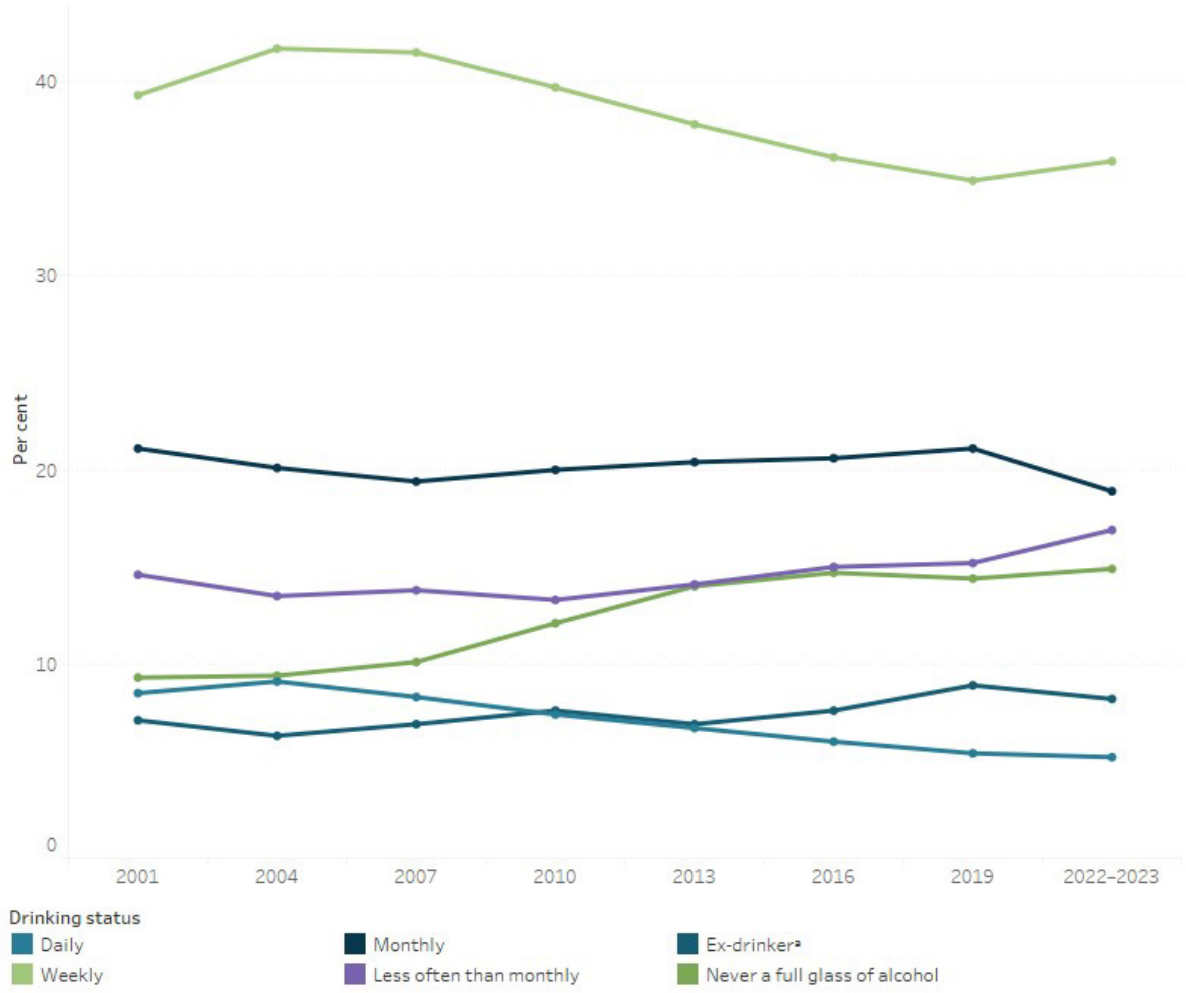


Figure ALCOHOL2: Alcohol drinking status, people aged 14 and over, 2001 to 2022–2023 (per cent).
(a) Consumed at least a full serve of alcohol, but has not had an alcoholic drink in the previous 12 months.
Note: The calculation of drinking status and alcohol risk variables was updated for all years in 2019. Trend data may not match previously published results.
Source: AIHW 2024, Supplementary table 4.1.

http://www.aihw.gov.au

https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/data-tables

Risky drinking

Many drinkers consume alcohol responsibly; however, some drinkers consume alcohol at a level that exceeds NHMRC recommendations, 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)- external site opens in new window released new Australian guidelines to reduce health risks from drinking alcohol- external site opens in new window in December 2020.

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:

To prevent harm from alcohol to their unborn child, women who are pregnant or planning a pregnancy should not drink alcohol.

For women who are breastfeeding, not drinking alcohol is safest for their baby (NHMRC 2020).

What is risky alcohol consumption?

In the 2022–2023 NDSHS, "drinking at risky levels" or "risky drinking" is defined according to the Australian guidelines to reduce health risks from drinking alcohol (NHMRC 2020).

Guideline 1 advises that "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". As a result, a person doing either or both of the following will be classified as having consumed alcohol in ways that increased their risk of harm:

(i) Having more than 10 standard drinks per week on average in the previous 12 months.

(ii) Having more than 4 standard drinks in a single day at least once a month over the previous 12 months.

The NDSHS found around 1 in 3 people (31% or 6.6 million people) aged 14 and over consumed alcohol at risky levels in 2022–2023. This is a similar level to 2019, when 32% of the population (around 6.7 million people) reported drinking at risky levels (AIHW 2024b, Tables 4.25 and 4.26, Figure ALCOHOL3).

The 2022–2023 NDSHS found that:

- Males continued to be more likely than females to drink at risky levels (39% of males aged 14 and over and 23% of females aged 14 and over).
- Fewer younger people (those aged 14-17) drank alcohol at risky levels (5.5% in 2022–2023, compared with 9.5% in 2019) (AIHW 2024b, Table 4.28).
- People living in the lowest socioeconomic areas were the least likely to drink at risky levels (27% of people in the lowest quintile) (AIHW 2024b, Table 4.34).

The most recent National Health Survey (NHS) was conducted in 2022. 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 2022:

- More than 1 in 4 (26.8%) Australians aged 18 years and over exceeded the Australian Alcohol Guidelines. 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 (35.8% compared with 18.1%)
- People born in Australia were more than twice as likely as those born overseas to exceed the guideline (33.0% compared with 16.0%) (ABS 2023b).

Figure ALCOHOL3: Alcohol consumption and risk, people aged 14 and over, by age and gender, 2007 to 2022–2023 (per cent) (per cent)

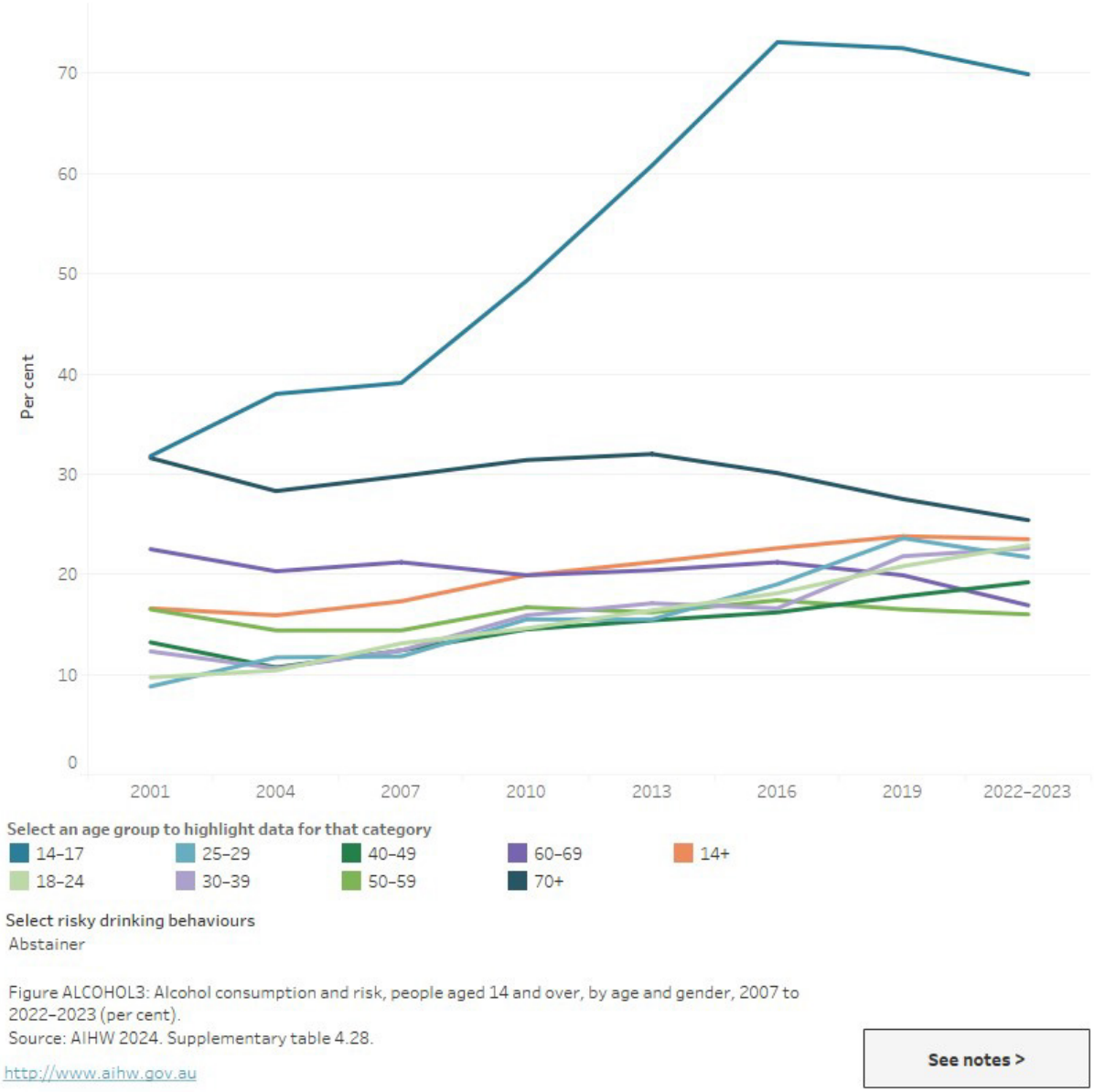


Figure ALCOHOL3: Alcohol consumption and risk, people aged 14 and over, by age and gender, 2007 to 2022–2023 (per cent).
Source: AIHW 2024. Supplementary table 4.28.

http://www.aihw.gov.au

See notes >

https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/data-tables

Geographic trends

In general, people living in *Remote and very remote and Outer regional areas* of Australia are more likely than people in *Major cities* to exceed risk guidelines.

- The 2022–2023 NDSHS findings showed that people aged 14 or over living in *Remote and Very remote areas (*40%) *and Outer regional areas* (39%) are about 1.4 times more likely as those living in *Major cities* (29%) to consume alcohol at risky levels (Figure ALCOHOL4; AIHW 2024b, Table 4.34).
- The 2022 NHS results showed that adults (aged 18 or older) in *Outer regional and Remote areas* (30.9%) were more likely to drink at risky levels than those in *Major cities* (25.6%) (ABS 2023b, Table 6.3).

For information on alcohol consumption across states and territories, see the NDSHS State and territory data tables.

Figure ALCOHOL4: Alcohol consumption risk, by remoteness area or socioeconomic area, people aged 14 and over, 2010 to 2022–2023 (per cent)

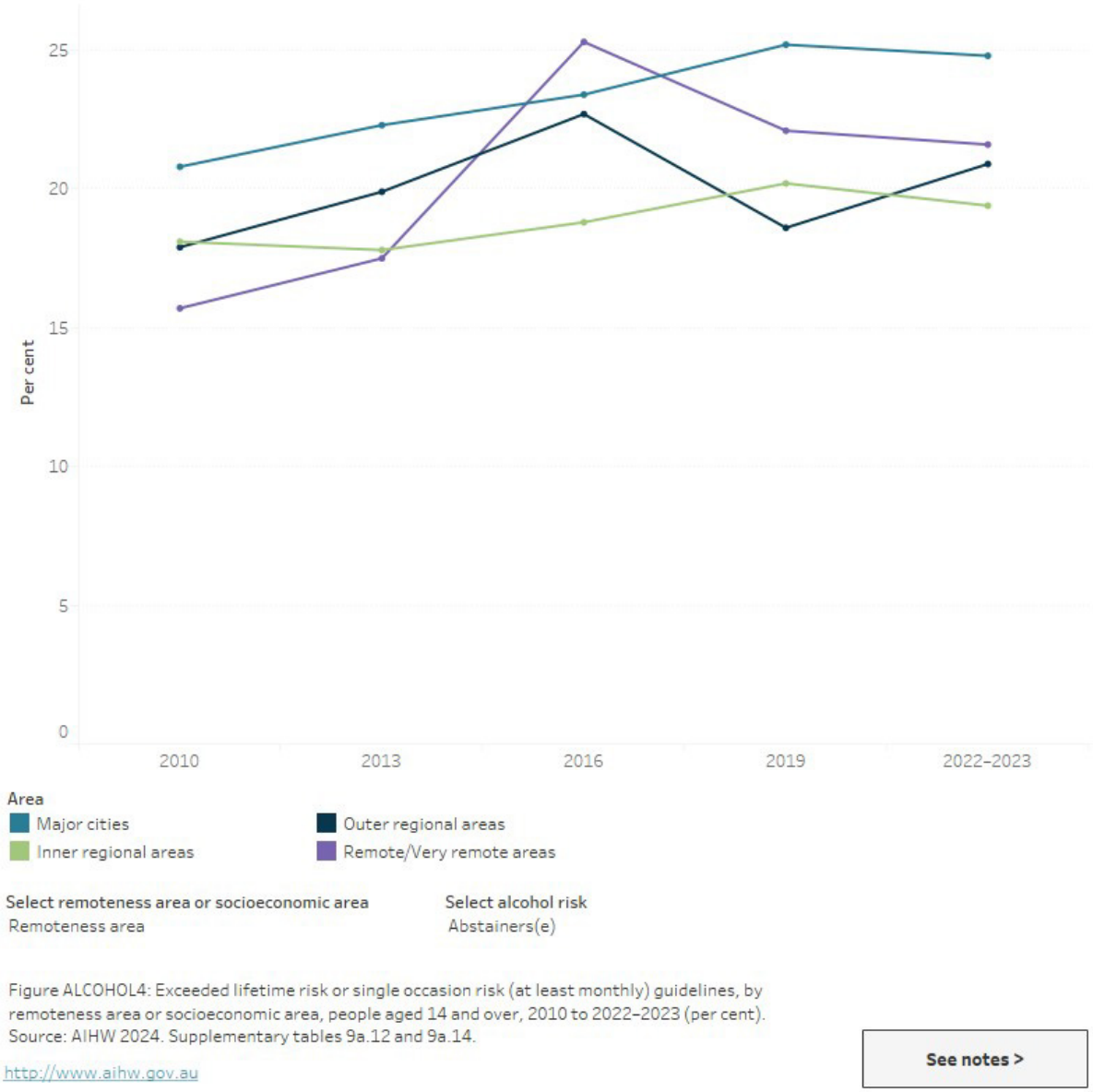


Figure ALCOHOL4: Exceeded lifetime risk or single occasion risk (at least monthly) guidelines, by remoteness area or socioeconomic area, people aged 14 and over, 2010 to 2022–2023 (per cent).
Source: AIHW 2024. Supplementary tables 9a.12 and 9a.14.

http://www.aihw.gov.au

See notes >

https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/data-tables

The National Wastewater Drug Monitoring Program- external site opens in new window 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. The estimated population-weighted average consumption of alcohol has fluctuated over the life of the Program in 2016, with current consumption levels lower than 2016 (ACIC 2024).

Data from Report 21 of the NWDMP showed that between April and August 2023, population-weighted average regional alcohol consumption exceeded consumption in capital cities. Additionally:

- Consumption levels fell slightly for regional areas and capital cities in August 2023, but are lower than at the beginning of the program in 2016 (ACIC 2024).

For state and territory data, see the National Wastewater Drug Monitoring Program-external site opens in new window reports.

Figure ALCOHOL5: Estimated consumption of alcohol in Australia based on detections in wastewater, April to August 2023

(a) 'Average consumption' refers to estimated population-weighted average consumption.

Note: April and August 2023 data are from 62 wastewater treatment sites, covering approximately 57% of the Australian population.

Source: AIHW, adapted from ACIC 2024.

Poly drug use

Poly drug use is defined as the use of mixing or taking another illicit or licit drug whilst under the influence of another drug. 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) (AIHW 2020, Table 1.3).

Data on alcohol and other drug-related ambulance attendances are sourced from the National Ambulance Surveillance System (NASS). Monthly data for 2021and 2022 are currently available for New South Wales, Victoria, Queensland, Tasmania, and the Australian Capital Territory. It should be noted that some data for Tasmania and the Australian Capital Territory have been suppressed due to low numbers. For more information, please see the data quality statement.

In 2022, the proportion of alcohol intoxication-related ambulance attendances where multiple drugs were involved was low relative to other drug-related attendances, ranging from 15% of attendances in New South Wales to 20% of attendances in Australian Capital Territory (Table S1.11).

For related content on multiple drug involvement see Impacts: Ambulance attendances.

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 2021, Table S2.3). 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 S2.4).

The 2022–2023 NDSHS reported those who consumed alcohol at risky levels (more than 10 standard drinks a week or more than 4 standard drinks in a single day at least once a month) were:

- 14 times as likely to experience an injury requiring medical attention while under the influence of alcohol (4.2% compared with *0.3%) as those who did not drink at risky levels
- 10.5 times as likely to have experienced an injury requiring admission to hospital while under the influence of alcohol (2.1% compared with *0.2%) (*Estimate has a relative standard error between 25% and 50% and should be used with caution) (AIHW 2024b, Table 4.52).

According to the 2022–2023 NDSHS, there is a growing number of women affected by other people's alcohol use, specifically:

- Women were more likely to have experienced verbal abuse in 2022–2023 (17.6%) compared with 2019 (15.9%), while the rates for men fell from 19.6% to 17.6%.
- The proportion of women who experienced physical abuse from someone under the influence of alcohol increased from 4.0% in 2019 to 5.3% in 2022. For men it remained stable and was 5.2% in 2022–2023.
- The proportion of women who were put in fear increased between 2019 and 2022–2023, and they were 1.6 times as likely as men to have been put in fear in the previous 12 months. This is the highest disparity seen since the question was introduced in 2007 (AIHW 2024b, Table 4.54).

Alcohol consumption in pregnancy

Alcohol consumption during pregnancy can lead to poorer perinatal outcomes including low birthweight, pre-term birth and fetal alcohol spectrum disorder (FASD). The National Health and Medical Research Council (NHMRC) advises that women who are planning a pregnancy, or are pregnant, should not drink alcohol. Support to address alcohol consumption is available through antenatal clinics (AIHW 2023d).

In 2021, the AIHW's National Perinatal Data Collection included data from 7 jurisdictions (data was not available for New South Wales). This data reporting mothers consumption of alcohol in the first 20 weeks of pregnancy, indicates that mothers were more likely to consume alcohol if they:

- lived in *Very remote* (7.1%) or *Remote* (4.6%) areas
- were Indigenous (7.5%)
- aged under 20 (4.6%) (AIHW 2023d).

Data from the 2022–2023 NDSHS show that over 1 in 4 (28%) pregnant women consumed alcohol at some stage during their pregnancy, similar to 29% in 2019 (AIHW

2024, Table 10.21). Of pregnant women who reported a period of time they were unaware of their pregnancy:

- 64% had consumed alcohol before knowing they were pregnant.
- *14.9% had consumed alcohol after knowing they were pregnant (AIHW 2024, Table 10.21).

*Estimate has a relative standard error between 25% and 50% and should be used with caution.

Ambulance attendances

Data on alcohol and other drug-related ambulance attendances are sourced from the National Ambulance Surveillance System (NASS).

The highest number and rate of ambulance attendances continues to be alcohol intoxication-related (Supplementary data table 12 and S2.10). Monthly data are presented from 2021 for people aged 15 years and over for New South Wales, Victoria, Queensland, Tasmania, the Australian Capital Territory and the Northern Territory.

In 2022, for alcohol intoxication-related ambulance attendances in these jurisdictions:

- Rates of attendances ranged from 444.3 per 100,000 population (29,641 attendances) in New South Wales to 2,598 (5,136 attendances) in the Northern Territory (Table S1.10).

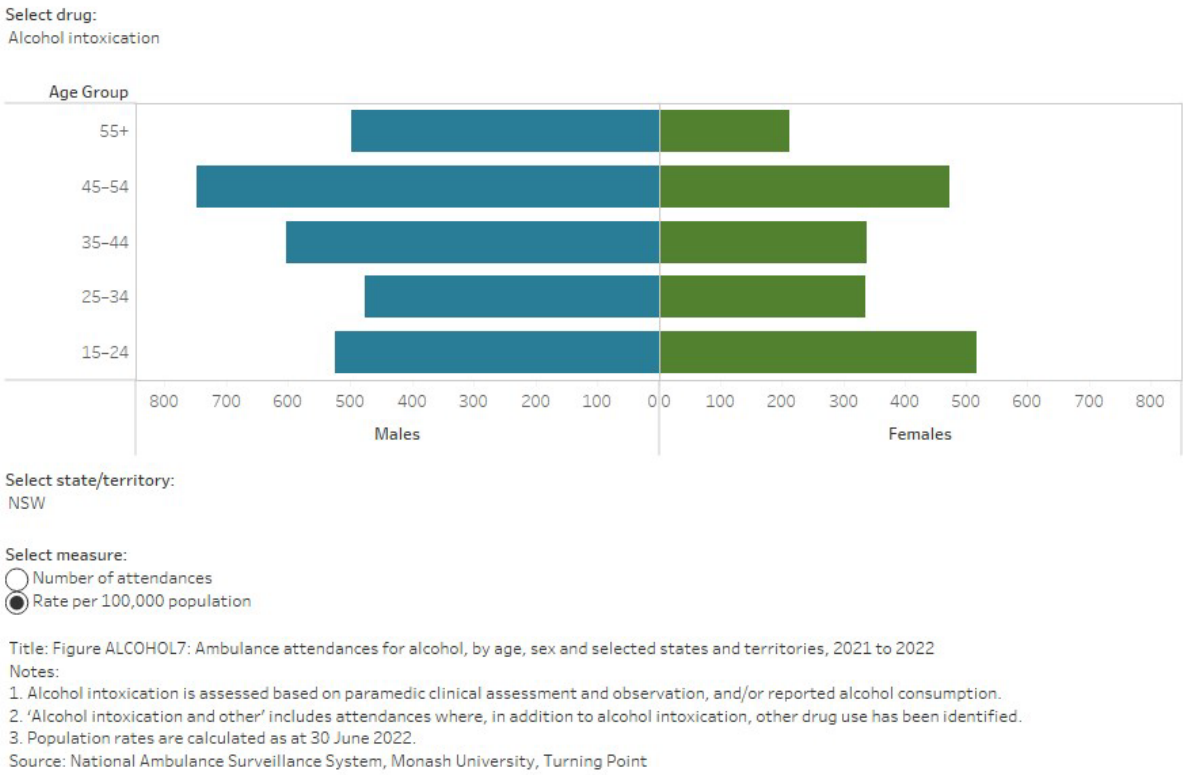
For the 6 jurisdictions where alcohol and other drug-related ambulance attendance data are available for age and sex disaggregation (New South Wales, Victoria, Queensland, Tasmania, the Australian Capital Territory and the Northern Territory):

- 3 in 5 (59%) of total attendances were for males.
- The highest rates of attendances were for people aged:
  - 45–54 in Queensland (828.7 per 100,000 population) and Tasmania (819.0 per 100,000 population)
  - 15–24 in Tasmania (941.0 per 100,000 population) and Queensland (851.0 per 100,000 population) (Table S1.9).

For the 6 jurisdictions where monthly data from 2021 is available, between 2021 and 2022:

- Rates of alcohol intoxication-related ambulance attendances have decreased across all jurisdictions, with the exception of Tasmania.
- In Tasmania, rates of alcohol intoxication-related ambulance attendances have increased from 561.9 per 100,000 population in 2021 to 627.0 in 2022 (Figure ALCOHOL6, Table S1.10).

Figure ALCOHOL6: Ambulance attendances for alcohol, by age, sex and selected states and territories, 2021 to 2022



Title: Figure ALCOHOL7: Ambulance attendances for alcohol, by age, sex and selected states and territories, 2021 to 2022
Notes:
1. Alcohol intoxication is assessed based on paramedic clinical assessment and observation, and/or reported alcohol consumption.
2. 'Alcohol intoxication and other' includes attendances where, in addition to alcohol intoxication, other drug use has been identified.
3. Population rates are calculated as at 30 June 2022.
Source: National Ambulance Surveillance System, Monash University, Turning Point

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 more than half of drug-related hospitalisations in 2021–22 (59% or 80,300 hospitalisations). This represents a rate of 311.4 alcohol-related hospitalisations per 100,000 population (Table S1.15). Alcohol has remained the most common drug recorded in drug-related hospitalisations over the 7 years to 2021–22.

In 2021–22:

- Around 1 in 2 alcohol-related hospitalisations involved an overnight stay (52% or 41,300 hospitalisations), while the remainder ended with a same-day discharge.
- Males were more likely than females to be hospitalised; almost 3 in 5 alcohol-related hospitalisations (58% or 46,300 hospitalisations).

- 1 in 3 alcohol-related hospitalisations were people aged 55 years and over (31% or 24,700 hospitalisations) (Table S1.14).
- Almost 3 in 4 alcohol-related hospitalisations occurred in Major cities (73% or 58,300 hospitalisations) (Table S1.16).
- Alcohol-related hospitalisations were twice as likely in *Remote and Very remote areas* than in *Major cities* (*Remote and Very remote areas* 627.3 hospitalisations per 100,000 population, compared with 316.5 in *Major cities*).

In the 7 years to 2021–22:

- The number of alcohol-related hospitalisations increased between 2015–16 and 2020-21 (from 68,200 to 86,400 hospitalisations), before falling to 80,300 in 2021–22.
- Accounting for population growth, the rate of alcohol-related hospitalisations increased between 2015–16 and 2020-21 (from 284.3 to 337.1 per 100,000 population), then decreased in 2021–22 (311.4 per 100,000).
- The rate of alcohol-related hospitalisations in *Remote and Very remote areas* reflected the rates seen nationally, with a peak in 2020–21 (775.4 per 100,000), declining in 2021–22 (627.3 per 100,000).

Population estimates used to calculate rates for 2020–21 may have been impacted by public health measures introduced during the COVID-19 pandemic. For more information, see the Technical notes.

Alcohol-related injuries

The definitions of alcohol-related conditions in the following injury statistics are different to those reported elsewhere in this report; for methodology and definitions please see Alcohol-related injury: hospitalisations and deaths, 2019–20.

In 2019–20, alcohol-related injury hospitalisations accounted for 5.7% of all injury hospitalisations and 14% of all injury deaths.

Polydrug use was common in alcohol-related injuries, with 55% (16,400) of cases recording the presence of other drugs in addition to alcohol (AIHW 2023b).

Alcohol-related injury hospitalisations

In 2019–20 alcohol-related injuries resulted in 30,000 hospitalisations (118 per 100,000 population). The most common causes of alcohol-related injury hospitalisations were falls (39%), intentional self-harm (24%), assault (15%) and transport (7.2%) (AIHW 2023b).

Alcohol-related injury deaths

In 2019–20, there were 1,900 alcohol-related injury deaths (7.7 per 100,000 population). The most common causes of alcohol-related deaths were suicide (47%), accidental poisoning (26%) and transport (11%).

Among those who died due to alcohol-related injuries:

- 77% of deaths occurred among those aged 25–64 years of age

- males aged 45–64 had the highest number and rate of deaths (590 deaths and 19.5 per 100,000) (AIHW 2023b).

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).

In 2022, ABS Causes of Death reported 1,742 alcohol-induced deaths registered (1,245 males and 497 females) (ABS 2023a, Table 13.11), additionally:

- The alcohol-induced death rate for males was higher than females (8.7 per 100,000 population for males, compared with 3.4 deaths per 100,000 population for females) (ABS 2023a, Table 13.11).
- The highest age-specific rates were for 55–64 (17.5 per 100,000 population) and the lowest rates were for those aged 15–34 (0.8 per 100,000 population) (ABS 2023a, Table 13.12).

Around 9 in 10 (1,588 or 91%) alcohol-induced deaths were related to chronic conditions (including alcoholic liver cirrhosis). Acute alcohol-induced deaths (including alcohol poisoning) accounted for 154 deaths. Additionally:

- 72% of chronic alcohol-induced deaths were for males and 63% were in people aged 55 and over.
- 71% of acute alcohol-induced deaths were for males and 53% were in those aged between 45–64 years (ABS 2023a, Table 13.16).

Australian Institute of Health and Welfare (AIHW) analysis of the AIHW National Mortality Database showed that of the 1,742 alcohol-induced deaths registered in 2022:

- The highest age-specific rates were for older people—17.5 per 100,000 population for those aged 55–64 and 12.5 for those aged 45–54 (Table S1.4b).
- The majority (71%, or 1,245 deaths) were recorded for males (Supplementary Table S1.4a).

The most common associated cause of alcohol-induced death in 2022 was liver disease, followed by mental and behavioural disorders due to psychoactive substance use. Mental and behavioural conditions due to psychoactive substance use was the most common contributor to alcohol-related deaths (Table S1.6).

For more information, see also:

- Health impacts: Deaths due to harmful alcohol consumption.
- Older people: Health and harms
- Younger people: Health and harms

Treatment

The latest Alcohol and other drug treatment services in Australia: early insights report shows that alcohol continues to be the most common principal drug of concern (AIHW 2024a). Alcohol was the principal drug of concern in over 2 in 5 (43%) treatment episodes provided to people for their own drug use in 2022–23, stable from 42% in 2021–22.

Data collected for the AODTS NMDS (AODTS NMDS) are released twice each year: an early insights report in April and a detailed report mid-year. The section below will be updated with information from the annual report once these data become available.

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 2023a).

In 2021–22, where alcohol was the principal drug of concern:

- 3 in 5 (61%) of clients were male and over 1 in 6 (17%) were Indigenous Australians (AIHW 2023a, tables SC.9 and SC.11; Figure ALCOHOL7)
- 26% of clients were aged 30–39 and 25% of clients were aged 40–49 and 26% were aged 30–39 (AIHW 2023a, Table SC.10)
- The most common source of referral was self/family (41% of treatment episodes), followed by health services (39%) (AIHW 2023a, Table Drg.13)
- The most common main treatment type was counselling (35% of treatment episodes), followed by assessment only (22%) and withdrawal management (14%). These 3 main treatment types have remained the most common over the 10-year period to 2021–22 (AIHW 2023a, Table Drg.18; Figure ALCOHOL7)
- The median treatment duration for alcohol was just over 4 weeks (29 days) (AIHW 2023a, Table Drg.21).

Figure ALCOHOL7: Treatment provided for own use of alcohol, 2021–22 (per cent)

Source: AIHW 2023, tables Drg.1, SC.11 and Drg.18.

Where the principal drug of concern was alcohol, the proportion of clients who travelled one 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).

Alcohol cessation medicines

Data from the Pharmaceutical Benefits Scheme (PBS) provide information on the number of prescriptions dispensed and the number of patients dispensed a script under supply of the PBS within a given financial year. The PBS database includes information on medicines that are used to help people stop alcohol consumption or maintain abstinence from alcohol (alcohol cessation medicines). For more information, refer to the Technical notes and Box PHARMS2.

Pharmacotherapy is recommended for all people experiencing moderate to severe alcohol use disorder in Australia and is best used in conjunction with psychosocial support (Haber & Riordan 2021). Data from the PBS indicate that approximately 101,000 scripts for alcohol cessation medicines were dispensed to 37,000 patients in 2021–22 (a rate of 390 scripts dispensed and 140 patients per 100,000 population) (tables PBS77–80). In 2021–22:

- Rates of alcohol cessation medicine dispensing were higher for males than females, and males aged 40–49 had the highest rates of scripts dispensed and patients of any group (around 965 scripts and 380 patients per 100,000 population) (tables PBS82 and PBS84).
- People aged 40–49 and 50–59 had the highest rates of dispensing of any age group (tables PBS82 and PBS84). Rates of dispensing were highest in *Inner regional* areas and dispensing varied between states and territories (tables PBS85–92). For more information, see Older people: Treatment.
- Rates of dispensing were highest in *Inner regional* areas and dispensing varied between states and territories (tables PBS85–92). For more information, see Data by region.

Between 2012–13 and 2020–21, rates of dispensing rose from 245 scripts and 90 patients to 390 scripts and 145 patients per 100,000 population (Supplementary tables PBS78 and PBS80).

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 First Nations 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 First Nations people 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
- 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 (Department of Health 2019).

For more information, see the National Alcohol Strategy 2019–2028- external site opens in new window

Policy support for measures to reduce problems associated with alcohol

Findings from the 2022–2023 NDSHS found the proportion of people who thought excessive alcohol consumption was the drug of most concern for the general community increased from 26% in 2019 to 31% in 2022–2023 (AIHW 2024b, Table 11.5).

The NDSHS included questions aimed at measuring the level of public support for policies to reduce problems associated with alcohol. In 2022–2023, 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 (81%)
- the stricter enforcement of the law against supplying alcohol to minors (77%).

The least supported policy measure was to increase the price of alcohol (25%) (AIHW 2024b, Table 4.68).

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Biomedical risk factors

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/australias-health/biomedical-risk-factors

On this page:

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. Biomedical risk factors outlined in the National Preventive Health Strategy 2021–2030 include:

- high or low blood pressure
- high blood glucose levels
- overweight or obesity, and underweight (see Overweight and obesity)
- high blood cholesterol
- genetics, epigenetics, and telomere biology (Department of Health 2021).

Biomedical risk factors are closely related to behavioural risk factors such as tobacco use and dietary risk factors (Department of Health 2021). They may also be affected by other determinants of health including social, commercial, and environmental determinants. For more information, see What are determinants of health?

This page focuses on 3 biomedical risk factors: high blood glucose, high blood pressure and high blood lipids – which have been directly linked to specific health outcomes such as cardiovascular disease, including coronary heart disease and stroke, chronic kidney disease and diabetes. Overweight and obesity are discussed in Overweight and obesity.

The Australian Bureau of Statistics (ABS) National Health Survey (NHS) is run approximately every 3 years and collects information on both self-reported and measured data. The most recent survey was run in 2022.

National measured data on cholesterol and blood glucose were collected in the Australian Health Survey (AHS) in 2011–12. The ABS is collecting new data on these measures as part of the Intergenerational Health and Mental Health Study; National Health Measures Survey from 2022 to 2024 (ABS 2023d).

Key messages

Blood glucose

- High blood plasma glucose (including diabetes) was responsible for 4.3% of ill health and premature death in Australia and was the fifth leading risk factor contributing to ill health and premature death in 2018.
- 0.6% of adults (without reported diabetes) had ever been told by a doctor or nurse that they have high glucose in their blood or urine in 2022 – similar to in 2017–18 (0.5%).
- 3.1% of adults were at risk of diabetes with measured impaired fasting glucose in 2011-12.

Blood pressure

- High blood pressure was responsible for 5.1% of the ill health and premature death in Australia and was the fourth leading risk factor contributing to ill health and premature death in 2018. High blood pressure contributed to a higher proportion of fatal burden (8.1%) than non-fatal burden (2.3%).
- In 2022, 14.9% of adults reported they had ever been told by a doctor or nurse they have high blood pressure or hypertension – similar to 2014–15 (14.6%) but higher than 2017–18 (13.6%).
- 23.3% of adults had high blood pressure measured in 2022 – higher than in 2011–12 (21.5%). After adjusting for the effects of age, the rate of measured high blood pressure has remained similar over the last decade.
- Of those adults who had high blood pressure measured, 74.5% did not report having hypertension or high blood pressure in 2022 – similar to 2011–12 (71.9%).
- In 2017–18, 34% of adults had measured high blood pressure and/or were taking blood pressure medication. Of these, 32% had their blood pressure controlled with medication (AIHW analysis of ABS 2019).

Blood lipids (cholesterol and triglycerides)

- High cholesterol levels were responsible for 2.7% of ill health and premature death and contributed to 37% of the total coronary heart disease burden and 16% of the ill health and premature death from stroke in 2018.
- In 2022, 10.7% of adults reported they had ever been told by a doctor or nurse they have high cholesterol – higher than 2017–18 (7.8% of adults).
- 32.8% of adults had high cholesterol measured in 2011–12.
- 63.2% of Australian adults had dyslipidaemia or blood lipids outside of the healthy range in 2011–12. This included 56.6% with uncontrolled dyslipidaemia and 6.6% with normal blood lipid levels who were taking lipid-modifying medication.

Multiple biomedical risk factors

- 1 in 4 (25%) Australian adults had both high blood pressure and dyslipidaemia in 2011-12.

Blood glucose

The inability to regulate blood glucose is a characteristic of diabetes (see glossary) and the initial stages of type 2 diabetes, also known as pre-diabetes.

A person may not currently have diabetes but record higher than normal glucose levels, either in the fasting or non-fasting state, placing them at significant risk of diabetes. This includes impaired fasting glucose (see glossary) and impaired glucose tolerance (see glossary).

It is also possible for blood sugar to become too low (hypoglycaemia). This can occur in people with diabetes if they have taken too much medication, have not eaten enough or have been more active than usual, and can be life threatening if not treated (Diabetes Australia n.d.; Health Direct n.d.).

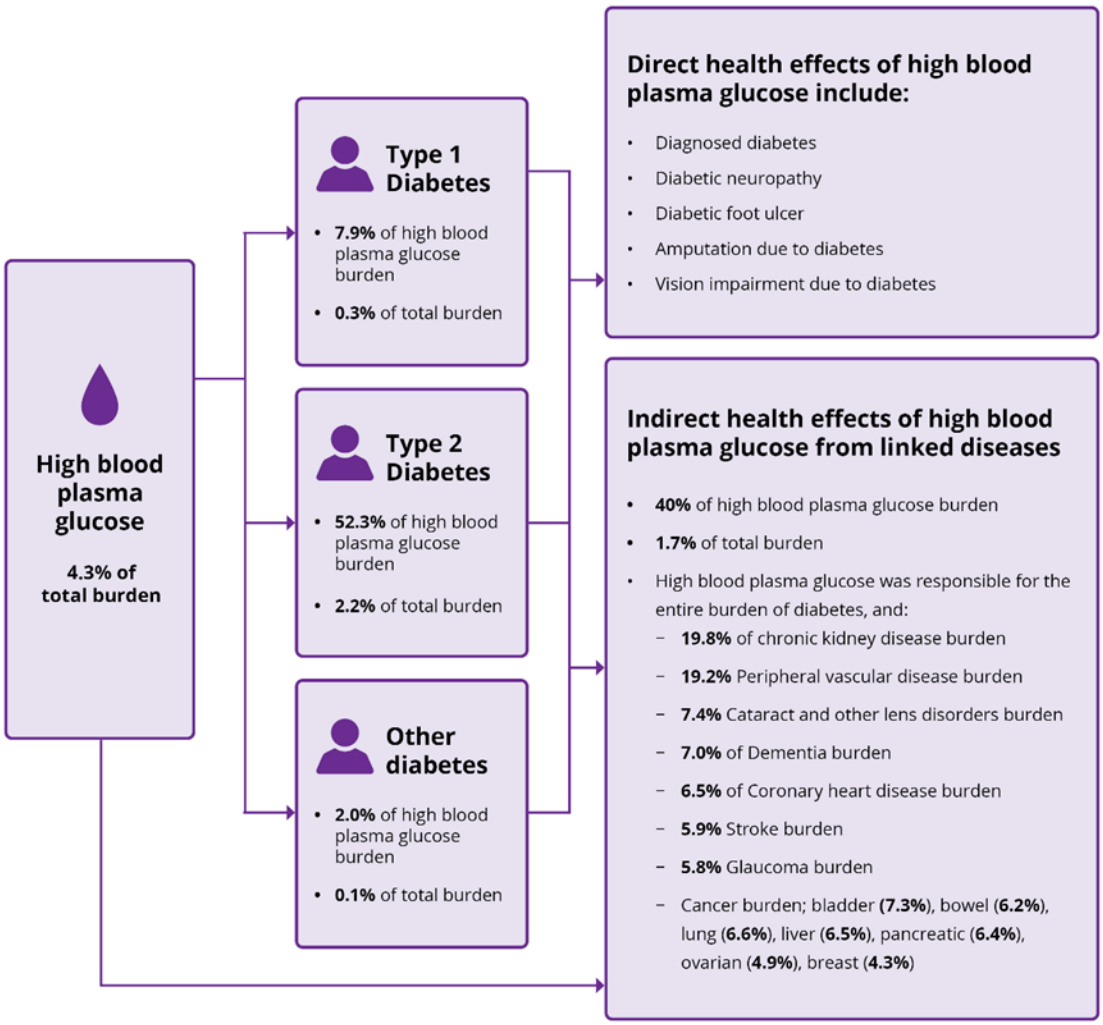
Burden of high blood plasma glucose (including diabetes)

High blood plasma glucose (including diabetes) was responsible for 4.3% of the total burden of ill health and premature death and was the fifth leading risk factor in Australia in 2018 (AIHW 2021). Burden of disease measures the impact of living with illness and injury and dying prematurely (see glossary). This is reported on by the AIHW Australian Burden of Disease Studies, see Burden of disease. High blood plasma glucose includes the direct and indirect health effects of type 1 diabetes, type 2 diabetes, other diabetes, and high blood plasma glucose (Figure 1).

Type 2 diabetes contributes 2.2% of the total burden of disease in Australia (Figure 1). More than half of the high blood plasma glucose attributable burden is from the direct health effects of type 2 diabetes. Much of this burden can be prevented by addressing health determinants (see glossary) which lead to risk factors for type 2 diabetes. Risk factors include overweight and obesity, dietary risks, insufficient physical activity, air pollution, tobacco smoking, high blood pressure and excess alcohol intake.

For more information on diabetes, see Diabetes: Australian facts, Diabetes risk factors.

Figure 1: Burden of disease directly and indirectly attributable to high blood plasma glucose in 2018



Note: High blood plasma glucose is defined as per the Australian Burden of Disease Study (AIHW 2021)

Source: AIHW 2021, 2023.

Self-reported data on impaired fasting plasma glucose

In 2022, among adults (aged 18 and over), 0.6% reported having high glucose levels measured in their blood or urine, this does not include people who have been told by a doctor or nurse they have diabetes (ABS 2023e). This is similar to 2017–18 (0.5% of adults) (AIHW analysis of ABS 2019). Men (0.5%) and women (0.6%) reported similar levels of having high glucose levels measured in their blood or urine (ABS 2023e).

Measured data on impaired fasting plasma glucose

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 National Health Measures Survey, impaired glucose regulation was assessed via measurement of fasting plasma glucose levels. The proportion of adults (aged 18 and over) who were identified in 2011–12 as being at high risk of diabetes with impaired fasting plasma glucose was 3.1%. This was higher among men (4.1%) than women (2.1%) (ABS 2013a).

The proportion of adults with measured impaired fasting glucose generally increased with increasing age and was highest among people aged 75 and over (7.5%) compared with those aged 35–44 (2.1%) (ABS 2013a).

Blood pressure

High blood pressure – also known as hypertension (see glossary) – is a risk factor for chronic conditions, including stroke, coronary heart disease, dementia and chronic kidney disease.

High blood pressure is defined as when the systolic blood pressure is greater than or equal to 140 mmHg, and/or diastolic blood pressure is greater than or equal to 90 mmHg. Hypertension is a diagnosed medical condition where your blood pressure is consistently high, a single high measurement indicates a need for further medical follow up. Generally, if you have a high blood pressure reading taken on at least 2 separate days by a health professional, you may have a diagnosis of hypertension (Health Direct n.d.; Heart Foundation n.d).

Treatment of high blood pressure is usually through a healthy diet, keeping active, avoiding smoking and taking medication. Well controlled high blood pressure means your blood pressure measurements are in the normal range – if the systolic blood pressure is less than 130 mmHg and/or diastolic blood pressure is less than 80 mmHg. A doctor will advise patients what their ideal blood pressure should be, based on their medical history (Health Direct n.d.; Heart Foundation n.d.).

Burden of high blood pressure

High blood pressure is the fourth leading risk factor contributing to 5.1% of ill health and premature death (total burden) in Australia in 2018. It contributed to a higher proportion of all fatal burden (8.1%) than non-fatal burden (2.3%) (AIHW 2021).

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 2021).

Self-reported data on high blood pressure or hypertension

The 2022 National Health Survey asked respondents whether they have high blood pressure or hypertension and invited respondents over 18 to have their blood pressure measured.

High blood pressure or hypertension was self-reported by 14.9% of adults (aged 18 years and over) in 2022. This is similar to 2014–15 (14.6%) but higher than 2017–18 (13.6%).

Rates of self-reported high blood pressure or hypertension were similar among men (15.2%) and women (14.6%) in 2022 (ABS 2023c).

Measured data on high blood pressure

Measured high blood pressure can indicate that a person may have hypertension or that their hypertension is uncontrolled and that they may need follow up with a health professional to strengthen their treatment.

Based on measured data, 23.3% of adults had high blood pressure in 2022. This was higher among men (24.5%) than women (22.1%) (ABS 2023c).

Measured high blood pressure increased with increasing age from 11.4% of 18–44-year-olds, 29.5% of 45–64-year-olds, 38.9% of 65–74-year-olds to 42.9% of people aged 75 years and older (ABS 2023f).

After adjusting for the effects of age the rate of measured high blood pressure has remained similar over the last decade (ABS 2023f).

Self-reported high blood pressure considerably underestimates the true impact of high blood pressure in the population, as it often presents no symptoms and many people therefore remain unaware they have out-of-range levels. Of those adults who had measured high blood pressure, 74.5% did not report having hypertension or high blood pressure (ABS 2023c), similar to 2011–12 (71.9%) (ABS 2013b).

Controlled high blood pressure

People with high blood pressure (hypertension) are considered to have it under control if the measurements are in the normal range. This control can occur by following a healthy diet, keeping active, avoiding smoking and taking medication.

In December 2022, The Minister for Health and Aged Care, officially launched The National Hypertension Taskforce, which is a cross sector collaboration hosted by the Australian Cardiovascular Alliance, Hypertension Australia and including amongst others, the Heart Foundation and Stroke Foundation (Australian Cardiovascular Alliance n.d.).

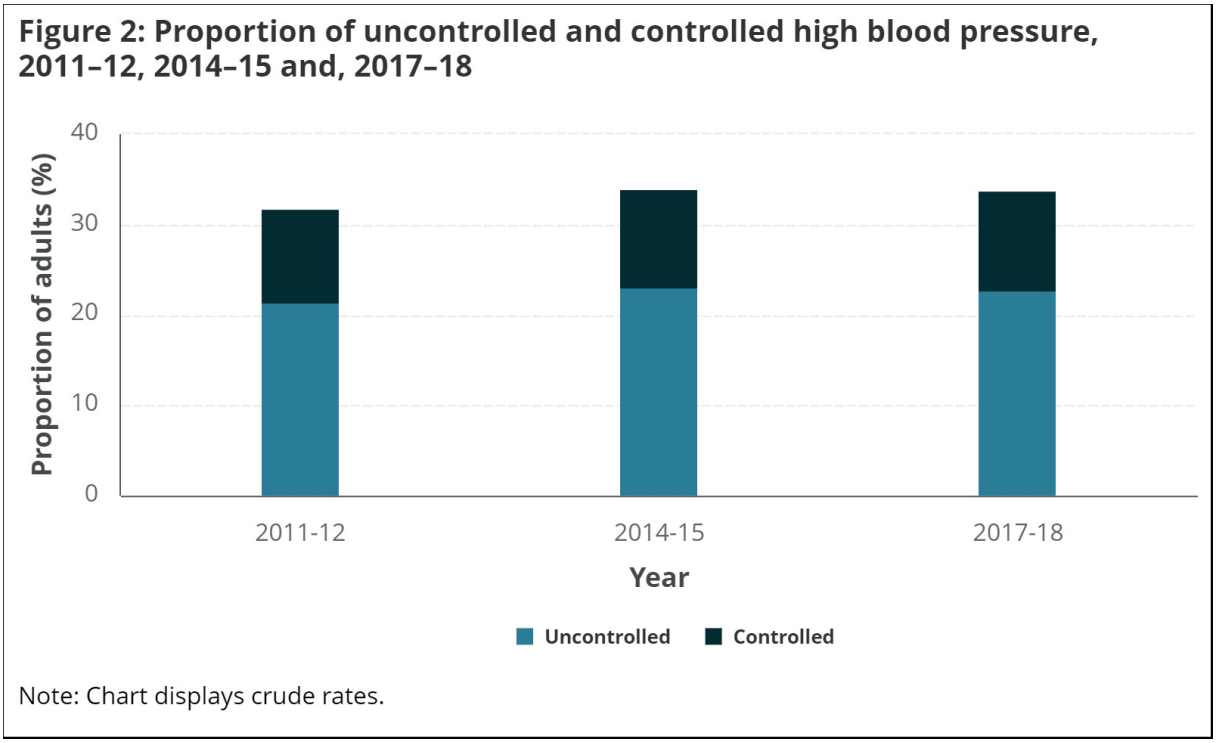
The Taskforce aims to improve the proportion of people with controlled blood pressure in Australia to 70% by 2030 through increasing the prevention, detection and effective treatment of hypertension and bringing together primary health care and allied health professionals (National Hypertension Taskforce 2023).

In 2017–18, 33.7% of adults had measured high blood pressure and/or were taking blood pressure lowering medication. Of these 32.2% had their blood pressure controlled with medication (AIHW analysis of ABS 2019). After adjusting for age, these rates have not improved since 2011–12.

In 2017–18, 29.3% of men and 35.5% of women were controlling their blood pressure with medication. This was similar to 2014–15 (30.9% of men and 32.5% of women) and 2011–12 (30.8% of men and 33.0% of women) (AIHW analysis of ABS 2014, 2016, 2019).

New data for controlled high blood pressure in Australia will be available later in 2024.

Figure 2: Proportion of uncontrolled and controlled high blood pressure, 2011–12, 2014–15 and 2017–18



Source: AIHW analysis of ABS data (ABS 2014, 2016, 2019)

Blood lipids (cholesterol and triglycerides)

Blood lipids are fats in the blood and include cholesterol and triglycerides (see glossary). Cholesterol is a fatty substance produced by the liver and carried by the blood to supply material for cell walls and hormones (see glossary). Triglycerides play an important role in metabolism as an energy source and in helping to transfer dietary fat throughout the body (see glossary).

When blood lipids are outside of the healthy range it is referred to as dyslipidaemia (see glossary). 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 blood lipids. The standard lipid blood tests include measurements of total cholesterol, low-density

lipoprotein cholesterol (LDL, or 'bad' cholesterol – see glossary), high-density lipoprotein cholesterol (HDL, or 'good' cholesterol – see glossary), as well as triglycerides.

Burden of high cholesterol

High cholesterol was the eighth leading risk factor and contributed to 2.7% of the ill health and premature deaths in Australia in 2018. It contributed 37% of coronary heart disease and 16% of stroke total burden (AIHW 2021). For more information, see Burden of disease.

Self-reported data on high cholesterol

In 2022, 10.7% of Australian adults reported having high cholesterol (ABS 2023b). In 2017–18, 7.8% of adults reported having high cholesterol. High cholesterol was reported by similar proportions of men (10.8%) and women (10.6%) in 2022 and increased with increasing age, from 1.1% for people aged 18–34 years to 29.0% among people 75 years and over (ABS 2023b).

Measured data on blood lipids (cholesterol and triglycerides)

In the 2011–12 AHS, 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 2013a).

Based on these data, around 2 in 3 (63.2%) Australian adults had dyslipidaemia or blood lipids outside of the healthy range. This included 56.6% with uncontrolled dyslipidaemia and 6.6% with normal blood lipid levels who were taking lipid-modifying medication (AIHW analysis of ABS 2014; AIHW 2015). Men (63.7%) and women (62.8%) had similar levels of dyslipidaemia.

Self-reported data underestimate the true impact of dyslipidaemia in the population, as many people are unaware of their blood lipid levels. In 2011–12, the most recent year when measured data was collected, 1 in 3 (32.8%) Australians adults had abnormal or high total cholesterol levels according to their blood test results, similar for men and women (32.4% and 33.2%, respectively) (ABS 2013a).

Other biomedical risk factors

The Australian Burden of Disease Study also estimated the contribution of other biomedical risk factors to the total burden of disease in Australia. These are:

- low birth weight and short gestation – contributed 0.7% of total disability-adjusted life years (DALYs; see glossary) in 2018

- low bone mineral density – contributed 0.4% of total DALYs in 2018
- iron deficiency – contributed 0.3% of total DALYs in 2018
- impaired kidney function – contributed 1.9% of total DALYs in 2018 (AIHW 2021).

Multiple biomedical risk factors

Biomedical risk factors can interact and have a cumulative effect on disease risk. Having multiple risk factors can increase the risk of diseases developing, 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 overweight.

Based on measured data from the 2011–12 AHS, 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 increasing 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).

Where do I go for more information?

For more information on biomedical risk factors, see:

- AIHW Heart, stroke and vascular disease: Australian facts, Risk factors
- AIHW Australian Burden of Disease Study 2018: Interactive data on risk factor burden
- Australian Bureau of Statistics (ABS) Australian Health Survey: Biomedical Results for Chronic Diseases, 2011-12 financial year
- ABS National Health Survey, 2022

For more on this topic, see Risk factors.

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Built environment and health

Find the most recent version of this topic summary at:
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On this page

The built environment is a determinant of health due to its ability to affect health outcomes through activity levels, access to nutritious food and clean water, the houses we live in, where we work, contact with nature and the spaces we have for social interactions (see What are determinants of health?). 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 and affects the natural environment through the use of land, water and energy resources, as well as waste and emissions produced. Managing these interactions is important in minimising negative impacts of urban development, such as pollution and urban heat islands (see glossary), which can affect the health of the people that live there as well as the surrounding environment (Hill et al. 2021). For more information, see Natural environment and health and What are determinants of health?

Urban form

The shape, size, population density and layout of a city is known as the urban form. This is characterised by components constructed by humans, including buildings and public places, as well as natural elements such as rivers and coastlines (Hill et al. 2021). In 2022–23, 90% of the Australian population lived in *Major cities* or *Inner regional* areas

(ABS 2024). Despite Australian cities being highly urbanised, they have unusually low population densities by international standards (Hill et al. 2021).

Although many Australian cities are being developed for higher density living, particularly inner-city areas, new suburbs continue to be developed on the outer areas of cities contributing to urban sprawl (see glossary). These suburbs are characterised by low densities and having, on average, greater distances to travel to services, amenities and work (Coleman 2017).

Walkability

Neighbourhood walkability (see glossary) affects health through its impact on physical activity and social connectedness (see glossary) (Kaczynski and Glover 2012). People are more likely to walk for transport, recreation or exercise if they live in neighbourhoods that are perceived as safe, are within a walkable distance of destinations (such as public transport services), have well-designed footpaths and safe pedestrian crossings, and higher residential densities (Gebel et al. 2009; Kamruzzaman et al. 2016; Larranaga et al. 2019; Majumdar et al. 2021). Lower neighbourhood walkability has been associated with increased risk of obesity, type 2 diabetes and high blood pressure (Chandrabose et al. 2019).

Participating in 30 minutes of walking on average a day can lower the risk of heart disease, stroke, and diabetes (Heart Foundation 2019). The health benefits increase with increased levels of activity and intensity (Hamer and Chida 2008; Williams and Thompson 2013). Adding 15 minutes of brisk walking, 5 days each week, could reduce disease burden due to insufficient physical activity by about 13% in Australia (AIHW 2017).

A 'walkability index' has been created by the Centre for Urban Research, which combines dwelling density, street connectivity (see glossary) and access to daily living destinations, such as public transport and a supermarket (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 increased compliance with policy was associated with increased likelihood to walk within their neighbourhood.

Public open space

Public open space includes a variety of green and blue spaces (see glossary) in the urban environment such as parks, nature reserves, gardens, plazas, beaches and riverbanks that are accessible by the public. They are important for recreation, enjoyment and social connection purposes, as well as enhancing the environmental quality of

neighbourhoods and providing a cooling effect (AIHW 2022a; Rozek et al. n.d.; UN-Habitat 2018).

In 2021, data from the Australian Urban Observatory showed variation in the proportion of dwellings that were within 400m of a public open space of at least 1.5 hectares in size, across Australian capital cities. Canberra had the highest proportion (72%) and Hobart had the lowest (40%). For all remaining capital cities, around half of dwellings were within 400m of a public open space 1.5 hectares or greater in size (Gunn et al. 2020).

A recent AIHW report using data from the Australian Bureau of Statistics' (ABS) 2017–18 National Health Survey (NHS), examined whether the distance between where people lived and public open spaces was associated with the prevalence of health risk factors, including obesity and insufficient physical activity, by socioeconomic area. Data showed that living closer to public open spaces did not account for the inequalities in health risk factors often observed for people living in the lowest socioeconomic areas (AIHW 2022b). Further work is required to examine how the quality and safety of public open spaces influences usage of these spaces, and associated effects on health risk factors.

Green space

Green space (see glossary) includes areas of public and private land that feature some form of vegetation, such as nature reserves, public parks, residential gardens and outdoor sporting facilities (AIHW 2011). Green space has various positive impacts on physical and mental health (AIHW 2022a; Sugiyama et al. 2008; 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 recreational walking for 150 minutes or more in a week (equivalent to the Physical activity and exercise guidelines for all Australians, specifically 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). Additionally, factors other than access to green spaces may be associated with their use. For example, research has shown that lower socioeconomic neighbourhoods are less likely to have green space availability and hence fewer opportunities to use these spaces (Astell-Burt et al. 2014). The quality of available green spaces is often poorer in these areas, when compared with high socioeconomic areas. This is due to factors such as reduced safety, maintenance, cleanliness and aesthetics (Ghanem and Edirisinghe 2022).

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 (Frumkin et al. 2017; Kuo

2015). Green space also mitigates against urban heat islands (see glossary) and extreme heat. Urban areas are susceptible to increasing temperatures and frequencies of heatwaves, due to reductions in urban green space, increasing urban densification and built environment infrastructure such as roads and buildings. As a result, this is likely to become more prominent with climate change, as average annual temperatures continue to increase (AIHW 2022a; Hill et al. 2021; NSW Government n.d.b).

Transport

An easily accessible, reliable and affordable transport system is an essential part of a healthy built environment. It enables access to employment, education, health care, social events, leisure activities and fresh food shops. Transport systems can positively influence health by promoting active travel (see glossary) and subsequently reducing sedentary behaviour, or negatively influence health and the environment (EEA 2014, 2022; Infrastructure Australia 2019; Mihaylova 2021; Williams et al. 2021).

How do Australians commute to work?

On the day of the 2021 Census of Population and Housing (Census), 8.1 million people travelled to their workplace. Of these people:

- 86% travelled by private vehicle
- 7.2% took public transport
- 4.8% either cycled or walked (ABS 2022a).

Shorter commuting distances are generally associated with lower prevalence of health risk factors. Self-reported data from the 2017–18 NHS show that living in an area with an average commuting distance to work of between 5 and 10 km was associated with lower prevalence of obesity (26%) and insufficient physical activity (48%), compared with living in an area with an average commuting distance of 20km or more (38% and 55%, respectively) (AIHW 2022b).

In 2020, one notable change to commuting practices was the introduction of working from home. This was driven by COVID-19 lockdowns which in some regions required people to work from home and changed employment practices allowing for greater flexibility in workplace arrangements (AIHW 2023a). Between September 2020 and February 2021 during the pandemic, 26%–31% of people worked from home. Following COVID-19, working from home is likely to remain in some capacity into the future, with 30% of people in April 2022 working from home on all or most days of the week in the last 4 weeks – twice as many as pre-pandemic levels (AIHW 2023a). Many people are opting for a mixed model of both working from home and in the office each week (AIHW 2023a). With trends of increasing working from home, it will be important to monitor how these impact physical activity levels in future. For more information, see Changing patterns of work.

Car dependence

The majority of Australians depend on their cars for transport (ABS 2020). While cars allow for increased mobility and convenience, and technology is leading 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 and as a result, less access to employment, education and other social infrastructure (Infrastructure Australia 2018). Car dependence can also:

- increase traffic congestion, greenhouse gas emissions, and air and noise pollution (Climate Council 2017; EEA 2014; Infrastructure Australia 2019)
- lead to an increase in traffic accident injuries (AIHW 2023c)
- affect respiratory and cardiovascular health, as well as mental health and life satisfaction (BITRE 2016; Giles-Corti et al. 2016)
- be associated with poor health-related behaviours such as sedentary lifestyles, reduced sleep, higher odds for smoking and growing rates of obesity (Ding et al. 2014; Sugiyama et al. 2020).

Poor air quality due to traffic emissions tends to concentrate around major road corridors and can be harmful to both human health and the ecosystem (Infrastructure Australia 2019). Traffic emissions are reduced with the use of electric vehicles. In 2023, electric cars made up 8.4% of all new car sales in Australia compared with 3.8% in 2022 (Electric Vehicle Council 2023). Despite this substantial increase, Australia is still overall slower with the uptake of electric vehicles when compared with other countries such as Europe and the UK (DCCEEW 2023). The National Electric Vehicle Strategy, released in 2023, provides a framework for increasing electric vehicle uptake, to assist in achieving Australia's emissions reduction goals and improve wellbeing of Australians. New initiatives within the strategy include the introduction of a Fuel Efficiency Standard for new light vehicles, to encourage increased supply of affordable and accessible electric vehicles in Australia, and a focus on preparation for recycling, reuse and stewardship for electric vehicle batteries (DCCEEW 2023). It is anticipated that this will have positive impacts such as cheaper running costs and reducing road transport emissions (DCCEEW 2023).

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 increased vulnerability to changes in fuel prices and mortgage stress (Dodson and Sipe 2008; Infrastructure Australia 2019).

Traffic accidents

Traffic-related accidents are a major public health issue and can result in injury, disability or death. Road traffic accidents result from a multitude of factors relating to the elements of the built environment, such as population density, land use mix, road

design and signage (Ewing and Dumbaugh 2009). For more information, see Transport accidents.

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 which can subsequently benefit physical, mental and social health
- reductions in greenhouse gas emissions and traffic congestion and less noise and air pollution (Burke et al. 2019).

Living in close proximity to a mix of destinations, such as public transport stops and shops, was 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 well-lit streets and footpaths which contribute towards improved traffic safety (Sallis et al. 2012).

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 or 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 options (Dutko et al. 2012; Fleischhacker et al. 2011; Lewis and Lee 2016; Whelan et al. 2018). 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 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.

For more information, see Diet and Overweight and obesity.

Housing

Access to housing that is affordable, sustainable and appropriate can influence people's health and wellbeing. Housing provides shelter, safety, security and privacy, enabling people to participate in the social, economic and community aspects of their lives

(Moreland City Council 2020). 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).

However, affordable housing is often located further away from city centres and employment areas. This can compound socioeconomic health inequalities, as people living in these areas may have longer travel times, increased travel costs, and decreased time to engage in healthy behaviours such as physical activity (Christian 2012; Daley et al. 2018; Trubka et al. 2010).

In Australia, building design codes regulate the design of insulation, ventilation, room sizes, ceiling heights and access to sunlight of dwellings (National Construction Code 2022). However, the built environment has not adapted to the changing Australian climate, particularly extreme heat events (DCCEEW 2022; NSW Government n.d.a).

The 2019–20 ABS Housing Mobility and Conditions survey found that 4.2% of households reported being dissatisfied/very dissatisfied with their current dwelling, of which almost half (49%) reported poor condition of the dwelling as being the most common reason (ABS 2022b). 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 impacts on children's social and emotional wellbeing (Dockery et al. 2013).

In cities, housing affordability and homelessness are major challenges. On Census night in 2021, around 122,000 people were experiencing homelessness (ABS 2023), and in 2019–20 around 1 million low-income households were in financial housing stress (ABS 2022c; AIHW 2023b). For more information, see Housing affordability and Homelessness and homelessness services.

As people spend, on average, 87% of their time indoors (69% in residential environments) the indoor environment is important for health (Klepeis et al. 2001). Of particular concern is indoor air quality (WHO 2021). Indoor air pollution is generated from a wide range of sources, including wood fire heaters, gas appliances, chemicals, tobacco smoke, and mould (Emmerson and Keywood 2021). Infectious diseases can also be present in indoor air-borne particles (Morawska et al. 2022). Many factors can influence indoor air quality, including building location and quality, ventilation, personal behaviours and outdoor air pollution levels (Emmerson and Keywood 2021; Seguel et al. 2017). Health impacts of poor indoor air quality include respiratory diseases, allergies, asthma, cancer and cardiovascular disease (Kumar et al. 2023; WHO 2021). Children, the elderly and people with existing conditions, such as asthma are particularly at risk of harmful effects (Bentayeb et al. 2015; Maung et al. 2022). In Australia, there are currently no specific national performance standards or controls for indoor air, other than in certain workplace situations, in accordance with Safe Work Australia (DCCEEW 2021; Morawska et al. 2022).

Living in appropriately sized housing that isn't overcrowded is an important determinant of physical and mental health. Overcrowding can affect education and health outcomes, and increases the spread of infectious diseases, such as COVID-19 and acute rheumatic fever (Baker et al. 2013; Ghosh et al. 2021; Infrastructure Australia 2019; Jaine et al.

2011). Many population groups are particularly vulnerable to household overcrowding, such as Aboriginal and Torres Strait Islander (First Nations) people and those who are socioeconomically disadvantaged (AIHW 2019; Buckle et al. 2020; Dockery et al. 2022).

For more information, see Determinants of health for First Nations people, Housing circumstances of First Nations people, Social determinants of health, Health of people experiencing homelessness, and Housing assistance in Australia.

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). Features of the built environment that can affect water quality include urban stormwater runoff, household wastewater, and by-products of industry and agriculture. Extreme weather events, such as floods, storms, drought and bushfires also impact the quality and availability of water resources and can contribute to waterborne diseases (Smith et al. 2011; van Vliet et al. 2023).

Use of contaminated water for drinking or for food preparation practices such as washing fruit and vegetables, or food containers can lead to illness. In addition, use of contaminated water for irrigation of food-based crops is a potential source of food-borne diseases (Bhagwat 2019; Steele and Odumeru 2004).

While most Australians have access to good quality drinking water, research has shown that water quality in rural and remote communities is commonly of lower quality than in metropolitan areas (Wyrwoll et al. 2022). This is likely due to water and wastewater infrastructures being poorly maintained, routinely failing, or failing to provide services to the appropriate standard (Infrastructure Australia 2019). Additionally, bore and rain water, which is often used in rural and remote communities, is prone to contamination with heavy metals, chemicals, microbes, organic matter and dust (Doble et al. 2023).

The increasing demand for water due to population and economic growth, as well as greater expected frequency of severe droughts, is likely to challenge the available water supply and quality over the coming years (Green and Moggridge 2021).

Where do I go for more information?

For more information on the built environment and health, see:

- AIHW: Health and the environment: a compilation of evidence
- AIHW: Climate change and environmental health indicators: reporting framework
- Department of Climate Change, Energy, the Environment and Water: Australia's State of Environment Report 2021
- Infrastructure Australia: Australian Infrastructure Audit 2019: An Assessment of Australia's Future Infrastructure Needs

- Heart Foundation: Blueprint for an Active Australia

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Diet

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Page highlights

Fruit and vegetable intake

In 2022, the proportion that did not meet the recommended daily serves of fruit was:

36% of children and adolescents aged 2–17 and 56% of adults aged 18 and over.

higher in adults aged 18 and over living in the lowest socioeconomic areas (62%) compared with 54% of those living in the highest socioeconomic areas, after adjusting for age

similar across remoteness areas for adults aged 18 and over

56% in adults aged 18 and over, an increase from 49% in 2017–18.

In 2022, the proportion that did not meet the recommended daily serves of vegetables was:

96% of children and adolescents aged 2–17 and 94% of adults aged 18 and over

higher in adults aged 18 and over living in the lowest socioeconomic areas (96%) compared with 94% of those living in the highest socioeconomic areas, after adjusting for age

similar across remoteness areas for adults aged 18 and over

94% in adults aged 18 and over, which has remained stable since 2007–08.

Intake of grains, meat and dairy and alternatives

In 2011–12, on average, Australians generally did not meet the recommended serves of grains, meat and alternatives, and dairy products and alternatives each day.

Between 2018–19 to 2022–23, the number of serves available per person from food purchased (apparent consumption) remained similar for lean meats and alternatives, and decreased for vegetables, fruit, grains and cereals, and dairy and alternatives.

Intake of discretionary foods

In 2011–12, between 29% and 41% of energy intake was from discretionary foods in children and adolescents aged 2–18; in adults, this ranged from 31% to 37%.

Between 2018–19 to 2022–23, available dietary energy per person from foods purchased (apparent consumption) increased for discretionary foods such as potato crisps and chocolate, and convenience meals.

In 2022–23, available dietary energy from sugar, saturated fat and sodium in foods purchased were all above the average recommended nutrient requirements.

What are the health impacts of dietary risks?

In 2018, dietary risk factors were the third leading preventable cause of ill health and premature deaths.

Males experienced a greater amount of disease burden due to dietary risk factors than females.

Strategies to improve the consumption of a healthy diet

The National Preventive Health Strategy (NPHS) outlines the long-term approach to preventive health in Australia. It includes measurable targets to increase vegetable intake and reduce consumption of discretionary foods, sugar and sodium.

The National Obesity Strategy is a framework for action to prevent, reduce and treat overweight and obesity in Australia and shares measurable targets with the NPHS for improving consumption of a healthy diet.

Current monitoring of the progress against the targets shows that since 2017–18, the average number of serves of vegetables and fruit consumed have generally decreased in children, adolescents and adults.

The food and beverages we eat and drink (our diet) play an important role in our overall health and wellbeing. Food provides energy, nutrients and other components that, if provided in insufficient or excess amounts can result in ill health. The conditions often affected by our diet include coronary heart disease, stroke, high blood pressure, some forms of cancer, type 2 diabetes, dental caries and nutritional anaemias.

What should Australians eat?

The Australian Dietary Guidelines- external site opens in new window (ADG) (NHMRC 2013b) provide advice on healthy eating habits to promote overall health and wellbeing,

reduce the risk of diet related diseases and protect against chronic conditions. They recommend Australians eat a wide variety of nutritious foods from the 5 food groups every day, including eating:

- plenty of vegetables, including different types and colours and legumes/beans
- fruit
- grain (cereal) foods, mostly wholegrain and/or high fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley
- lean meats and alternatives and poultry, fish, eggs, tofu, nuts, seeds and legumes/beans
- dairy, including milk, yoghurt, cheese and/or their alternatives, mostly reduced fat (reduced fat milks are not suitable for children under 2)
- drink plenty of water.

Essential nutrients for good health are found in varying amounts throughout many different food groups. Variety in the diet maximises the possibility of obtaining enough of these essential nutrients.

Discretionary foods are foods that are not needed to meet nutrient requirements and do not fit into the 5 food groups. They are high in kilojoules, saturated fat, sodium (such as salt), added sugars and alcohol (NHMRC 2013b). The ADG recommends that discretionary foods should be consumed occasionally and in small amounts.

The ADG also provides 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. For more information on the dietary guidelines, see the Australian Dietary Guidelines- external site opens in new window.

For more information on the data sources used for this report, and for a summary of the recommended servings of the 5 food groups, please see Technical notes.

Fruit and vegetable intake

Children and adolescents

In 2022, based on self-reported daily consumption data from the Australian Bureau of Statistics (ABS) 2022 National Health Survey (NHS), for children and adolescents aged 2−17, it was estimated that:

- 36% did not meet the recommended serves of fruit.
- 96% did not meet the recommended serves of vegetables.
- 96% did not meet the recommended serves of fruit and vegetables.
- 5.8% did not eat any fruits and 4.5% do not eat any vegetables (ABS 2023d) (Figure 1).

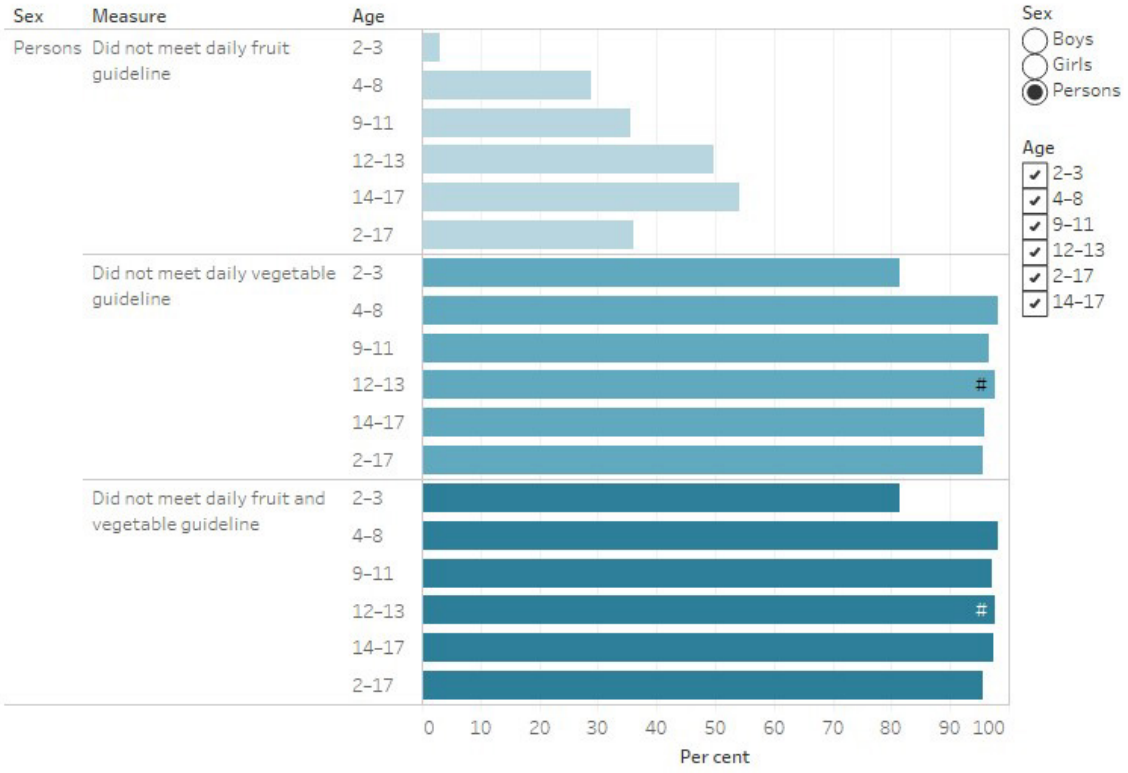
The proportion of children and adolescents who did not meet the recommended serves of fruit and vegetables each day increased with age (ABS 2023d). Noting that the ADG recommendations also increases with age (NHMRC 2013b).

When comparing children in the youngest age group (2–3 years) with adolescents in the oldest age group (14–17 years), in 2022:

- 3.2% did not meet the recommended serves of fruit compared to 54%, respectively.
- 81% did not meet the recommended serves of vegetables compared to 96%, respectively.
- 81% did not meet the recommended serves of fruit and vegetables compared to 97%, respectively (ABS 2023d).

There were no differences in the proportion of boys and girls aged 2–17 who did not meet the recommended serves of fruit or vegetables (ABS 2023d) (Figure 1).

Figure 1: Proportion of children and adolescents aged 2–17 who did not meet the recommended serves of fruit and vegetables, by age group and sex, 2022



Proportion has a high margin of error and should be used with caution.
Source: ABS 2023d. See Data Table S1 for data and footnotes.
http://www.aihw.gov.au/

Adults

Most adults do not eat the recommended serves of fruit and vegetables. In 2022, based on self-reported daily consumption data from the ABS 2022 NHS:

- 56% did not meet the recommended serves of fruit.
- 94% did not meet the recommended serves of vegetables.
- 96% did not meet the recommended serves of fruit and vegetables.
- 12% did not eat any fruit and 1.8% did not eat any vegetables (ABS 2023c).

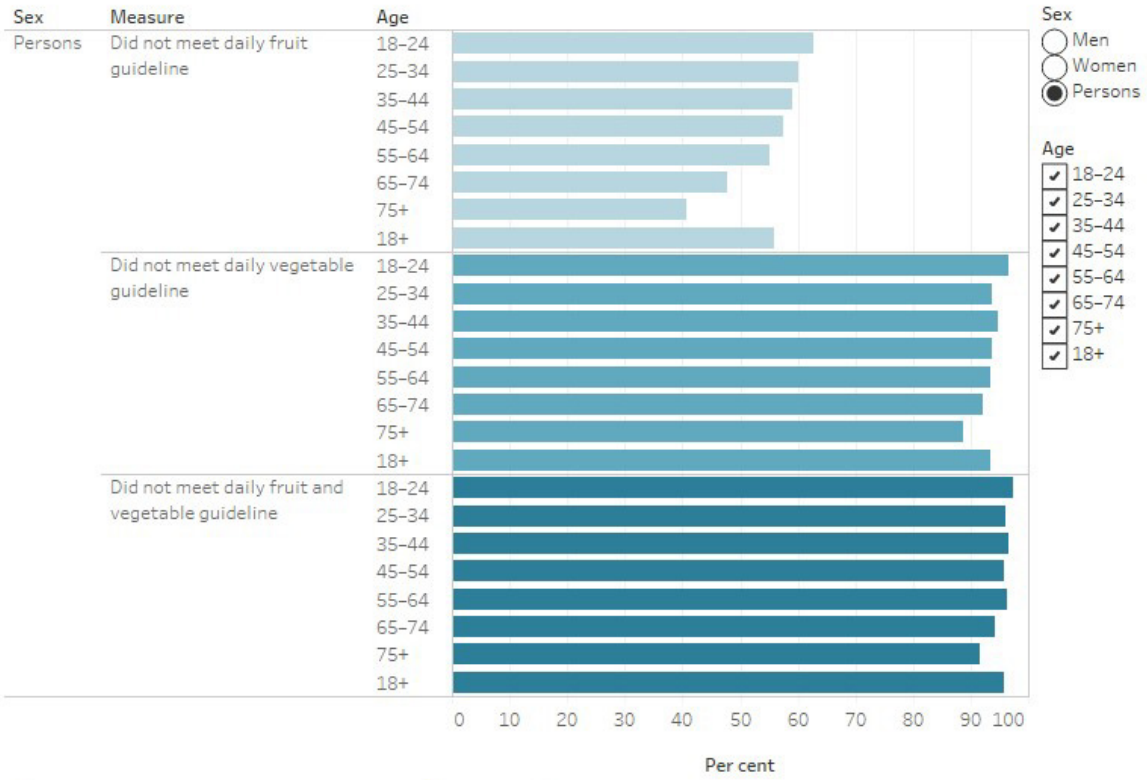
The proportions of adults who did not meet the recommended serves of fruit and vegetables decreased with age:

- 63% of those aged 18–24 did not meet the recommended serves of fruit, compared with 41% of people aged 75 and over.
- 97% of adults aged 18–24 did not meet the recommended serves of vegetables compared with 89% of people aged 75 and over (Figure 2) (ABS 2023c).

In 2022, men aged 18 years and over were less likely than women to meet the recommended serves of fruit and vegetables:

- 58% of men did not meet the recommended serves of fruit compared with 53% of women.
- 97% of men did not meet the recommended serves of vegetables compared with 90% of women (ABS 2023c) (Figure 2).

Figure 2: Proportion of adults aged 18 and over who did not meet the recommended serves of fruit and vegetables, 2022



Proportion has a high margin of error and should be used with caution.
Source: ABS 2023c. See Data Table S2 for data and footnotes.
http://www.aihw.gov.au/

Increasing vegetable consumption in children and adults is a target in the National Preventive Health Strategy 2021–2030 and the National Obesity Strategy 2022–2032 – see section Strategies to improve consumption of a healthy diet.

Trends in fruit and vegetable intake

The proportion of adults aged 18 and over:

- who did not meet the recommended serves of fruit increased to 56% in 2022 from 49% in 2017–18. In the previous decade from 2007–08 to 2017–08, this proportion remained between 49% to 52%.
- who did not meet the recommended serves of vegetables has remained relatively stable between 2007–08 to 2022, at around 92%–94%.
- who did not meet the recommended fruit and vegetable remained stable at 96% in 2022, compared with 95% in 2017–18. In the previous decade from 2007–08 to 2017–18, this proportion remained between 95% and 96% (ABS 2023b) (Tables S3).

Apparent consumption

Box 1: What is apparent consumption?

The overall food and non-alcoholic drinks purchased from the food retail sector can be monitored over time to see how this profile changes. It represents foodstuff available for people to consume and does not account for foods that have been stored, wasted or not consumed (ABS 2024). The measure is known as apparent food consumption.

The estimates include food and non-alcoholic drinks purchased from:

major supermarkets and fresh food markets

convenience stores

butchers and seafood shops

bakeries and delis (ABS 2024).

It does not include food purchases from fast food outlets, cafes and restaurants, and foods that were obtained from foraging, hunting or fishing.

It is not possible using these data to determine the consumption patterns of individuals or groups such as consumption by age (ABS 2024).

For further information, refer to the Apparent Consumption of Selected Foodstuffs, Australia methodology- external site opens in new window and the Technical notes.

The number of serves of fruit and vegetable available per person from foods purchased (apparent consumption) is less than the recommended number of serves from the dietary guidelines and has:

- decreased for fruits, to 1.3 serves in 2022–23 from 1.4 serves in 2021–22
- decreased for vegetables and legumes/beans, to 2.2 serves in 2022–23 from 2.4 serves in 2021–22.

Vegetables had the largest absolute decrease in apparent consumption, across all 5 food groups, followed by fruit and dairy and alternatives. These data relate to food purchased and does not account for wastage and spoilage which is a particular issue with these food groups (ABS 2024).

How do dietary patterns vary by population groups?

For information on diet among Aboriginal and Torres Strait Islander (First Nations) people, see Determinants of health for First Nations people.

Remoteness area

In 2022, based on self-reported data from the ABS 2022 NHS, across remoteness areas, the proportion of adults aged 18 and over who did not meet the recommended serves of fruit or vegetables, respectively, were:

- 56% and 94% in *Major cities*

- 55% and 91% in *Inner regional* areas
- 59% and 92% in *Outer Regional and Remote* areas (AIHW analysis of ABS 2023a).

After adjusting for age differences, the proportion of Australians aged 18 and over who did not meet the recommended daily serves of fruit or vegetable were similar across remoteness areas (Table S4) (AIHW analysis of ABS 2023a).

Socioeconomic area

In 2022, based on self-reported data, the proportion of adults aged 18 and over who did not meet the recommended serves of fruit was 61% in the lowest socioeconomic areas and 53% in the highest socioeconomic areas (AIHW analysis of ABS 2023a).

The proportion of those who did not meet the recommended serves of vegetables was 96% in the lowest socioeconomic areas and 92% in the highest socioeconomic areas (AIHW analysis of ABS 2023a).

After adjusting for age differences, more people in the lowest socioeconomic areas did not meet the recommended serves of fruit or vegetables, compared with those living in the highest socioeconomic areas, although the differences were not large (AIHW analysis of ABS 2023a) (Table S4).

Intake of grains, meat and alternatives, dairy products and alternatives

On average, Australians of all ages generally did not eat the recommended serves of grains, meat and alternatives, and dairy products and alternatives each day (see Tables 2 and 3 in Technical notes) (AIHW 2018). These foods, in addition to fruit and vegetables, make up the 5 food groups included in the ADGs to reduce diet related diseases. In 2011–12:

- children, adolescents and adults in most age groups did not meet the recommended serves of grains (except for boys aged 4–11, girls aged 9–11, and women aged 71 and over). Of adults aged 19 and over, 76% of women and 67% of men did not eat the recommended serves of grains.
- adherence to the recommended serves of meat and alternatives decreased from ages 2–3 to 12–13, before increasing slightly with age, but insufficient intake remained high across all age groups. Of adults aged 19 and over, 87% of women and 79% of men did not meet the recommended serves of meat and alternatives.
- younger children were more likely to meet the recommended serves of dairy and alternatives, but this reduced substantially from age 9–13, with 90% of the population not meeting the recommended serves (ABS 2016) (AIHW 2018).

For more information, see Nutrition across the life stages.

Apparent consumption

The number of serves available per person from foods purchased (apparent consumption) is less than the recommended number of serves from the dietary guidelines and has decreased for all 5 food groups:

- for grains and cereals, to 3.9 serves in 2022–23 from 4.0 serves in 2021–22
- for dairy and alternatives, to 1.5 serves in 2022–23 from 1.6 serves in 2021–22
- for lean meats and alternatives, to 1.8 serves in 2022–23 from 1.9 serves in 2021–22 (ABS 2024).

Between the period 2018–19 and 2022–23, apparent consumption of grains and cereals, and lean meat and alternative have remained stable, but have decreased for dairy and alternatives and fruit and vegetables (ABS 2024).

Grains and cereals

In 2022–23, grains and cereals purchased in Australia consisted of the following food types:

- grains (such as rice) (39.9%)
- breads (27.9%)
- flour (16.4%)
- oats (10.8%)
- breakfast cereal flakes (5.2%) (ABS 2024).

Eating mainly wholegrain or high fibre foods, rather than low fibre or highly refined foods are recommended in the ADGs (NHMRC 2013b). In 2022–23, 31.5% of apparent consumption of grains and cereals were wholegrain or high-fibre, which has steadily decreased from 34.1% in 2018–19 (ABS 2024).

Intake of discretionary foods, added sugars, saturated and trans fats and sodium

Australians eat too much food that is high in energy and low in nutrients ('discretionary food'). In 2011–12, discretionary foods (including discretionary drinks, such as sugar sweetened soft drinks) accounted for:

- 29% of daily energy intake for boys and 32% for girls aged 2–3 (approximately 3 serves of discretionary foods per day)
- 41% of daily energy intake for boys and girls at age 14–18 (approximately 6 to 8 serves of discretionary foods per day)
- between 31% and 37% of daily energy intake for adults aged 19 and over – approximately 5 to 7 serves per day on average. For adults aged 51–70, alcoholic drinks account for more than one-fifth (22%) of discretionary food intake (AIHW 2018).

High intake of discretionary foods is at the expense of more nutritious foods from the 5 food groups and may contribute to Australians exceeding the recommended intakes of saturated fat, added sugars and sodium as well as contributing towards additional energy (kilojoules) intake (NHMRC 2013a).

In 2011–12, Australians ate too much added sugar, saturated fat, and sodium with:

- added sugar contributing between 8% and 13% of daily energy intake in children and adolescents aged 2–18; for adults aged 19 and over, this was between 8% and 11%.
- saturated and trans fat contributing between 13% and 14% of daily energy intake in children and adolescents aged 2–18; for adults aged 19 and over, this was between 12% and 15%.
- sodium intake between about 2.6 and 3.8 times more than the recommended adequate intake level in children and adolescents aged 2–18; for adults aged 19 and over, this was between about 1.9 and 3.4 times above the adequate intake level (AIHW 2018).

Reducing the intake of discretionary foods, sodium, and free sugars in children and adults are targets in the National Preventive Health Strategy 2021–2030 the National Obesity Strategy 2022–2032 – see section Strategies to improve consumption of a healthy diet.

Apparent consumption of discretionary foods

Discretionary foods contributed to 38.6% of the available dietary energy per person from food purchased, in 2022–23. This was similar to the previous two 12-months periods (38.6% in 2020–21 and 38.5% in 2021–22), but was an increase since 2018–19 (37.9%) (ABS 2024).

From 2021–22 to 2022–23, available dietary energy per person from energy and sport drinks purchased increased by 3.3%, and for chicken dishes such as chicken nuggets increased by 2.6%. Over the 5 year period from 2018–19 to 2022–23, available dietary energy per person from discretionary foods purchased increased the most for potato snacks, such as potato crisps (up 16%) and chocolate and chocolate-based confectionary (up 10%).

In 2022–23, the top 3 contributors to discretionary food apparent consumption were (ABS 2024):

- cereal based products (20.9%) such as sweet and savoury biscuits, cakes, muffins and pastries
- confectionary (16.5%) such as chocolates, fruit, nut and seed-bars, and muesli bars
- snack foods (9.3%) such as potato and corn snacks (ABS 2024).

Note that apparent consumption data does not include alcoholic drinks (which is considered a discretionary food by the Australian Dietary Guidelines).

For more information on Alcohol consumption, see Alcohol.

Apparent consumption of free sugar (including added sugar), saturated fat, and sodium

Dietary energy available per person from free sugar (that is sugar added to foods during manufacturing or cooking stages, as well as sugar naturally present in juice and honey) and saturated fat in foods purchased are both higher than the recommended dietary intake for these nutrients, in 2022–23 (Table 1). The amount of sodium available per person (3,095 mg) from foods purchased is 1.5 times higher than the recommended intake (ABS 2024) (Table 1).

In 2022–23, of dietary energy available per person from food sold:

- around 12.3% is from free sugar, which was similar to 2020–21 (12.2%). Of the free sugar, 91.9% was added sugar (added to foods during processing and preparation).
- 15% is from saturated fat and 0.7% came from trans fatty acids, which was similar to 2020–21 and 2021–22. Discretionary and non-discretionary foods each contributed around half of the available saturated fat (49.6% and 50.4% respectively) in 2022–23 (ABS 2024) (Table 1).

Table 1: Apparent consumption of free and added sugar, saturated fat, and sodium, 2022–23

	Per person apparent consumption daily	% total dietary energy	Recommended intake	% that came from discretionary foods
Free sugar[1] ***Added sugar***	66.9 g *61.6 g*	12.3 *11.3*	<10% of total energy intake[2]	88.6 *92.4*
Saturated fat ***Trans fatty acids***	35.8 g *1,630.4 mg*	15.2 *0.7*	<10% of energy intake[3]	49.6

	Per person apparent consumption daily	% total dietary energy	Recommended intake	% that came from discretionary foods
Sodium	3,095 mg[4]	n/a	2,000 mg per day[5]	58.0

Notes

1. Sugars naturally present in unrefined foods such as fruit and unflavoured milk are not considered free sugar.
2. Recommendation from the World Health Organisation (WHO) for free sugars.
3. Recommendation from the Nutrient Reference Values for Australia and New Zealand (NRVs).
4. The apparent consumption of sodium does not take into account foods purchased from fast food outlets, takeaway and restaurants. Additionally, the proportion of salt purchased for non-food uses is not known so apparent consumption of sodium from sales of salt may be an overestimation (ABS 2024).
5. The Suggested Dietary Target (SDT) recommends 2000 mg/day of sodium which is also consistent with the 2012 WHO guideline for sodium consumption which recommends less than 2000 mg/day for adults.

Sources: ABS 2024; NHMRC 2013a; WHO 2015.

For more information, please see the ABS Apparent Consumption of Selected Foodstuffs- external site opens in new window.

What are the health impacts of dietary risks?

Burden of disease is a measure of the years of healthy life lost from living with ill health or dying prematurely from disease and injury. A portion of this burden is due to modifiable risk factors. Burden of disease analysis estimates the contribution of these risk factors to this burden.

In 2018, dietary risk factors were the third leading risk factor contributing to ill health and premature deaths after tobacco use, and overweight and obesity in Australia (AIHW 2021). Dietary risks factors include components where adequate amounts in the diet are required to prevent disease, as well as diets where excessive consumption contributes to disease development. The 12 individual dietary risk factors were:

- a diet low in: fruit, vegetables, milk, nuts and seeds, whole grains and high fibre cereals, legumes, polyunsaturated fat, and fish and seafood
- a diet high in: sodium, sugar-sweetened beverages, and red and processed meats.

Dietary risk factors combined were the fourth leading risk factor contributing to deaths – around 15,800 deaths (9.9% of total deaths) in 2018 (AIHW 2021).

Dietary risk factors were linked to 16 diseases and contributed to:

- 50% of coronary heart disease total burden
- 26% of bowel cancer burden
- 26% of type 2 diabetes burden
- 26% of stroke burden (AIHW 2021).

In 2018, males experience a greater amount of disease burden due to dietary risks factors than females in all ages up to age 84. Total disease burden attributable to dietary risk factors was twice as high in the lowest (most disadvantaged) socioeconomic areas compared with the highest areas (least disadvantaged) (AIHW 2021).

For more information on the disease burden due to dietary risks, see the Australian Burden of Disease Study 2018: Interactive data on risk factor burden.

Strategies to improve the consumption of a healthy diet

Australia's National Preventive Health Strategy (NPHS) 2021-2030- external site opens in new window aims to improve the health and wellbeing of all Australians at all stages of life, through a whole-of-government approach to prevention that addresses the wider determinants of health, reduces health inequities and decreases the overall burden of disease. The NPHS strongly emphasises that preventive action must focus on the wider determinants of health to address the increasing complexity of health issues and the interconnected causes of poor health and wellbeing.

As a nutritious diet contributes to the overall health and wellbeing of Australians, and reduces the risk of poor health and disease, the NPHS has identified this as a focus area where better-coordinated effort will accelerate health gains, particularly for communities experiencing unfair disease burden (Department of Health and Aged Care 2021).

The National Obesity Strategy 2022–2032- external site opens in new window is a framework for action to prevent, reduce and treat overweight or obesity in Australia. It recognises that the root causes of overweight or obesity are complex and embedded in the way we live (Commonwealth of Australia 2022). To address this issue, it requires changes to systems, environments and commercial determinants that affect Australians' opportunities to live healthy lives. Improving access to and the consumption of a healthy diet are objectives of this strategy.

There are 5 nutrition related targets, of which 4 are shared by the NPHS and the National Obesity Strategy (targets 1, and 3 to 6), and one is from the National Obesity Strategy only (target 2) (Commonwealth of Australia 2022; Department of Health and Aged Care 2021):

1. Adults, adolescents and children aged 9 and over increase their vegetable consumption to an average 5 serves per day by 2030 – the estimated average number of serves of vegetables consumed decreased in 2022 from 2017–18, across most age groups. The average daily serves of vegetables consumed in 2022 and 2017–18, respectively, for:

- children and adolescents aged 9–11 was 1.9 and 2.1
- adolescents aged 12–13 was 2.1 and 2.0
- adolescents aged 14–17 was 2.0 and 2.2
- adults aged 18 and over was 2.4 for both periods (ABS 2018a, 2018b, 2023c, 2023d).

2. Adults, adolescents and children aged 9 and over maintain or increase their fruit consumption to an average 2 serves per day by 2030 – the estimated average number of serves of fruit consumed decreased in 2022 from 2017–18, across most age groups. The average daily serves of fruits consumed in 2022 and 2017–18, respectively, for:

- children and adolescents aged 9–11 was 2.0 and 2.2
- adolescents aged 12–13 was 1.8 and 1.9
- adolescents aged 14–17 was 1.6 and 1.9
- adults aged 18 and over was 1.5 and 1.7 (ABS 2018a, 2018b, 2023c, 2023d).

3. Reduce the proportion of children and adults' total energy intake from discretionary foods from greater than 30% to less than 20% by 2030 – in 2011–12, across all ages, 35% of total energy consumed was from discretionary foods, with the highest amongst 14–18-year-olds (41%). No new data are currently available to compare with this baseline.
4. Reduce the average population sodium intake by at least 30% by 2030 – in 2011–12, average daily intake of sodium from food was just over 2,404 mg. No new data are currently available to compare with this baseline.
5. Increase the proportion of adults, adolescents and children who are not exceeding the recommended intake of free sugars by 2030 – in 2011–12, over half of Australians (52%) aged 2 and over exceeded 10% of dietary energy from free sugars. No new data are currently available to compare with this baseline.
6. At least 50% of babies are exclusively breastfed until around 6 months of age by 2025 – in 2010, around 39% of infants were exclusively breastfed to 3 months, and 15% to 5 months. No new comparable data are currently available to compare against this baseline.

While no new data are currently available for targets 3 to 5, the National Nutrition and Physical Activity Survey is scheduled to be conducted again in 2023 to 2024 as part of the Intergenerational Health and Mental Health Study. See section on Apparent consumption of discretionary foods and Apparent consumption of free sugar (including added sugar), saturated fat and sodium for information on apparent consumption of

discretionary foods, sugars and sodium. See Australia's mothers and babies and Breastfeeding for more information on breastfeeding.

For more information, see the Department of Health and Aged Care National Preventive Health Strategy 2021–2030- external site opens in new windowand National Obesity Strategy 2022–2032- external site opens in new window

Where do I go for more information?

For more information on diet, see:

- Nutrition across the life stages
- Australian Burden of Disease Study 2018: Interactive data on risk factor burden
- Australia's mothers and babies – Breastfeeding

Visit Food & nutrition to see more on this topic.

Technical notes

About the Australian Bureau of Statistics National Health Surveys

This web report uses data from the following surveys from the Australian Bureau of Statistics (ABS):

- 2022 National Health Survey (NHS)
- ABS 2011–12 National Nutrition and Physical activity Survey
- Apparent Consumption of Selected Foodstuff.

The National Health Survey is a series of surveys designed to collect a range of information about the health of Australians, including:

- prevalence of long-term health conditions.
- health risk factors such as smoking, fruit and vegetable consumption, alcohol consumption and exercise.
- use of health services such as consultations with health practitioners and actions people have recently taken for their health.
- demographic and socioeconomic characteristics.

For more information, see National Health Survey- external site opens in new window.

The 2011–12 National Nutrition and Physical Activity Survey is part of the 2011–13 Australian Health Survey. It collected detailed physical activity information as well as 24-hour dietary recall of food and beverage consumption, with general information on dietary behaviours. It is the most recent detailed data available on physical activity and sedentary screen time for children and adolescents aged 2–14. The NNPAS is scheduled to be conducted again in 2023–2024 as part of the Intergenerational Health and Mental Health Study.

For more information, see National Nutrition and Physical Activity Survey- external site opens in new window.

About the ABS Apparent Consumption of Selected Foodstuff

The primary data source used is the aggregated scanner data (SD) provided to the ABS from major supermarkets. The aggregated data are based on information compiled from barcode scanning at the point of sale. The major supermarkets that provide data to the ABS account for an estimated 82% of Food Retail sector.

The Household Expenditure Survey (HES) is undertaken every six years, with the most recent survey in 2015–16. The 2015–16 HES is used to help estimate and impute the value of purchases made at stores other than the major supermarkets in the SD.

For further information, refer to the Apparent Consumption of Selected Foodstuffs, Australia methodology- external site opens in new window.

Recommended daily serves of the 5 food groups

Tables 2 and 3 summarise the recommended number of serves of vegetable and fruit, grains, meat and alternatives, and dairy and alternatives per day, by sex and different age groups.

Table 2: Recommended serves per day of the 5 food groups, males, by age group (years)

	2–3	4–8	9–11	12–13	14–18	19–50	51–70	70+
Vegetables and legumes/beans	2.5	4.5	5.0	5.5	5.5	6.0	5.5	5.0
Fruit	1.0	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Grains[1]	4.0	4.0	5.0	6.0	7.0	6.0	6.0	4.5
Meat and alternatives[2]	1.0	1.5	2.5	2.5	2.5	3.0	2.5	2.5

	2–3	4–8	9–11	12–13	14–18	19–50	51–70	70+
Dairy and alternatives	1.5	2.0	2.5	3.5	3.5	2.5	2.2	3.5

Notes

1. Recommendation is to consume mostly wholegrain and/or high cereal fibre varieties.
2. Examples include lean meat and poultry, fish, eggs, tofu, nut and seeds, and legumes/beans.

Source: NHMRC 2013a.

Table 3: Recommended serves per day of the 5 food groups, females, by age group (years)

	2–3	4–8	9–11	12–13	14–18	19–50	51–70	70+
Vegetables and legumes/beans	2.5	4.5	5.0	5.0	5.0	5.0	5.0	5.0
Fruit	1.0	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Grains[1]	4.0	4.0	4.0	5.0	7.0	6.0	4.0	3.0
Meat and alternatives[2]	1.0	1.5	2.5	2.5	2.5	2.5	2.0	2.0
Dairy and alternatives	1.5	1.5	3.0	3.5	3.5	2.5	4.0	4.0

Notes

1. Recommendation is to consume mostly wholegrain and/or high cereal fibre varieties.
2. Examples include lean meat and poultry, fish, eggs, tofu, nut and seeds, and legumes/beans.

Source: NHMRC 2013a.

For more information on the dietary guidelines for other food groups, see the Australian Dietary Guidelines- external site opens in new window

References

ABS (Australian Bureau of Statistics) (2016) *Table 1: Consumption of food groups from the Australian Dietary Guidelines, 2011–12 – Australia* [data set], Australian Health Survey: Consumption of Food Groups from the Australian Dietary Guidelines, 2011–12- external site opens in new window, accessed 8 January 2024.

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Family, domestic and sexual violence

This topic summary is part of the Family, domestic and sexual violence subsite.

On this page

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- external site opens in new window. See also Find support for a list of support services.

What is family, domestic and sexual violence?

Family violence is a term used for violence that occurs within family relationships, such as between parents and children, siblings, intimate partners or kinship relationships. Family relationships can include carers, foster carers and co-residents (for example in group homes or boarding residences).

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 a range of behaviour types such as:

physical violence (for example, hitting, choking, or burning)

sexual violence (for example, rape, penetration by objects, unwanted touching)

emotional abuse, also known as psychological abuse (for example, intimidating, humiliating).

For more information, see Glossary.

Coercive control is often a significant part of a person's experience of family and domestic violence. It is commonly used to describe a pattern of controlling behaviour, used by a perpetrator to establish and maintain control over another person.

Sexual violence can take many forms, including sexual assault, sexual threat, sexual harassment, child sexual abuse, and image-based abuse (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 experiences of abuse in childhood reported separately (ABS 2023b).

Other forms of violence that can occur within the context of family and domestic violence include: stalking and elder abuse, with the latter occurring where there is an expectation of trust and/or where there is a power imbalance (Kaspiew et al. 2019).

How common is family, domestic and sexual violence?

The ABS PSS 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.

The most recent PSS was conducted between March 2021 and May 2022 during the COVID-19 pandemic (ABS 2023b). Because of some changes to the survey methodology in response to the COVID-19 pandemic, some 2021–22 data are only available for women, including some time series.

According to the 2021–22 PSS:

Physical and/or sexual family and domestic violence

Results from the 2021–22 PSS show that an estimated 3.8 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:

- 11.3% (2.2 million) had experienced violence from a partner (current or previous cohabiting)
- 5.9% (1.1 million) had experienced violence from a boyfriend, girlfriend or date
- 7.0% (1.4 million) had experienced violence from another family member (ABS 2023c).

Experiences of partner violence in the 12 months before the survey (last 12 months) remained relatively stable for both men and women between 2005 and 2016. However, between 2016 and 2021–22 the proportion of women who experienced partner violence decreased from 1.7% in 2016 to 0.9% in 2021–22. There was also a decrease in the proportion of women who had experienced violence by any intimate partner (also includes current or previous boyfriend, girlfriend and date) between 2016 and 2021–22, from 2.3% in 2016 to 1.5% in 2021–22 (ABS 2023c).

For more information, see Family and domestic violence.

Partner emotional abuse and economic abuse

According to the 2021–22 PSS, an estimated 3.6 million Australian adults (19% of population) had experienced emotional abuse at least once by a partner since the age of 15. The proportion of women (23% or 2.3 million) who had experienced emotional abuse was higher than men (14% or 1.3 million). Estimates of partner emotional abuse in the 12 months before the survey have changed over time:

- the proportion of women who experienced partner emotional abuse was stable between 2012 and 2016, but decreased from 4.8% in 2016 to 3.9% in 2021–22
- the proportion of men who experienced partner emotional abuse increased from 2.8% in 2012 to 4.2% in 2016 before decreasing to 2.5% in 2021–22 (ABS 2023c).

It was also estimated that 2.4 million Australian adults (12% of the population) had experienced economic abuse by a partner since the age of 15, with the proportion of women (16%) who had experienced this type of abuse around double the proportion of men (7.8%) (ABS 2023c).

For more information, see Intimate partner violence.

Sexual violence

The 2021–22 PSS estimated 2.8 million Australians (14% of the population) experienced sexual violence (occurrence, attempt and/or threat of sexual assault) since the age of 15. It is estimated that of all Australian adults:

- 13% (2.5 million) had experienced sexual violence by a male
- 1.8% (353,000) had experienced sexual violence by a female (ABS 2023c).

Of all women:

- 11% (1.1 million) experienced at least one incident of sexual violence by a male intimate partner since the age of 15
- 2.1% (203,000) experienced at least one incident of sexual violence by a male family member since the age of 15
- 11% (1.1 million) experienced at least one incident of sexual violence by another known male since the age of 15
- 6.1% (605,000) experienced at least one incident of sexual violence by a male stranger since the age of 15 (ABS 2023c).

In the 12 months before the 2021–22 PSS, it is estimated that 1.9% of women experienced sexual violence. This does not represent a change from 2016 (ABS 2023c).

Based on the 2021–22 PSS, around 1 in 8 (13% or 1.3 million) women and 1 in 22 (4.5% or 427,000) men had experienced sexual harassment (see Glossary) in the last 12 months. This represents a decrease from 2016 for both women (previously 17%) and men (previously 9.3%) (ABS 2023c).

For more information, see Sexual violence.

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 watching in person or electronically) that occur more than once and cause fear or distress and is considered a crime in every state and territory of Australia (ABS 2023b). Based on the 2021–22 PSS, 1 in 5 (20% or 2.0 million) women and around 1 in 15 (6.8% or 653,000) men had experienced stalking since the age of 15 (ABS 2023c).

Preliminary findings from the 2022 Australian eSafety Commissioner's adult online safety survey of around 4,700 Australians aged 18–65 years, indicate that:

- 75% of those surveyed had a negative online experience in the 12 months prior to the survey, an increase from 58% in 2019
- 18% of those surveyed said their location had been tracked electronically without consent, an increase from 11% in 2019
- 16% of those surveyed said they received online threats of real-life harm or abuse, an increase from 9% (Office of the eSafety Commissioner 2023).

Due to the opt-in nature of the survey, these results may not be generalisable to the broader Australian adult population.

For more information, see Stalking and surveillance.

Family, domestic and sexual violence during the COVID-19 pandemic

The impacts of a pandemic can be wide-ranging with people experiencing different circumstances depending on their situation. 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). It is also possible that increased protective factors, such as access to income support, time away from a perpetrator, or increased social cohesion, could suppress violence (Diemer 2023). Pandemics can also affect help-seeking and individual responses to violence, meaning support services have to adapt their delivery to new circumstances.

We continue to learn about the impact of the emergency phase of the COVID-19 pandemic on family, domestic and sexual violence, with some different patterns observed between research, drawing on a variety of data sources and methods, and national population prevalence data (Diemer 2023).

Results from the PSS showed that between 2016 and 2021–22 there was a decrease in the number of women experiencing physical and/or sexual partner violence in the 12 months before the survey, and a decrease in women and men experiencing partner emotional abuse. The rate of sexual violence for women remained stable. See How common is family, domestic and sexual violence?

The Australian Institute of Criminology (AIC) conducted an online survey of women's experiences of violence during the first 12 months of the COVID-19 pandemic. While not comparable with the PSS, the survey of more than 10,000 women found that the pandemic coincided with first-time and escalating intimate partner violence for some women (Table 1). However, given this is a cross-sectional survey, a causal relationship between the COVID-19 pandemic and women's experiences of intimate partner violence cannot be established (Boxall and Morgan 2021).

Table 1: Intimate partner violence(a) 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 [(b)]	9.6%	7.6%	32%
Experienced intimate partner violence for the first time [(b)]	3.4%	3.2%	18%
Reported that intimate partner violence had increased in frequency or severity [(b, c)]	42%	43%	40%

b. Violence from a person the respondent had a relationship with during the previous 12 months. This includes current and former partners, cohabiting, or non-cohabiting.

c. Of women aged 18 years and older who had been in a relationship longer than 12 months.

d. Of women who had a history of violence from their current or most recent partner.

Source: Boxall and Morgan 2021.

For more information, see FDSV and COVID-19. See also '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) shows that in Australia, between 2009 and 2021, there was a positive shift in attitudes that reject gender inequality and violence against women. There was also an improvement in understanding of violence against women.

The NCAS indicated that in 2021 Australians, on average, had:

- higher understanding of violence against women compared to previous survey years (2009, 2013 and 2017)
- higher rejection of attitudes supportive of gender inequality compared to previous survey years
- improved attitudes towards sexual violence compared to 2017

- improved attitudes towards domestic violence compared to 2009 and 2013 (Coumarelos et al 2023).

While results were generally encouraging, some findings were concerning and highlight areas for improvement, select findings are summarised below.

Attitudes towards violence against women and gender inequality

Of all NCAS respondents in 2021:

- 25% believed that women who do not leave their abusive partners are partly responsible for violence continuing
- 34% agreed it was common for sexual assault accusations to be used as a way of getting back at men
- 23% believed domestic violence is a normal reaction to day-to-day stress
- 19% agreed that sometimes a woman can make a man so angry he hits her without meaning to
- 15% agreed that there is no harm in sexist jokes
- 41% agreed that many women misinterpret innocent remarks as sexist (Coumarelos et al. 2023).

For more information, see Community attitudes.

Understanding of violence against women

Of all NCAS respondents in 2021:

- 31% did not know that women are more likely to raped by a known person than a stranger
- 41% did not know where to access help for a domestic violence issue
- 43% did not recognise that men are the most common perpetrators of domestic violence
- 24% did not recognise that women are more likely than men to suffer physical harm from domestic violence (Coumarelos et al. 2023).

For more information, see Community understanding of FDSV.

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 at greater risk than others and/or may experience impacts and outcomes of violence that are more serious or long-lasting.

Children

Children are at greater risk of family, domestic and sexual violence.

According to the 2021–22 PSS, about 1 in 8 (13% or 2.6 million) people, aged 18 years and over, witnessed violence towards a parent by a partner before the age of 15. A higher proportion of people had witnessed partner violence against their mothers (12%, or 2.2 million) than their fathers (4.3%, or 837,000) (ABS 2023a).

The PSS also collects some information from adults about the nature and extent of violence experienced before and since the age of 15, for more information see Personal Safety, Australia- external site opens in new window.

The 2021 Australian Child Maltreatment Study surveyed people aged 16 years and over about experiences of maltreatment as a child. Of people surveyed, around:

- 3 in 10 (29%) had experienced sexual abuse by any person
- 3 in 10 (31%) had experienced emotional abuse by a parent or caregiver
- 1 in 11 (8.9%) had experienced neglect by a parent or caregiver
- 2 in 5 (40%) had experienced exposure to domestic violence (Haslam et al. 2023).

For more information, see Children and young people.

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 2021–22:

- Almost 178,000 Australian children (31 per 1,000) came into contact with the child protection system.
- Infants aged under one were most likely (38 per 1,000) to come into contact with the child protection system and adolescents aged 15–17 were the least likely (26 per 1,000).
- Emotional abuse, including exposure to family violence, was the most common primary type of abuse identified for children with substantiated cases (substantiations) (57% or 25,900 children). Neglect (21% or 9,400 children) was the next most common primary type of abuse substantiated, followed by physical abuse (13% or 6,100 children) and sexual abuse (9% or 4,000 children).
- Similar proportions of girls and boys were the subjects of substantiations for physical abuse, emotional abuse and neglect. However, girls (12%) were more likely to be the subjects of substantiations for sexual abuse than boys (5%) (AIHW 2023a).

The rate of children who were the subject of notifications has increased from 44 per 1,000 in 2017–18 to 49 per 1,000 in 2021–22. However, the rate of children who were the subject of substantiations remained fairly stable in the 5 years to 30 June 2022.

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.

For more information, see Child protection.

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 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, 2021–22

	Women (%)	Men (%)
Physical and/or sexual violence from a partner	16.9	5.5
Physical violence from a partner	14.9	5.3
Sexual violence from a partner	6.2	n.p.
Emotional abuse from a partner	22.9	13.8
Economic abuse from a partner	16.3	7.8

n.p. not published

Note: Where a person has experienced both physical and sexual violence by a cohabiting partner, they are counted separately for each type of violence they experienced but are counted only once in the aggregated total.

Source: ABS 2023c.

Women's exposure to violence differs across the age groups. The 2021–22 PSS found that the prevalence of physical and/or sexual violence by a cohabiting partner (partner violence) among women declined with age. One in 39 (2.6%) women aged 18–34 experienced partner violence in the 2 years before the survey, compared with 2.2% for those aged 35–54 and 0.6% for those aged 55 and over (ABS 2023a).

The prevalence of sexual violence by any perpetrator among women also decreased with age. One in 8 (12%) women aged 18–24 experienced sexual violence in the 2 years before the survey, compared with 4.5% of those aged 25–34, 2.5% of those aged 35–44, 1.9%* for those aged 45–54 and 0.5%* of those aged 55 and over (ABS 2023e).

Note that estimates marked with an asterisk (*) should be used with caution as they have a relative standard error between 25% and 50%.

For more information, see Young women.

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 (First

Nations) women are particularly at risk and have much higher rates of hospitalisation because of family violence.

For more information, see Population groups.

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 2021–22 PSS found that there were differences in propensity to seek help, advice or support following partner violence depending on partner status and victim sex:

- 1 in 2 (45%, or 78,100) women who had experienced physical and/or sexual violence from a **current partner** did not seek advice or support about the violence.
- 2 in 5 women (37% or 574,000) and 2 in 5 men (39% or 166,000) who had experienced physical and/or sexual violence from a **previous partner** did not seek advice or support about the violence (ABS 2023a).

Data for men about seeking advice or support about current partner violence are not available (ABS 2023a).

The 2021–22 PSS collected detailed data from women about the most recent incident of sexual assault by a male that occurred in the last 10 years. Of the estimated 737,000 women who had experienced sexual assault by a male in the last 10 years:

- more than 2 in 5 (44% or 324,000) did not seek advice or support after the most recent incident
- 92% (680,000) said the police were not contacted (ABS 2023e).

For more information, see FDSV reported to police.

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 2022:

- More than 1 in 2 (53% or 76,900) recorded assaults were related to family and domestic violence (excluding Victoria and Queensland), a 6.1% increase from 72,500 in 2021.
- One in 3 (33% or 71) recorded murders were related to family and domestic violence (ABS 2023d).

Since 2011, the number of sexual assault victims recorded by police has increased each year. 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 2022 police-recorded sexual assaults, 69% were reported to police within one year (ABS 2023d).

For more information, see FDSV reported to police.

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 2022–23, SHS agencies assisted around 104,000 clients (38% of all SHS clients) who had experienced domestic and family violence. Of these clients:

- 3 in 4 (75% or 78,200) were female; and of the 20,500 clients aged 25–34, more than 9 in 10 (91% or 18,700) were female (AIHW 2023b)
- about 1 in 13 (7.7% or 8,100 clients) were living with disability (AIHW 2023c).

Of clients aged 10 and over who had experienced domestic and family violence:

- about 4 in 10 (42% or 34,200) also had a current mental health issue
- over 1 in 8 (12% or 9,400) had problematic drug and/or alcohol use (AIHW 2023b).

For more information, see Housing and Homelessness and homelessness services.

Hospitalisations

Hospitals provide health services for individuals who have experienced family, domestic and sexual violence. The family and domestic violence assault hospitalisations presented here are those where the perpetrator is coded as a family member (Spouse or domestic partner, Parent, or Other family member) in the hospital record. As information on cause of injury (such as assault) is not available in national emergency department data, family and domestic violence assault hospitalisations do not include presentations to emergency departments and underestimate overall hospital activity related to family and domestic violence. These hospitalisations also relate to more severe (and mostly physical) experiences of family and domestic violence.

In 2021–22, 3 in 10 (32% or 6,500) **assault hospitalisations** were due to family and domestic violence

Of all family and domestic assault hospitalisations in 2021–22:

- 73% (4,700) were for females and 27% (1,700) were for males
- 63% (4,100) had the perpetrator reported as a spouse or domestic partner
- 37% (2,400) had the perpetrator reported as a parent or other family member.

For more information, see Health services. See also Injury in Australia, Australia's Hospitals at a glance, and Examination of hospital stays due to family and domestic violence 2010–11 to 2018–19.

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).

For more information, see Helplines and related support services.

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 females aged 15–44, intimate partner violence was ranked as the fourth leading risk factor for total disease burden, and child abuse and neglect was the leading risk factor. Child abuse and neglect was ranked third for males in the same age group (AIHW 2021a).

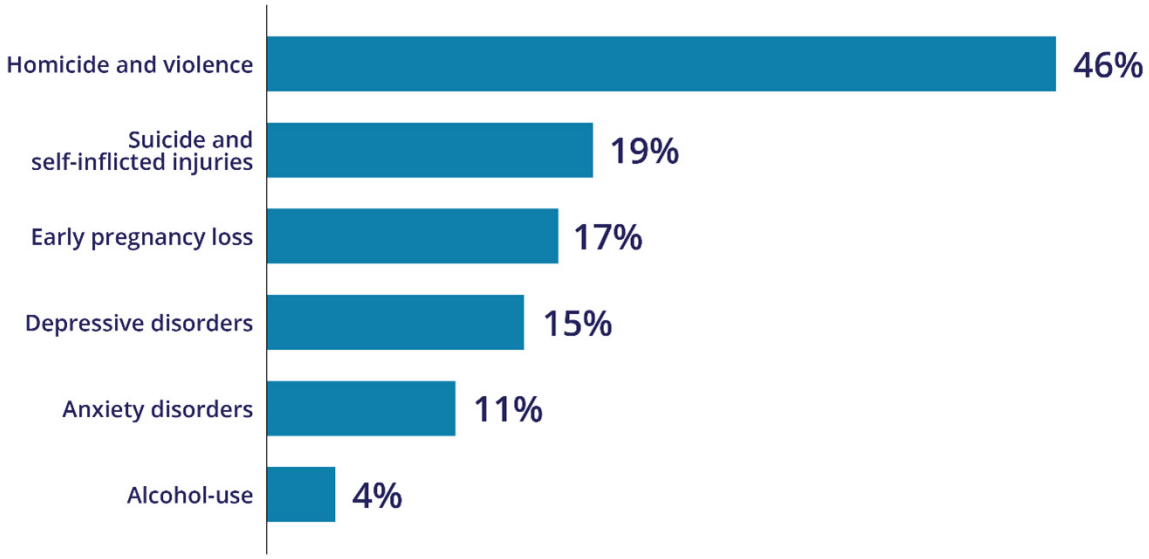
In 2018, intimate partner violence contributed to:

- 228 deaths (0.3% of all deaths among females) in Australia
- 1.4% of the total burden of disease and injury among Australian females.

Figure 1 shows the estimated total burden attributable to intimate partner violence for females in 2018 by disease/health problem/injury. For example, it shows that almost

half (46%) of all homicide and violence burden amongst females was attributable to intimate partner violence.

Figure 1: Total burden attributable to intimate partner violence, 2018



Note: Burden estimated in females only.

Source: AIHW 2021a.

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.

Figure 2 shows the estimated total burden attributable to child abuse and neglect in 2018 by disease/health problem/injury.

Figure 2: Total burden attributable to child abuse and neglect, 2018

Source: AIHW 2021a.

For more information, see Health outcomes and Burden of disease.

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).

For more information, see Health outcomes.

Deaths

Between 1 July 2022 and 30 June 2023, the AIC's National Homicide Monitoring Program (NHMP) recorded 84 domestic homicide victims from 79 domestic homicide incidents (see Glossary). Data from the NHMP are from police and coronial records (Miles and Bricknell 2024).

Of all domestic homicide victims, 55% (46) were female. Of all female victims of domestic homicide, 74% (34) were killed by an intimate partner. For male victims of domestic homicide, 11% (4) were killed by an intimate partner (Miles and Bricknell 2024).

In 2022–23, the domestic homicide victimisation rate was 0.32 per 100,000. Since 1989–90, the domestic homicide victimisation rate has more than halved, with the female victimisation rate falling from 0.90 to 0.34 per 100,000 females, and the male victimisation rate falling from 0.59 to 0.29 per 100,000 males (AIC 2024).

A 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).

For more information, see Domestic homicide and Deaths in Australia.

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
- National Plan to End Violence against Women and their Children 2022–2032- external site opens in new window.

For information, support and counselling contact **1800RESPECT on 1800 737 732** or visit the 1800RESPECT website- external site opens in new window.

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Illicit drug use

Find the most recent version of this topic summary at: https://www.aihw.gov.au/reports/illicit-use-of-drugs/illicit-drug-use

On this page:

Illicit drug use affects individuals, families and the broader Australian community. These harms are numerous and include:

- health impacts such as burden of disease, injury, overdose and death
- 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 who are 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 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, 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 2022–2023 National Drug Strategy Household Survey (NDSHS), an estimated 10.2 million (47%) 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 3.9 million (18%) had used an illicit drug in the previous 12 months. This was similar to proportions in 2019 (43% and 16%, respectively) but has increased since 2007 (38% and 13%, respectively) (Figure 1).

In 2022–2023, among people aged 14 and over, the most common illicit drug used recently (in the previous 12 months) continues to be cannabis, 11.5%, similar to use in 2019 (11.6%), followed by cocaine (4.5%) and hallucinogens (2.4%) (Figure 1). A number of changes were reported in the recent use of illicit drugs between 2019 and 2022–2023:

- cocaine (from 4.2% in 2019 to 4.5% in 2022–2023)
- ecstasy (from 3.0% to 2.1%)
- hallucinogens (from 1.6% to 2.4%)
- ketamine (from 0.9% to 1.4%) (Figure 1) (AIHW 2024).

In 2022–2023, an estimated 1.1 million people (5.3%) aged 14 and over used a pharmaceutical drug for non-medical purposes in the previous 12 months. Between 2019 and 2022–2023, the proportion of people using 'pain-killers/pain-relievers and opioids' for non-medical purposes declined from 2.7% to 2.2%. 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 more than halved since 2016, from 3.0% to 1.2% in 2022–2023.

In 2022–2023, pain-killers/pain-relievers and opioids used for non-medical purposes were the fourth most commonly used illicit drug in the previous 12 months after cannabis, cocaine and hallucinogens (AIHW 2024).

The use of hallucinogens and ketamine have both risen. In 2022–2023, 2.4% of people aged 14 and over had used hallucinogens and 1.4% had used ketamine in their lifetime (AIHW 2024). Use of hallucinogens and ketamine in the last 12 months was most common among people aged 20–29 (6.8% and 4.2% respectively).

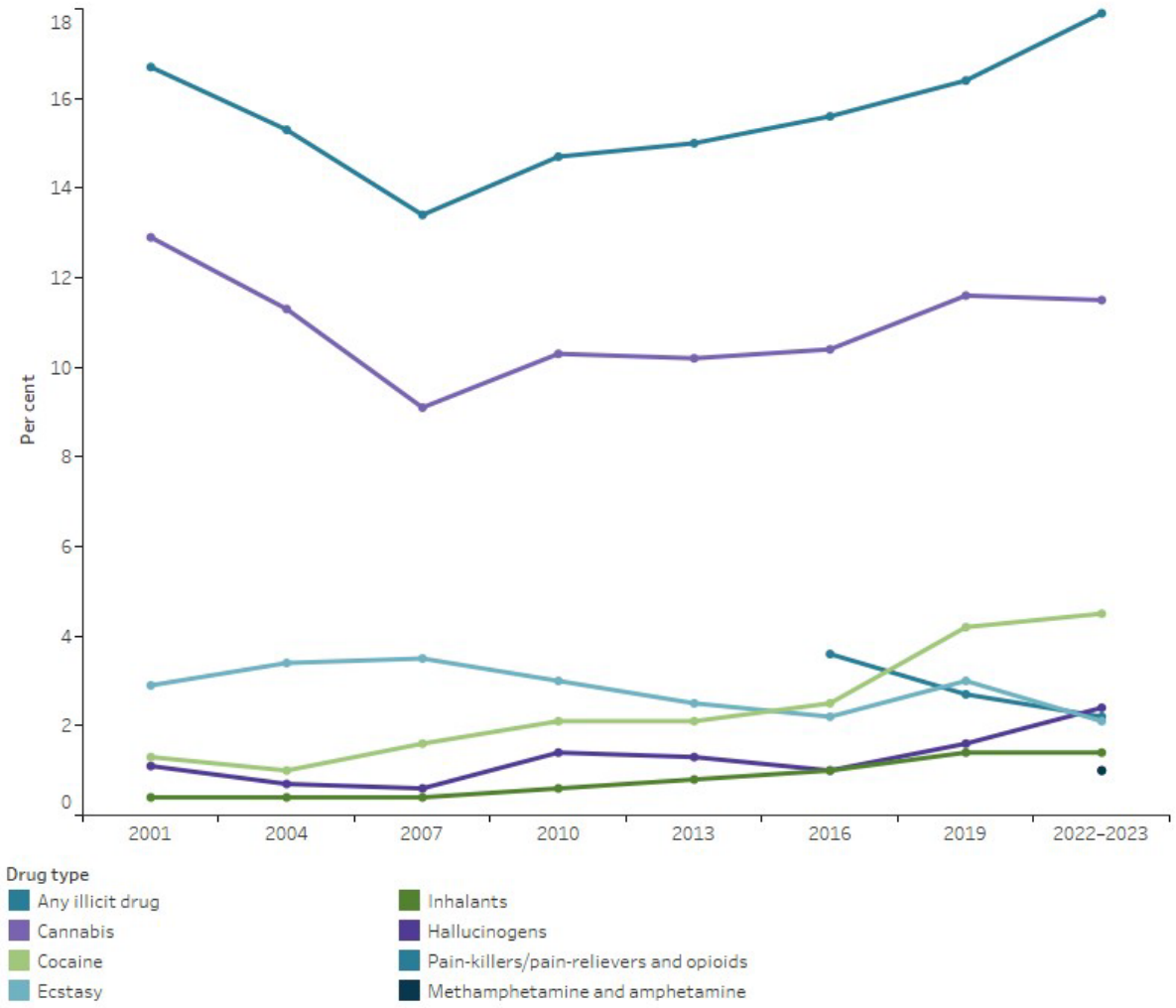
Recent use of methamphetamine and amphetamine was low (1.0%) while lifetime use was high (7.5%) in 2022–2023 (AIHW 2024). The 2022–2023 NDSHS asked about recent use of 'methamphetamine and amphetamine', whereas prior NDSHS surveys asked about the use of 'Methamphetamine or amphetamine'. This change represents a break in the time series; for more information, see Methamphetamine and amphetamine in the NDSHS.

Frequency of illicit drug use

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 58% of people who used cocaine and 59% of people who used ecstasy reporting they only used the drug once or twice a year in the 2022–2023 NDSHS. Conversely, monthly or more frequent drug use was more commonly reported among people who had used cannabis (51%) or methamphetamine and amphetamine (37%).

Figure 1: Proportion of people aged 14 and over who recently used selected illicit drugs, 2001 to 2022–2023



[Notes]

Source: National Drug Strategy Household Survey 2022–2023. (AIHW 2024)
http://www.aihw.gov.au/

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).

The 2022 data on causes of death have been updated in this release sourced from the ABS (2023a). Additional analysis undertaken by AIHW and NDARC will be updated in early 2024.

The ABS preliminary data on causes of death show that of the 1,693 drug-induced deaths in 2022:

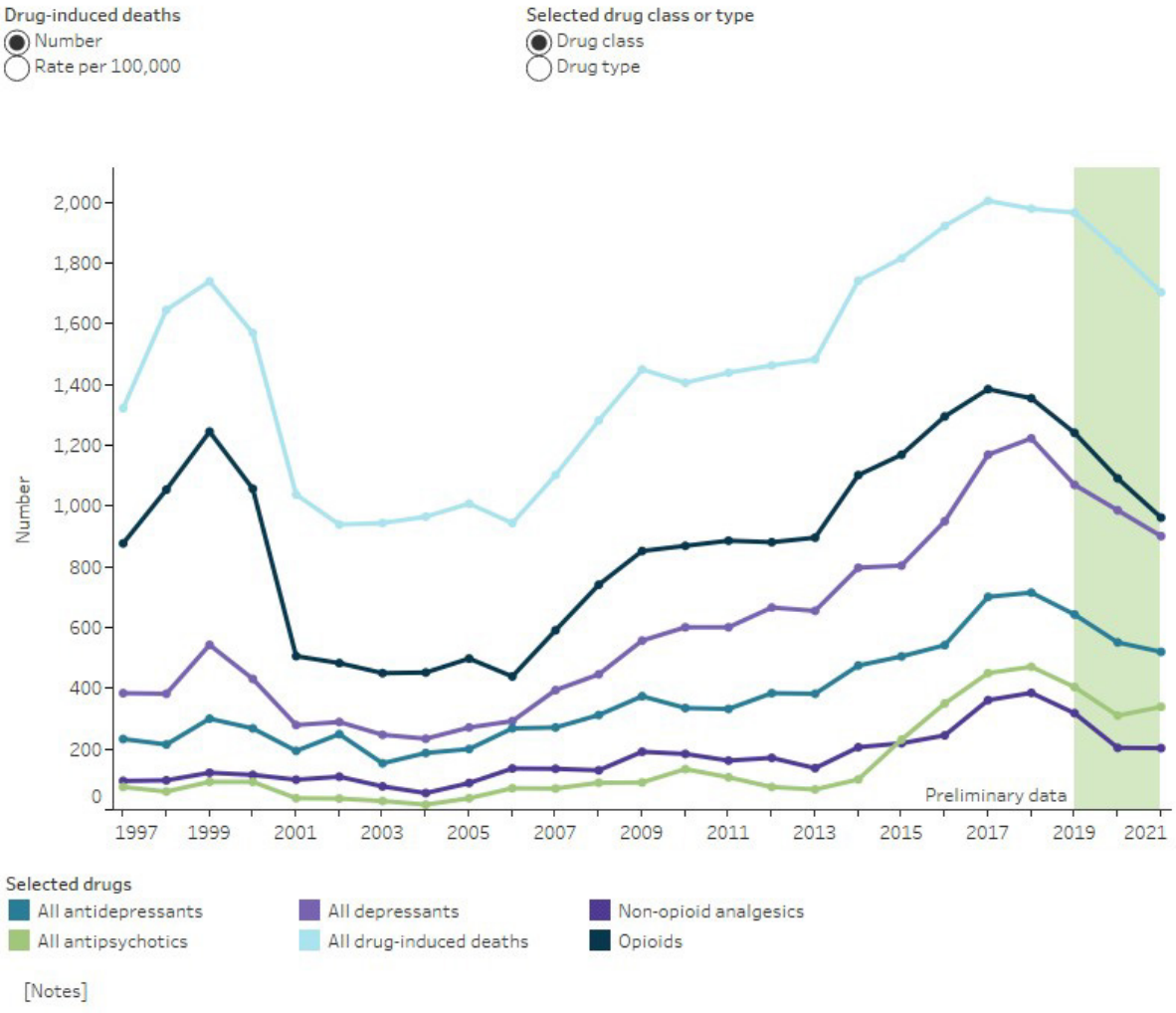
- The age-standardised rate of 6.5 deaths per 100.000 was the fifth consecutive decrease since 2017 (8.2 deaths per 100,000).
- 64% were males (1,082 deaths) and 36% were females (611 deaths).
- The median age at death was higher for females than males (50.0 and 45.4 years, respectively).

Over two-thirds (69%) were considered accidental (1,175 deaths) and 24% (402 deaths) were considered intentional (ABS 2023a).

Analysis of the AIHW National Mortality Database (Figure 2) showed that in 2021:

- Opioids continue to be the most common drug class present in drug-induced deaths over the past decade (3.8 per 100,000 population in 2021). 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).
- Benzodiazepines were the most common single drug type present in drug-induced deaths (2.9 per 100,000 population) (benzodiazepines are included in the drug class 'depressants').
- Over the past decade there has been a substantial rise in deaths involving psychostimulants. The rate has increased from 0.7 per 100,000 population (163 deaths) in 2012 to 1.8 (431 deaths) in 2021.

Figure 2: Drug-induced deaths, by selected drug type and drug class and rate, 1997 to 2021



Source: AIHW analysis of the National Mortality Database 1997–2021.
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 2022). 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 2022).

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 2022). For more information, see Burden of disease.

Hospitalisations

In 2021–22, hospitalisations with a drug-related principal diagnosis accounted for 1.3% of all hospitalisations (135,000). Amphetamines and other stimulants accounted for 9.0% (12,200) of drug-related hospitalisations and most of these related to methamphetamines (82% or 10,100).

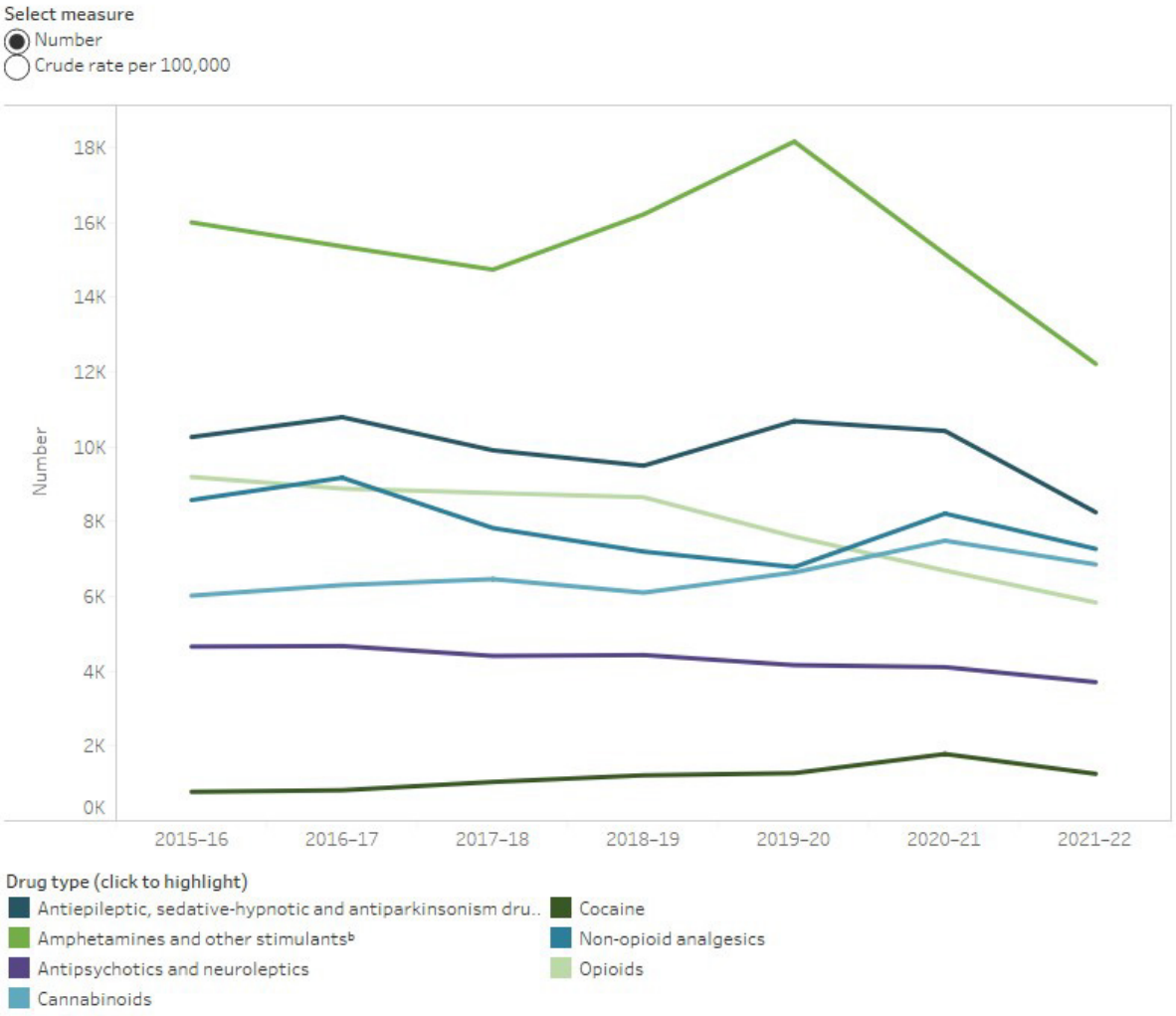
In 2021–22, drug-related hospitalisations for:

- Amphetamines and other stimulants decreased to 47 hospitalisations per 100,000 people from 59 hospitalisations per 100,000 people in 2020–21.
- Opioids decreased to 23 hospitalisations per 100,000 people from 26 hospitalisations per 100,000 people in 2020–21 (Figure 3).

Non-opioid analgesics saw a decrease from 32 hospitalisations per 100,000 people in 2020–21 to 28 hospitalisations per 100,000 people in 2021–22.

For information on drug-related hospitalisations where alcohol was the drug, see Alcohol.

Figure 3: Hospitalisations by selected drug-related principal diagnosis, number and crude rate, 2015–16 to 2021–22



Source: AIHW analysis of the National Hospital Morbidity Database 2015–16 to 2021–2022.
http://www.aihw.gov.au/

See notes

Ambulance attendances

Data on alcohol and other drug-related ambulance attendances are sourced from the National Ambulance Surveillance System (NASS). Monthly data are available from 2021 for people aged 15 years and over for New South Wales, Victoria, Queensland, Tasmania, and the Australian Capital Territory. Monthly data for Northern Territory are available from 2022.

Across reporting jurisdictions:

- The highest number and rate of ambulance attendances for illicit drugs were for cannabis, amphetamines (any) and heroin.

- 'Any type of pharmaceutical drug' required a higher rate of transport to hospital than other drugs, ranging from 85% of attendances in the Australian Capital Territory to 92% of attendances in Queensland.
- The highest proportion of ambulance attendances where police co-attended involved Amphetamines (any). This was less likely where a pharmaceutical drug was involved.

Over half (55%) of any pharmaceutical drug-related attendances involved at least one other drug (excluding alcohol) (AIHW 2023b).

Non-fatal overdose

Data from the 2023 Illicit Drug Reporting System (IDRS) and Ecstasy and related Drugs Reporting System (EDRS) include rates of self-reported overdose. In 2023:

- 1 in 10 (11%) IDRS participants reported a non-fatal opioid overdose in the past 12 months (Sutherland et al. 2023b).
- 1 in 7 (15%) EDRS participants reported experiencing a non-fatal stimulant overdose in the past 12 months; this was stable relative to 2020 (18%) (Sutherland et al. 2023a).

Treatment

Amphetamines were the most common principal illicit drug of concern in 2021–22. The Alcohol and other drug treatment services in Australia annual report for 2021–22 reported that amphetamines accounted for 24% of treatment episodes, followed by cannabis at 19% then heroin at 4.5% (AIHW 2023a).

Between 2012–13 and 2021–22, treatment episodes for amphetamines as a principal drug of concern increased from 22,300 to 49,700 and increased for cannabis from 36,600 to 40,200 episodes (AIHW 2023a).

For more information, 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 2023 IDRS (38%) and 2023 EDRS (35%) reported participating in criminal activities. The most common criminal activities were property crime and selling drugs for cash profit (Sutherland et al. 2023a, 2023b).
- In 2022–2023, 1 in 10 (10.1%) 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, remaining stable since 2019 (10.5%) (AIHW 2024).
- In 2020–21, almost one-quarter of victims (23%) and 9% of offenders had consumed illicit drugs or non-therapeutic levels of pharmaceutical drugs before a homicide incident (Bricknell 2023).

Priority populations

The National Drug Strategy 2017–2026- external site opens in new window 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 who are gay, lesbian, bisexual, transgender or intersex (Department of Health 2017).

Young people

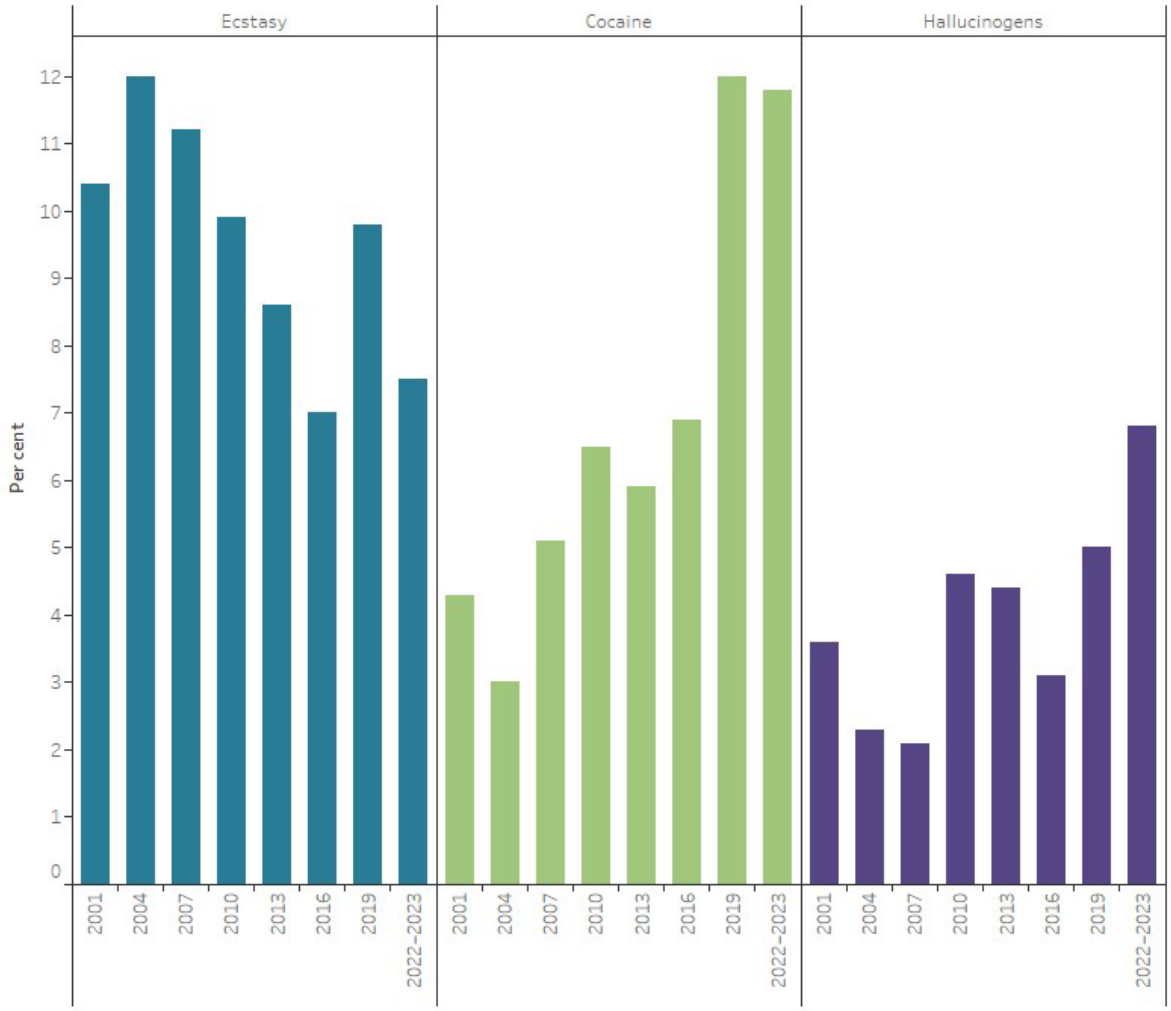
Young people are susceptible to permanent damage from alcohol and other drug use as their brains are still developing, which makes them a vulnerable population (Department of Health 2017).

As a group, young people aged 14–29 in 2022–2023 were less likely to have used an illicit drug in the previous 12 months than people of the same age in 2001. Drug use and trends in young people however, vary considerably within this age range. For example:

- In 2001, 28% of 14–19 year olds had used an illicit drug in the previous 12 months, but by 2022–2023, this had decreased to 19% (AIHW 2024).
- In 2022–2023, people aged 20–29 were the most likely to have used an illicit drug in the previous 12 months (33%), a similar proportion to 2019 (31%).
- There have been significant changes in the types of drugs used by people in their 20s (Figure 4):
  - Ecstasy use among people in their 20s declined from 9.8% in 2019 to 7.5% in 2022–2023. This was likely driven by a reduction in supply and opportunities to use ecstasy following COVID-19 related public health measures and event restrictions.
  - Cocaine use among people in their 20s has increased steadily since 2001. Much of the rise in cocaine use among people in this age group occurred between 2016 and 2019 – from 6.9% in 2016 to 12% in 2019 where it remained stable in 2022–2023.
  - Hallucinogen use among people in their 20s has increased steadily since 2001. Between 2016 and 2022–2023, hallucinogen use in this age group more than doubled – from 3.1% in 2016 to 6.8% in 2022–2023 (AIHW 2024).

For more information, see Health of young people.

Figure 4: Proportion of people aged 20–29 who recently used ecstasy, cocaine or hallucinogens, 2001 to 2022–2023



Notes:
1. Recent use defined as use in the previous 12 months.
2. Ecstasy includes 'designer drugs' before 2004.
Source: National Drug Strategy Household Survey 2022–2023 (AIHW 2024).
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).

The ABS National study of mental health and wellbeing reports 12-month mental disorders as the number of people who met the diagnostic criteria for a mental disorder at some time in their life and had sufficient symptoms of that disorder in the previous 12 months. The 2020–2022 study found:

- 3.3% of Australians (647,900 people) aged 16–85 years had symptoms of a 12-month Substance Use disorder.

- 4.4% of males reported a 12-month Substance Use disorder, compared with 2.1% of females (ABS 2023b).

In 2022–2023, 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 (29%) than those who had not used an illicit drug over this period (16%) (AIHW 2024). For example, mental health conditions were reported by:

- 44% of people who recently used methamphetamine and amphetamine (compared with 18% of non-users)
- 27% of people who recently used hallucinogens (18% of non-users)
- 30% of people who recently used cannabis (16% of non-users)
- 25% of people who recently used ecstasy (18% of non-users)
- 26% of people who recently used cocaine (18% of non-users) (AIHW 2024).

Just over half of the participants in the 2023 IDRS (53%) and 2023 EDRS (58%) self-reported mental health conditions in the previous 6 months. The IDRS saw an increase from 2022 (47%) and the EDRS was stable relative to 2022 (62%) (Sutherland et al. 2023a, 2023b). For more information, see Physical health of people with mental illness.

Lesbian, gay, bisexual, transgender, intersex or queer people

People who are 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 who are gay, lesbian or bisexual, as well as estimates for people who are transgender or gender diverse (AIHW 2024).

The NDSHS has consistently shown that the proportion of people reporting illicit drug use has been higher among people who are gay, lesbian or bisexual than among heterosexual people – 47% compared with 16%, had used an illicit drug in the previous 12 months in 2022–2023. After adjusting for differences in age, in comparison to heterosexual people, gay, lesbian or bisexual people were :

- 12.2 times as likely to have used inhalants in the previous 12 months
- 3.8 times as likely to have used hallucinogens in the previous 12 months
- 6.5 times as likely to have used methamphetamine and amphetamine in the previous 12 months
- 5.6 times as likely to have used ecstasy in the previous 12 months (AIHW 2024).

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 are gay or lesbian and people who are bisexual (AIHW 2024).

The Writing Themselves In- external site opens in new window 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- external site opens in new window 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 2022–2023
- 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- external site opens in new window

For more on this topic, see Illicit use of drugs.

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Natural environment and health

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/australias-health/natural-environment-and-health

On this page

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).

The natural environment is a determinant of health due to its ability to affect health outcomes (see What are determinants of health?). This page presents a selection of evidence on the influence of the natural environment on human physical and mental health in Australia. For more information on the health impacts of the human-made surroundings, see Built environment and health.

Connection to Country

Aboriginal and Torres Strait Islander (First Nations) people have had a continuous, ongoing and strong connection with the Australian environment for tens of thousands of years. The concepts of Country, and caring for Country, are fundamentally important for, and are one among a range of, cultural factors that contribute to health and wellbeing (Bourke et al. 2018; Redvers et al. 2020). While there are challenges in measuring the influence of cultural factors on health and wellbeing, and the field of research is emerging, the majority of studies

have found a positive effect of cultural factors on health and wellbeing of First Nations people (Bourke et al. 2018; MacLean et al. 2017).

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 2023 was estimated to be around 1.45ºC above the pre-industrial (1850–1900) average – warmer than any preceding year in the 174-year observational record (WMO 2024)
- the 9 years from 2015 to 2023 were the 9 warmest years on record (WMO 2024)
- greenhouse gas concentrations continued to increase (WMO 2024).

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 safe water and food (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 First Nations 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 their connection to Country, exacerbating existing risk factors or compounding historical injustices (Beggs et al. 2021; HEAL Network and CRE-STRIDE 2021).

Climate change is expected to challenge the health care system, for example through increased need for health care services (such as emergency department usage and hospital admissions), and disruptions to health service provision and health supplies during and in the aftermath of extreme weather events. Yet the health care system itself is estimated to be directly or indirectly responsible for around 5.3% of Australia's total

greenhouse emissions, which contribute to climate change (Department of Health and Aged Care 2023a).

To meet the health challenges posed by climate change, the Australian government released the National Health and Climate Strategy in 2023. The Strategy outlines a whole-of-government approach to build a climate-resilient, net zero health system, and to protect population health and wellbeing from the impacts of climate change (Department of Health and Aged Care 2023a).

The Strategy recognises the interconnectedness of the environment and health, and the need to take a Health in All Policies approach to address climate change and its impacts. Importantly, the Strategy acknowledges the inequitable distribution of health burden due to climate change, and is therefore informed by principles of health equity, including an explicit commitment to working with First Nations stakeholders to address the health impacts of climate change on First Nations people (Department of Health and Aged Care 2023a).

Extreme weather events

Australia is expected to experience changing weather patterns in the coming decades, with climate change intensifying many types of weather events. In Australia, it is predicted that there will be increases in the number, intensity or geographic spread of heatwaves, drought, bushfires, violent storms, heavy rainfall events and flooding, while a decrease in extreme cold weather is expected (Bureau of Meteorology and CSIRO 2022; Metcalfe and Costello 2021). These extreme weather events can have direct effects such as deaths, injuries and illness, and can affect mental health and wellbeing (Ebi et al. 2021; Matthews et al. 2019). Additionally, they can indirectly affect health of communities through impacts to critical infrastructure, essential services, food production, the economy and ecosystems (Reisinger et al. 2014). Without mitigation and adaptation (see glossary), the health impacts of these events are also likely to increase and disproportionately affect certain populations such as older people, as well as future generations (Beggs et al. 2019; WHO 2018b; Cheng et al. 2018; Thiery et al. 2021).

In Australia, in the decade between 2012 and 2022 there was an average of 912 hospitalisations per year for extreme weather-related injuries (AIHW 2024). This equates to an annual average crude rate of 3.7 hospitalisations per 100,000 people. However, climate change, and climate drivers such as the El Niño Southern Oscillation, the Indian Ocean Dipole and the Southern Annular Mode mean that Australia's weather is subject to variation from year to year (Bureau of Meteorology and CSIRO 2022). Likewise, variations in patterns of extreme weather-related injury hospitalisations were observed across this time. In the years 2013–14, 2016–17 and 2019–20, hospitalisations due to injuries related to extreme weather conditions or natural hazards exceeded the 10 year average (2012–2022). In each of these years, there were greater than 1,000 hospitalisations, or more than 4.2 per 100,000 people (AIHW 2024). It should be noted that hospitalisations for extreme weather-related injuries represent only a small proportion of the combined direct and indirect health outcomes due to extreme weather, and that the full health impact is likely much higher. For more information, see

Australia's health 2024: data insights article Extreme weather related injuries in Australia over the last decade.

Heatwaves and very hot days

Data from the Bureau of Meteorology show that 2019 was Australia's hottest year since Australian temperature records commenced in 1910, with average temperatures 1.52 degrees Celsius above the long-term average (1961–1990) (Bureau of Meteorology 2020). In 2019, there were 33 days when the national daily average maximum temperature was above 39 degrees Celsius – a larger number of days over 39 degrees than seen in the 59 years prior (1960–2018) (Bureau of Meteorology and CSIRO 2022). Very high monthly maximum temperatures occurred around 2% of the time for the period 1960–1989, compared with over 11% of the time for the period 2007–2020 (Bureau of Meteorology and CSIRO 2022). This increase in the number of very hot days is projected to continue as a result of climate change (Bureau of Meteorology and CSIRO 2022).

Heatwaves (see glossary) 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). Some medications can increase the risk of heat-related illness and may be less effective during prolonged high temperatures (Layton et al. 2020).

Increases in hospitalisations and deaths in Australia have been observed during heatwaves and extreme heat (Varghese et al. 2020; Williams et al 2018). For the period 2007–2017, in Australia, deaths increased by 2% during heatwaves (1,418 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). Extreme heat has the highest contribution to injury hospitalisation and deaths caused by extreme weather events – 7,104 hospitalisations (between 2012–2022) and 293 deaths (between 2011–2021) (AIHW 2023b).

Bushfires

Bushfire has long been a part of the Australian experience. However, the 2019–20 bushfire season in Australia saw an unusually large area of Australia's temperate forest burnt – about one-fifth (21%) of the New South Wales and Victorian section of Australia's temperate broadleaf and mixed forests biome burned, compared with the 2% typical of previous major fire years (Boer et al. 2020). Emissions from the fires are now thought to have contributed to the rare occurrence of 3 consecutive La Niña events in Australia between 2020 to 2022 by causing an imbalance in atmospheric and oceanic conditions (Fasullo et al. 2023).

The adverse health effects during the 2019–20 bushfire season included:

- 35 deaths due to injuries resulting from the fires (AIHW 2023b)
- increases in hospital admissions and emergency department presentations for respiratory conditions in areas affected by bushfire smoke (AIHW 2020, 2021c; Wen et al. 2022). For example, in the week beginning 5 January 2020, there was an 11% increase in admitted patient hospitalisations for respiratory conditions, nationally, compared with the previous 5-year average. In the Australian Capital Territory, the rate was 52% higher than the previous 5-year average for that week – the largest rate increase among the states and territories (AIHW 2021b)
- over half (54%) of Australian adults experienced anxiety or worry due to the bushfires (Biddle et al. 2020)
- disproportionate impacts on First Nations 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. 2012). The 2009 Victorian bushfires resulted in the death of 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). One study investigating the health impacts of bushfire smoke over the 4 months from October 2019 to February 2020 in the east of Australia (Queensland, New South Wales, Victoria and the Australian Capital Territory) estimated that it was responsible for more than 2,000 hospitalisations for respiratory conditions and more than 1,000 hospitalisations for cardiovascular conditions (Borchers Arriagada et al. 2020).

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). For more information on smoke-related air quality, see air pollution.

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; Gao et al. 2023; Gibbs et al. 2021). For example, a follow-up study of psychological outcomes 5 years after the 2009 Victorian 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). Prolonged exposure to smoke from bushfires has also been found to have an impact on mental health (Rodney 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 diseases such as those caused by *Escherichia coli*, airborne and dust-related diseases, vector-borne diseases such as dengue fever, mental health effects and distress (Stanke et al. 2013).

The mental health effects of drought are complex and may vary by demographic characteristics. 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). While mental health impacts are more pronounced in rural communities (Batterham et al. 2022), occupation also appears to play a role. One study found people working on farms were at a much greater risk of mental ill-health as a result of drought, when compared with people employed outside the agricultural sector (Edwards 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

There has been a decrease in the number of tropical cyclones in the Australian region in recent decades, but heavy rainfall events (typically caused by thunderstorms, cyclones and east coast lows) are increasing in intensity, with observed daily rainfall totals associated with thunderstorms increasing since 1979, particularly in northern Australia (Bureau of Meteorology and CSIRO 2022). In southern and eastern Australia, cool season rainfall is predicted to continue to decline with climate change, leading to more time spent in drought, on average. However, extreme rainfall events that are short in duration are predicted to increase. Furthermore, weather systems such as east coast

lows and tropical cyclones are expected to become less frequent and this may influence changes in extreme rainfall in particular locations (Bureau of Meteorology and CSIRO 2022).

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). Heavy rainfall and flooding can affect the quality of water resources, for example through pollution with run-off from by-products of industry and agriculture, contributing to waterborne disease (van Vliet et al. 2023). 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). There is also evidence of increased mortality risk during the weeks following floods (Yang et al. 2023).

The floods in Australia in 2021–22 had major impacts across large parts of Queensland and New South Wales. Nationally, there were 38 deaths attributed to either flooding or cataclysmic storms during the 2022 calendar year, compared with an average of 5.8 deaths annually over the previous 9 years (ABS 2023).

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 2021c). 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 57 cases per 100,000 persons in 2023. While the total number of deaths due to melanoma increased over this period, from 970 in 2000 to 1,300 in 2023, after adjusting for age, the rate of deaths decreased from 5.2 deaths per 100,000 persons to an estimated 3.7 deaths per 100,000 persons (AIHW 2023a). The increased incidence, accompanied by overall decreased mortality during this period is thought to be the result of skin cancer awareness and preventative public health campaigns in Australia leading early detection and treatment of melanomas (Blazek et al. 2022, Aitken et al. 2018).

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). Research on the effects of biodiversity on mental health is ongoing, in an attempt to unravel the complex mechanisms and pathways involved (Cianconi et al. 2022; Wong and Osborne 2022).

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 more than 1900 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; DCCEEW 2022b).

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). For more information, see Built environment and health.

Air quality

Air quality refers to the condition of the air that we breathe (DCCEEW 2022a). Air quality is degraded by human activities, such as burning of fossil fuels for industrial purposes, or through naturally occurring events such as bushfires and dust storms. Air quality is impacted by the presence of aeroallergens (see glossary) and air pollution.

Aeroallergens – allergy-causing airborne particles such as pollen and mould spores – also have the potential to affect air quality and can cause or worsen respiratory conditions, such as hay fever, in some people.

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). For some pollutants, including PM2.5, there is evidence that even very low levels of exposure can have adverse health impacts (Emmerson and Keywood 2021). Air pollution is recognised by the World Health Organization as a serious risk factor for non-communicable disease (Schwartz et al. 2021). Air pollution can also increase the health impacts of infectious and other respiratory diseases (Tran et al. 2023). PM2.5 sources can be derived from human activity (for example, from industrial processes, vehicle emissions or wood heater emissions), 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

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). For more information, see Chronic respiratory conditions: asthma.

Air quality is monitored across Australia and reported nationally (NEPC 2019). Air quality in Australian cities is generally classified as 'good' in comparison with similar developed economies, although there is variation depending on the location within Australia and which pollutant is being measured.

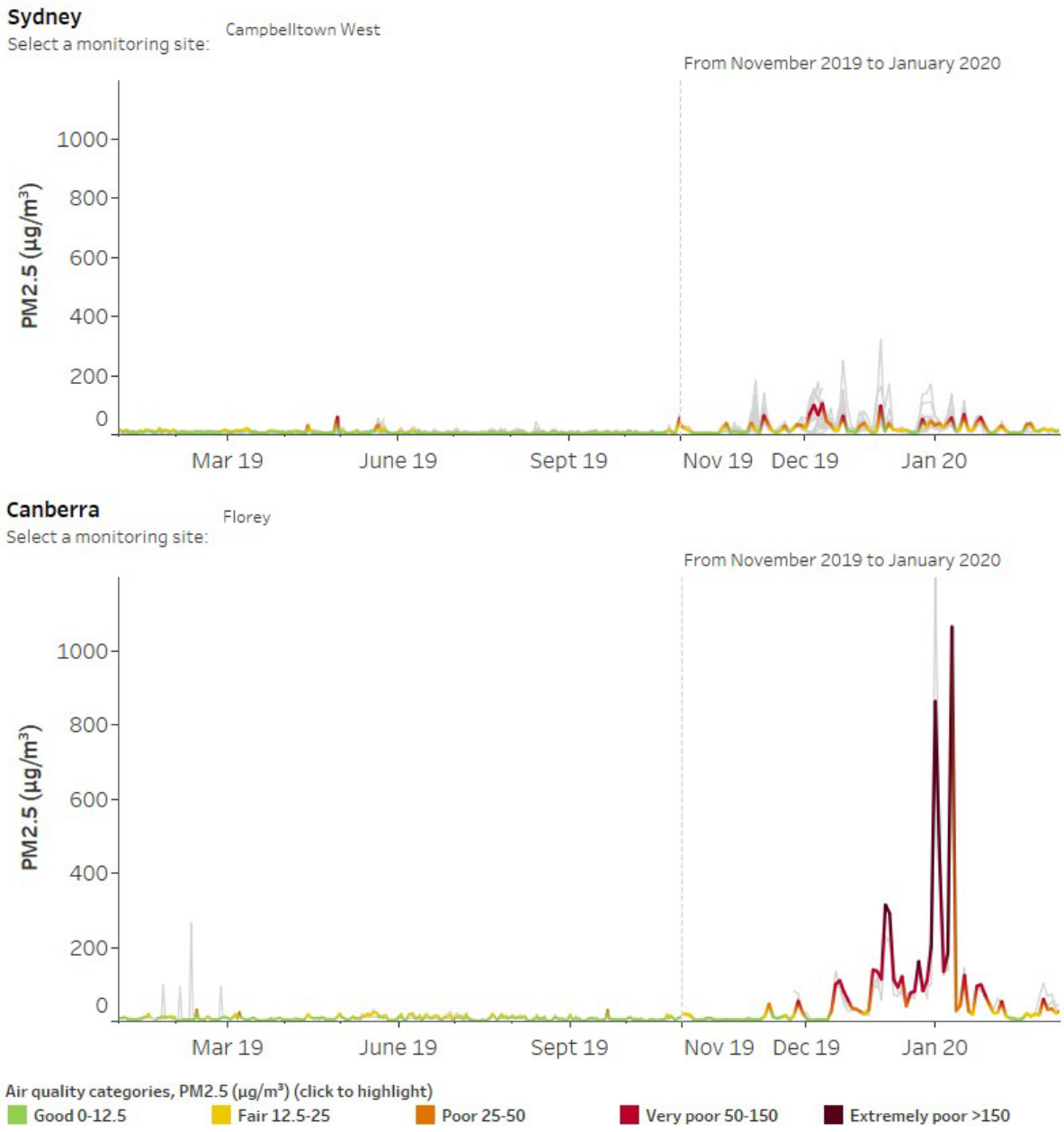
While ozone pollution levels in Australian capital cities are considered 'good', levels have increased in many cities since the 2016, and therefore the air quality due to ozone pollution is considered to be worsening (Emmerson and Keywood 2021). Furthermore,

the National Environment Protection Measure (NEPM) standard for ozone pollution was lowered in 2021, and as a result it is expected that more cities will exceed this new cut-off point when measured against the new standard (Emmerson and Keywood 2021).

Regarding PM2.5 air pollution, in order to meet the NEPM standard, 24-hour PM2.5 levels must be under of 25μg/m^3 on every day of the year (Emmerson and Keywood 2021). The 2021 State of the Environment report states that in 2019, all Australian capital cities exceeded the 24-hour PM2.5 advisory standard of 25μg/m^3. In addition, the air quality due to PM2.5 has deteriorated in 5 of the 8 capital cities since the 2016 reporting period (Emmerson and Keywood 2021). While much PM2.5 pollution is derived from human activity, it can also be generated from extreme weather-related events such as bushfires and dust storms (Emmerson and Keywood 2021).

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 1 January 2020, the average hourly PM2.5 value at Monash in the ACT peaked at 1197ug/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



PM2.5 – Atmospheric particulate matter (PM) with a diameter of 2.5 micrometres (0.0025 millimetres) or less.

Sources: NSW Department of Planning, Industry and Environment 2020; ACT Health 2020.
https://www.aihw.gov.au

A 2022 study of New South Wales emergency department data estimated there were 6,177 additional presentations for respiratory diseases (a 6% increase) and 3,120

additional presentations for cardiovascular diseases (a 10% increase) during the 2019–20 bushfire season (Wen et al. 2022).

For more information on the health effects of bushfire smoke pollution, 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 2021b).

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 leptospirosis infections are quite rare in Australia, exposure to flood waters is associated with increased risk of transmission of the disease (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, there were 103 leptospirosis notifications during the first quarter of 2011, compared with an average of 36 notifications (range 8–57) during the same quarter in the previous 4 years (National Notifiable Disease Surveillance System 2024). 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 (Effler 2020; 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 human cases of the virus (Department of Health and Aged Care 2023b). 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:

- Australian Institute of Health and Welfare Let's talk about the weather: injuries related to extreme weather
- Bureau of Meteorology and CSIRO State of the climate 2022
- Department of Climate Change, Energy, the Environment and Water Australia State of the Environment 2021
- Department of Climate Change, Energy, the Environment and Water National Climate Risk Assessment and National Adaptation Plan
- Department of Health and Aged Care Environmental health publications (enHealth)
- United Nations (UN) Intergovernmental Panel on Climate Change (IPCC)

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Overweight and obesity

This topic summary is part of the Overweight and obesity report.

On this page:

Page highlights

How common is overweight and obesity?

In 2022:

26% of children and adolescents aged 2–17 were living with overweight or obesity.

66% of adults aged 18 and over were living with overweight or obesity.

How does overweight and obesity change over time?

The proportion of children and adolescents aged 5–17 living with overweight or obesity increased to 28% in 2022 from 25% in 2017–18. This follows from a steady increase since 1995 (20%),

The proportion of adults aged 18 and over living with overweight or obesity has remained stable at 66% in 2022, compared with 67% in 2017–18. Looking over a longer time period, this proportion has increased from 56% in 1995, mainly driven by an increase in people living with obesity (from 19% in 1995 to 32% in 2022).

How does overweight or obesity vary by populations groups?

In 2018–19, 74% of Aboriginal and Torres Strait Islander (First Nations) adults aged 18 and over and 38% of First Nations children and adolescents aged 2–17 were living with overweight or obesity.

In 2022, after adjusting for age:

more adults in *Inner regional* (68%) and *Outer regional and Remote* areas (70%) were living with overweight or obesity compared with those living in *Major cities* (64%).

more adults in the lowest socioeconomic areas were living with overweight or obesity (68%) compared with those living in the highest socioeconomic areas (60%).

How does Australia compare internationally?

Australia ranked 10th out of 21 OECD countries for the proportion of people aged 15 and over who were living with overweight or obesity, in 2022.

The proportion of Australians living with overweight or obesity is greater than the OECD average of 59%.

What are the health impacts of overweight or obesity?

In 2018:

overweight (including obesity) was the second leading risk factor (after tobacco use) contributing to ill health and death.

overweight (including obesity) was linked to 30 diseases, including cancer, cardiovascular diseases, musculoskeletal conditions and type 2 diabetes.

Strategies for overweight or obesity

The National Preventive Health Strategy 2021–2030 and the National Obesity Strategy 2022–2032 are frameworks for action to prevent, reduce and treat overweight or obesity in Australia, with measurable targets to reduce the prevalence of overweight and obesity.

Current monitoring of the targets shows that since 2017–18, the prevalence of obesity in adults aged 18 and over, and overweight or obesity in children aged 2–17, have remained stable.

How common is overweight and obesity?

Overweight or obesity refers to excess body weight. It is a risk factor for many chronic conditions and is associated with higher rates of death (AIHW 2019). At a population level, overweight or obesity is generally measured using Body Mass Index (BMI) or waist circumference.

For more information on how to measure overweight or obesity, please see Measuring overweight or obesity and Causes of overweight or obesity.

Children and adolescents

In 2022, based on measured height and weight data from the Australian Bureau of Statistics (ABS) 2022 National Health Survey, of children and adolescents aged 2–17:

- one in 4 (26%) were living with overweight or obesity. This is approximately 1.3 million children and adolescents.
- 18% were living with overweight but not obesity.
- 8.1% were living with obesity (ABS 2023d).

The proportion living with overweight or obesity was similar for boys and girls across most age groups, except for the youngest age group, where more girls aged 2–4 (24%) were living with overweight or obesity than boys (14%) (ABS 2023d) (Figure 1).

Adults

In 2022, based on measured data from the ABS 2022 NHS, of adults aged 18 and over:

- 66% were living with overweight or obesity, approximately 13 million adults
- 34% were living with overweight but not obesity
- 32% were living with obesity
- 13% were living with severe obesity, which is defined in this report as having a BMI of 35 or more (ABS 2023c; AIHW analysis of ABS 2023a).

For the measures of overweight or obesity, and overweight but not obese, men had higher rates than women, in 2022:

- 71% of men and 61% of women were living with overweight or obesity.
- 39% of men and 30% of women were living with overweight but not obesity (ABS 2023c).

Similar proportions of men (33%) and women (31%) were living with obesity (ABS 2023c).

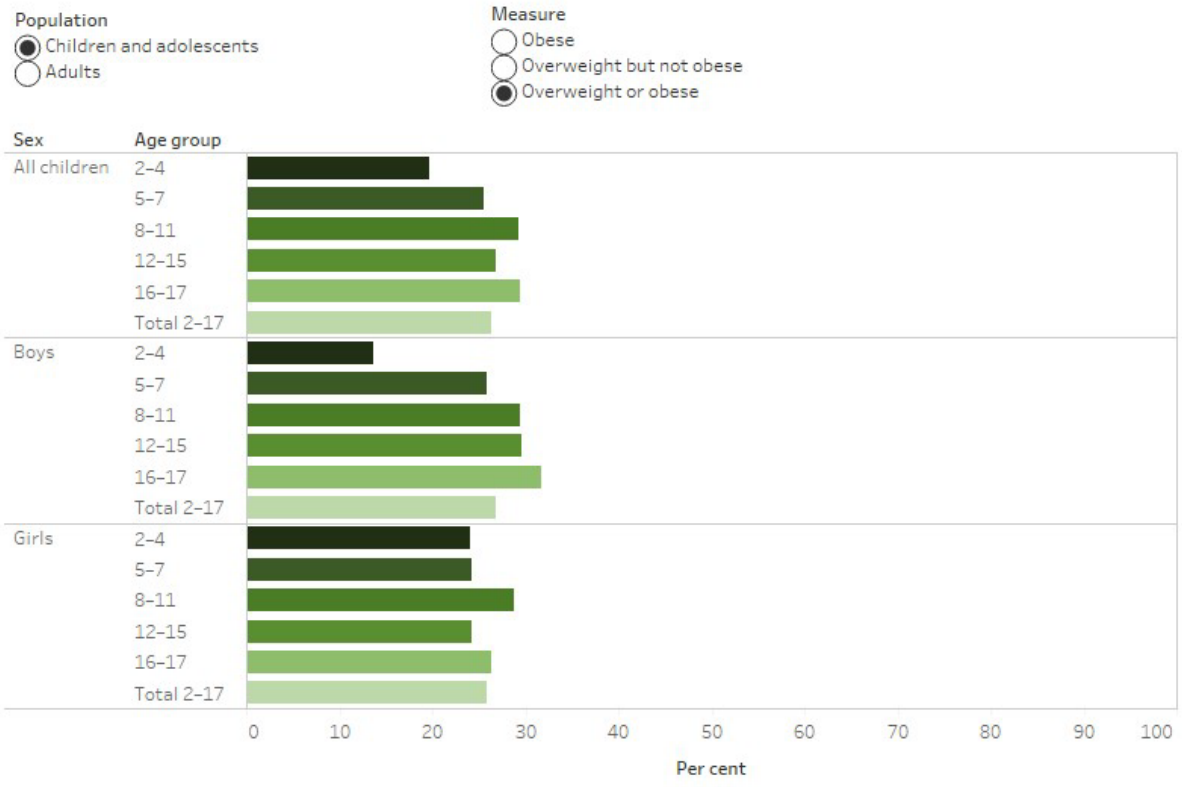
Overweight or obesity is distributed differently among men and women, as shown in the BMI calculator.

In 2022, the proportion of adults living with overweight or obesity generally increased with age. This is seen in both men and women:

- for men, the proportion increased steadily from 42% of those aged 18–24 to a peak of 81% in those aged 65–74.
- for women, the proportion increased from 41% of those aged 18–24 to a peak of over 70% in those aged 55–64 and 65–74 (ABS 2023c) (Figure 1).

Obesity is also more common in older age groups. In 2022, 15% of men and 16% of women aged 18–24 years were living with obesity, compared with 41% of men and 37% of women aged 65–74 (ABS 2023c) (Figure 1).

Figure 1: Proportion of children and adolescents aged 2–17 and adults aged 18 and over, living with overweight and obesity, by age group and sex, 2022

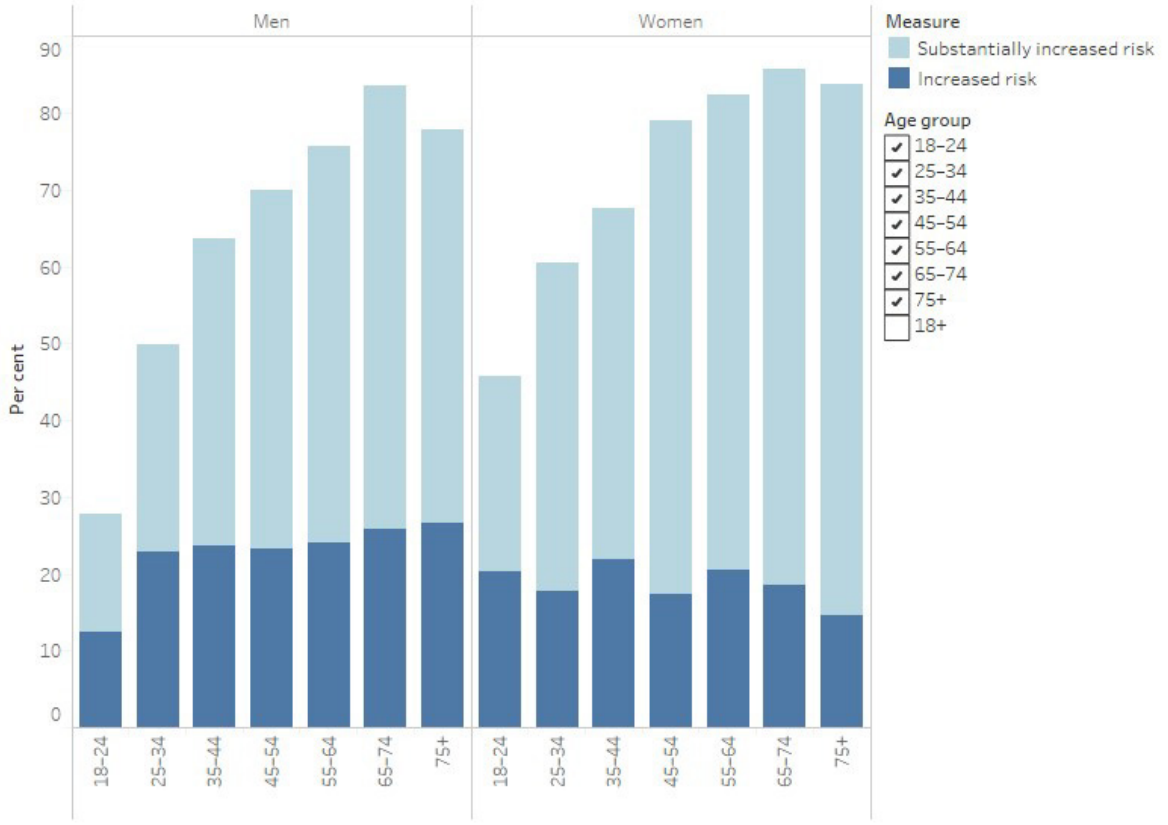


Percentage has a margin of error greater than 10 percentage points which should be considered when using this information.
Source: ABS 2023c, ABS 2023d. See Data Tables S2 and S10 for data and footnotes
http://www.aihw.gov.au

Waist circumference

In 2022, based on measured waist circumference from the ABS 2022 NHS, 63% of men and 72% of women aged 18 and over had a waist circumference that indicated an increased or substantially increased risk of metabolic complications. This is an increase from 2017–18 (60% of men and 66% of women). The proportion of adults with a waist circumference that indicates a substantially increased risk of metabolic complications was significantly higher in women than men across almost all age groups (ABS 2023c) (Figure 2).

Figure 2: Proportion of adults aged 18 and over with a waist circumference indicating increased risk of metabolic complications, by age group and sex, 2022



Source: ABS 2023c. See Data Table S3 for data and footnotes.
http://www.aihw.gov.au

How does overweight and obesity change over time?

Children and adolescents

The proportion of children and adolescents aged 5–17 living with overweight or obesity increased between 1995 and 2007–08 (from 20% to 25%), then remained relatively stable from 2007–08 to 2017–18, before increasing to 28% in 2022 (AIHW analysis of ABS 2013a; ABS 2009b, 2013b, 2015b, 2018, 2023d) (Figure 3). This increase between 2017–18 to 2022 was driven by the increase in the proportion living with overweight (but not obesity), which increased from 17% in 2017–18 to 20% in 2022 (ABS 2018, 2023d) (Figure 3).

For children aged 2–17, the proportion living with overweight or obesity have not changed significantly between 2017–18 (25%) and 2022 (26%) (ABS 2018, 2023d).

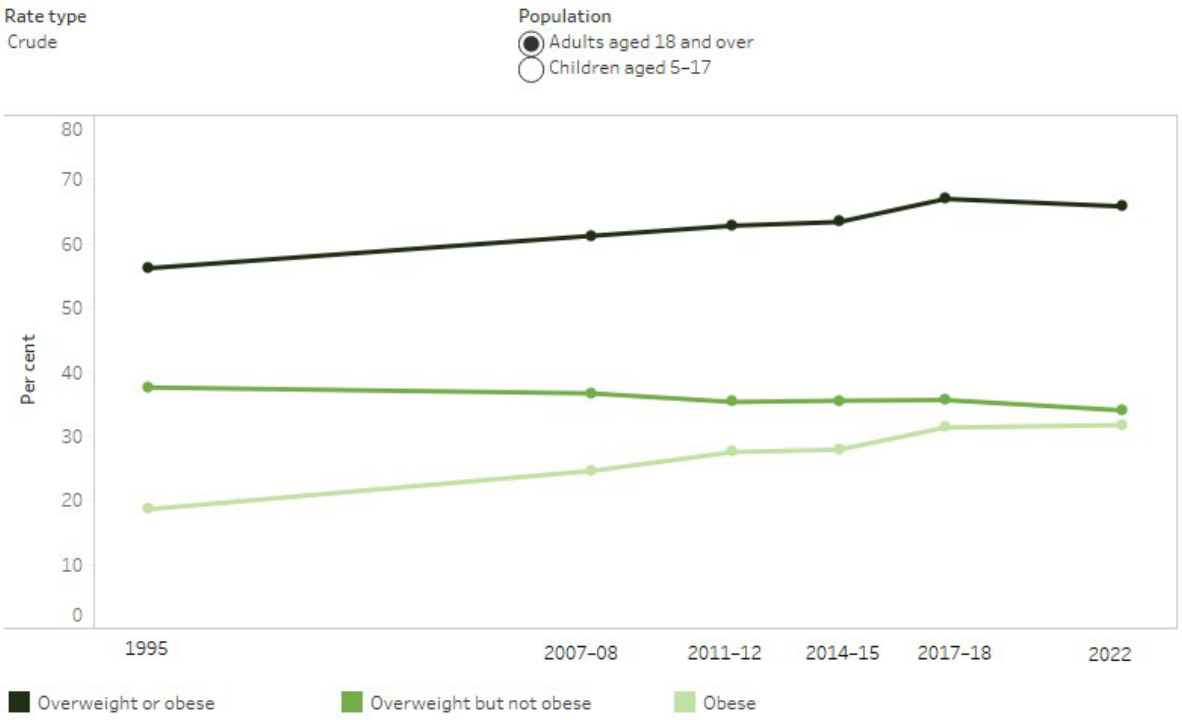
Adults

The proportion of adults aged 18 and over living with overweight or obesity has remained stable at 66% in 2022, compared with 67% in 2017–18. However, this

proportion has increased steadily from 56% in 1995 (Figure 3) (ABS 2019c, 2023b; AIHW analysis of ABS 2009a, 2013a, 2014a, 2016).

The increase in the proportion living with overweight or obesity was largely driven by an increase in those living with obesity, which increased to 32% in 2022, from 19% in 1995 (Figure 3) (ABS 2019c, 2023b; AIHW analysis of ABS 2009a, 2013a, 2014a, 2016).

Figure 3: Proportion of overweight or obesity in children and adolescents aged 5–17, and adults aged 18 and over, 1995 to 2022.



Notes:
1. Age-standardised rates use the 2001 Australian population to account for differences in the age structure across population groups.
2. Age-standardised rates are only for adults aged 18 and over.
Source: AIHW analysis of ABS 2009a, 2013a, 2014a, 2016; ABS 2009b, 2013b, 2015b, 2018, 2019c, 2023b and 2023d. See Data Tables S4 and S11 for data and footnotes.
http://www.aihw.gov.au

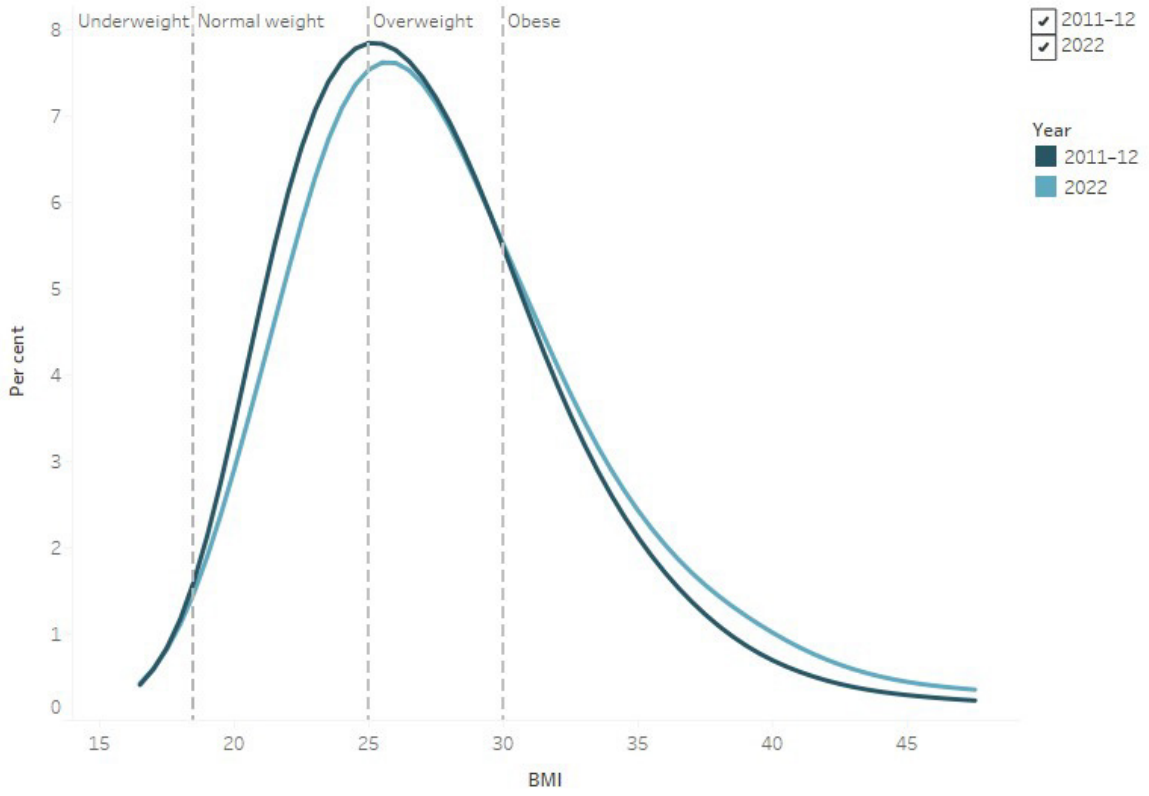
The distribution of BMI in adults shifted towards higher BMIs from 2011–12 to 2022, due to an increase in obesity in the population over time (ABS 2013b, AIHW analysis of ABS 2023a) (Figure 4).

Changes in prevalence of overweight or obesity in birth cohorts over time is currently being explored using the latest data. This will be available in a forthcoming report.

To learn more on birth cohort analyses from current published reports, see:

- Overweight and obesity in Australia: a birth cohort analysis
- Overweight and obesity in Australia: an updated birth cohort analysis

Figure 4: Distribution of BMI among persons aged 18 and over, 2011–12 and 2022



Source: ABS2012a, AIHW analysis of ABS 2023a. See Data Table S15 for data and footnotes.
http://www.aihw.gov.au

Aboriginal and Torres Strait Islander (First Nations) people

Children and adolescents

Among Aboriginal and Torres Strait Islander (First Nations) children and adolescents aged 2–17, 38% were living with overweight or obesity, according to the latest data from the 2018–19 ABS National Aboriginal and Torres Strait Islander Health Survey (ABS 2019e). This is an increase from the 31% estimated from the previous Australian Aboriginal and Torres Strait Islander Health Survey in 2012–13 (AIHW analysis of ABS 2015a). It was also higher than the 24% of non-Indigenous children and adolescents estimated from the National Health Survey in 2017–18 (AIHW analysis of ABS 2019b).

In 2018–19, the proportion of First Nations boys living with overweight or obesity increased with increasing age from 21% of those aged 2–4 years to 33% of those aged 5–9 and 45% of those aged 10–14. For girls, there were no significant differences in the proportion living with overweight or obesity across age groups (AIHW analysis of ABS 2019a) (Figure 5).

For more information see Overweight and obesity among Australian children and adolescents and the Overweight and obesity measure- external site opens in new

window from the Aboriginal and Torres Strait Islander Health Performance Framework-external site opens in new window.

Adults

Based on the latest available data from 2018–19, of First Nations people aged 18 and over:

- 74% were living with overweight or obesity, increasing from 69% in 2012–13.
- 45% were living with obesity, increasing from 40% in 2012–13 (ABS 2014b, 2019d).

After adjusting for differences in the age structure of First Nations and non-Indigenous populations, in 2018–19, First Nations adults were 1.2 times as likely to be living with overweight or obesity as non-Indigenous adults (77% compared with 66%), and 1.5 times as likely to be living with obesity (47% compared with 31%) (ABS 2019d).

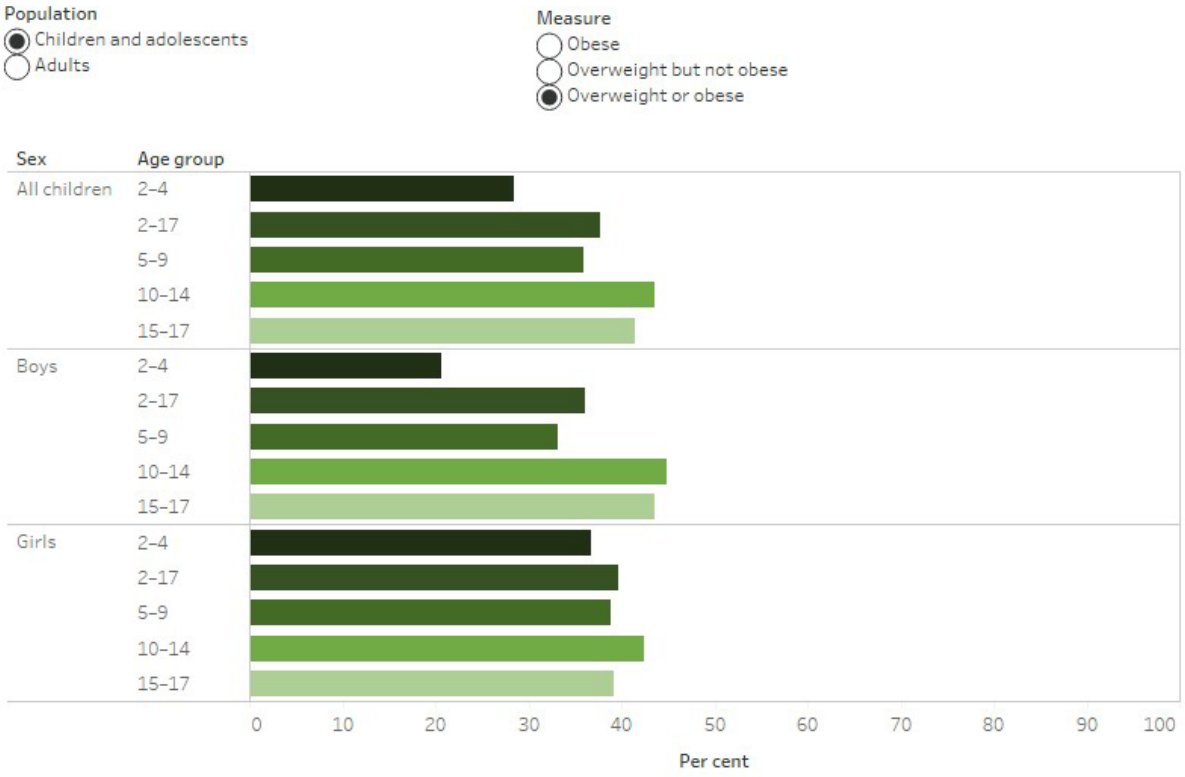
When comparing between First Nations men and women, there were no statistically significant differences between the proportion living with overweight or obesity, and the proportion living with overweight alone. However, slightly more First Nations women were living with obesity (48%) than First Nations men (43%) (ABS 2019d).

In 2018–19, the proportion of overweight or obesity generally increased with increasing age. This was seen in both First Nations men and women (Figure 5):

- for First Nations men, the proportion increased from 56% at 18–24, to 72% at 25–34 and 81% at 35–44. It peaked at 84% for those aged 55 years and over.
- for First Nations women, the proportion increased from 60% at 18–24, to 73% at 25–34. It peaked at 83% for those aged 45–54 years (ABS 2019d).

For obesity alone, the proportion also increased with increasing age. The proportion of First Nations adults living with obesity was lowest for those aged 18–24 at 32% and highest for those aged 45 and over (51%) (ABS 2019d) (Figure 5).

Figure 5: Proportion of First Nations children and adolescents aged 2–17 and adults aged 18 and over living with overweight or obesity, by age group and sex, 2018–19



Proportion has a margin of error of greater than 10 percentage points which should be considered when using this information.
Source: AIHW analysis of ABS 2019a; ABS 2019d. See Data Tables S8 and S13 for data and footnotes.
http://www.aihw.gov.au

How does overweight and obesity vary by population groups?

Obesity is unfairly distributed, with some Australians at higher risk. Economic and social barriers and the remoteness areas that people live in can limit the availability of and access to healthy living (Commonwealth of Australia 2022).

Remoteness areas

In 2022, based on measured data from the ABS 2022 NHS and after adjusting for age, a greater proportion of Australians aged 18 and over in *Inner regional* (68%) and *Outer regional and Remote* (70%) areas were living with overweight or obesity compared with those in *Major cities* (64%). This variation was not seen in children and adolescents aged 2–17 (AIHW analysis of ABS 2023a) (Figure 6).

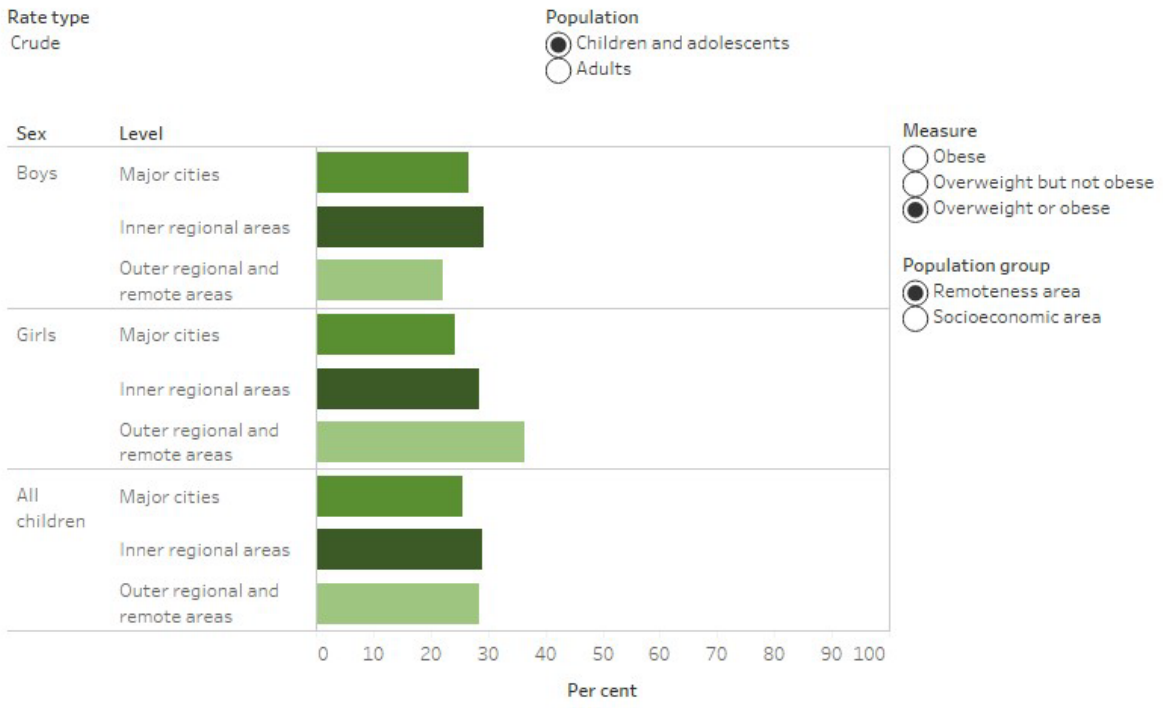
Socioeconomic areas

In 2022, based on measured data from the ABS 2022 NHS and the proportion of Australians living with overweight or obesity varied by socioeconomic area.

Children and adolescents aged 2–17 in the lowest socioeconomic areas were more likely to be living with overweight or obesity (34%) than those in the highest socioeconomic areas (21%) (Figure 6). The proportion of those living with obesity in this age group was also higher for those in the lowest socioeconomic areas (15%) compared with the highest socioeconomic areas (4.9%) (Figure 6) (AIHW analysis of ABS 2023a).

After adjusting for age in adults aged 18 and over, a greater proportion in the lowest socioeconomic area (68%) were living with overweight or obesity, compared with those in the highest socioeconomic areas (60%). The prevalence of obesity was the underlying reason for this difference by socioeconomic areas, with a greater proportion of both men (36%) and women (38%) in the lowest socioeconomic areas living with obesity, compared with those in the highest socioeconomic areas (25% and 23%, respectively) (Figure 6) (AIHW analysis of ABS 2023a).

Figure 6: Proportion of children and adolescents aged 2–17 and adults aged 18 and over living with overweight and obesity, by population groups, 2022



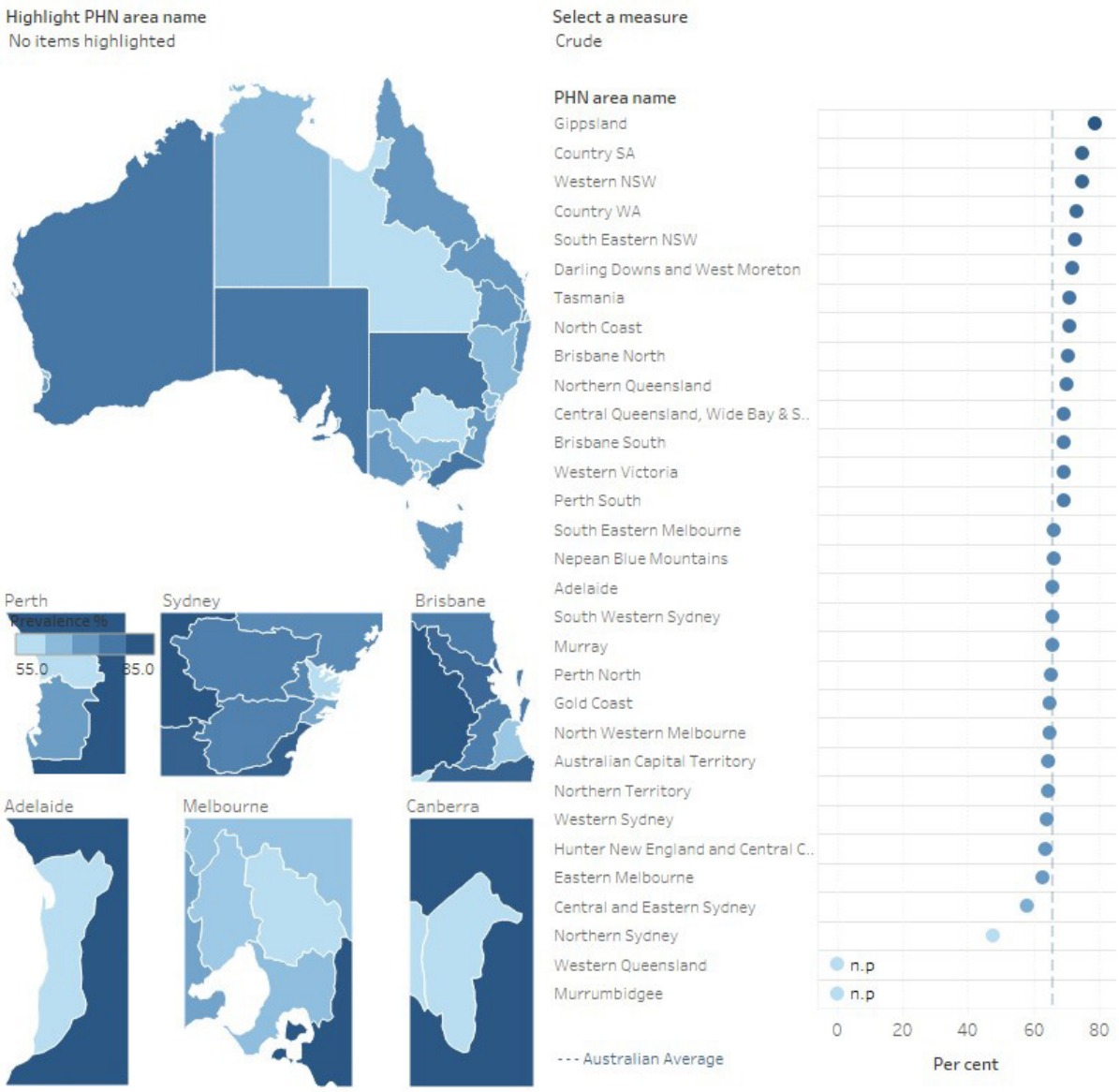
Notes:
1. Age-standardised rates use the 2001 Australian population to account for differences in the age structure across population groups.
2. Age-standardised rates are only for adults aged 18 and over.
Source: AIHW analysis of ABS 2023a. See Data Ttables S6 and S12 for data and footnotes.
http://www.aihw.gov.au

Primary Health Networks (PHN)

In 2022, after adjusting for age, the Western New South Wales PHN area had the highest prevalence of overweight or obesity, with 4 in 5 adults (79%) living with overweight or

obesity. The Northern Sydney area had the lowest prevalence, with just under half of adults living with overweight or obesity (46%) (AIHW analysis of ABS 2023a) (Figure 7).

Figure 7: Age-standardised proportion of adults living with overweight and obesity, by remoteness area, 2017–18



† Interpret with caution — The 2022 National Health Survey excluded very remote areas.
# Proportion has a margin of error greater than 10 percentage points which should be considered when using this information.
n.p: not published
Note: Rates have been age-standardised to the 2001 Australian standard population.
Source: AIHW analysis of 2023a. See Data Table S9 for data and footnotes.
https://www.aihw.gov.au

How does Australia compare internationally?

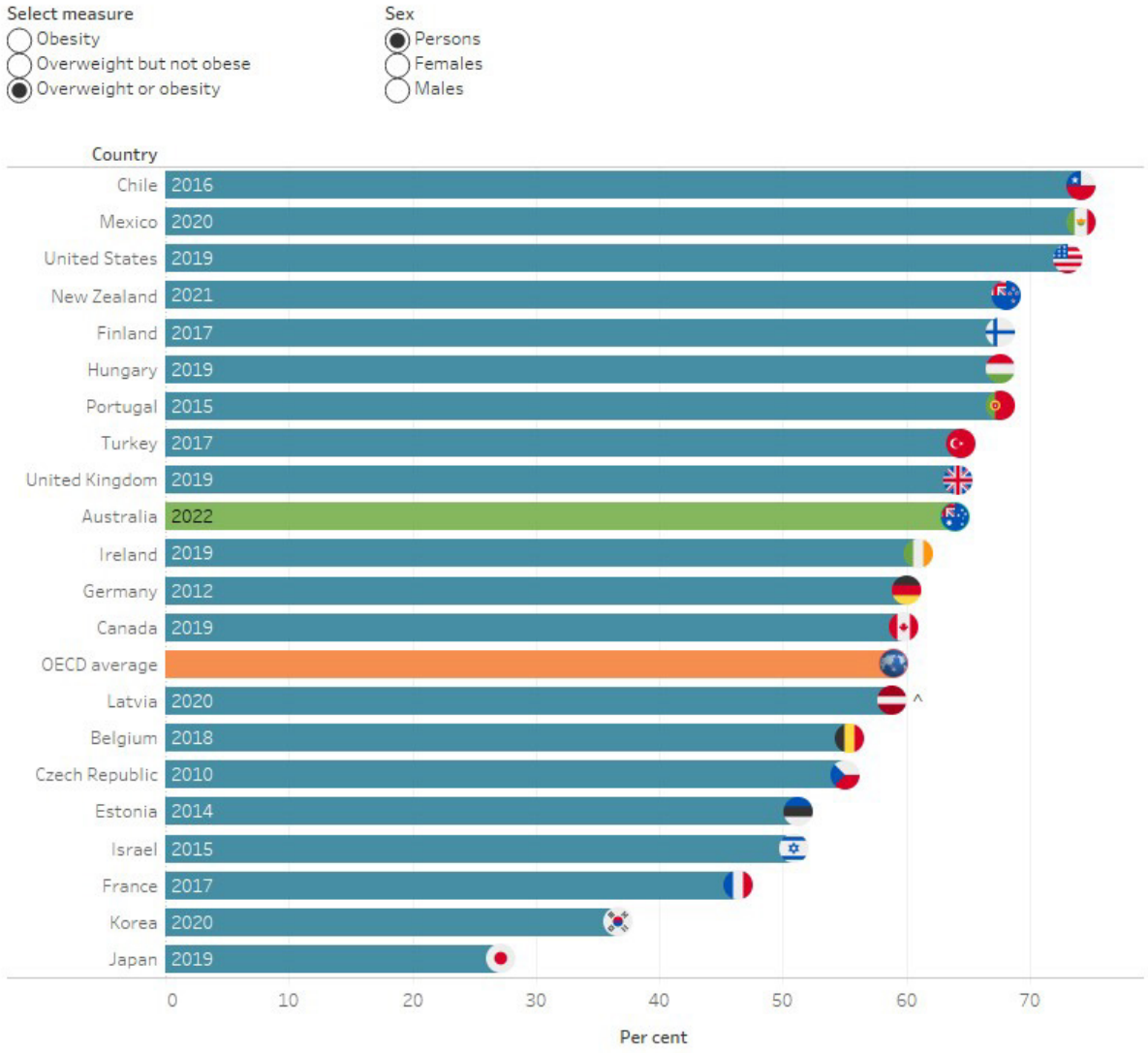
International comparisons of the prevalence of overweight or obesity can be made for member countries of the Organisation for European Co-operation and Development

(OECD 2023). Comparisons for measured body weight are based on data from 2022 or the latest available year (OECD 2023).

Australia ranked 10th out of 21 countries with available data for the proportion of people aged 15 and over who were living with overweight or obesity (64%) – this was greater than the OECD average of 59%.

When comparing the proportion of men and women living with obesity across OECD countries, Australia ranked equal fourth for the proportion of men living with obesity (32%) with Mexico, behind New Zealand (33%), Hungary (36%) and the United States (44%). The proportion of obesity in women in Australia was ninth highest out of 22 countries (30%) – higher than the OECD average of 26% for women (Figure 8).

Figure 8: Proportion of overweight or obesity in persons aged 15 years and over, OECD countries, 2022 or nearest year



† AIHW derived ^ Difference in methodology
Source: OECD 2023. See Data Table S16 for data and footnotes.
http://www.aihw.gov.au

Notes:

1. Self-reported overweight and obesity data have been omitted due to concerns about reliability of estimates.

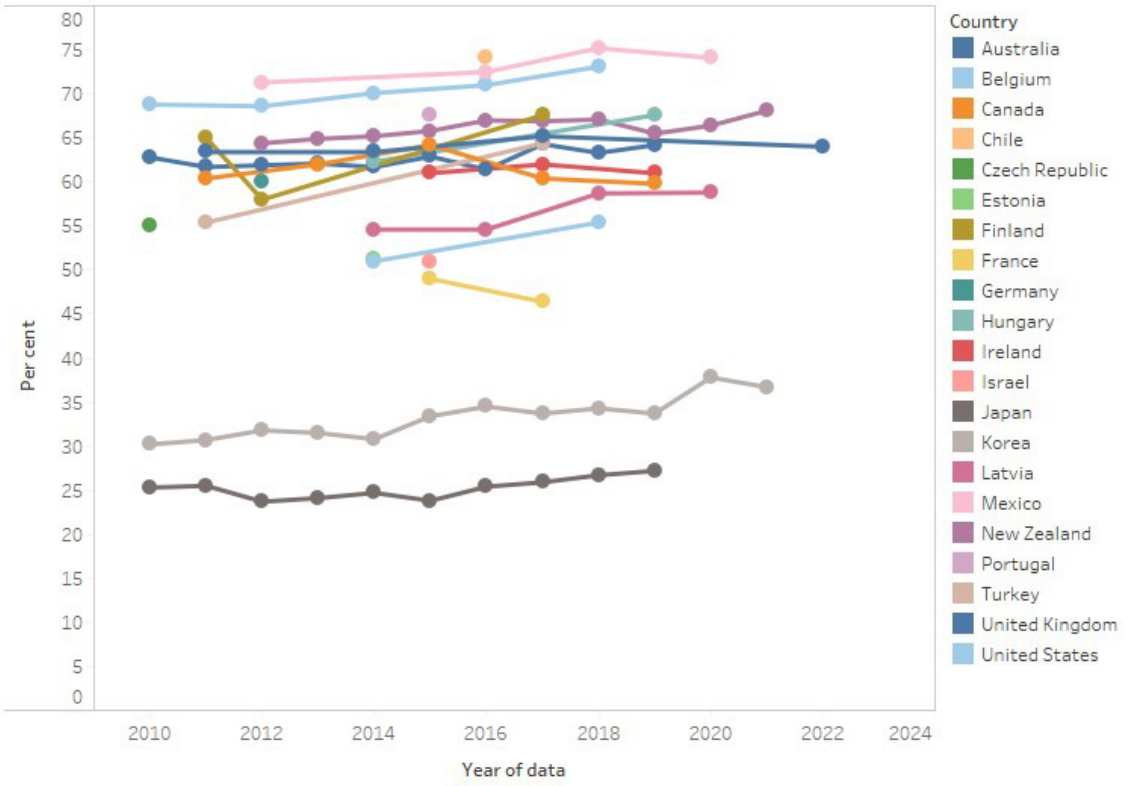
2. Results are for 2022 or the nearest available year of data, for countries with available data. All data are sourced from the OECD Health Statistics 2023- external site opens in new window website.

3. The 'OECD average' for each indicator has been calculated by the AIHW from the latest year of data available for each of the 37 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.

4. 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 2023 Sources and methods- external site opens in new window.

Australia is among a number of OECD member countries in which the prevalence of overweight or obesity has increased over recent decades driven by the increased proportion of people living with obesity (OECD 2023) (Figure 9).

Figure 9: Proportion of overweight or obesity in persons aged 15 years and over, OECD countries, 2010 to 2022



Source: OECD 2023. See Data Table S17 for data and footnotes.
http://www.aihw.gov.au

Notes:

1. Unconnected markers represent countries for which data were available for only 1 of the years presented
2. Data are sourced from the OECD Health Statistics 2023- external site opens in new window website. Results are presented for years of available data for each country, between 2010 and 2022.
3. Results are based on overweight and obesity classifications based on measured height and weight only (self-reported data have been excluded due to concerns about reliability).
4. Variation in results between countries may occur due to differences in data collection and data quality. For more information on indicator methodology and country-specific data sources used, please see OECD Health Statistics 2023 Sources and methods- external site opens in new window.

For more information, see Measures of health and health care for Australia and similar countries.

What are the health impacts of overweight and obesity?

Burden of disease is a measure of the years of healthy life lost from living with ill health or dying prematurely from disease and injury. A portion of this burden is due to modifiable risk factors. Burden of disease analysis estimates the contribution of these risk factors to this burden.

Overweight (including obesity) is the second leading risk factor (after tobacco use) contributing to ill health and death, responsible for 8.4% of the total disease burden in Australia, in 2018 (AIHW 2021). Overweight (including obesity) is linked to 30 diseases, including 17 types of cancers, 4 cardiovascular diseases, 3 musculoskeletal conditions, type 2 diabetes, dementia, asthma and chronic kidney disease.

In 2018, overweight (including obesity) was responsible for:

- 55% of type 2 diabetes disease burden
- 51% of hypertensive heart disease burden
- 49% of uterine cancer burden
- 43% of gout burden
- 42% of chronic kidney disease burden (AIHW 2021).

Overweight (including obesity) contributed to around 16,400 deaths (10% of all deaths) (AIHW 2021).

The total disease burden attributable to overweight (including obesity) in 2018 was 2.2 times greater in the lowest socioeconomic area compared with the highest socioeconomic area (AIHW 2021).

For more information on the burden of disease associated with overweight or obesity, see Australian Burden of Disease Study 2018: Interactive data on risk factor burden.

Strategies for monitoring overweight and obesity

The National Obesity Strategy 2022–2032- external site opens in new window is a framework for action to prevent, reduce and treat overweight or obesity in Australia. It recognises that the root causes of overweight and obesity are complex and embedded in the way we live (Commonwealth of Australia 2022), and to address the issue, requires changes to systems, environments and commercial determinants that affect Australians' opportunities to live healthy lives.

Australia's National Preventive Health Strategy (NPHS) 2021–2030- external site opens in new window aims to improve the health and wellbeing of all Australians at all stages of life, through a whole-of-government approach to prevention that addresses the wider determinants of health, reduces health inequities and decreases the overall burden of disease. The NPHS strongly emphasises that preventive action must focus on the wider determinants of health to address the increasing complexity of health issues and the

interconnected causes of poor health and wellbeing (Department of Health and Aged Care 2021).

The NPHS 2021–2030 and the National Obesity Strategy 2022–2032 share the following 2 overweight and obesity targets:

- Halt the rise and reverse the trend in the prevalence of obesity in adults by 2030 – the proportion of adults aged 18 and over living with obesity has remained stable at 32% in 2022, compared with 31% from 2017–18 (ABS 2019c, 2023c; Commonwealth of Australia 2022; Department of Health and Aged Care 2021).
- Reduce overweight or obesity in children and adolescents aged 2–17 years by at least 5% by 2030 – the proportion of children and adolescents aged 2–17 living with overweight or obesity have not changed significantly between 2017–18 (25%) and 2022 (26%) (ABS 2018, 2023d; Commonwealth of Australia 2022; Department of Health and Aged Care 2021).

Current progress against the baseline from 2017–18 has shown a stable trend in overweight or obesity. However, further monitoring is required for determining whether Australia will meet these targets.

For more information, see Health promotion and health protection.

Where do I go for more information?

For more information on overweight and obesity, see:

- Reducing the burden due to overweight (including obesity) and physical inactivity
- The relationship between health risk factors and the neighbourhood environment
- Overweight and obesity in Australia: a birth cohort analysis
- Overweight and obesity in Australia: an updated birth cohort analysis
- Overweight and obesity among Australian children and adolescents

Visit Overweight and obesity to see more on this topic.

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Physical activity

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https://www.aihw.gov.au/reports/australias-health/natural-environment-and-health

On this page

Page highlights

Australia's physical activity and sedentary behaviour guidelines

Physical activity is important across all ages and contributes to health, growth and development in children and adolescents.

Australia's physical activity guidelines include recommendations for time spent on physical activity, and muscle-strengthening activities for different age groups as well as screen-based activity in children.

Do Australians meet the physical activity guidelines?

The majority of children aged 2–14 did not meet both the physical activity and screen-based activity components of the guidelines, based on the latest data from 2011–12.

In 2022:

83% of adolescents aged 15–17 did not meet the physical activity component of the guidelines; 80% did not do enough muscle-strengthening activities.

37% of adults aged 18–64 did not meet the physical activity component of the guidelines; 73% did not do enough muscle-strengthening activities.

57% of adults aged 65 and over did not meet the physical activity component of the guidelines; 84% did not do enough muscle-strengthening activities.

How has physical activity participation changed across time?

There has been a large decrease in the proportion of adults aged 18 and over who did not meet the physical activity guidelines to 46% in 2022, from 65% in 2017–18. This follows from the slight decreasing trend observed since 2007–08.

How does physical activity vary across population groups?

In 2022, after adjusting for age:

more adults aged 18 and over in *Outer regional and remote* areas (45%) did not meet the physical activity guidelines than in *Major cities* (40%).

more adults in the lowest socioeconomic areas (45%) did not meet the physical activity guidelines compared with people in the highest socioeconomic areas (37%).

What are the health impacts of physical inactivity?

Physical inactivity is the ninth leading preventable cause of ill health and premature death.

Strategies for increasing physical activity

The National Preventive Health Strategy 2021–2030 outlines the long-term approach to preventive health in Australia and includes 3 measurable targets to tackle physical inactivity.

The National Obesity Strategy 2022–2032 is a framework for action to prevent, reduce and treat overweight and obesity in Australia and shares the 3 targets with the NPHS to increase physical activity.

Current monitoring of the progress against the targets shows that in 2022 more people are doing physical and strengthening activities than in 2017–18.

'Physical activity' is any bodily movement produced by skeletal muscles that requires energy expenditure (WHO 2022). 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 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, delay, or halt the progression of a number of conditions, or the onset of associated diseases and complications (Pedersen and Saltin 2015).

Some examples of physical activity include:

- sporting and leisure activities, such as swimming, tennis, bushwalking and going to the gym
- incidental activities from being at work, transport to and from work, or household chores
- muscle strengthening activities, such as some types of yoga or Pilates, resistance-band training, high intensity activities (for example, cycling, dancing, gymnastics or

gardening that requires digging or lifting), climbing stairs or hills, squats, push-ups, sit-ups, weight training and active playgrounds for children (for example: monkey bars, climbing frames, skipping or hopscotch).

Australia's physical activity and sedentary behaviour guidelines

Being physically active is important across all ages and contributes to health, growth, and development in children and adolescents (WHO 2018). Physical activity and exercise guidelines for all Australians- external site opens in new window are a set of evidence-based recommendations that outline the minimum amount of physical activity required for health benefits, as well as the maximum amount of time a person should spend on sedentary behaviours to achieve optimal health outcomes. There are different recommendations for each age group (Department of Health and Aged Care 2021a). For a summary of the Guidelines, see Table 1 in the Technical notes.

Do Australians meet the physical activity guidelines?

Children aged 2–14

In 2011–12, based on the latest available data from the Australian Bureau of Statistics (ABS) 2011–12 National Nutrition and Physical Activity Survey (NNPAS), it was estimated that the majority of children aged 2–14 did not meet the Guidelines:

- Over 8 in 10 (83%) children aged 2–5 did not meet both the physical activity component and the screen-based activity component – 39% did not meet the physical activity component and 75% did not meet the screen-based activity component.
- Nearly 9 in 10 (88%) children aged 5–12 did not meet both the physical activity component and the screen-based activity component – 74% did not meet the physical activity component and 65% did not meet the screen-based activity component.
- Most young people (96%) aged 13–14 did not meet both the physical activity component and the screen-based activity component – 89% did not meet the physical activity component and 77% did not meet the screen-based activity component (AIHW 2018).

For more information on children's physical activity, see Physical activity across the life stages. For more information on the data source used for this section, see the Technical notes.

Young people aged 15–17

For young people aged 15–17, 'insufficient physical activity' is defined as not completing 60 minutes per day of physical activity a week.

In 2022, based on self-reported data from the ABS 2022 National Health Survey (NHS), an estimated 83% of young people aged 15–17 were insufficiently physically active. A large proportion (80%) also did not do the recommended 3 days a week of muscle-strengthening activity (AIHW analysis of ABS 2023a).

Among those who were insufficiently physically active:

- 23% did some physical activity on all 7 days but did not meet the recommended 60 minutes of physical activity per day.
- 11% were completely physically inactive (that is, did 0 days of physical activity in the last week) (AIHW analysis of ABS 2023a).

For those who did not meet the muscle-strengthening activity guideline, 9.1% did strength activities on 2 days in the last week. The majority (82%) did not do any strength activities on any day in the last week (AIHW analysis of ABS 2023a).

Adults aged 18–64

For people aged 18–64, 'insufficient physical activity' is defined as not completing 150 minutes of moderate to vigorous activity across 5 or more days a week.

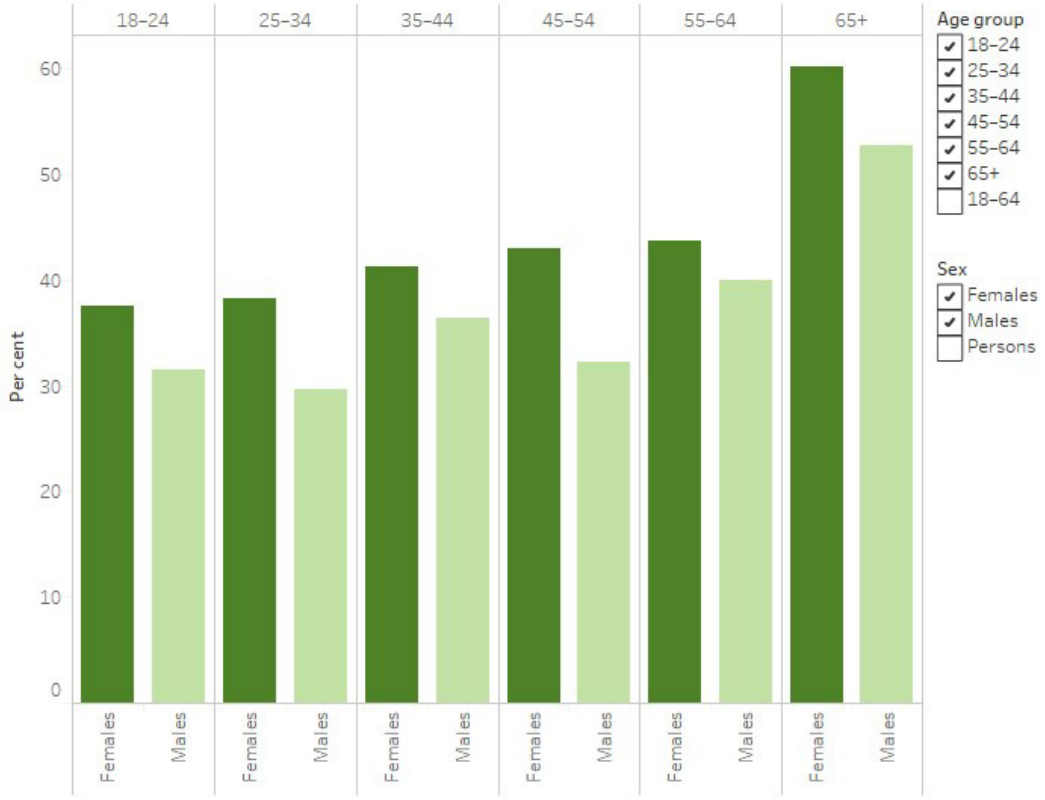
In 2022, based on self-reported data from the ABS 2022 NHS, it is estimated that 78% of adults aged 18–64 were insufficiently physically active and also did not meet the muscle-strengthening component of the physical activity guidelines. This proportion was higher in women (80%) than men (75%) (AIHW analysis of ABS 2023a).

Physical activity

In 2022, based on self-reported data from the ABS 2022 NHS, nearly 4 in 10 (37%) adults aged 18–64 were insufficiently physically active. This proportion was higher in women (41%) than men (34%) (Figure 1).

The proportion of people who were insufficiently physically active generally increased with increasing age, from 34% of those aged 18–24 to 42% of those aged 55–64 (Figure 1) (AIHW analysis of ABS 2023a).

Figure 1: Proportion of insufficiently physically active adults aged 18 and over, by age and sex, 2022.

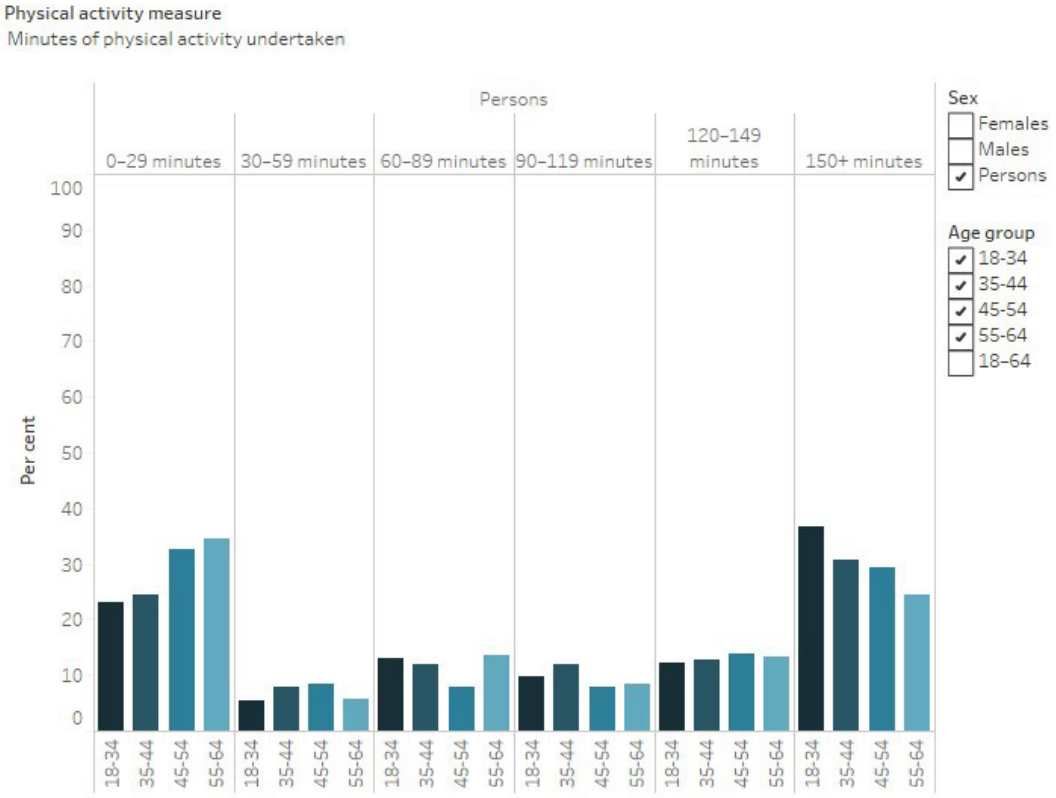


Source: AIHW analysis of ABS 2023. See Data Table S1a for data and footnotes.
http://www.aihw.gov.au/

In 2022, among adults aged 18–64 who were insufficiently physically active:

- 13% did some amount of physical activity on 5 or more days in the last week but did not do the recommended 150 minutes of physical activity per week.
- 25% were completely physically inactive (that is, did 0 days of physical activity in the last week).
- 31% did 150 minutes or more of physical activity but did not do so on the recommended number of days.
- 28% did less than 30 minutes of physical activity in the last week (AIHW analysis of ABS 2023a) (Figure 2).

Figure 2: Participation in physical activity in the last week, by days and minutes among adults aged 18–64 who were insufficiently physically active, 2022



Source: AIHW analysis of ABS 2023. See Data Table S5 for data and footnotes.
http://www.aihw.gov.au/

Muscle strengthening activity

In 2022, based on self-reported data from the ABS 2022 NHS, over 7 in 10 (73%) adults aged 18–64 did not do the recommended 2 days a week of muscle-strengthening activity each week. This proportion was higher in women (76%) than men (71%) (AIHW analysis of ABS 2023a).

Among those aged 18–64 who did not meet the muscle-strengthening guideline (at least 2 days of muscle-strengthening activities per week), 91% did no muscle-strengthening activity (that is, did 0 days in the last week). This increased with age, with 89% of people aged 18–34 doing no muscle-strengthening to 94% of those aged 55–64 (AIHW analysis of ABS 2023a).

Adults aged 65 and over

For adults aged 65 and over, 'insufficient physical activity' is defined as not completing 30 minutes or more of physical activity on at least 5 days a week.

In 2022, based on self-reported data from the ABS 2022 NHS, nearly 9 in 10 (89%) adults aged 65 and over were insufficiently active and also did not meet the muscle-

strengthening component of the physical activity guidelines. This is similar between men (88%) and women (89%) (AIHW analysis of ABS 2023a).

Physical activity

In 2022, based on self-reported data from the ABS 2022 NHS, 57% of adults aged 65 and over were insufficiently physically active. This was higher in women (60%) than men (53%) (Figure 1).

Among those who were insufficiently physically active:

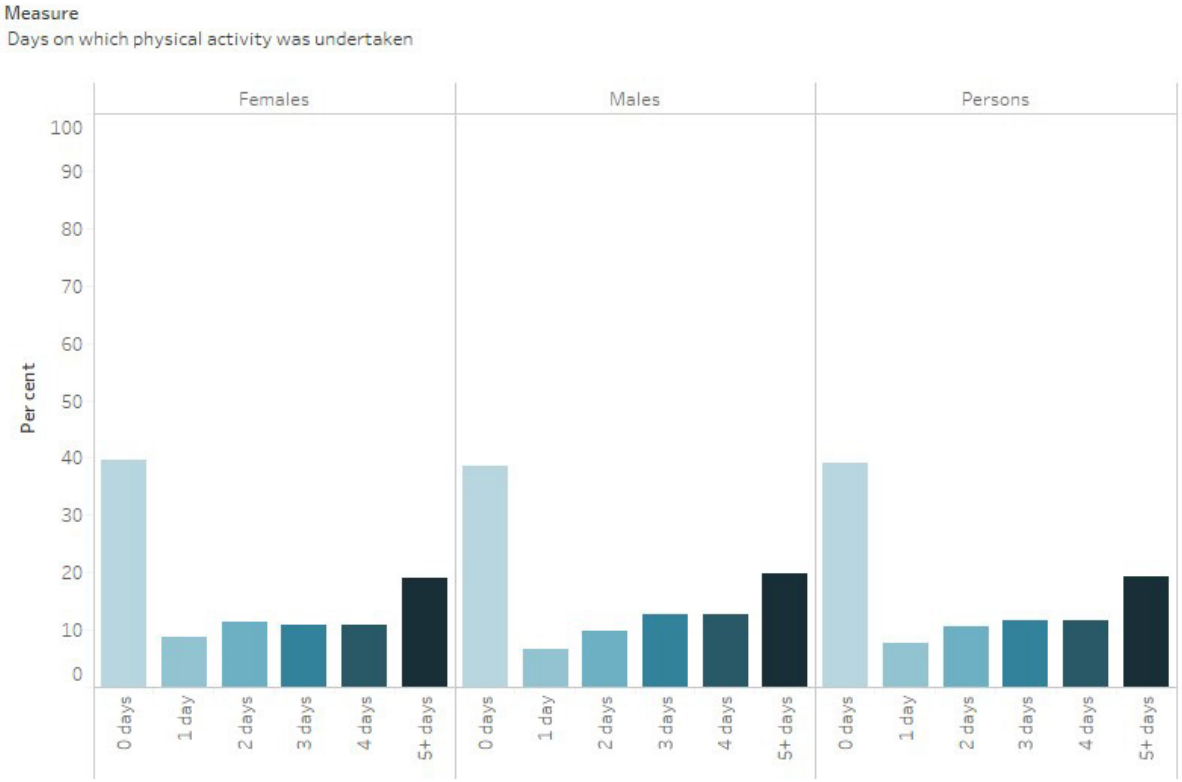
- 19% did some amount of physical activity on 5 or more days in the last week but did not do the recommended number of minutes of physical activity.
- 39% were completely physically inactive (that is, did 0 days of physical activity in the last week).
- 24% did 150 minutes or more of physical activity but did not do so on at least the recommended number of days – this was higher in men (27%) than women (21%).
- over 4 in 10 (42%) did less than 30 minutes of physical activity (AIHW analysis of ABS 2023a) (Figure 3).

Muscle-strengthening activity

In 2022, based on self-reported data from the ABS 2022 NHS, over 8 in 10 (84%) adults aged 65 and over did not do at least 2 days of muscle-strengthening activity.

Among those who did not do at least 2 days of muscle-strengthening activity, the majority (95%) did no strength activities (that is, did 0 days of activity). A small proportion (4.9%) did muscle-strengthening activities on 1 day of the week (AIHW analysis of ABS 2023a).

Figure 3: Participation in physical activity in the last week, by days and minutes among adults aged 65 and over who were insufficiently physically active, 2022



Source: AIHW analysis of ABS 2023. See Data Table S6 for data and footnotes.
http://www.aihw.gov.au/

Has physical activity participation changed across time?

There has been a large decrease in the proportion of adults aged 18 and over who did not meet the physical activity guidelines to 46% in 2022, from 65% in 2017–18. This followed from the slight decreasing trends observed since 2007–08. After adjusting for age, this change was significant (Figure 4) (AIHW analysis of ABS 2009, 2013, 2016, 2019, 2023). For these trends by age, see Strategies for increasing physical activity section below.

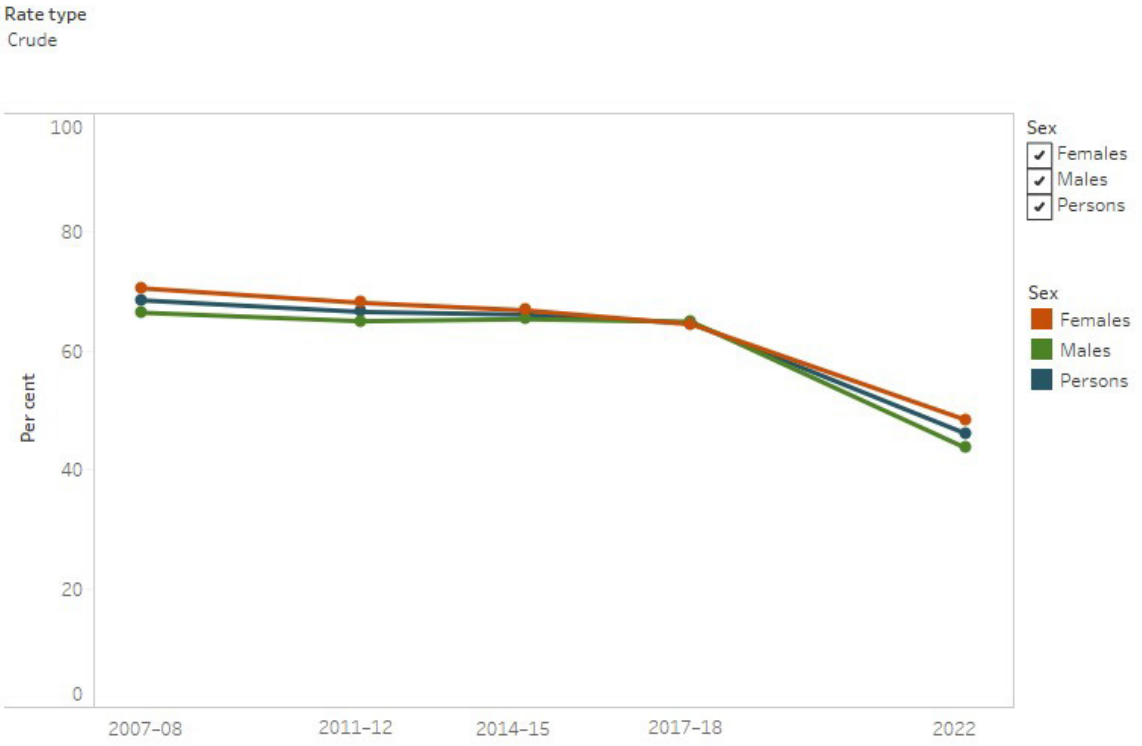
Over the last 5 years, there was only a slight decrease in the proportion of adults aged 18 and over who did not meet the strengthening guidelines to 76% in 2022, from 77% in 2017–18 (AIHW analysis of ABS 2019 and 2023a).

In both 2020 and 2021, the participation habits of Australians changed as well as their motivation for exercising, with an increase in people being motivated by mental health benefits. Compared to pre-pandemic, fewer Australians relied solely on sporting clubs or organised venues for exercise. Activities such as recreational walking and bushwalking

have increased in participation. This was particularly associated with higher participation by women (Australian Sports Commission 2023). During COVID-19 restrictions, increased physical activity participation was driven by women. However, data from the AusPlay survey show in 2022–23, the higher frequency of physical activity participation seen during COVID-19 restrictions have dropped back to pre-pandemic levels among females aged 15 and over. For men aged 15 and over, their frequency of participation in physical activity remained relatively stable and did not change significantly during and after the pandemic (Australian Sports Commission 2023).

More research is required to understand the trend in physical activity participation following the COVID-19 pandemic.

Figure 4: Proportion of adults who did not meet the physical activity component of the guidelines (excluding workplace activity), 2007–08 to 2022



Note: Age-standardised rates use the 2001 Australian population to account for differences in the age structure across population groups.
Source: AIHW analysis of ABS 2009, 2013, 2016, 2019 and 2023. See Data Table S4 for data and footnotes.
http://www.aihw.gov.au/

How does physical activity vary across population groups?

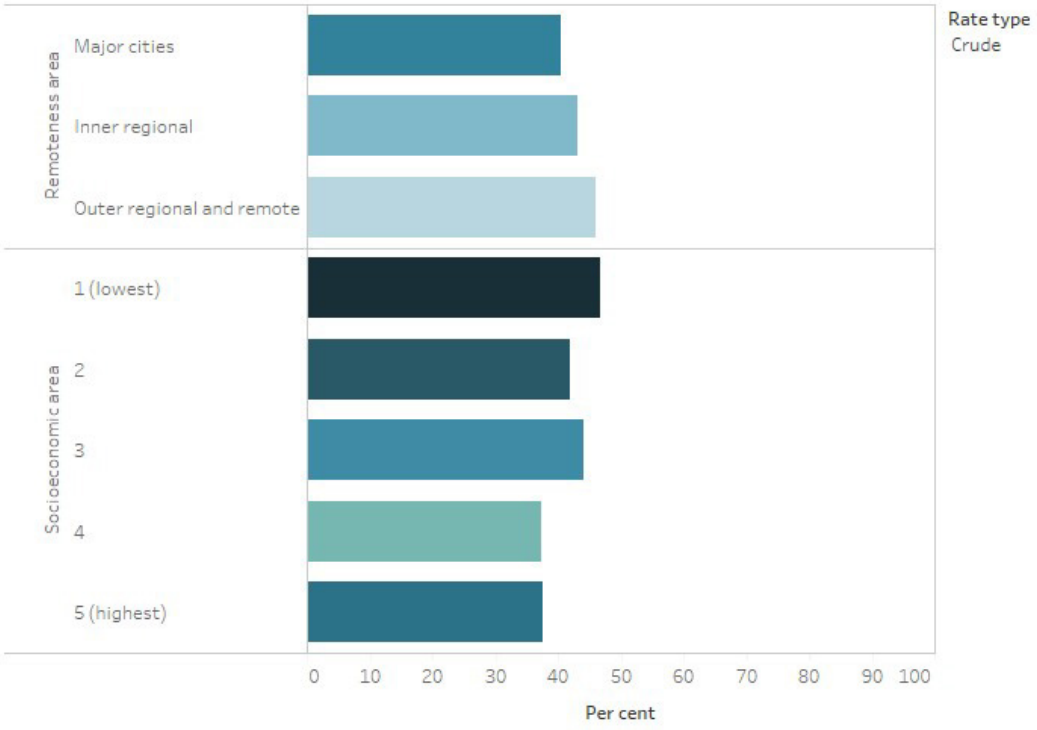
In 2022, based on self-reported data from the ABS 2022 NHS, the proportion of adults aged 18 and over who were insufficiently physically active by remoteness areas were:

- 46% for *Outer regional and Remote* areas
- 43% for *Inner regional* areas
- 41% for *Major cities* (AIHW analysis of ABS 2023a).

After adjusting for age, more adults were insufficiently physically active in *Outer regional and Remote* (45%) areas than in *Major cities* (40%) (Figure 5).

The proportion of adults who were insufficiently physically active was 47% in the lowest socioeconomic areas and 37% in the highest socioeconomic areas. After adjusting for age, more people in the lowest socioeconomic areas (45%) were insufficiently physically active, compared with 37% in the highest socioeconomic areas (Figure 5) (AIHW analysis of ABS 2023a).

Figure 5: Proportion of adults aged 18 and over who are insufficiently physically active, by selected population characteristics, 2022.



Note: Age-standardised rates use the 2001 Australian population to account for differences in the age structure across population groups.
Source: AIHW analysis of ABS 2023. See Data Tables S2a and S3a for data and footnotes.
http://www.aihw.gov.au/

What are the health impacts of physical inactivity?

Burden of disease is a measure of the years of healthy life lost from living with ill health or dying prematurely from disease and injury. This includes how much risk factors contribute to this burden.

Physical inactivity was the ninth leading preventable cause of ill health and premature death, responsible for 2.5% of total disease burden in Australia, in 2018 (AIHW 2021).

Physical inactivity increases the risk of many diseases and is causally linked to the burden from type 2 diabetes, bowel cancer, dementia, coronary heart disease and strokes, as well as uterine and breast cancer in females.

In 2018, physical inactivity contributed to:

- 20% of type 2 diabetes disease burden
- 16% of coronary heart disease burden
- 16% of the uterine cancer burden
- 12% of bowel cancer burden
- 12% of dementia burden
- 9.2% of stroke burden
- 3.2% of breast cancer burden

Physical inactivity also contributed to around 8,300 deaths (5.2% of total deaths) (AIHW 2021).

For more information on the disease burden due to physical inactivity, see Burden of disease.

Strategies for increasing physical activity

Australia's National Preventive Health Strategy (NPHS) 2021–2030- external site opens in new window aims to improve the health and wellbeing of all Australians at all stages of life, through a whole-of-government approach to prevention that addresses the wider determinants of health, reduces health inequities and decreases the overall burden of disease. The NPHS strongly emphasises that preventive action must focus on the wider determinants of health to address the increasing complexity of health issues and the interconnected causes of poor health and wellbeing.

The NPHS recognises that physical inactivity is a complex problem and requires a whole-of-systems approach to support Australians to embed more movement into their everyday life. It is also acknowledged that the largest health gains are achieved when the least active individuals become more active, even by small amounts (Department of Health and Aged Care 2021b).

The National Obesity Strategy 2022–2032- external site opens in new window is a framework for action to prevent, reduce and treat overweight or obesity in Australia. It recognises that the root causes of overweight or obesity are complex and embedded in the way we live (Commonwealth of Australia 2022). To address this issue, it requires changes to systems, environments and commercial determinants that affect Australians' opportunities to live healthy lives. Increasing physical activity levels and reducing sedentary behaviour in the Australian population are objectives of this strategy.

The 3 physical activity targets, shared by the NPHS and the National Obesity Strategy are:

1. Reduce the prevalence of physical inactivity amongst children, adolescents and adults by at least 15% by 2030 – the proportion of Australians who were insufficiently physically active has decreased in all age groups between 2017–18 and 2022, respectively (where data are available):
    a. in adolescents aged 15–17 decreased from 89% to 83%
    b. in adults aged 18–64 decreased from 51% to 37%
    c. in adults aged 65 and over decreased from 72% to 57% (AIHW analysis of ABS 2019 and ABS 2023a).
2. Reduce the prevalence of Australians aged 15 and over undertaking no physical activity by at least 15% by 2030 – the prevalence of Australians aged 15 and over undertaking no physical activity has decreased from 14% in 2017–18 to 12% in 2022 (ABS 2018, ABS 2023b).
3. Increase the prevalence of Australians aged 15 and over who are meeting the strengthening guidelines by at least 15% by 2030 – the proportion who did not meet the strengthening guidelines:
    a. did not decrease significantly for adolescents aged 15–17 from 2017–18 (84%) to 2022 (80%).
    b. did decrease slightly for adults aged 18 and over from 77% in 2017–18 to 76% in 2022 (AIHW analysis of ABS 2019 and 2023a).

Current progress against the baseline from 2017–18 has shown an increase in physical activity participation. However, further monitoring is required for determining whether Australia will meet these targets.

For more information, see the Department of Health and Aged Care National Preventive Health Strategy 2021–2030- external site opens in new window and National Obesity Strategy 2022–2032- external site opens in new window.

Where do I go for more information?

For more information on physical activity, see:

- Reducing the burden due to overweight (including obesity) and physical inactivity
- The relationship between health risk factors and the neighbourhood environment.
- Economics of sport and physical activity participation and injury
- Physical activity across the life stages
- Australian Burden of Disease Study 2018: Interactive data on risk factor burden
- Muscle strengthening activities among Australian adults.
- Physical activity during pregnancy 2011–12

For more on this topic, visit Physical activity.

Technical notes

Table 1 summarises the different recommendations for different age groups. This approach acknowledges that different amounts of physical activity are required at various stages of life for maximum health benefits (Table 1).

Table 1: Summary of Australian physical activity and sedentary behaviour guidelines

	Ages 1–2	**Ages 3–5(a)**	**Ages 5–17(b)**	**Ages 18–64**	**Ages 65 and over**
Physical activity	At least 180 minutes of energetic play per day.	At least 180 minutes per day with at least 60 minutes of energetic play.	At least 60 minutes of moderate to vigorous activity involving mainly aerobic activities per day.	Be active on most, preferably all days with at least 150 minutes of moderate to vigorous activity per week.	Be active on most, preferably all days with at least 30 minutes of moderate activity per day.
Strength	N/A	N/A	At least 3 days a week.	Muscle-strengthening activities 2 times a week.	Incorporate muscle-strengthening activities.
Sedentary or screen-based activity(c)	Do not restrain for more than 1 hour at a time. Under 2 years should have no sedentary screen time.	Should not be restrained for more than 60 minutes at a time(d). No more than 60 minutes of sedentary	No more than 120 minutes of screen use. Break up long periods of sitting.	Minimise and break up prolonged periods of sitting.	Be as active as possible.

	Ages 1–2	Ages 3–5(a)	Ages 5–17(b)	Ages 18–64	Ages 65 and over
	For 2-year-olds, no more than 60 minutes of sedentary screen time per day.	screen time per day.			

Notes:

(a) This group includes those aged 5 who are not yet in full-time schooling (for example, pre-schoolers).

(b) This group includes those aged 5 who are in full-time schooling.

(c) Does not include screen time needed for school-work.

(d) Examples include being restrained in a stroller, car seat or high-chair.

Source: Department of Health and Aged Care 2021a.

About the Australian Bureau of Statistics National Health Surveys

This web report uses data from the following surveys from the Australian Bureau of Statistics (ABS):

- 2022 National Health Survey (NHS).
- 2011–12 National Nutrition and Physical Activity Survey (NNPAS).

The NHS is a series of surveys designed to collect a range of information about the health of Australians, including:

- prevalence of long-term health conditions
- health risk factors such as smoking, fruit and vegetable consumption, alcohol consumption and exercise
- use of health services such as consultations with health practitioners and actions people have recently taken for their health
- demographic and socioeconomic characteristics.

For more information, see National Health Survey- external site opens in new window.

The 2011–12 NNPAS was part of the 2011–13 Australian Health Survey. It collected detailed physical activity information as well as 24-hour dietary recall of food and beverage consumption, with general information on dietary behaviours. It is the most recent detailed data available on physical activity and sedentary screen time for children

and young people aged 2–14. The NNPAS is scheduled to be conducted again in 2023–2024 as part of the Intergenerational Health and Mental Health Study.

For more information, see National Nutrition and Physical Activity Survey- external site opens in new window.

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Data

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Social determinants of health

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On this page

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, educational attainment, conditions of employment, the distribution of wealth, empowerment and social support – together known as the social determinants of health – can act 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' (WHO 2023).

Social determinants form part of the wider determinants of health which also include the environmental, cultural, biomedical, commercial and digital factors in our lives (Department of Health and Aged Care 2021).

According to the WHO, social determinants of health account for between 30–55% of health outcomes. They 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 2023).

This page includes selected data to monitor key social determinants of health in Australia. In addition to social determinants, there are other types of health determinants, such as the built environment and the natural environment.

For more information, see What are determinants of health?

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 examples of social determinants of health, 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 2023).

Income, education, occupation

In general, every step up the socioeconomic ladder is accompanied by a benefit for health. The relationship is two-way – poor health can be both a product of, and contribute to, lower socioeconomic position (Kawachi et al. 2010).

Income, educational attainment and level of occupation are 3 social determinants of health that are commonly used to measure socioeconomic position. Widening inequalities in these determinants are often used to help explain widening health inequalities (Flavel et al. 2022). How determinants affect health inequalities is discussed further in What are determinants of Health?

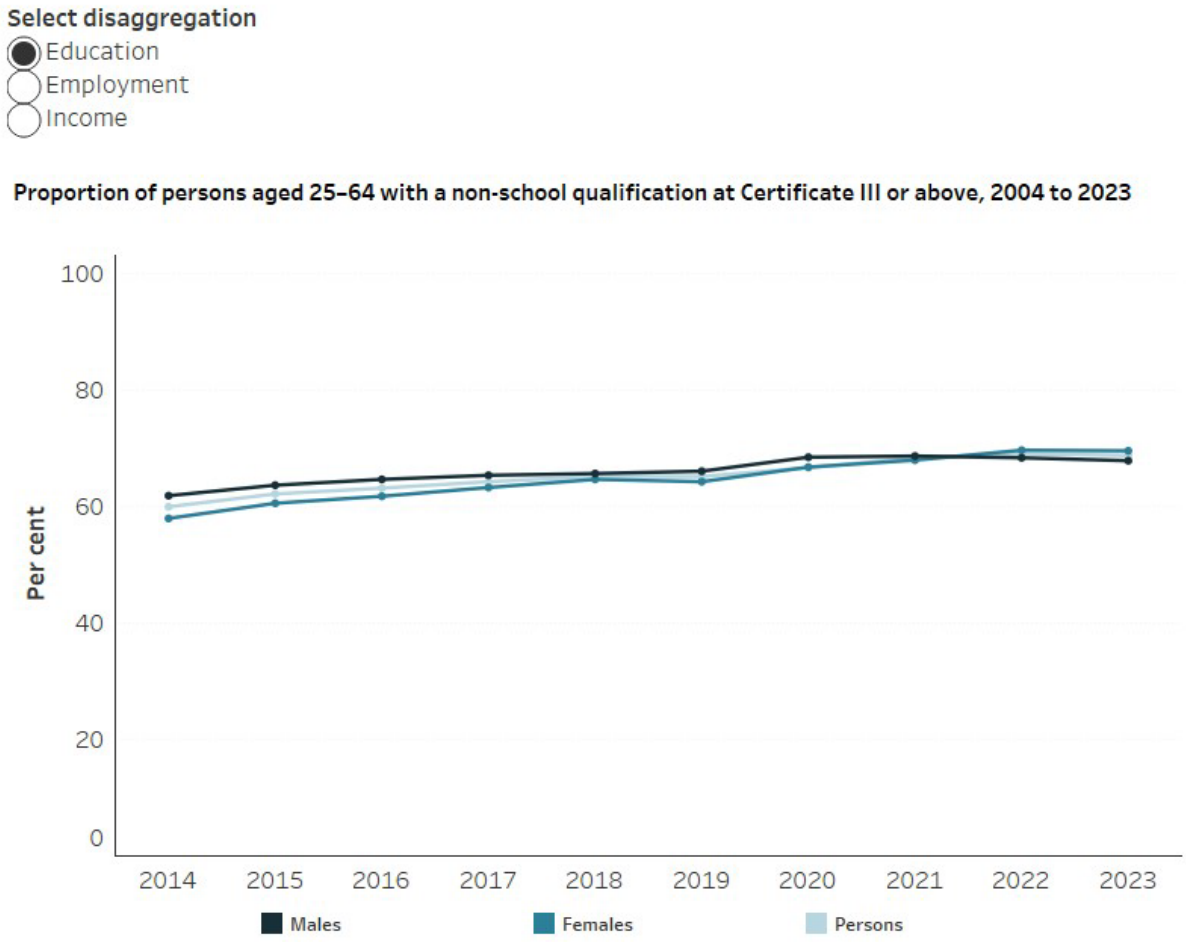
In Australia, data on income, education and occupation show that:

- around 10.5% of the population lived in low-income households (defined as equivalised disposable household income that is less than 50% of the national median) in 2017–18. This rate has fluctuated between 9.3% and 13.6% since 2003–04 (ABS 2022b; AIHW 2018) (Figure 1)
- in 2023, an estimated 69% of people aged 25–64 held a non-school qualification at Certificate III level or above, an increase of 9 percentage points since 2014. The gap between males and females has closed in recent years (ABS 2023a) (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)
- income inequality among Australian households (measured by the Gini coefficient for equivalised disposable household income – see glossary) was 0.324 in 2019–20, relatively unchanged from the 2009–10 value of 0.329. Income inequality among households varied across areas, from 0.275 in Tasmania excluding Greater Hobart (lower inequality) to 0.340 in Greater Sydney (higher inequality) (ABS 2022b).

For more information, see Income and income support and Higher education, vocational education and training.

Figure 1: Selected social determinants of health, by disaggregation and period



Source: ABS 2023a.

https://www.aihw.gov.au/

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 (Commission on the Social Determinants of Health 2008). In Australia:

- the proportion of the 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 69.5% in May 2020 (reflecting the effects of COVID-19) to 77.3% in December 2023. Over the same period, the unemployment rate fluctuated from 4.6% in January 2007 to a high of 7.8% in July 2020 (reflecting the effects of the COVID-19 pandemic) and a low of 3.5% in October–November 2022, with a rate of 3.9% in December 2023 (ABS 2024)

- in December 2023, 1 in 15 (6.8%) employed people aged 15–64 were underemployed (not working the hours they would like to, and available to work) – 5.5% and 8.3% of the male and female labour force, respectively (ABS 2024)
- in June 2023, there were 69,000 jobless couple families with children aged 0–14 (3.1% of all couple families with children aged 0–14), down from 93,000 (4.7%) in June 2013. There were 146,000 (27%) jobless one-parent families with children aged 0–14 in June 2023, down from 203,000 (41%) in June 2013 (ABS 2023c) (Figure 1).

For more information, see Employment and unemployment.

Housing and homelessness

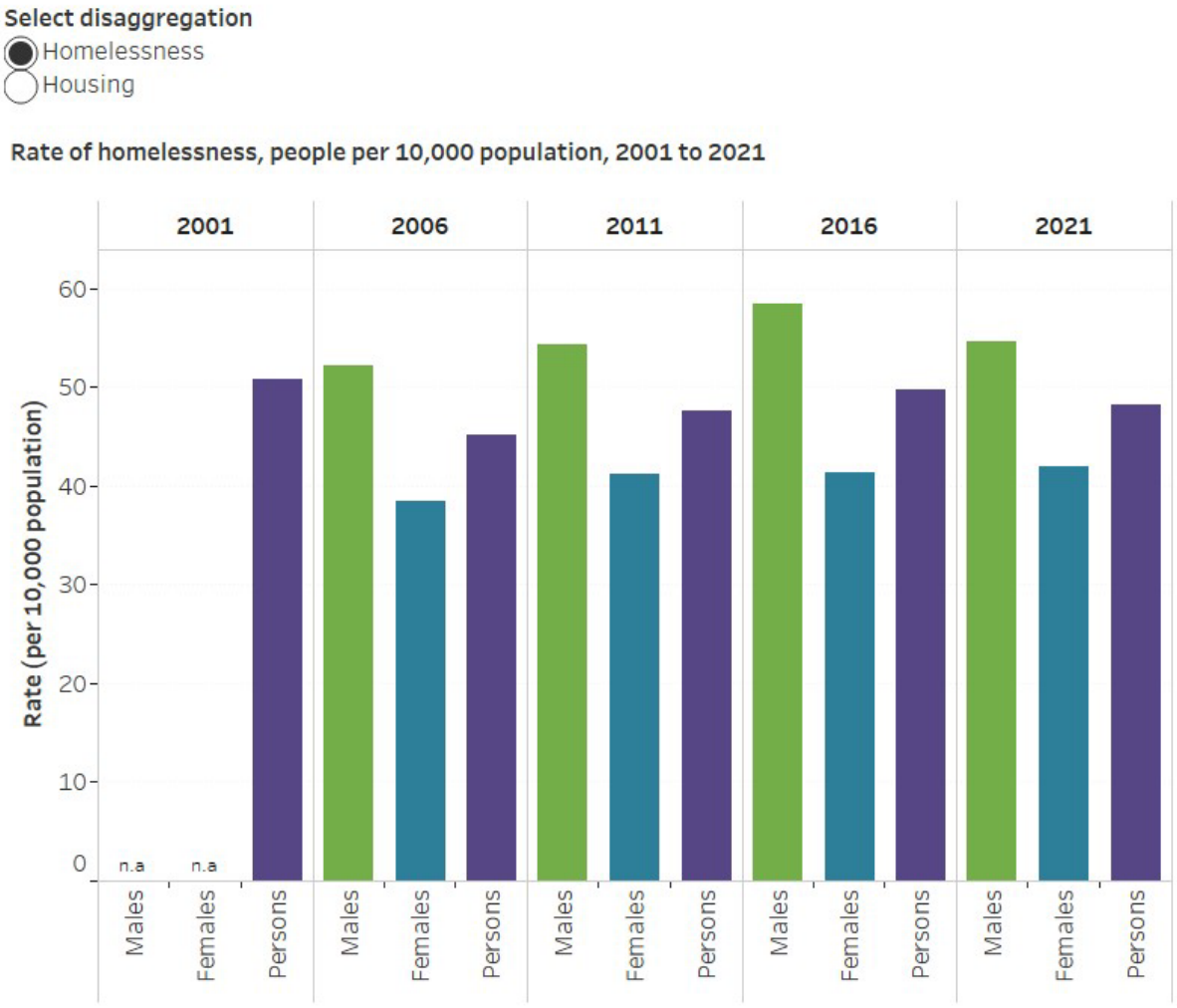
Access to appropriate, affordable and secure housing can limit the physical and mental health risks presented by factors such as homelessness and overcrowding (Baker and Bentley 2023).

Evidence also supports a direct association between poor-quality housing and health consequences such as respiratory illness, cardiovascular disease and poor mental health (Baker et al. 2016). Young people, Aboriginal and Torres Strait Islander (First Nations) 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.

In Australia:

- more than 122,000 men, women and children, or 48 people per 10,000 population, were estimated to be homeless on the night of the 2021 Census of Population and Housing, a similar rate to 2011 (ABS 2023b) (Figure 2). For more information, see Homelessness and homelessness services and Health of people experiencing homelessness
- 42% of lower-income households (see glossary) were in rental stress in 2019–20, spending more than 30% of their gross weekly income on housing costs. In 2007–08, 35% of lower-income households were in rental stress (ABS 2022c) (Figure 2). For more information, see Housing affordability
- in 2019–20, 1 in 26 households (3.8%) were overcrowded, based on those households needing one or more extra bedrooms (ABS 2022c). Higher rates are found among First Nations people, although available data suggest a decline in overcrowding over time – from 31% in 2001 to 19% in 2021 (AIHW 2023b). For more information, see Housing circumstances of First Nations people.

Figure 2: Housing and homelessness, by disaggregation and period



n.a. = not available
Source: ABS 2023b
https://www.aihw.gov.au/

Early childhood

The foundations of adult health are laid in-utero and during the early childhood period. Physical, social/emotional and language/cognition development in early childhood strongly influence school success, economic participation, social citizenship and health (van Eyck et al. 2023). In Australia:

- around 334,400 children aged 4–5 were enrolled in a preschool program in 2022. Twenty-one per cent of all children enrolled in a preschool program resided in the least disadvantaged areas while 17% resided in the most disadvantaged areas (ABS 2023d)
- in 2021, 63,300 children entering primary school (22%) were developmentally vulnerable (see glossary) on one or more Australian Early Development Census (AEDC) domains, compared with 58,000 (24%) in 2009. In 2021, children living in the

lowest socioeconomic areas were more vulnerable than children living in the highest socioeconomic areas (33% and 15% respectively) (AEDC 2022).

For more information, see Early childhood and transition to school.

Family relationships

Family can influence a person's 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 can range from potential benefit in positively functioning and supportive families to potential disadvantage in families with abuse or neglect. In Australia, data on family relationships highlight that:

- 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 2022)
- children who have been abused or neglected often have poor social, behavioural and health outcomes in childhood and later life. In 2020–21, the rate of children and young people aged 0–17 who were the subject of a child protection substantiation was 8.8 per 1,000, an increase from 6.2 per 1,000 in 2010–11 (AIHW 2022)
- in 2021–22, 1 in 6 women (17% or 1.7 million) and 1 in 18 men (5.5% or 527,000) had experienced violence (physical and/or sexual) by a current or previous cohabiting partner since the age of 15 (AIHW 2023a).

For more information, see Family, domestic and sexual violence.

Social inclusion

Social inclusion 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. In Australia, data on social connectedness highlight that:

- around 1 in 5 people report that they often felt very lonely – 16% of males and 19% of females aged 35 and over in 2021, compared with 20% of males and 23% of females aged 35 and over in 2001 (AIHW 2023c)
- in 2020, most people aged 15 and over (93%) reported being able to get support in times of crisis from people living outside their household, similar to 2010 (94%) (AIHW 2021). People with a mental health condition were less likely than those who do not have a mental health condition to report being able to get support (85% and 94%).

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. In Australia:

- 1 in 4 people aged 15 and over (25%, or 5 million people) experienced some degree of social exclusion, with 6.0% (1.2 million) experiencing deep social exclusion, including 1.3% (260,000) who experienced very deep social exclusion in 2018 (Brotherhood of St Laurence and MIAESR 2020). The prevalence of deep social exclusion has remained steady since 2009, when it was 5.5%.
- 54% of people aged 15 and over who had a long-term health condition or disability experienced some level of social exclusion, with 16% experiencing deep social exclusion in 2018 (Brotherhood of St Laurence and MIAESR 2020).

For more information, see Social isolation, loneliness and wellbeing.

Where do I go for more information?

For more information on social determinants of health, see:

- *Australia's health 2020: data insights* article, Social determinants of health in Australia
- Australia's welfare topic summaries
- World Health Organization Social determinants of health

For more on this topic, see Social determinants.

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Stress and trauma

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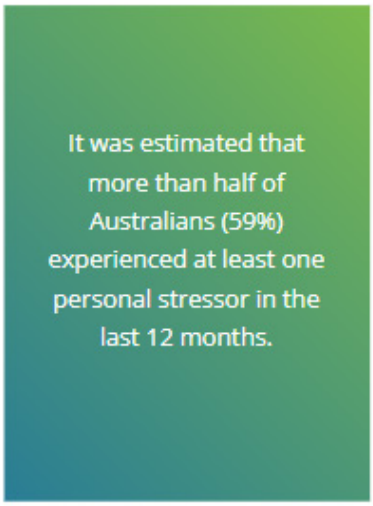
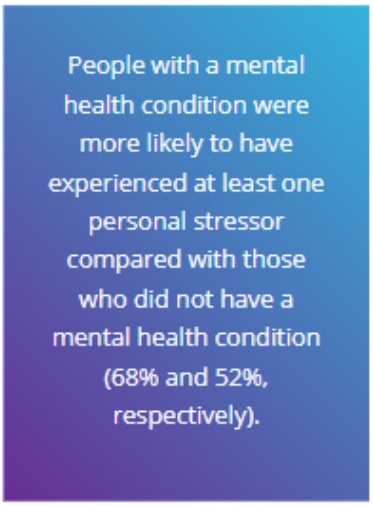
On this page:

Key points

In 2020...





Stress and trauma affect the physical and emotional wellbeing of millions of Australians. From an analysis perspective, it is difficult to get accurate information about the prevalence of stress and trauma and associated impacts because of the complexity of events and variation in individual responses.

Difference between stress and trauma

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. According to Silva (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.

What is stress?

Stress is a common and normal physical response to challenging or new situations and can look and feel different for different people. Stress has both psychological 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, serious illness) (NIMH 2019; Stöppler 2018).

Stress can initiate the 'fight or flight' response, a complex reaction of the neurologic and endocrine systems. Continuous or high-level stress 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, irritable bowel syndrome and mental health conditions such as depression or anxiety (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 of a physical and/or mental nature 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 condition that can be diagnosed when fear, anxiety and memories of a traumatic event persist. For some, the feelings may last for a long time and interfere with how they cope with everyday life, while others may have some of the symptoms of PTSD in the first few days after the event. Most will recover by themselves or with the support of family and friends, while others may need professional help (Victoria State Government 2021).

Research suggests that for Australians, the most common traumatic events 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 (Herrera-Escobar et al. 2021).

Trauma and mental illness

Experience of trauma can contribute to the development of many different forms of mental illness such as 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 developing mental illness but also affect clinical course and responses to treatment. For more information refer to Prevalence and impact of mental illness.

How common is stress?

Measuring stress is a challenge as people have varied stress responses when exposed to variants of stressors and there are varied practices used by health researchers across disciplines.

The Australian Bureau of Statistics (ABS) includes measures of stress in several national surveys: the National Health Survey (NHS), the General Social Survey (GSS) and, from 2020, the Household Impacts of COVID-19 Survey.

In 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 also found that during 2020, people with a mental health condition were more likely to have experienced at least one personal stressor compared with those who did not (83% and 56%, respectively). People with a long-term health condition were also more likely to have experienced at least one personal stressor compared with those who did not (68% and 52%, respectively) (ABS 2020).

Psychological distress

Psychological distress can be described as 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. Distress occurs when stress is severe, prolonged or both (National Research Council 2008). Stress responses are normal reactions to environmental or internal distresses and can be considered adaptive in nature.

Psychological distress is commonly measured using the Kessler 10 Psychological Distress Scale (K10), a scale based on questions regarding negative emotional states experienced in the past 30 days (ABS 2012). Someone experiencing psychological distress will not necessarily be experiencing mental illness, although high scores on the K10 are strongly correlated with the presence of depressive or anxiety disorders (Andrews and Slade 2001).

Among Australians aged 16–85 in 2020–2022, 15% experienced high or very high levels of psychological distress. Females aged 16–34 were more likely to experience

psychological distress than any other sex or age group (26%, compared with 14% of males aged 16–34) (ABS 2022).

For more information refer to Prevalence and impact of mental illness.

How common is trauma-induced mental illness?

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).

While experiences of a traumatic event are common, most people do not go on to develop a mental illness, such as PTSD. According to the National Study of Mental Health and Wellbeing 2020–2022, an estimated 11% of Australians experience PTSD in their life (lifetime prevalence), with women being at almost twice the risk of men (14% and 8%, respectively) (ABS 2022).

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, LGBTIQA+ 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 the prevalence of PTSD was more than 2 times higher in retired than current firefighters (18% and 8%, 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 (First Nations) people (AIHW 2018; Bendall et al. 2018). For more information refer to Indigenous health and wellbeing.

What is the cost of stress and trauma?

Stress and trauma impose considerable social, financial and economic costs on society. From 22 February to 5 April 2022, South East Queensland experienced unprecedented heavy rain and flooding and it has been estimated that this event cost Queensland $7.7 billion in social, financial and economic impacts. Given the far reaching and traumatic nature of this event, approximately $4.4 billion of the cost was attributed to mental health, disease and social issues (Deloitte Access Economics 2022).

The Economic Cost of the Social Impact of Natural Disasters study reviewed some of the intangible costs of natural disasters, including the 2010–11 Queensland floods and the 2009 Black Saturday bushfires in Victoria. It found that 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 between $13 and $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).

Where can I find more information?

For more information on stress and trauma visit:

- Australian Bureau of Statistics (ABS) National Health Survey: first results, 2017–18- external site opens in new window
- ABS National Survey of Mental Health and Wellbeing- external site opens in new window
- Orygen 2008 Trauma and young people: moving toward trauma-informed services and systems- external site opens in new window
- Phoenix Australia- external site opens in new window

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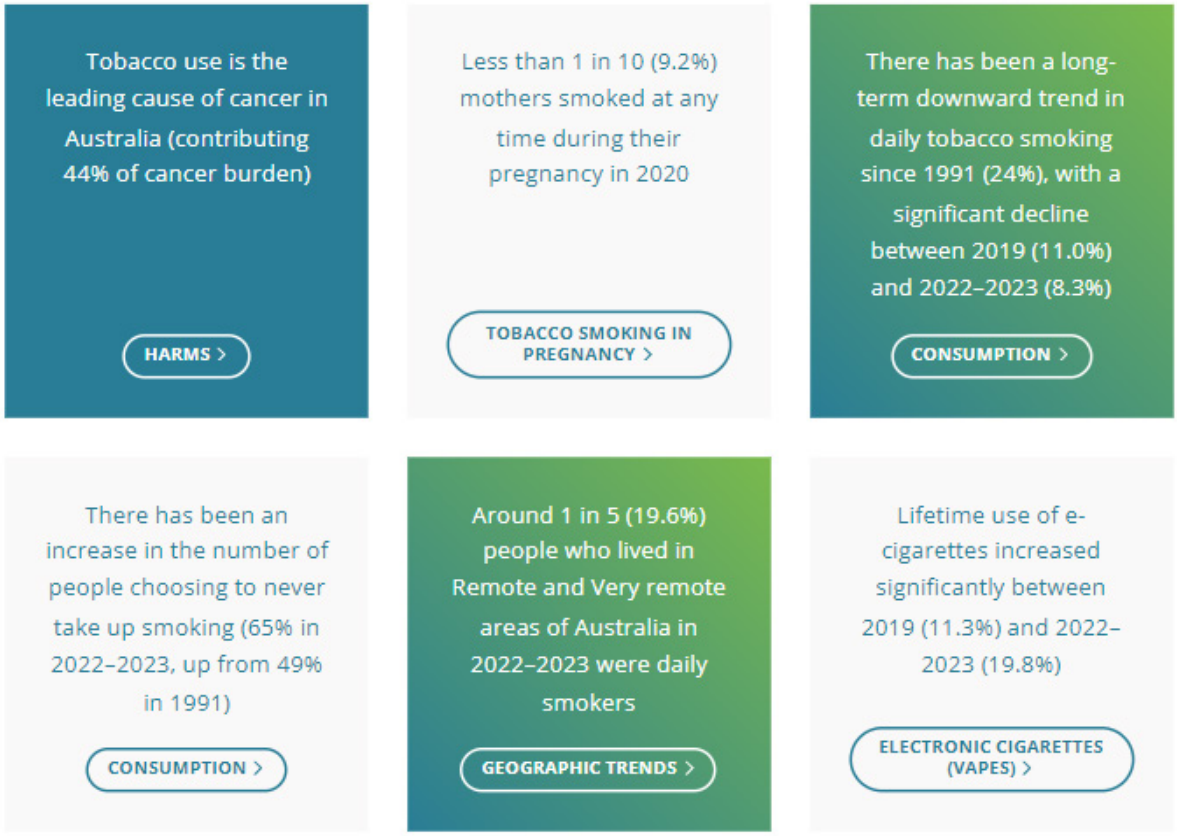
Tobacco and e-cigarettes

This topic summary is part of the Alcohol, tobacco & other drugs in Australia report.

On this page

Key findings



https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/fact-sheets

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 (see electronic cigarettes (e-cigarettes)).

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.

Availability

Retailing laws in each jurisdiction regulate the advertising, promotion and display of tobacco products, e-cigarettes and accessories, non-tobacco smoking products and age requirements for purchase.

Latest available industry sales data from *Tobacco in Australia* indicate that the value of retail sales of tobacco products including cigarettes, cigars and smoking tobacco has increased from 2016 to 2017, despite the quantity of cigarette sticks sold declining (Scollo & Bayly, Table 10.6.1). In 2017, supermarkets contributed to the largest volume of cigarette sales at 7,734 million, followed by tobacconists/tobacco specialists at 2,489 million. Overall, total cigarette sales decreased by 6.7% from 2016 to 2017 (Scollo & Bayly, Table 10.6.2).

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

There has been a long-term downward trend in tobacco smoking in Australia. The National Drug Strategy Household Survey (NDSHS) found:

- The proportion of people aged 14 and over smoking daily more than halved from 24% in 1991 to 8.3% in 2022–2023 (AIHW 2024b, Table 2.1).
- The proportion of people aged 14 and over who have never smoked has increased to the highest levels since the survey began (from 49% in 1991 to 65% in 2022–2023) (AIHW 2024b, Table 2.1; Figure TOBACCO1).The proportion of ex-smokers remained stable between 2019 (23%) and 2022–2023 (24%) (AIHW 2024b, Table 2.1).
- The long-term decline in daily smoking has largely been driven by people never taking up smoking rather than smokers quitting (AIHW 2024b, Table 2.1, Figure TOBACCO1).

When interpreting these findings, it is 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 2022–2023 (per cent)

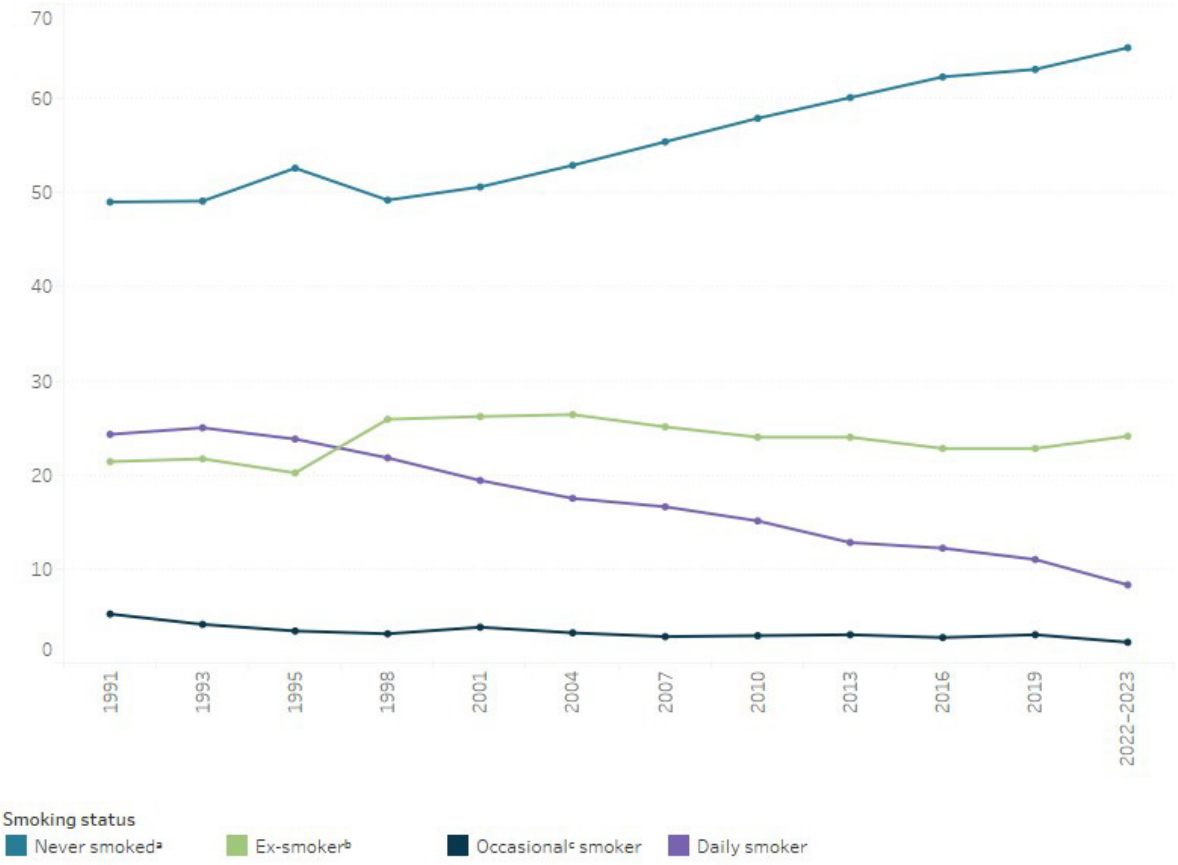


Figure TOBACCO1: Tobacco smoking status, people aged 14 and over, 1991 to 2022–2023 (per cent).
(a) Never smoked 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco.
(b) Smoked at least 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco 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.
Source: AIHW 2024. Supplementary table 2.1.

http://www.aihw.gov.au

https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/data-tables

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 2 decades to 2022, and after adjusting for age, has halved from 22.3% in 2001 to 10.7% in 2022. Over recent years the proportion of adult daily smokers declined slightly from 14.7% in 2014–15 (ABS 2023, Table S1.3; age standardised).

Estimates using self-reported NHS data show that in 2022:

- 1 in 10 people (10.6%) aged 18 years and over were current daily smokers.

- Men were more likely to smoke daily than women (12.6% compared with 8.7%) (ABS 2023, Table 14.3).

For more information about the differences between the NDSHS and the NHS, refer to Box TOBACCO1.

The National Wastewater Drug Monitoring Program- external site opens in new window (NWDMP) measures the presence of substances in sewerage treatment plants across Australia. Nicotine (including cigarettes, e-cigarettes, and nicotine replacement products such as gums and patches) is typically among the most commonly consumed substances monitored by the program (ACIC 2024).

The most recent data from the NWDMP show that the estimated population-weighted average consumption of nicotine (including tobacco products, e-cigarettes and nicotine replacement products, such as gums and patches) has remained relatively stable since the start of the program in 2016. The most recent reporting period (April and August 2023) showed that the average consumption was higher in regional areas compared with capital cities (ACIC 2024).

For state and territory data, see the National Wastewater Drug Monitoring Program reports- external site opens in new window

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 18 years and over for the NHS. Estimates are provided for people aged 18 years and over for both surveys.

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 2023; AIHW 2024b).

For more information on the technical details of these surveys, please see the technical notes and data quality sections for the NDSHS and NHS.

For information about data sources examining tobacco, alcohol and other drug use by Aboriginal and Torres Strait Islander (First Nations) people, see also: Box INDIGENOUS2.

Types of tobacco products consumed

Trends in the type of tobacco product consumed by current smokers has changed over the past decades. Data from the 2022–2023 NDSHS found that, of people who currently smoke:

- The proportion of people who smoked manufactured cigarettes exclusively declined from a peak of 74% in 2004 to 56% in 2022–2023 (AIHW 2024b, Table 2.24).
- The proportion who smoked roll-your-own cigarettes exclusively increased from 5.7% in 2001 to 16% in 2022–2023 (AIHW 2024b, Table 2.24).
- Over 1 in 5 (22%) people aged 18–24 smoked roll-your-own cigarettes exclusively, the highest of any age group (AIHW 2024b, Table 2.25).

Menthol cigarettes are flavoured tobacco products that contain menthol additive in the cigarette filter or filler. Menthol cigarettes, while smoked less frequently than non-menthol cigarettes, may be more difficult to quit as menthol modifies the effects of nicotine on the brain (Winnall et al. 2023).

According to the 2022–2023 NDSHS almost one quarter of daily smokers (23%) reported smoking menthol cigarettes on a daily basis (AIHW 2024b, Table 2.26).

Expenditure on tobacco products

Adjusting for increasing prices of tobacco products (so that all prices are expressed in current-day terms), expenditure estimates for tobacco have declined from $44 billion in 1990 to $32 billion in 2000 and $17.2 billion in 2018 (Bayly & Scollo 2019). ABS National Accounts data have found that estimates of expenditure on tobacco also suggest continuing declines in consumption (ABS 2018).

Tobacco smoking by age and gender

Findings from the 2022–2023 NDSHS (Figure TOBACCO2; AIHW 2024b, Table 2.4) showed that:

- People aged 50–59 (12.1%) were the most likely age group to smoke daily (AIHW 2024b, Table 2.4).
- In people aged 14 and over, males (9.0%) were more likely to smoke daily than females (7.7%) (AIHW 2024b, Table 2.4).
- Young adults aged 18–24 years were more likely to have never smoked than any other adult age group (AIHW 2024b, Table 2.4).
- The average age at which younger people (aged 14–24 years) had their first full cigarette decreased from 16.6 years in 2019 to 16.3 years in 2022–2023 (AIHW 2024b, Table 2.18).

For more information from the NDSHS on smoking rates and trends over time, see Tobacco and e-cigarettes/vapes.

Data from the 2022 NHS showed that:

- People aged 55–64 years (14.9%) had the highest proportion for daily smoking (ABS 2023, Table 14.3)
- Of people aged 18 and over, a higher proportion of men (12.6%) were current daily smokers than women (8.7%) (ABS 2023, Table 14.3)
- 79% of 18–24-year-olds reported never smoking in 2022, up from 75% in 2017–18 (ABS 2023, ABS 2019)
- The number of cigarettes smoked per day increased with age – 8.2% of smokers aged 18–24 years smoked more than 20 cigarettes per day, compared with 26.5% of smokers aged 65 years and over (ABS 2023, Table 14.3).

Figure TOBACCO2: Tobacco smoking status, people aged 14 and over, by age and gender, 2001 to 2022–2023 (per cent)

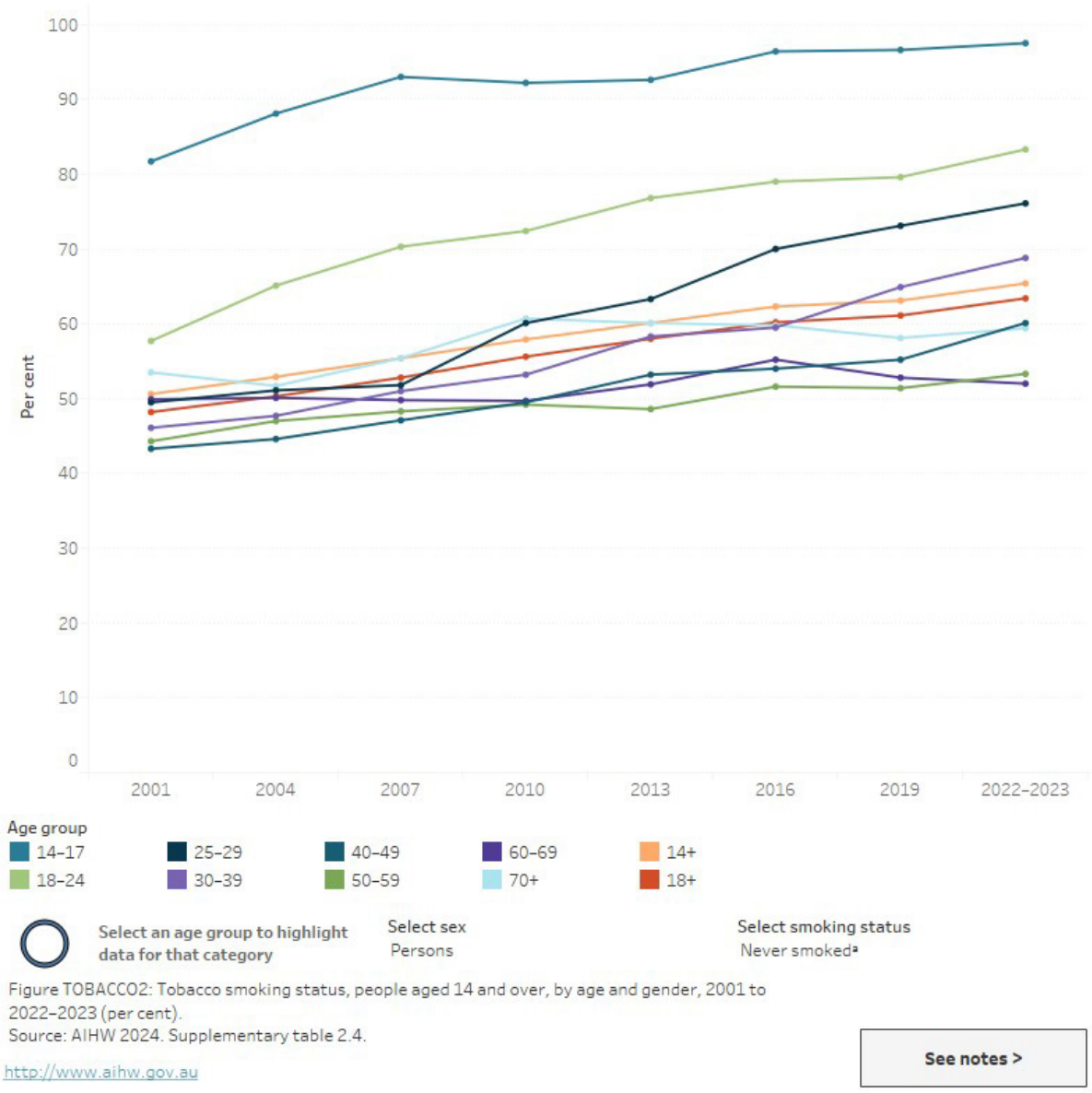


Figure TOBACCO2: Tobacco smoking status, people aged 14 and over, by age and gender, 2001 to 2022–2023 (per cent).
Source: AIHW 2024. Supplementary table 2.4.

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See notes >

https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/data-tables

Geographic trends

Since 2001, the proportion of people aged 14 and over who smoked daily has declined across all jurisdictions and socioeconomic areas (AIHW 2024b).

For more information on State and Territory tobacco trends see Data by region – Tobacco.

The 2022–2023 NDSHS found a decrease in the proportion of people (aged 14 and over) who smoked daily in most areas, with the exception of *Remote and Very remote areas*,

where daily smoking rates remained stable. Specifically, the proportion of people who smoked daily and resided in:

- *Major cities* decreased (from 9.7% in 2019 to 7.0% in 2022-2023)
- *Inner regional* areas decreased (13.4% to 10.5% in 2022-2023)
- *Remote and very remote areas* (20%) were more likely to smoke daily than those in *Major cities* (7%) (AIHW 2024b, Table 9a.12; Figure TOBACCO3).

Similarly, results from the 2022 NHS found adults (aged 18 or older):

- living in *Outer regional and Remote areas* were around 1.5 times as likely to be daily smokers as those in *Major cities* (16.7% compared with 9.4%) (ABS 2023, Table 6.3).

In general, people who live in disadvantaged areas of Australia were around 3 times as likely to smoke daily than those living in the most advantaged areas. Specifically:

- The 2022–2023 NDSHS found 13.4% of people aged 14 and over living in the most disadvantaged areas smoked daily, compared with 4.1% of people living in the most advantaged areas (AIHW 2024b, Table 9a.14).
- Similar results were reported in the 2022 NHS, where 18.1% of adults aged 18 and over living in the most disadvantaged area smoked daily, compared with 5.4% of those living in the least disadvantaged group (ABS 2023, Table 6.3).

Figure TOBACCO3: Daily smoking, by remoteness area or socioeconomic area, people aged 14 and over, 2010 to 2022–2023 (per cent)

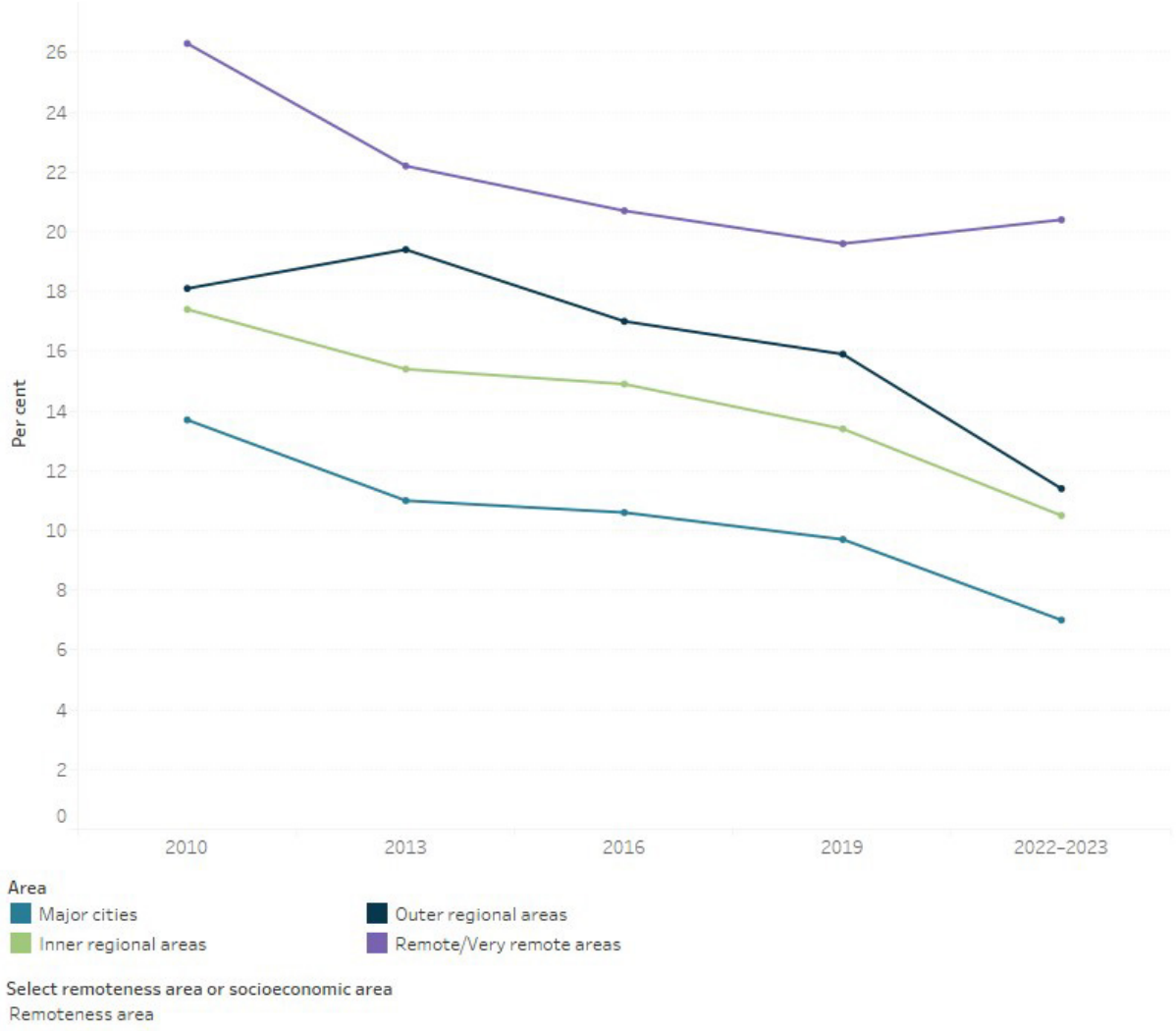

Figure TOBACCO3: Daily smoking, by remoteness area or socioeconomic area, people aged 14 and over, 2010 to 2022–2023 (per cent).
Source: AIHW 2024. Supplementary table 2.11.

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The most recent data from the NWDMP show that the estimated population-weighted average consumption of nicotine (including tobacco products, e-cigarettes, and nicotine replacement products, such as patches and gum) is typically higher in regional areas than capital cities (ACIC 2024).

Smoking cessation

The addictive nature of nicotine means that successful cessation may take many attempts over several years. Data from the 2022–2023 NDSHS showed that:

- 62% of current smokers had future intentions to quit (AIHW 2024b, Table 2.39).

Of those who had changed their smoking behaviour:

- 53% did so because it was costing too much
- 45% did so because it was affecting their health or fitness (AIHW 2024b, Table 2.35)

For more data from the NDSHS on smoking cessation, see Did people who smoke try to quit or reduce their smoking?.

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 2024b). According to the NDSHS, in 2022–2023:

- Over 2 in 5 (43%) people who smoke were aware of unbranded tobacco - an increase from 34% in 2019.
- Almost one quarter (23%) of all people who smoke had smoked unbranded tobacco in their lifetime (AIHW 2024b, Table 2.30).

Illicit branded tobacco includes tobacco products that are sold in Australia without the plain packaging/graphic health warnings that are required by law. The 2022–2023 NDSHS showed that:

- More people who currently smoke had seen tobacco products without plain packaging/graphic health warnings in the previous 3 months (20% compared with 15.2% in 2019).
- Of the 10% of people who currently smoke who purchased these products, 40% said they purchased them from a tobacconist and 26% said they bought them from a supermarket, convenience or grocery store (AIHW 2024b, Table 2.31).

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 2021–22 ($2.3 billion) was 13% of the amount of collectable tobacco excise (ATO 2023).

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 2021).

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 2021, Table 6.3).

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 2021).

Tobacco smoking in pregnancy

Tobacco smoking during pregnancy is a 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 birth weight, being small for gestational age, pre-term birth and perinatal death (AIHW 2023b).

The AIHW's National Perinatal Data Collection indicates that the proportion of mothers who smoke during pregnancy has fallen over time in Australia. In 2021, 8.7% (or 26,433) of all mothers who gave birth smoked at some time during their pregnancy, down from 13.2% in 2011. The proportion of mothers who smoked during pregnancy declined for both First Nations mothers and non-Indigenous mothers (AIHW 2023b).

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 2022–2023 NDSHS show that parents and guardians are choosing to reduce their children's exposure to tobacco smoke at home. The proportion of households with children aged under 14 where someone smoked inside the home on a daily basis has fallen from 31% in 1995 to 2.1% in 2022–2023 (AIHW 2024b, Table 2.14).

In 2022–2023, 2.6% of adult non-smokers were exposed to tobacco inside the home on a daily basis (AIHW 2024b, Table 2.16).

For more data from the NDSHS about household exposure see "How many people were exposed to tobacco smoke at home?"

Results from the 2014–15 National Aboriginal and Torres Strait Islander Social Survey (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 latest Alcohol and other drug treatment services in Australia: early insights report shows that nicotine was the principal drug of concern in 1.1% of treatment episodes provided to people for their own drug use in 2022–23, stable from 1.2% in 2021–22 (AIHW 2024a).

Data collected for the Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS NMDS) are released twice each year: an early insights report in April and a detailed annual report mid-year. The section below will be updated with information from the annual report once these data become available.

The AODTS National Minimum Data Set provides information on treatment provided to clients by publicly funded AOD treatment services, including government and non-government organisations. Data from the 2021–22 AODTS NMDS showed that nicotine was the principal drug of concern in 1.2% of closed treatment episodes provided for clients' own drug use (Figure TOBACCO4). This has remained relatively stable since 2012–13 (1.7% of treatment episodes) (AIHW 2023a, Table Drg.4).

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 2023a).

In 2021–22, where nicotine was the principal drug of concern:

- Most clients (52%) were male and over 1 in 5 (22%) were Indigenous Australians (AIHW 2023a, tables SC.9 and SC.11).
- Over half (53%) were aged 10–29 years (AIHW 2023a, Table SC.10).
- The most common source of referral was health service (36% of episodes), followed by self/family (28%) (AIHW 2023a, Table Drg.46).
- The most common treatment types were counselling (32% of closed treatment episodes), followed by assessment only (27%) (AIHW 2023a, Table Drg.45; Figure TOBACCO4).

Figure TOBACCO4: Treatment provided for own use of nicotine, 2021–22

Source: AIHW 2023, tables Drg.1, SC.11 and Drg.45.

Smoking cessation medicines

Data from the Pharmaceutical Benefits Scheme (PBS) provide information on the number of prescriptions dispensed and the number of patients supplied at least one script under the PBS within a given financial year. The PBS database includes information about medicines that are used to help people stop their smoking (smoking cessation medicines).

> Some smoking cessation medicines, such as Nicotine Replacement Therapies (NRT; for example, nicotine patches and gums), are available over-the-counter (OTC) as well as via a prescription. OTC NRT data are not captured in the PBS data as OTC medicines are not subsidised under the PBS. For more information, refer to the Technical notes and Box PHARMS2.

Data from the PBS indicate that around 323,600 scripts for prescription smoking cessation medicines were dispensed to 160,000 patients in 2021–22, a rate of 1,300 scripts and 620 patients per 100,000 population (Supplementary data tables PBS61–64). Between 2012–13 and 2021–22, dispensing rates fluctuated but overall fell from 2,200 scripts dispensed and 1,400 patients to 1,300 scripts and 620 patients per 100,000 population (tables PBS62 and PBS64).

In 2021, global distribution of Varenicline (marketed in Australia as Champix), a prescription medicine that assists adults to stop smoking, was paused due to manufacturing issues causing a long-term shortage (TGA 2021). This should be taken into consideration when comparing data with previous years.

In 2021–22:

- Rates of smoking cessation medicine dispensing were higher for males than females.
- Males aged 60–69 had the highest rates of scripts dispensed (around 2,600 scripts per 100,000) and males aged 50–59 had the highest rates of patients who were

dispensed smoking cessation of any group (1,300 patients per 100,000 population) (Tables PBS66 and PBS68).

- People aged 40–49, 50–59 and 60–69 had the highest rates of dispensing (Tables PBS66 and PBS68). For more information on PBS dispensing by age group, see Older people: Treatment.
- Rates of dispensing were highest in Outer regional areas and dispensing varied between states and territories (tables PBS69–76). For more information, see Data by region.

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 First Nations 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.

Electronic cigarettes (vapes)

Electronic cigarettes (also known as e-cigarettes, electronic nicotine delivery systems, personal vaporisers or vapes) are devices designed to deliver nicotine and/or other chemicals via an aerosol vapour that the user inhales (DHAC 2021). Most e-cigarettes contain a battery, a liquid cartridge and a vaporisation system and are used in a manner that simulates smoking (ACT Health 2021). The solution used in e-cigarettes varies. Common e-liquids include propylene glycol, vegetable glycerol, and flavourings, and may contain nicotine in freebase or salt form (Banks et al. 2022).

The 2022–2023 NDSHS showed both lifetime and current use of e-cigarettes increased between 2016 to 2019, and again to 2022–23. Specifically:

- Lifetime use of e-cigarettes increased from 11.3% in 2019 to 19.8% in 2022–2023 (AIHW 2024b, Table 3.1).
- Current use of e-cigarettes increased from 2.5% in 2019 to 7.0% in 2022–2023 (AIHW 2024b, Table 3.3).

For people who currently use e-cigarettes:

- Around 1 in 2 (49%) used them daily, an increase from 2019 (42%) (AIHW 2024b, Table 3.8).
- Almost 3 in 4 (73%) reported the last one they used contained nicotine (AIHW 2024b, Table 3.16).

Social and economic factors shape people's behaviours of vaping or smoking. Generally, people living in the lowest socio-economic areas were the most likely to currently smoke but not vape, (13.2% in 2022–2023). By contrast, people living in the highest socio-economic areas were the most likely to vape but not smoke (6.6%) (AIHW 2024b, Table 3.43).

Daily use of e-cigarettes was more common among younger people than people of older age groups (Figure VAPING1). Data from the 2022–2023 NDSHS showed that:

- People aged 18–24 had the highest rate of daily vaping (9.3%). Daily vaping was slightly more common among females in this age group (10.3%) than males (8.5%).
- People aged 25–34 were the most likely to report they used to use e-cigarettes but no longer use them (6.0%).

In 2022–2023, the average age of initiation for e-cigarette use was:

- 19.4 years for those who had never smoked a cigarette, a decrease from 20.2 years in 2019
- 25.8 years for people who smoke socially
- 33.0 years for people who smoke regularly, a decrease from 38.1 years in 2019 (AIHW 2024b, Table 3.33).

Figure VAPING1: Use of e-cigarettes, by age and gender, 2016 to 2022–2023 (per cent)

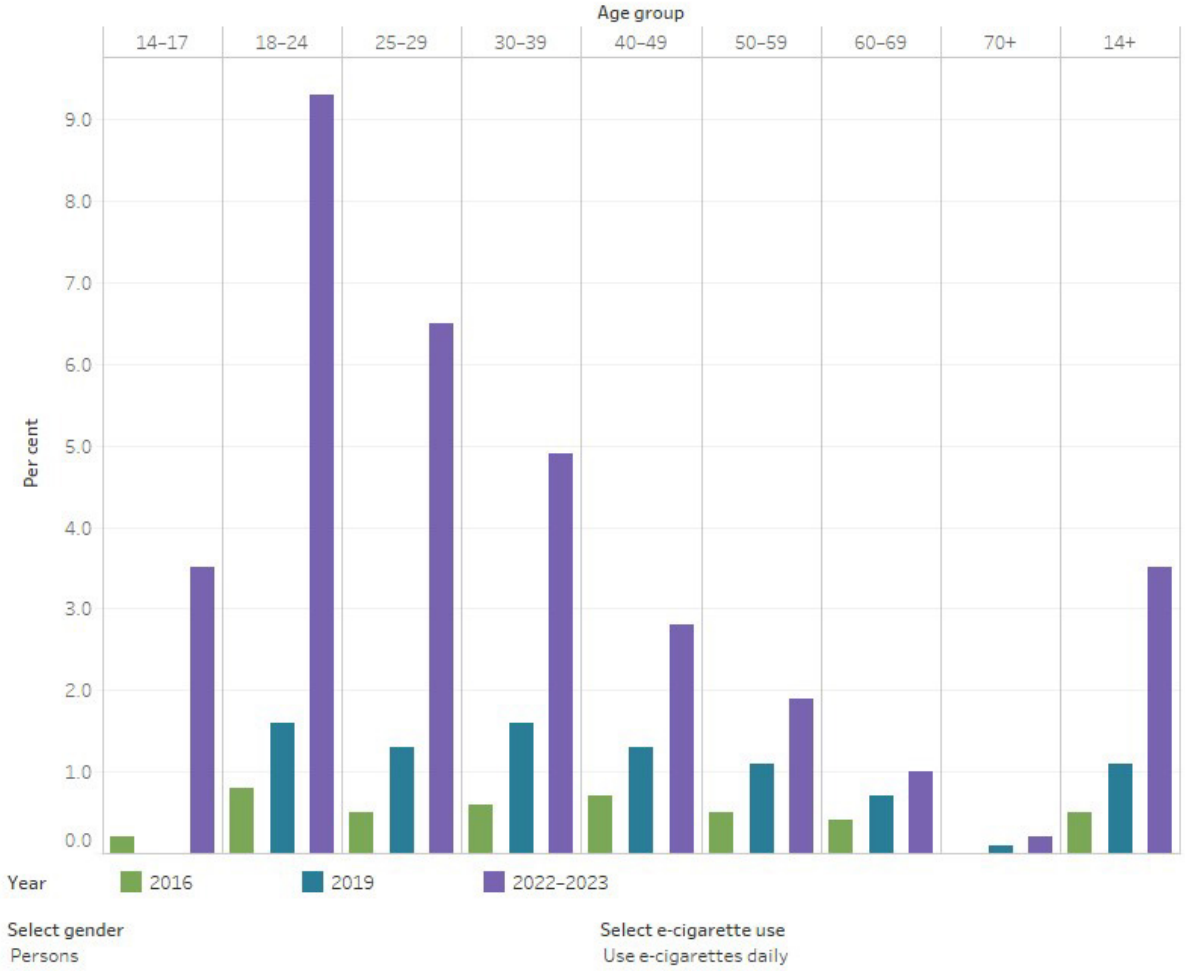


Figure VAPING1
Use of e-cigarettes, by age and gender, 2016 to 2022–2023 (per cent)
(a) Includes people who reported using electronic cigarettes/vapes at least weekly (but not daily), at least monthly (but not weekly) or less than monthly.
AIHW 2024. Supplementary table 3.9.

The report *Current vaping and current smoking in the Australian population age 14+ years: February 2018 – March 2023*- external site opens in new window found a marked increase in the 6 monthly population prevalence of current vaping that began in late 2020 and continued to early 2023. In early 2023:

- 18–24 year olds had the highest 6 monthly prevalence of current vaping (19.8%), followed by those aged 25–34 (17.4%) and 14–17 (14.5%).

Annual prevalence estimates of exclusive smoking gradually trended downwards, while the prevalence of exclusive vaping and dual use both trended upwards. In early 2023:

- Exclusive vaping was most common amongst 18–24 years old (12.5%), dual use was most common amongst those aged 14–17 (10.7%), and exclusive smoking was highest amongst those aged 35–49 (11.1%).

- For those aged 14–17, there were more people who currently vape (14.5%) than currently smoke (12.8%), whilst among those aged 35 and older, more people smoke than vape (DHAC 2023b).

The National Health Survey 2022 reported:

- About 1 in 7 (14%) people aged 18 years and over had used an e-cigarette or vaping device at least once. 4.0% reported currently using a device.
- Almost 1 in 5 (18%) young people aged between 15 and 17 had used an e-cigarette or vaping device at least once.
- Men were more likely than women to have used an e-cigarette or vaping device at least once (17% compared to 11%) (ABS 2023).

Reasons for using e-cigarettes (Vapes)

While use of e-cigarettes is more common among younger age groups in Australia, their reasons for using e-cigarettes are different to that of older people. According to the 2022–2023 NDSHS, the most common reason for trying e-cigarettes was curiosity (57%), but this varied by age. Specifically:

- Curiosity was the most common reason for vaping among people aged 14–17 (74%) and 18–24 (68%).
- To help them quit smoking was the most common reason for vaping among people aged 60–69 (53%) and 70+ (49%) (AIHW 2024b, Table 3.34, Figure VAPING2).

Figure VAPING2: Reasons for using e-cigarettes, by age, people who had ever used electronic cigarettes, 2022–2023 (per cent)

Figure VAPING2
Reasons for using ecigarettes, by age, people who had ever used electronic cigarettes, 2022–2023 (per cent)
Note: Base is people who had used electronic cigarettes/vapes in their lifetime.
AIHW 2024. Supplementary table 3.34.

For more data from the NDSHS on e-cigarette use see Tobacco and e-cigarettes/vapes.

The National Tobacco Strategy 2023–2030- external site opens in new window will develop and implement measures to restrict marketing, availability, consumption and the environmental impact of e-cigarettes (DHAC 2023a).

All Australian governments have agreed to the policy and regulatory approach to e-cigarettes in Australia- external site opens in new window.

Further information about e-cigarettes- external site opens in new window can be found on the Department of Health and Aged Care's website- external site opens in new window and health advice from the National Health and Medical Research Council.- external site opens in new window

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 2022–2023 NDSHS, of people aged 14 and over:

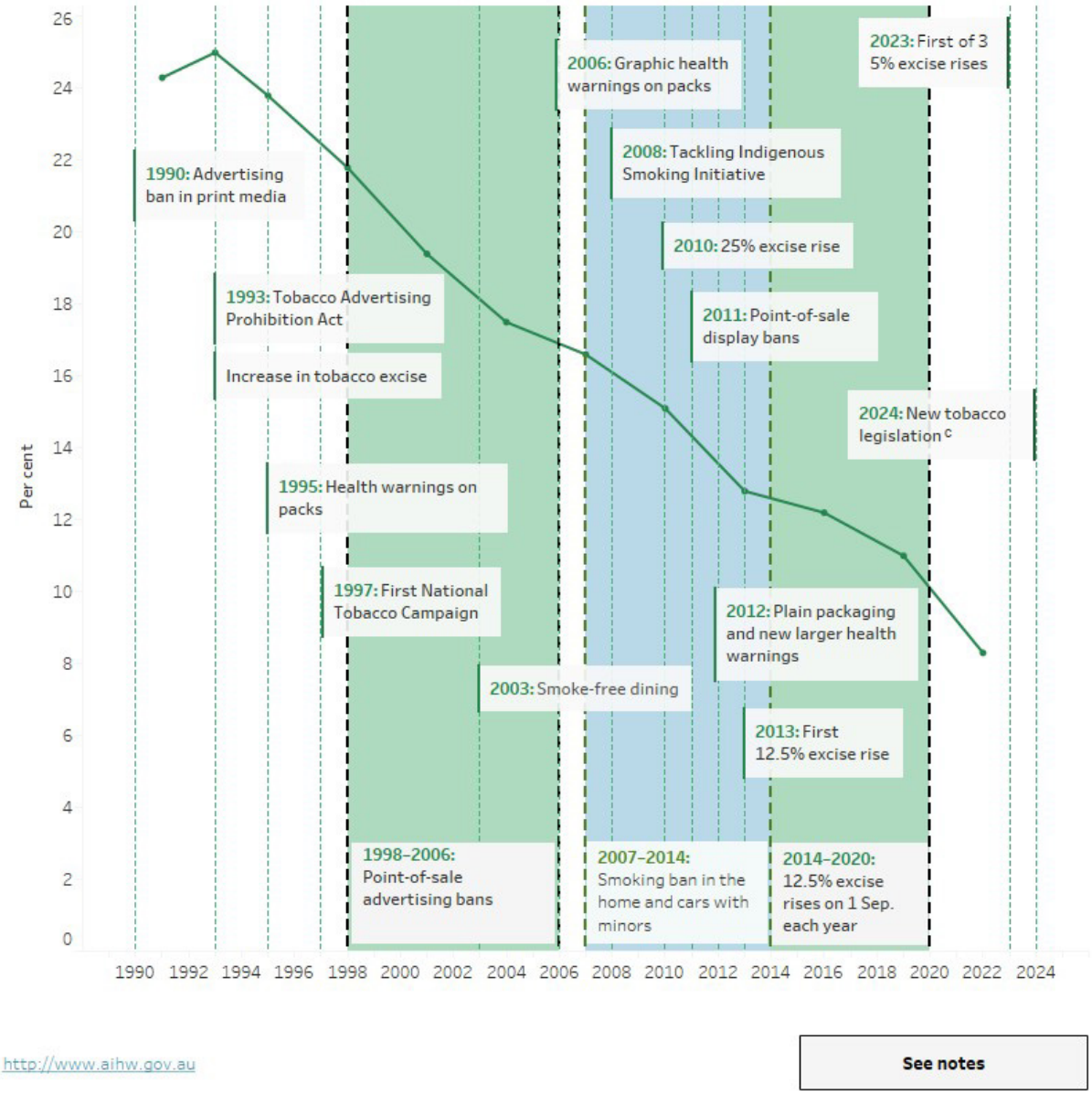
- 81% supported banning the advertising of tobacco products on social media.
- 78% supported banning additives (flavouring) in cigarettes and other tobacco products to make them less attractive to young people (AIHW 2024b, Table 2.46).

Support for measures to reduce the problems associated with e-cigarettes and vaping was also high, specifically:

- 86% of people supported prohibiting the sale of e-cigarettes/vapes, including those without nicotine, to people under 18 years of age.
- 80% of people supported restricting the use of e-cigarettes in public places (AIHW 2024b, Table 3.44).

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 fell to 8.3% in 2022–2023.

Figure TOBACCO5: People aged 14 and over who smoke daily[ab] and key tobacco control measures in Australia, 1990 to 2022–2023 (per cent)



https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/data-tables

National Tobacco Strategy 2023-2030

The National Tobacco Strategy 2023-2030- external site opens in new window is a sub-strategy of the National Drug Strategy 2017-2026- external site opens in new window and aims to improve the health of all Australians by reducing tobacco use and the associated health, social, environmental and economic costs. Objectives of the strategy include:

- Prevent the uptake of tobacco use.
- Prevent and reduce the use of tobacco among First Nations people.

- Denormalise and limit the marketing and use of e-cigarettes.
- Ensure tobacco control is guided by focused research, monitoring and evaluation.
- Setting targets to:
  - Reduce the national daily smoking prevalence to less than 10% by 2025 and less than 5% by 2030.
  - Reduce the daily smoking rate among First Nations people to 27% or less by 2030 (Department of Health and Aged Care 2023a).

National Preventive Health Strategy 2021–2030

Tobacco control is also a key component of the Australian Government's 10-year National Preventive Health Strategy- external site opens in new window and includes a range of policy achievements that aim to reduce tobacco use and nicotine addiction. The 4 overarching aims of the National Preventive Health Strategy are:

1. All Australians have the best start in life.
2. All Australians live in good health and wellbeing for as long as possible.
3. Health equity is achieved for priority populations.
4. Investment in prevention is increased (Department of Health 2021).

Prescribing for nicotine vaping products

From 1 October 2021, a prescription is required to import and/or purchase nicotine vaping products (including nicotine e-cigarettes, nicotine pods and liquid nicotine) from Australia or overseas. From 1 January 2024 the importation of all disposable vapes was banned unless the importer holds a licence and permit, and from 1 March 2024 the importation of other vaping goods including devices, accessories and substances will require a licence and permit.

For more information, see the Nicotine vaping products hub- external site opens in new window.

Resources and further information

National Preventive Health Strategy 2021 - 2030- external site opens in new window

National Tobacco Strategy 2023 – 2030- external site opens in new window

Department of Health and Aged Care - Tobacco control- external site opens in new window

Comprehensive resource on tobacco smoking in Australia – Cancer Council- external site opens in new window

Department of Health - About e-cigarettes- external site opens in new window

Department of Health - Illicit tobacco- external site opens in new window

Inquiry to illicit tobacco- external site opens in new window

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What are determinants of health?

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/australias-health/what-are-determinants-of-health

On this page

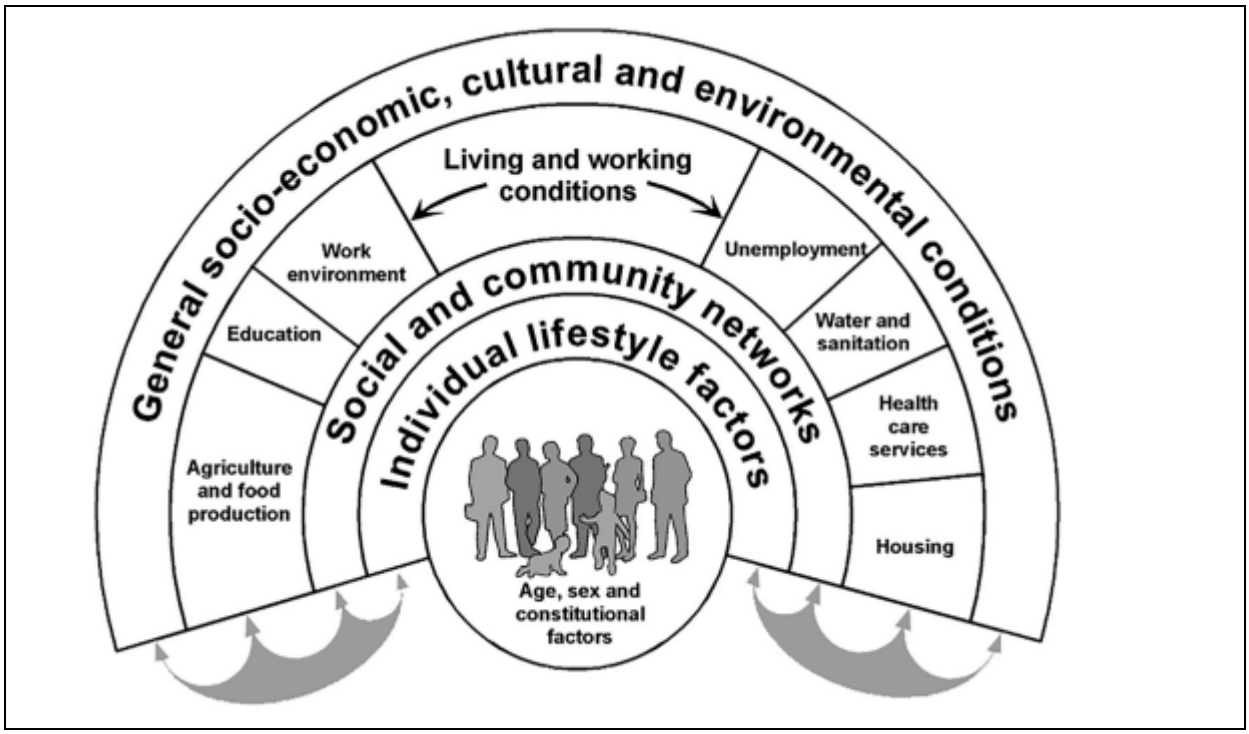
There are many factors or 'determinants' that influence health, most of them non-medical. Importantly, there is a close relationship between people's health and the circumstances in which they grow, live, work, play and age (Commission on Social Determinants of Health 2008). These in turn influence various health behaviours and other determinants (see glossary).

Health determinants may be risk or protective factors, and they interact to influence the health of individuals and communities. These determinants have a considerable impact on health – often a larger impact than the health care individuals may receive (WHO 2017). Individuals have limited control over many determinants as they are shaped outside their area of influence.

A determinant of health impacts on health and wellbeing by increasing or decreasing the risk of disease or injury occurring. However, people can develop diseases without these risk factors. Also, if someone develops a disease when they do have these risk factors, it does not mean the risk factor caused the disease.

Health determinants include general socioeconomic, cultural and environmental conditions; living and working conditions; social and community networks; and individual behavioural and biological factors. The model in Figure 1 shows how these determinants interact and impact health and wellbeing (Dahlgren and Whitehead 2021).

Figure 1: Model showing layers of health determinants



Source: Dahlgren and Whitehead 2021

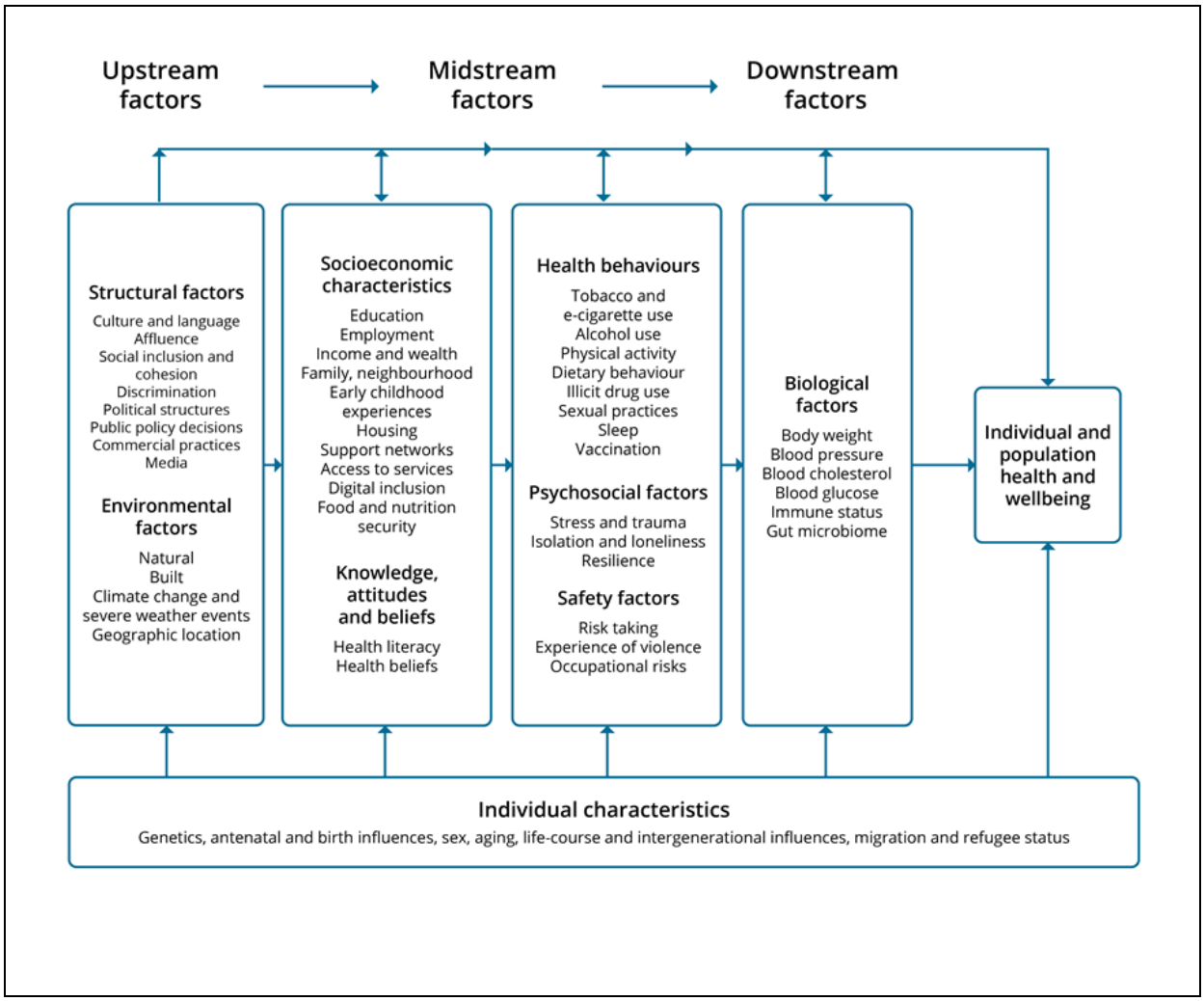
Understanding health determinants and their relationships

Figure 2 is the AIHW's framework for determinants of health. It shows important non-medical determinants that affect the health and wellbeing of individuals, population groups and the Australian population.

In the framework, determinants that can be modified are divided into 4 main groups (large boxes) and ordered from 'upstream' to ‘downstream’, reflecting the relationships shown in Figure 1. Downstream factors have the most direct impact on health and wellbeing. These downstream factors are influenced by midstream factors, which are in turn influenced by upstream factors. Individuals have more control over downstream than upstream factors like structural and environmental factors. This sequence is known as the causal chain and shows the path through which determinants such as the built environment or public policy can influence health and wellbeing. Determinants within each box often interact with, and are closely related to, each other. While the causal chain largely flows from the upstream to downstream factors, the relationships are complex and there are also influences in the other direction.

Figure 2 also identifies factors that are not generally modifiable (see glossary) once a person has been born. These factors include antenatal and birth influences (including preterm birth and low birthweight), age, sex and intergenerational effects (bottom box). The associations between these and other determinants are important to understand as this will assist with prevention to support better health outcomes.

Figure 2: Framework for determinants of health



The pathways between these determinants and subsequent health outcomes are complex and inter-related. For example, upstream socioeconomic determinants affect many others further downstream, including health behaviours and biological factors. There is also evidence of more direct relationships between socioeconomic determinants and biological factors, such as inflammation (Berger et al. 2019; Hamilton and Steptoe 2023). Health determinants can have different impacts at various life stages, can accumulate over the life course and across generations (Department of Health 2021; van Zwieten 2024). Further, many determinants influence more than one health outcome. This means that improving determinants further upstream (at the system level) is likely to be more effective as it can reduce the risk of poor health outcomes occurring within the population.

Evolution of the framework for health determinants

A framework for health determinants has been included in previous editions of *Australia's health* (for example, AIHW 2020, 2010, 2004). The framework has changed over time as research increases our understanding. The current version has been updated to reflect the National Preventive Health Strategy 2021–2030, and now includes

commercial practices (see Commercial determinants of health below), discrimination, climate change, digital inclusion, e-cigarette use, isolation and loneliness, resilience, and the gut microbiome. Some previously included determinants have become more prominent in recent times, such as indoor air quality (part of the built environment) and its importance in reducing the risk from communicable diseases including COVID-19, and exposure to pollutants and allergens (Furlow 2023; Braggion et al. 2024). A specific framework for Aboriginal and Torres Strait Islander people has also been developed and used for reporting since 2006 (AIHW 2020), and is consistent with the version in Figure 2, even if not all factors are listed (for example, connection to Country is not stated, but is included under culture and language).

Health determinants impact health and health equity

The focus of Figure 2 is on how health determinants impact on individual and population health and wellbeing. While this includes the important area of socioeconomic determinants, an important additional consideration is how the health determinants affect health inequalities and inequities. Health inequalities are differences in health between groups and health inequities are differences that are avoidable and unfair (see glossary for more information on these concepts).

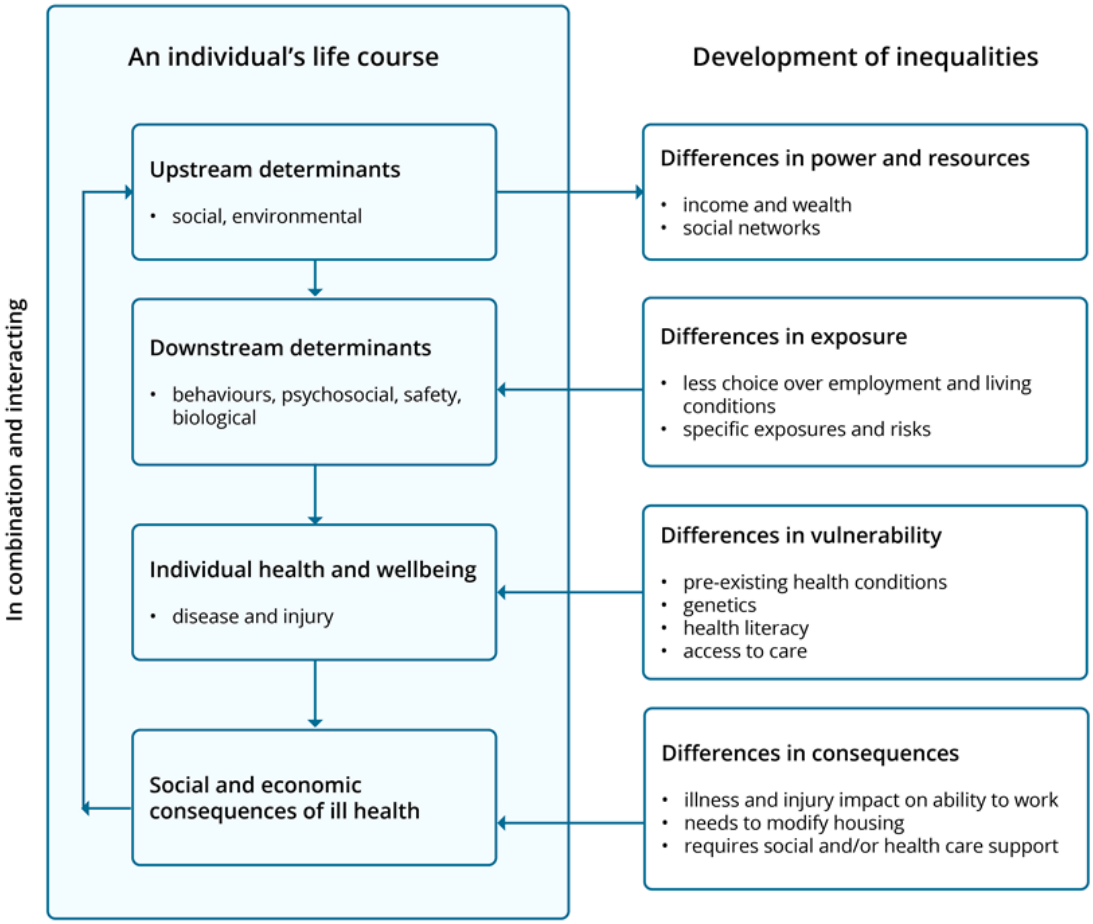
Understanding how determinants affect health inequalities

In all countries, regardless of national income levels, health and illness follow a social gradient: the lower an individual's socioeconomic position, the higher their risk of poor health (WHO 2022).

To understand why this is, Diderichsen et al. (2001) developed a conceptual model of the relationship between health determinants and health inequalities (adapted in Figure 3). It relates health inequalities to unequal distribution (differentials) of determinants.

The distribution of power and resources that accompanies the socioeconomic gradient in a society is due to a range of social and structural determinants. Differences in power and resources can cause differentials in determinants. For instance, less power and resources can increase a person's exposure to health risks, mean they are more vulnerable to disease and injury, and increase the social and economic consequences they may suffer because of ill health (Diderichsen et al 2001; van Zwieten et al. 2024). The model also demonstrates that this relationship is compounding, with the social and economic consequences of ill health affecting upstream determinants that further reduce an individual's access to power and resources.

Figure 3: How differences in health determinants contribute to health inequalities



Source: Adapted from Diderichsen, Evans and Whitehead (2001)

Why we need to understand and monitor health determinants

Understanding how health determinants impact health and health equity is important to guide:

- which issues to monitor, with data and information, for the Australian population
- where there is potential for prevention activities which can improve outcomes and reduce costs.

It is important to monitor the prevalence of the determinants, particular groups impacted and whether there are changes over time. This can inform specific policy actions for the whole population or for specific population groups.

Addressing health determinants through prevention

Health prevention is an action to keep people healthy and well, and to prevent or avoid the risk of poor health, illness, injury and early death (The Australian Prevention

Partnership Centre n.d.). It aims to increase the likelihood that people will stay healthy for as long as possible. As well as reducing the likelihood that a disease or disorder will affect an individual, it also aims to interrupt or slow the progress of the disorder and reduce associated disability (WHO Global Forum on Chronic Disease Prevention and Control 2004). This is sometimes referred to as secondary and tertiary prevention (Last 2001).

Prevention activities can either be aimed at individuals or small groups (such as quit smoking programs, health advice from general practitioners and preventive treatment such as blood pressure medication), at the community level (for example walking groups) or provided for the whole population (such as advertising campaigns, school-based interventions, taxes, regulations) (AIHW 2009). The most effective prevention programs often have elements of both, as well as spanning many components of risk. For example, tobacco control includes individual support to quit, and population wide measures like taxes, regulations around sales and advertising, and road safety spans seat belts, safer cars/roads, drink driving laws and enforcement.

The relationships between the many determinants of health and health outcomes are complex. However, this complexity does provide many potential points of intervention to promote health and reduce the risk of ill health.

Australia's National Preventive Health Strategy 2021–2030 (NPHS) aims to improve the health and wellbeing of all Australians at all stages of life, through a whole-of-government approach to prevention that addresses the wider determinants of health, reduces health inequities and decreases the overall burden of disease. The NPHS strongly emphasises that preventive action must focus on the wider determinants of health to address the increasing complexity of health issues and the interconnected causes of poor health and wellbeing.

The NPHS contains 4 high-level aims:

- All Australians have the best start in life.
- All Australians live in good health and wellbeing for as long as possible.
- Health equity is achieved for priority populations.
- Investment in prevention is increased (Department of Health 2021).

The AIHW is working to monitor progress against agreed aims and targets in 2024.

The Strategy outlines that the value of prevention is more than preventing disease and promoting a long healthy life. Other benefits include reducing costs:

- of future health care
- for households (such as from tobacco purchases)
- from productivity losses (absenteeism, presenteeism)
- for law enforcement (such as for illicit drug use) (Department of Health 2021).

The Strategy also highlights the importance of monitoring and surveillance in tracking the effectiveness of initiatives, as well as where additional effort may be needed.

Specific determinants

Figure 2 identifies key specific determinants of health. Information on most of these determinants is available in *Australia's health 2024* or other AIHW publications (links below). Two determinants, commercial determinants and health literacy, are not described elsewhere and so are explored further below.

Where to find more information on selected health determinants

Across the specific determinants in Figure 2, detailed information is available in other AIHW reports on:

Broad features of society, including social cohesion, affluence, discrimination

Australia's welfare 2023

Measuring What Matters (The Treasury)

Environmental factors

Built environment and health

Natural environment and health

Rural and remote health

Socioeconomic characteristics

Social determinants of health

Australia's health 2020 data insights article 'Social determinants of health in Australia'

Access to primary health care relative to need for Indigenous Australians

Health behaviours

Alcohol consumption

Diet

Physical activity

Sleep

Tobacco and e-cigarettes

Vaping and electronic cigarette use in Australia in 2022–2023

Psychological factors

Social isolation and loneliness

Stress and trauma

Safety factors

Family, domestic and sexual violence

Health of people experiencing homelessness

Commercial determinants of health

What are commercial determinants of health?

Commercial determinants of health (see glossary) are the activities undertaken by commercial organisations that affect people's health, directly or indirectly, positively or negatively (WHO 2023). An example of a commercial organisation is tobacco companies. Commercial determinants include the systems, practices and pathways through which these organisations affect health and equity (Gilmore et al. 2023).

While private sector commercial organisations can have a positive effect on health (for example, green grocers and gyms), there is a large body of evidence of an increasingly negative effect, particularly linked to multi- and trans-national corporations (Gilmore et al. 2023). Problems can arise when the profit motive conflicts with good health outcomes (Department of Health 2021).

Most focus has been on specific unhealthy products with direct health effects – such as tobacco, alcohol, and discretionary foods – and the large commercial organisations behind them (Lacy-Nichols 2023). However, commercial organisations are diverse, and there is increasing attention being paid to the wider, and more indirect effects. Examples include social media's effect on mental health and the fossil fuel industry's contribution to pollution and climate change which in turn harms health (Gilmore et al. 2023).

Changes in the way that people, corporations and governments interact at the international level in recent decades have been identified as enabling health-harming commercial practices. These include:

- The transfer of some public assets to the private sector.
- The rise of transnational corporations which may not be accountable to any one government and have the ability to settle in whichever country serves their interest.
- Available policy options not being used.
- Reductions in government regulations (deregulation) which can remove safeguards against harm (Gilmore et al. 2023; Lacy-Nichols 2023; WHO 2023).

The spectrum of activities commercial organisations engage in ranges from legal and healthy, legal and neutral, legal and harmful, to illegal (Friel et al. 2023).

How do commercial actions affect health?

Commercial organisations can influence health directly or through the broad features of society – by influencing the social, physical and cultural environments. Harms to health are often hidden and indirect, and the many pathways are inter-related.

Commercial determinants can influence health either positively or negatively. The negative impacts causing harm that need to be addressed include:

- product design, packaging and marketing – for example, misleading packaging, inappropriate marketing to children
- supply chains – for example, harm to local communities and the environment during production
- labour and employment – such as low pay levels and dangerous work environments
- reputational management – such as enhancing credibility and corporate image through donating to charity, greenwashing
- research funding and shaping the knowledge environment – for example, influencing the direction and volume of research, spreading unjustified doubt, spreading misinformation and disinformation
- lobbying and donations to influence the political and economic environment – for example, to block or delay regulation that aims to limit harms
- financial practices – including investment in products harmful to health, or tax avoidance
- preference and norms shaping so that their needs are seen as a higher priority than social goods including health – for example, seeking to shape ideas, beliefs and values, funding front groups and think tanks to seed doubt, having supportive media (Department of Health 2021; Gilmore et al. 2023; WHO 2023).

What do we know about the consequences?

The activities of commercial organisations affect many risk factors and health outcomes (Chung et al 2022; UNICEF 2019; WHO 2023). Risk factors include smoking and e-cigarette use, diet, alcohol use, obesity, physical inactivity and air pollution. Health outcomes include acute, chronic and infectious diseases (see glossary) as well as injuries. All groups of society are affected, but the young are particularly vulnerable including through advertising. First Nations people may be disproportionately affected (Maddox et al. 2022). Existing health inequalities are also worsened.

Given the complexity in how commercial determinants can affect health, it is difficult to measure their impact. Using Global Burden of Disease data, it is estimated that 4 commercial products – tobacco, alcohol, ultra-processed food, and fossil fuels – accounted for 19 million global deaths in 2019, which is 34% of all deaths and 41% of non-communicable disease deaths (Gilmore et al. 2023).

An example for one industry – alcohol – illustrates the complexities in commercial determinants.

Location of and access to alcohol outlets

Alcohol causes substantial harm – in Australia in 2022 there were 1,742 alcohol induced deaths and in 2018 it accounted for 4.5% of the total burden of disease (AIHW 2023).

From a public health perspective, the location of and access to alcohol outlets is both an environmental and commercial determinant of health. There is evidence from Australia and internationally showing that living closer to alcohol outlets is associated with increased risky drinking behaviour (Azar et al. 2016; Gilmore et al. 2015; Hobbs et al. 2020). Additionally, the number of outlets, days and times of operation, and clustering of outlets are all factors which influence the harms associated with alcohol (Anderson et al. 2009; Livingston et al. 2015; Livingston 2012; Roche et al. 2015).

People living near an alcohol outlet are not only at risk of individual harms from drinking more themselves, but also at risk of alcohol related violence and abuse due to the effect of everyone in their community having greater access to alcohol (AIHW forthcoming 2024). In 2019, people in Capital city areas, estimated to be living within 250 metres of an alcohol outlet, were significantly more likely to have experienced alcohol related harms compared with populations living further away:

- Over 1 in 3 (37%) people drank alcohol in ways that increase the risk of alcohol related disease or injury, compared with 26–30% for people living further away.
- 1 in 4 (25%) people experienced an alcohol related incident like verbal or physical abuse from someone under the influence of alcohol, compared with 12–22% for those living further away.

No relationship between distance and alcohol-related harms was found for people living in non-capital city areas. For all distances, the proportion of people who drank alcohol in ways that increase the risk of alcohol related disease or injury was consistently around 35 to 40%.

This work did not compare across different population groups. Future work could expand upon this analysis to better understand the impact of alcohol outlet locations on different population groups, such as by remoteness and across socioeconomic groups.

Understanding access to alcohol in an area – that is, how close and how many outlets there are – can be used to inform public health and urban planning decisions to reduce the harms from alcohol consumption. Making alcohol less available through control of outlets can reduce harm from alcohol consumption in a cost-effective way (Anderson, et al. 2009).

Health literacy

Health literacy (see glossary) 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 poorer health behaviours and worse health outcomes.

The idea of health literacy is dynamic and evolving. There are many definitions of health literacy, but they generally share these common elements: health literacy describes the literacy and numeracy skills that enable people to access, understand, assess, and use information to make decisions and take actions that will have an impact on health status (Nutbeam and Lloyd 2021).

Health literacy is needed to:

- Navigate health systems and understand information provided in a healthcare setting and is discussed below in Health literacy in healthcare services.
- Allow people to critically analyse and use information on health determinants from a range of sources such as health advocacy, promotion and consumer engagement (Nutbeam and Lloyd 2021). For more information, see Health promotion and health protection.

Health literacy in healthcare services

Health literacy in the healthcare setting has 2 main components:

- Individual health literacy – these are individual skills, such as the ability to find, understand and use information relevant to health; 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 which need to be considered by health care professionals and organisations, such as policies, processes, and materials, which affect the way the individual engages with the health system (Australian Commission on Safety and Quality in Health Care 2014).

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.

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 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). Data on health literacy in Australia is available from the Health Literacy Survey conducted by the Australian Bureau of Statistics (ABS 2019).

Where do I go for more information?

For more information on determinants of health, see:

- World Health Organisation Commercial determinants of health
- World Health Organisation Determinants of health
- Australian Government Department of Health and Aged Care National Preventive Health Strategy 2021–2030
- AIHW *Australia's health 2020: data insights* article 'Social determinants of health in Australia'.

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Health of population groups

Health of children

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/children-youth/health-of-children

On this page

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 equip children with the best life chances (AIHW 2022a; Department of Health 2019). This page focuses on key health issues that children face. Precise age ranges used for reporting the health of children varies between data sources according to different frameworks, policies and legislation, but generally includes early childhood and early adolescence. For information about young people, see Health of young people.

Profile of children

At 30 June 2023, 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 2023f).

The number of children in Australia is projected to reach 7.2 million by 2071 (ABS 2023h). 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 18% in 2023 (ABS 2023f). The COVID-19 pandemic caused significant disruptions to Australian population trends and these changes may affect subsequent projections.

Australia's children

In 2022, among all children aged 0–14:

Almost 3 in 4 (72%) lived in *Major cities* (AIHW analysis of ABS 2023g).

Nearly 1 in 5 (19%) lived in the lowest socioeconomic areas (AIHW analysis of ABS 2023g).

Almost 1 in 10 (8%) were born overseas (ABS 2023b).

As of 30 June 2021, final Australian Bureau of Statistics' (ABS) estimates indicate that 6.9% of children were Aboriginal and Torres Strait Islander people (ABS 2023a).

Health status of children

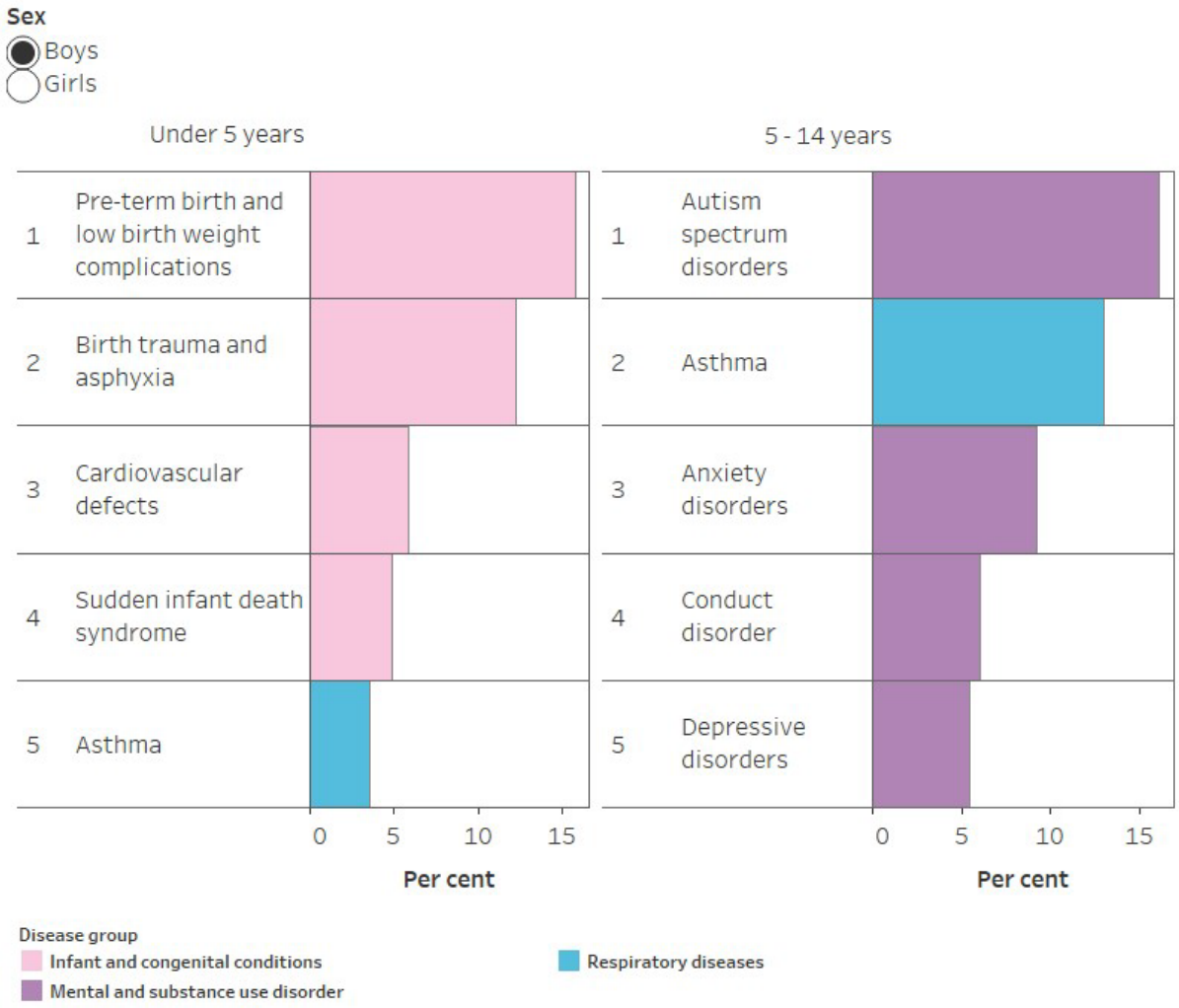
Burden of disease

Burden of disease refers to the quantified impact of a disease or injury on a population, which captures overall health loss, that is, years of healthy life lost through premature death or living with ill health (see Burden of disease).

In 2023, for infants and young children aged under 5, the leading causes of total burden of disease were mainly infant and congenital conditions, and heart conditions, with similar leading causes for both boys and girls (Figure 1). Asthma was the leading cause of total burden among children aged 5–14 followed by 4 mental health conditions: autism spectrum disorders, anxiety disorders, depressive disorders and conduct disorders (AIHW 2023b).

The leading causes of total burden among boys and girls aged 5–14 differed slightly, with autism spectrum disorders contributing the most burden to boys (16%) and asthma contributing the most to girls (11%) (Figure 1).

Figure 1: Leading causes of total burden among children aged 0–14, by age group and sex, 2023



Note: Group 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 difficult to interpret.
Source: AIHW 2023b.
https://www.aihw.gov.au/

Mental health

The most recent national data on child and adolescent mental health is from the 2013–14 Australian Child and Adolescent Survey of Mental Health and Wellbeing (also known as the Young Minds Matter survey). Modelling was used to update these estimates. To explore this in more detail, see Regional estimates of children and adolescent mental disorders- external site opens in new window.

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 children aged 4–11, by sex, 2013–14

Disorder	Boys (%)	Girls (%)	All 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).

For more information, see Mental health.

Impacts of the COVID-19 pandemic on mental health

Various research projects confirm the COVID-19 pandemic impacted on the mental health of Australia's children in many ways.

- 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, nearly 2 in 3 (61%) parents/carers of children aged 2 and over reported experiencing a negative impact on their child's mental health due to the COVID-19 pandemic (Biddle et al. 2021). The proportion of children aged 3–17 who experienced any negative effect had increased as the pandemic continued (Biddle et al. 2021).
- In a survey in September 2020, parents/carers reported that more than 1 in 3 children aged 5–18 (35%) experienced a negative impact on their mental health (RCHpoll 2021). Around 3 in 10 (29%) of children in New South Wales, 1 in 5 (21%) in Victoria and other states and territories (21%) reported a positive impact (RCHpoll 2021).

Disability

Data sources on disability

The Australian Bureau of Statistics' (ABS) Survey of Disability, Ageing and Carers (SDAC) collects a broad range of information about people with disability including levels of severity, and is the most detailed and comprehensive source of Australian disability data (ABS 2022b).

The 2018 SDAC provides the latest available data on the prevalence and experiences of disability among Australian children. Data from the 2022 SDAC is expected to be available from June 2024.

The 2021 Census of Population and Housing collected information on whether a person has a profound or severe core activity limitation, and requires assistance in their day to day lives in one or more of the 3 core activity areas of self-care, mobility and communication due to a long term health condition, a disability or old age (ABS 2022a).

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).

According to the 2018 SDAC:

- Around 1 in 13 (7.6% or an estimated 356,000) Australian children aged 0–14 have disability (ABS 2019b).
- More boys (9.6%) than girls (5.7%) have disability 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%).

Based on self-reported data from the 2021 Census, around 1 in 25 (3.5%, or an estimated 160,000) children aged 0–14 had a profound or severe core activity limitation (ABS 2022a).

Chronic conditions

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 (AIHW 2022a; Bell et al. 2016).

According to self-reported data from the ABS 2022 National Health Survey (NHS), an estimated 2 in 5 (45%) children aged 0–14 had one or more chronic condition (ABS 2023c).

According to the 2022 NHS, the most common chronic conditions among children aged 0–14 did not change markedly from the 2021 NHS, and were:

- hay fever and allergic rhinitis (13%) and asthma (8.2%), both diseases of the respiratory system
- allergies (including food, drug and undefined) (10%)
- anxiety related disorders (8.6%) and problems of psychological development (7.0%); both mental and behavioural conditions (ABS 2023c).

For more information, see chronic conditions and multimorbidity

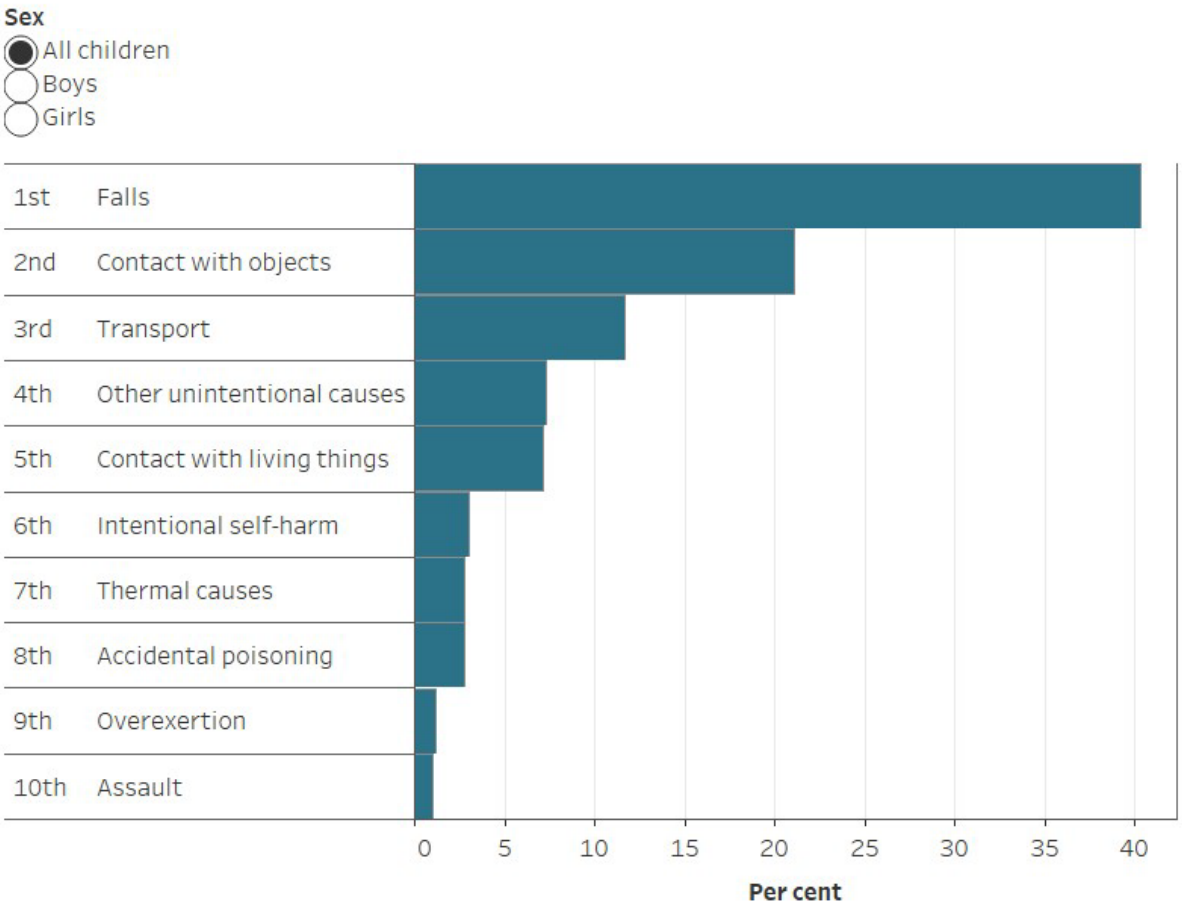
Injuries

In 2021–22, there were around 62,500 injury hospitalisations among children aged 0–14, a rate of around 1,300 per 100,000 children (AIHW 2023c). 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 1,100 per 100,000, respectively) (AIHW 2023c). These differences varied by age, from 1.4 times as likely for children aged 0–4 to 1.8 times for 10–14-year-olds.

In 2021–22, the leading causes of injury hospitalisations 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: Injury hospitalisations for children aged 0–14, by leading causes of injury, 2021–22



Notes

1. Data for intentional self-harm are aggregated for 0–14 year olds.
2. Cause of injury categories are classified according to ICD-10-AM.
3. Definitions of intentional self-harm will differ from those used in the Young Minds Matter Survey.

Source: AIHW 2023c.

https://www.aihw.gov.au/

During 2019–2021, injuries contributed to 527 deaths of children aged 0–14, a rate of 3.7 per 100,000 children (AIHW 2023e).

For more information, see Injury

Deaths

In 2022, there were 958 deaths of infants under the age of one, a rate of 3.2 per 1,000 live births (ABS 2023i). Infant deaths accounted for 2 in 3 (67%) deaths among all children aged 0–14. The leading causes of infant deaths in 2022 were similar to those reported in 2021: perinatal conditions (53%), congenital conditions (26%) and symptoms, signs and ill-defined conditions, including Sudden Infant Death Syndrome (11%) (ABS

2023i). 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 2022, there were 472 deaths of children aged 1–14, a rate of 10.6 per 100,000 children. The leading causes of child deaths were: land transport accidents (10%), certain conditions originating in the perinatal conditions (7.6%) and malignant brain tumours (6.8%) (ABS 2023i). 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).

For more information, see Life expectancy and causes of death.

Health risk factors of children

Nutrition

As children are constantly growing, good nutrition is key to support their growth and development, and it gives them the energy they need to concentrate, learn and play (NHMRC 2013). A healthy diet also:

- supports children's physical and cognitive development
- helps to prevent overweight and obesity
- helps to maintain a healthy weight
- increases quality of life
- protects against infection
- protects against the development of chronic conditions in adulthood (AIHW 2022a; WHO 2018).

The ABS 2022 National Health Survey (NHS) reported on children's fruit and vegetable consumption among 2–14 year olds (ABS 2023e).

According to self-reported data from the 2022 NHS:

- Around 7 in 10 (69%) children aged 2–14 met the serve recommendation for fruit
- 1 in 20 (4.8%) children aged 2–14 met the serve recommendation for vegetables (ABS 2023e).

It was also estimated that 17% of children aged 2–14 consumed sugar-sweetened drinks and 8% of children consumed diet drinks at least once a week.

For more information, see Diet.

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 (NNPAS). The NNPAS is scheduled to be conducted again in 2023 as part of the Intergenerational Health and Mental Health Study.

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.
- One 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 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).

For more information, see Physical activity.

Overweight and obesity

Overweight and obesity (the abnormal or excessive accumulation of fat in the body), increases a child's risk of poor physical health and is a risk factor for illness and mortality in adulthood. Overweight and obesity generally results from a sustained energy imbalance, where the amount of energy a child consumes through eating and drinking outweighs the energy they expend through physical activity and bodily functions (AIHW 2022a).

Based on measured height and weight data from the 2022 NHS, among children aged 2–14, around:

- 2 in 3 (66% or an estimated 2 million) were normal weight
- 1 in 4 (26% or an estimated 1 million) were overweight or obese
- 1 in 13 (7.7%) were obese (ABS 2023d).

The prevalence of overweight and obesity was similar for boys and girls across age groups, and remained relatively stable between 2011–12 and 2022 (ABS 2023d).

For further detail of how overweight and obesity is defined and measured, see Overweight and obesity.

Health care of children

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. 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 (AIHW 2022b).

In 2022, more than 9 in 10 (92%) children aged 2 were fully immunised. Coverage rates for 2-year-olds are slightly lower than for 1-year-olds (94%) and 5-year-olds (94%) due to changes to the National Immunisation Program Schedule in December 2014 and March 2017 (Department of Health and Aged Care 2023).

The proportion of children fully immunised at 2 years old was relatively stable at around 91–93% between 2009 and 2022, dropping slightly to 89% in 2015 and 90% in 2017 (Department of Health and Aged Care 2023).

For more information, see Immunisation and vaccination.

Medicare-subsidised mental health-specific services

In 2021–22, children aged 0–11 made up 5.2% (145,000) of all people receiving Medicare-subsidised mental health-specific services (note that an individual may receive a service from more than one type of provider and can be counted more than once). Adults aged 25–34 made up the greatest proportion of patients (21%) (590,000) (AIHW 2023e). The most common provider type for children aged 0–11 was general practitioners (78%) (AIHW 2023e).

COVID-19 impact on mental health services

In August 2021, a survey of parents and carers of children aged 0–18 found that around 1 in 5 (21%) needed mental health support for their children 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 (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- external site opens in new window
- National framework for protecting Australia's children indicators
- Children's Headline Indicators
- Glossary

For more on this topic, visit Children & youth.

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Health of mothers and babies

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/mothers-babies/health-of-mothers-and-babies

On this page:

The health of both mothers and babies can have important long-term 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, with poorer outcomes generally reported for those born early and with low birthweight (below 2,500 grams).

This page uses data from the National Perinatal Data Collection (NPDC) (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 311,400 women gave birth to around 315,700 babies in 2021. This is the highest number of births on record and about 20,000 more than in 2020 (an increase of 6.7%). In 2021, the rate of women of reproductive age (aged 15 to 44 years) giving birth also increased to 61 per 1,000 women compared with a decreasing trend over the past decade (from 64 per 1,000 women in 2011 to 56 per 1,000 in 2020).

In 2021:

- 73% of mothers lived in *Major cities.*
- 34% of mothers were born overseas.
- 19% of mothers were from the lowest socioeconomic areas.
- 5.0% of mothers were Aboriginal and Torres Strait Islander (First Nations) people.
- 51% of babies born were male, with a ratio of 105 live-born boys to 100 live-born girls.

- 6.1% of babies born were First Nations people.

Detailed information on mothers and babies from population groups, such as First Nations people or those from remote areas, is available from Australia's mothers and babies and the Aboriginal and Torres Strait Islander mothers and babies.

Mothers

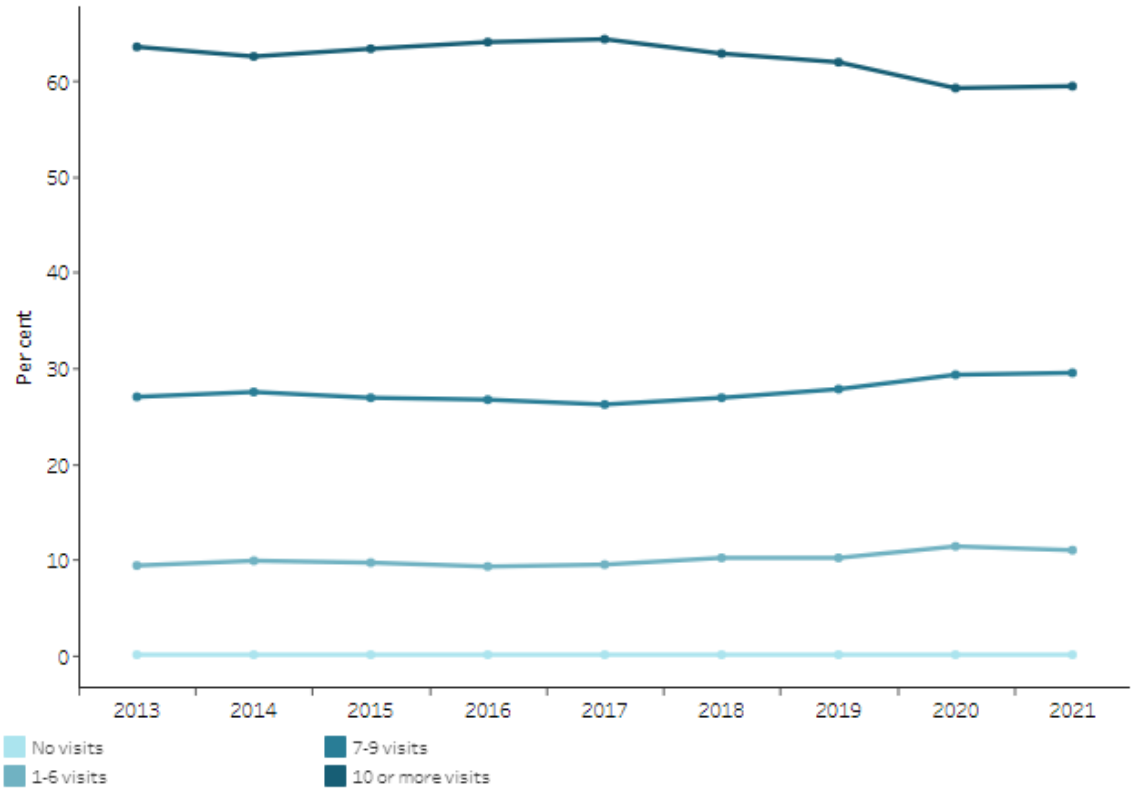
Figure 1: Health factors of mothers, 2011 (or earliest available year) to 2021

Figure | Data table

Figure 1: First-time mothers by number of antenatal visits, 2013 to 2021

Select topic:

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: AIHW analysis of National Perinatal Data Collection
https://www.aihw.gov.au/

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 31.1 in 2021 compared with 30.0 in 2011.
- The proportion of women giving birth aged 35 and over remained relatively stable from 23% in 2011 to 26% in 2021, while the proportion aged under 25 decreased from 18% to 11% (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.

Less than 1 in 10 (8.7%) mothers who gave birth in 2021 smoked at some time during their pregnancy, a decrease from 13% in 2011 (Figure 1). Of mothers who were smoking at the start of their pregnancy, around 1 in 4 (24%) 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). See the Australian Pregnancy Care Guidelines- external site opens in new window for more information.

Looking at the number of antenatal visits by mothers who gave birth at 32 weeks or more gestation in 2021:

- almost all mothers (99.8%) received antenatal care during pregnancy.
- 60% of mothers received antenatal care within the first 10 weeks of pregnancy.

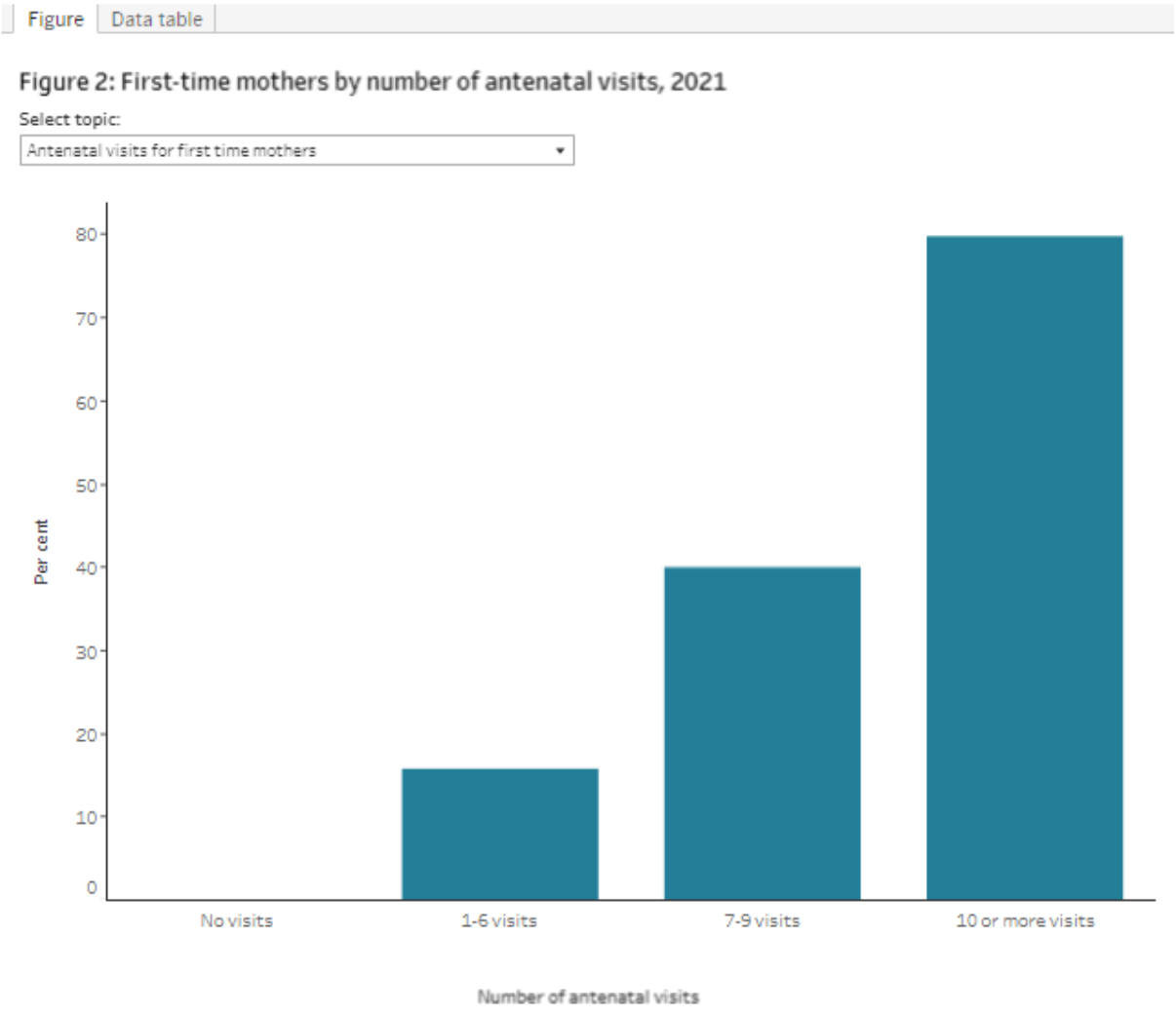
Method of birth

In 2021, 62% of mothers (192,392) had a vaginal birth and 38% (118,887) had a caesarean section (Figure 2).

Half (50%) of all births were non-instrumental vaginal births. When instrumental births were required, vacuum extraction was more common than forceps (7.2% and 4.8% of all births, respectively) (Figure 2).

Since 2011, the rate of non-instrumental vaginal births decreased (from 56% in 2011 to 50% in 2021) whereas the caesarean section rate increased (from 32% in 2011 to 38% in 2021) (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, 2021



Notes
1. Trend data excludes Victoria.
2. Percentage calculated after excluding records with 'Not stated' values. Care must be taken when interpreting percentages.

Source: AIHW analysis of National Perinatal Data Collection
https://www.aihw.gov.au/

Babies

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 2021:

- the median gestational age for all babies was 39 weeks
- 91% of all babies born were born at term (Figure 3).

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 2021, 6.3% of babies born in Australia had low birthweight (Figure 3), and there has been little change since 2011. Birthweight and gestational age are closely related – low birthweight babies made up 56% of babies who were pre-term compared with only 2.2% 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 2021 had an Apgar score of 7 or more at 5 minutes after birth (Figure 3). This rate has remained steady since 2011.

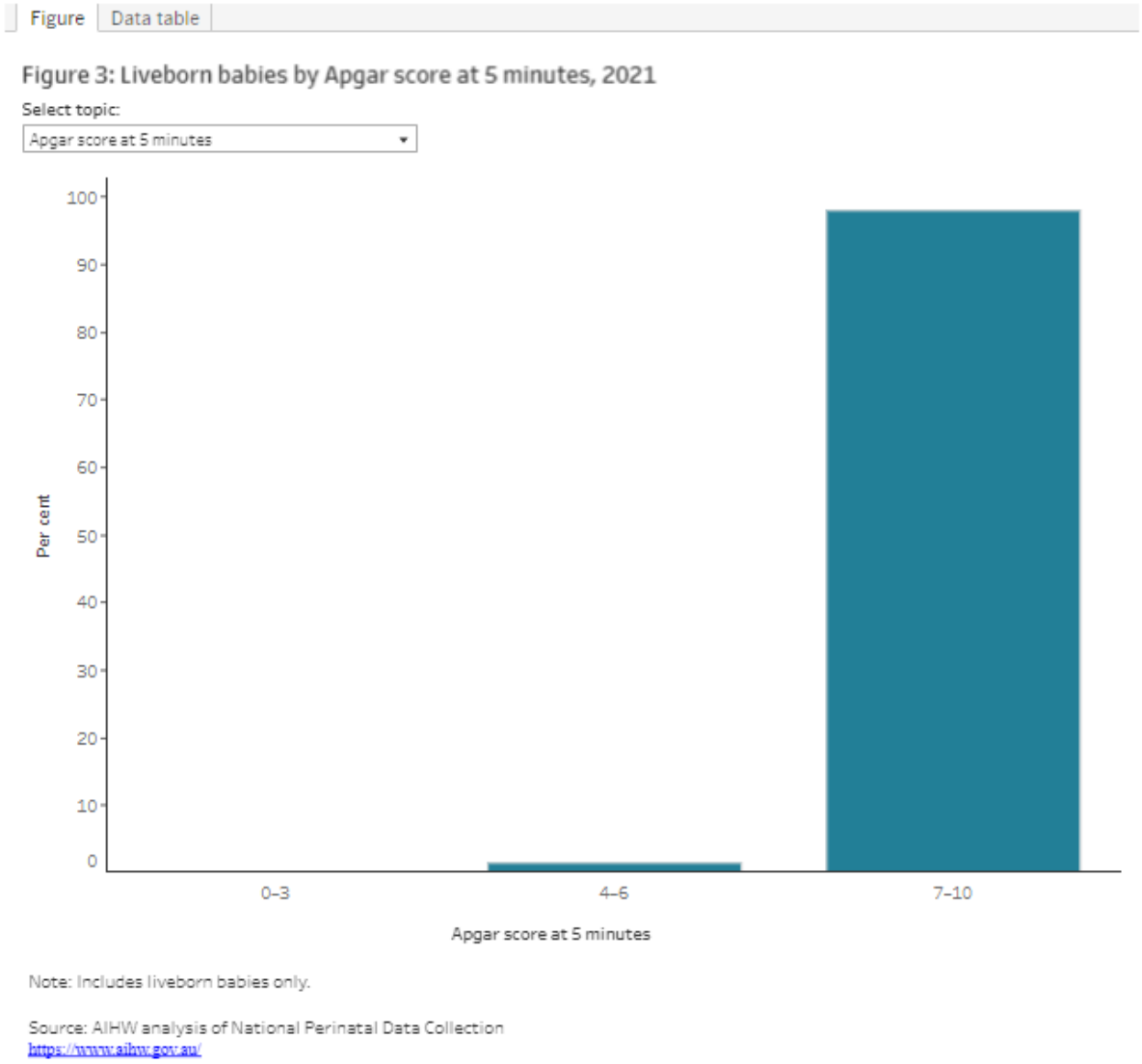
Resuscitation

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.

In 2021, 79 per 100 liveborn babies did not require resuscitation, however where resuscitation was required, continuous positive airway 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: Baby outcomes, 2021



Perinatal deaths

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 2021, there were 9.6 perinatal deaths for every 1,000 births, a total of 3,016 perinatal deaths. This included:

- 2,278 stillbirths, a rate of 7.2 deaths per 1,000 births
- 738 neonatal deaths, a rate of 2.4 deaths per 1,000 live births.

Between 2011 and 2021 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 Perinatal deaths.

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 2012 and 2021, the maternal mortality ratio in Australia was relatively stable, ranging from between 5.2 to 8.4 per 100,000 women giving birth.

The most frequent causes of maternal death reported in Australia between 2012 and 2021 were cardiovascular disease and sepsis.

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 2017, over 8,400 (3%) babies were born with a congenital anomaly, or around 23 babies born each day. Circulatory system anomalies (these are anomalies of the heart and major blood vessels) were the most common type of anomaly, 33% of babies with any anomaly having a circulatory system anomaly. Most (90%) 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 44 per 1,000 births.

For more information see Congenital anomalies in Australia.

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 2023, around 1,000 maternity models of care were reported across 251 maternity services in Australia, and these can be grouped into 11 different model categories. Amongst them:

- The most common model category is public hospital maternity care (41% of models), followed by shared care (15% of models), midwifery group practice caseload care (14% of models) and private obstetrician specialist care (11% of models).
- Just under one-third of models (29%) have continuity of carer through the whole maternity period, meaning a single, named carer provides or coordinates care for the antenatal, intrapartum and postnatal periods; around one-third (35%) of models have continuity of carer for part of the maternity period (for example the antenatal period only or the antenatal and postnatal periods), and 36% of models have no continuity of carer in any stage of the maternity period.
- Around 63% of models target specific groups of women who share a common characteristic or set of characteristics, and 37% do not target any group of women. The broad target groups of low risk or normal pregnancy, and all excluding high risk pregnancy, are reported in 19% and 11% of models respectively, while Aboriginal or Torres Strait Islander identification is a target group in 11% of models.

For more information, see Maternity models of care in Australia and the companion report Maternity models of care infocus.

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
- Aboriginal and Torres Strait Islander mothers and babies.

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Health of older people

This topic summary is part of the Older Australians report.

On this page

Key findings:

- 3 in 4 people aged 65 and over in 2022 report they have good, very good or excellent health.
- 1 in 5 people aged 65 and over in 2018 have severe or profound disability.
- The median age at death in 2022 is 80 for men and 85 for women.
- Dementia including Alzheimer's disease is the overall leading cause of death among people aged 65 and over in 2022.

As the number of older people in Australia continues to grow, supporting their health and wellbeing is increasingly 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.

For information on older Aboriginal and Torres Strait Islander (First Nations) people, see Older Aboriginal and Torres Strait Islander people.

Self-assessed health

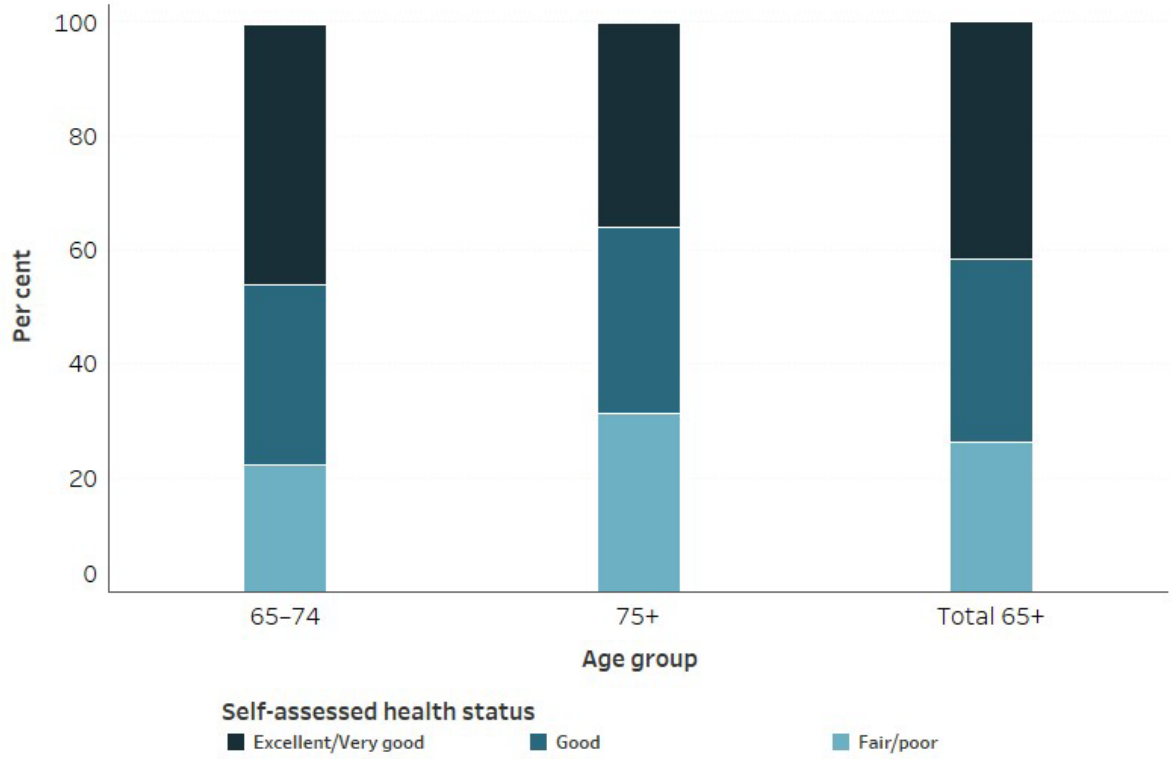
According to the Australian Bureau of Statistics (ABS) National Health Survey (NHS) 2022, an estimated 3 in 4 (74%) people aged 65 and over reported their health as good, very good or excellent including:

- 42% who reported their health as being very good or excellent
- 32% who reported their health as being good
- 26% reported their health as being fair or poor (ABS 2023d).

Despite differences in burden of disease and life expectancy, men and women aged 65 and over self-assessed their health similarly (ABS 2023d).

However, there were some differences by age group. People aged 65–74 were more likely to report their health as very good or excellent and less likely to report their health as fair or poor than people aged 75 and over (ABS 2023d) (Figure 3A.1).

Figure 3A.1: Self-assessed health status of people aged 65 and over by age group, 2022



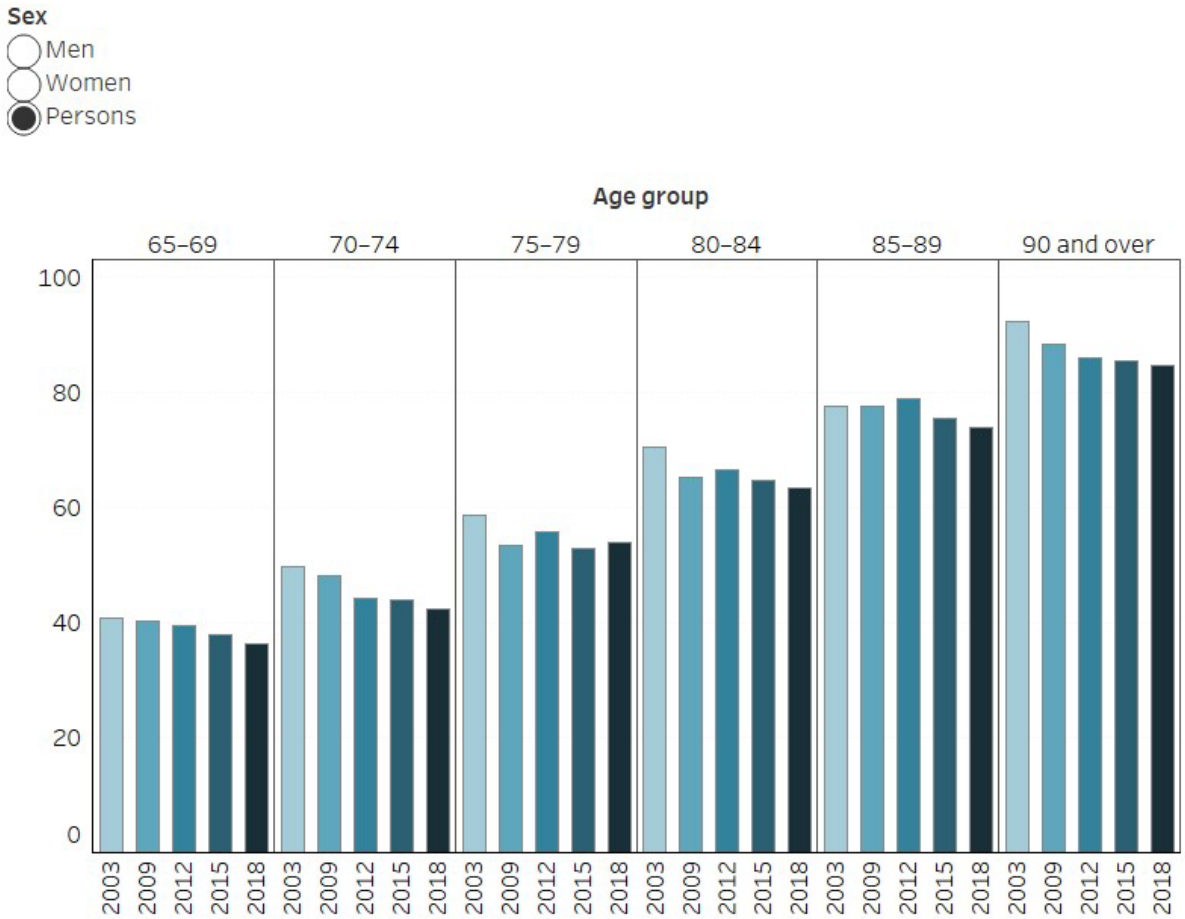
Note: Percentage may not add to 100 due to rounding.
Source: ABS 2023d.
https://www.aihw.gov.au/

Disability

According to the ABS Survey of Disability, Ageing and Carers (SDAC) 2018, half (50%) of people 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 6 months. The prevalence of disability among people aged 65 and over 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. For more information, see Aged care.

Figure 3A.2: Proportion of people aged 65 and over with disability by sex and age group, 2003 to 2018



Source: ABS 2019.
https://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%) people aged 65 and over had severe or profound disability (that is, they sometimes or always needed help with self-care, mobility or communication) (AIHW 2024).

Among people aged 65 and over in 2018, 49% of men and 50% of women had disability, and 15% of men and 20% of women had severe or profound disability (ABS 2019; AIHW 2024).

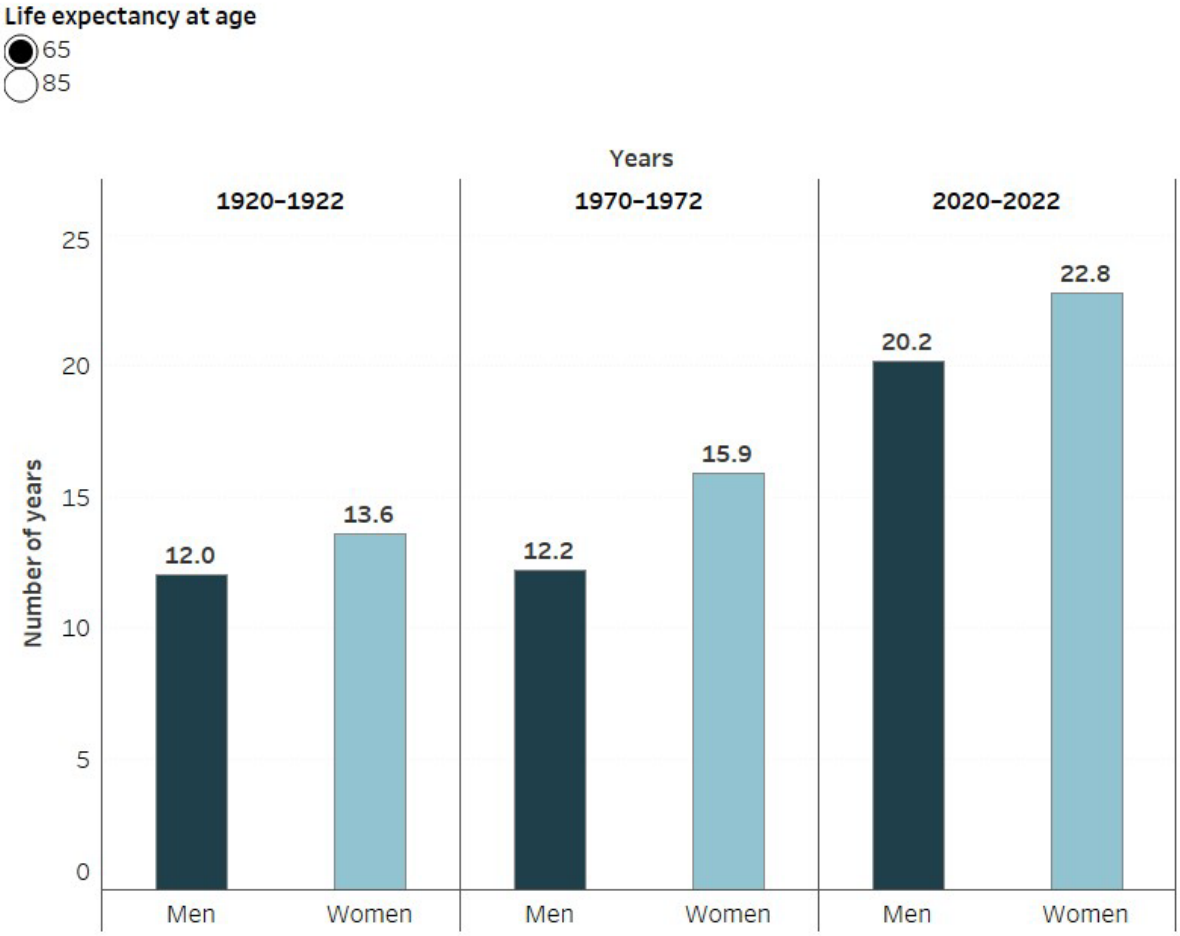
Life expectancy

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 1920–1922, both boys and girls born in 2020–2022 can expect to live around 22 years longer (ABS 2014, 2023c). The life expectancy at birth in 2020–2022 was 81.2 years for boys and 85.3 years for girls (ABS 2023c).

Another way to measure life expectancy is through the remaining life expectancy at a given age. Men aged 65 in 2020–2022 could expect to live another 20.2 years (an expected age at death of 85.2 years), and women aged 65 in 2020–2022 could expect to live another 22.8 years (an expected age at death of 87.8 years) (Figure 3A.3).

Figure 3A.3: Life expectancy at age 65 and 85 by sex, 1920–1922, 1970–1972 and 2020–2022



Source: ABS 2014, 2023c
https://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.

Life expectancy spent in full health for males and females born in 2023 was estimated to be 71.6 and 73.6 years, respectively (88% and 87%, respectively, of total life expectancy).

As with life expectancy, it is also useful to measure health-adjusted life expectancy at age 65, to describe health in an ageing population. In 2023, at the age of 65:

- men could expect to live another 15.3 years of life in full health (76% of their total remaining years of life)
- women could expect to live another 16.7 years of life in full health (74% of their total remaining years of life).

Between 2003 and 2023, 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 1.9 years for men aged 65 (as life expectancy increased by 2.5) and by 1.0 years for women (as life expectancy increased by 1.5 years) (AIHW 2023a).

For more information, see Burden of disease.

Disability-free life expectancy

Increases in life expectancy hopefully accompany an increase in the number of years people live without functional limitations. Disability-free life expectancy is a measure that provides the estimated number of years people can expect to live without disability.

Disability-free life expectancy is different to health-adjusted life expectancy presented above. Health-adjusted life expectancy includes the full experience of ill health and the impact of the health-related consequences; disability-free life expectancy encompasses a broader scope of functional limitations of disability and selected long-term conditions.

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 2024).

Men aged 65 in 2018 can expect to live, on average, another:

- 9.3 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) (AIHW 2024).

By comparison, based on health-adjusted life expectancy, people aged 65 in 2018 can expect to live a quarter of their remaining lives with some level of ill health (24% for men 26% for women) (AIHW 2023a).

For more information, see People with disability in Australia.

Causes of death

In Australia in 2022, there were around 159,800 deaths of people aged 65 and over (84% of all deaths) (Table 3A.1). The median age at death for all people was 80 for males and 85 for females (ABS 2023b).

Table 3A.1: Deaths of people aged 65 and over by sex and age group, 2022

Age group (years)	Men	Women	People
65–69	7,458	4,771	12,229
70–74	10,395	6,904	17,299
75–79	13,590	9,567	23,157
80–84	15,583	12,616	28,199
85–89	15,882	16,445	32,327
90–94	12,428	17,239	29,667
95–99	4,529	9,501	14,030
100+	664	2,252	2,916
Total 65+	80,529	79,295	159,824

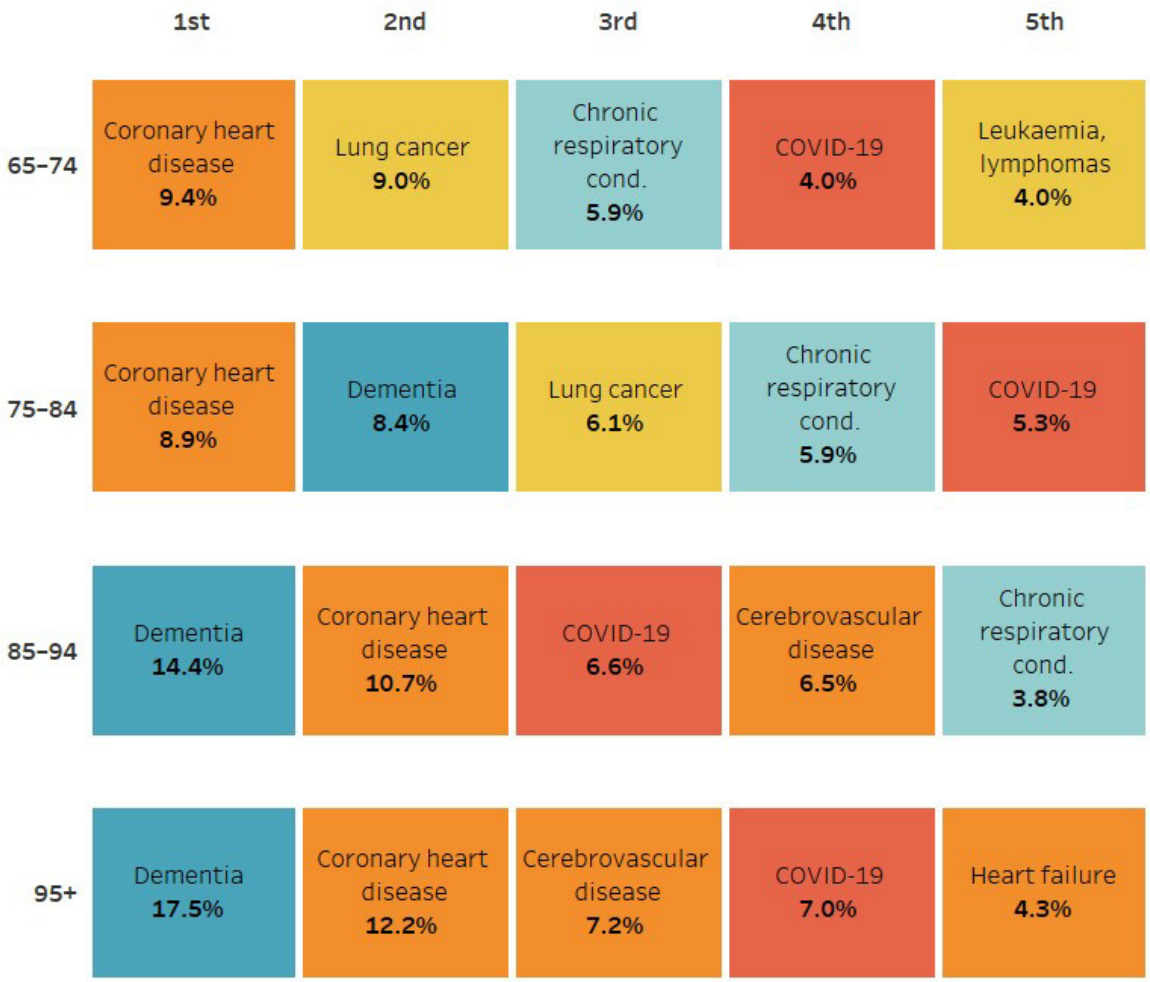
Note: Year refers to year of registration of death.

Source: ABS 2023b.

Dementia including Alzheimer's disease is the overall leading cause of death among people aged 65 and over, closely followed by coronary heart disease. However, there were differences in the leading cause of death across the older age groups (Figure 3A.4). In 2022, the leading cause of death for people aged 65–74 was coronary heart disease (2,800), followed by lung cancer (2,700). Coronary heart disease was also the leading cause of death for people aged 75–84 (4,500). For people aged 85 and over, dementia including Alzheimer's disease was the leading cause of death (11,900), followed by coronary heart disease (8,700) (ABS 2023a).

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 (ABS 2023a).

Figure 3A.4: Five leading causes of death for people aged 65 and over by age group, 2022



Note: Year refers to year of registration of death. Causes of death data for recent years is preliminary and subject to a revisions process.
Source: ABS 2023a
https://www.aihw.gov.au/

COVID-19 deaths

Older people are more at risk and disproportionately impacted by the COVID-19 virus when contracted. The risk of serious illness or death from COVID-19 is higher in older people, particularly in those with underlying health conditions. In 2022, deaths due to COVID-19 (not including deaths from other causes where COVID-19 was mentioned as a contributory cause) was the third leading cause of death in Australia, accounting for 1 in 20 (5.2%) deaths, and the third leading cause of death among people aged 65 and over. The median age at death for COVID-19 was 86, and 93% of all COVID-19 deaths were among people aged 65 and over (ABS 2023a).

COVID-19 has also had significant impacts 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. As at 30 November 2023, 37% of all COVID-19 deaths in Australia were among people living in residential aged care (Department of Health and Aged Care 2023).

Suicide

Suicide can affect anyone, regardless of age. In 2022, there were 594 deaths by suicide for people aged 65 and over, accounting for less than 0.4% of deaths in this age group. Three in 4 of these deaths were among men (76%, 451 deaths). The deaths among people aged 65 and over represented 18% of total deaths by suicide (across all ages) (Table 3A.2).

Table 3A.2: Suicide deaths for people aged 65 and over by sex and age group, 2022

Age group	Men	Women	Total
65–69	125	30	155
70–74	110	39	149
75–79	87	23	110
80–84	58	16	74
85+	71	35	106
Total 65+	451	143	594
Total (all age groups)	2,455	794	3,249

Note: Year refers to year of registration of death. Causes of death data for recent years is preliminary and subject to a revisions process.

Source: ABS 2023a.

The number of deaths by suicide is highest among people of young or middle age, and decreases in older age groups. While the counts are lower in the older age groups, deaths by suicide have a significant impact on older people. Taking into account population size, the highest rates of deaths by suicide in 2022 were among men aged 85 and over (32.7 deaths per 100,000 population) (ABS 2023a).

The AIHW respectfully acknowledges those who have died or have been affected by suicide or intentional self-harm.

For more information, see Suicide & self-harm monitoring.

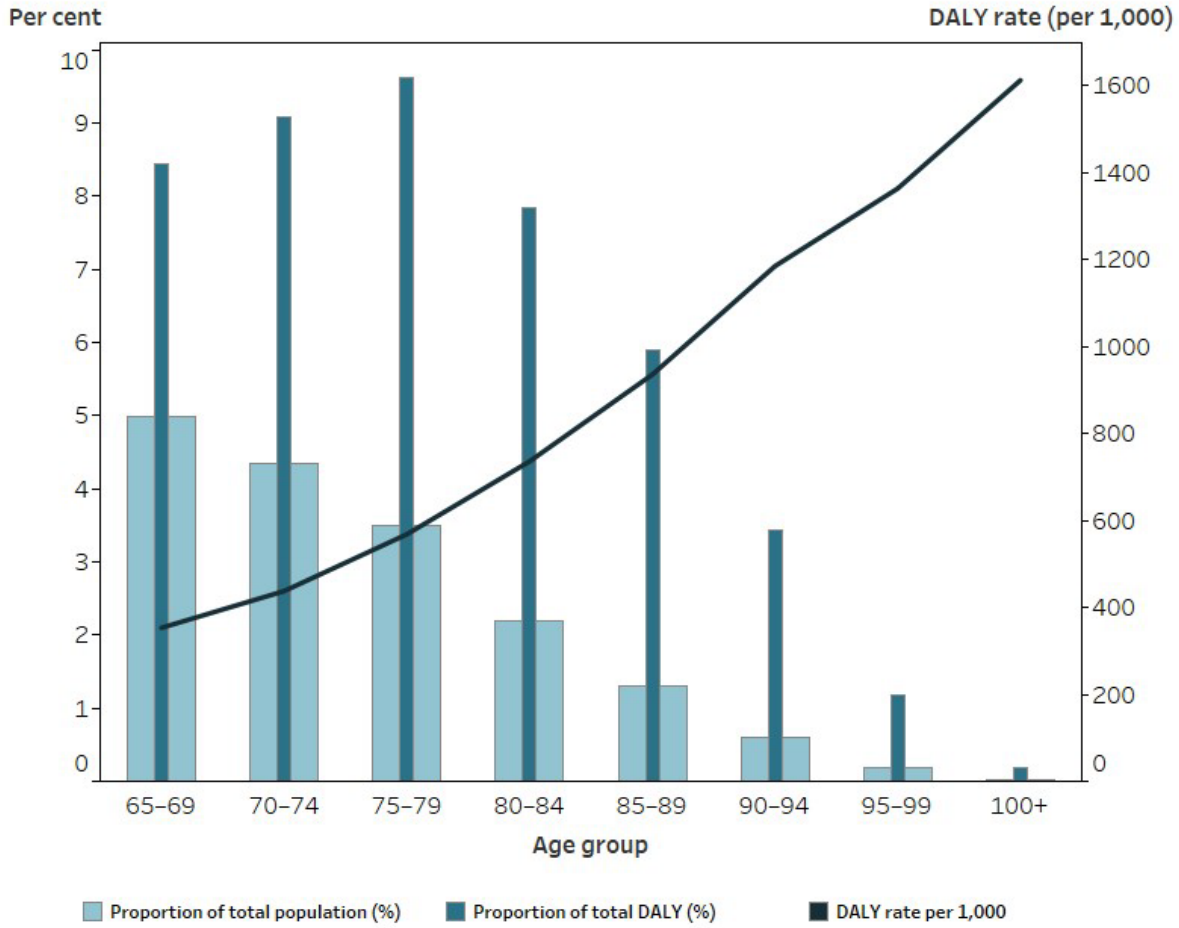
Burden of disease

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 2023, people aged 65 and over lost close to 2.6 million years of healthy life (DALY) due to illness or premature death. This has increased since 2003, from 1.7 million DALY. However, in 2023, Australia had a higher proportion of people aged 65 and over (17%) than in 2003 (13%). Age-standardised rates of DALY for people aged 65 and over have gone down from 84.3 per 1,000 in 2003, to 69.1 per 1,000 in 2018. In 2023, the years of healthy life lost for people aged 65 and over represented 46% of total DALY in Australia. The YLL accounted for 58% of DALY for people aged 65 and over (1.5 million YLL), with YLD contributing 42% (1.1 million YLD) (AIHW 2023a).

Older Australians contribute to a large share of the total burden of disease and this increases with age (Figure 3A.5). For example, people aged 65–69 made up 5.0% of the population, but contributed to 8.4% of the total burden, while people aged 70 and over made up 12% of the population, but contributed to 37% of the total burden (AIHW 2023a).

Figure 3A.5: Contribution to total burden (DALY) and total population for people aged 65 and over by age group, 2023

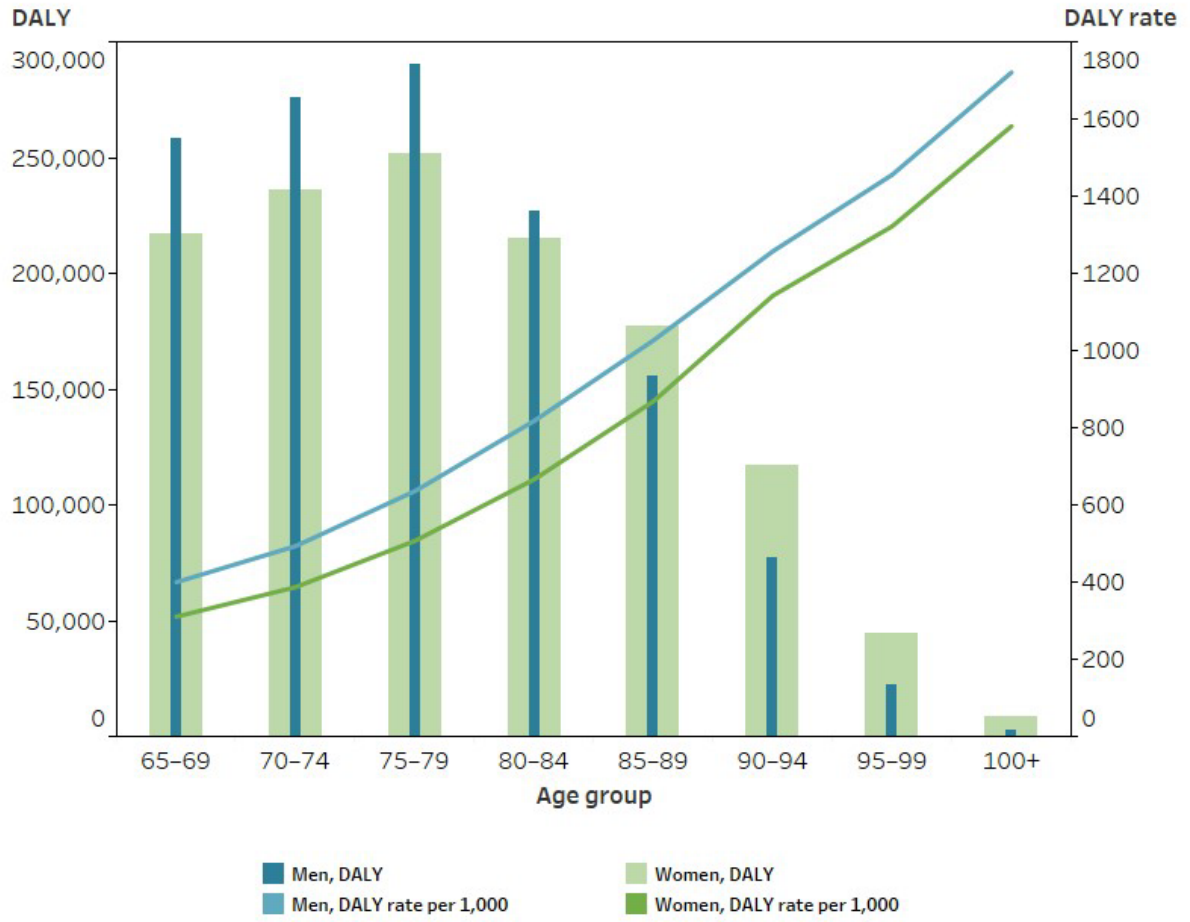


Note: DALY = disability adjusted life years. DALY rate is expressed as age-specific DALY rate per 1,000 population.
Source: AIHW 2023a
https://www.aihw.gov.au/

In 2023, men contributed to more burden than women between the ages of 65 and 84 (53% compared with 47%). However, from ages 85 and over – where women make up 60% of the population – women contributed to more burden than men (57% compared with 43%) (AIHW 2023a) (Figure 3A.6).

Among people aged 65 and over, men contributed more to fatal burden (55% of 1.5 million YLL) and women contributed more to non-fatal burden (55% of 1.1 million YLD) (AIHW 2023a).

Figure 3A.6: Total burden (DALY and DALY rate per 1,000) for people aged 65 and over by age group and sex, 2023



Note: DALY = disability adjusted life years. DALY rate expressed as age-specific DALY per 1,000 population.
Source: AIHW 2023a
https://www.aihw.gov.au/

Leading causes of burden of disease

In 2023, cancer and other neoplasms, cardiovascular diseases, and neurological conditions were the leading disease groups causing total burden (fatal and non-fatal combined) for people aged 65 and over, followed by musculoskeletal disorders, and respiratory diseases (AIHW 2023a). 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 people aged over 100 and 80–84-year-olds and musculoskeletal conditions where the rates were highest for 75–79-year-olds, respectively (AIHW 2023a).

Dementia, coronary heart disease and chronic obstructive pulmonary disease (COPD) were the leading specific causes of burden for people aged 65 and over in 2023, followed by lung cancer, stroke and other musculoskeletal disorders (Figure 3A.7).

Figure 3A.7: Leading causes of total burden (DALY; number and proportion of age group) by sex and age group, 2023

Note: DALY = disability adjusted life years
Source: AIHW 2023a
https://www.aihw.gov.au/

Injuries

Most injuries, whether unintentional or intentional, are preventable (WHO 2021). Injuries can be minor with full recovery, or more serious and causing lasting health problems. While some more serious injuries lead to hospital admission 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 2021–22, 1 in 3 (34%, or around 181,200) injury hospitalisations involved people aged 65 and over. This included 106,500 hospitalisations for women and 74,700 for men. Age-

specific injury hospitalisation rates rose considerably from the age of 65 – from around 2,000 per 100,000 for the 65–69 age group to 17,500 per 100,000 for the 95-and-over age group (AIHW 2023b). Men had higher rates of hospitalised injury than women in all age groups between 0–64 and 95 and over, and were similar for those aged 65–69. For age groups between 70–74 and 90–94, women had higher rates (AIHW 2023b).

In 2020–21, there were 7,800 injury deaths among people aged 65 and over, 70% of which were due to falls. Among females, almost all (96%) deaths due to falls involved those aged 65 and over (AIHW 2023b).

Where do I go for more information?

For more information on health status and functioning, see:

- Australian Bureau of Statistics (ABS) National Health Survey
- People with disability in Australia
- Deaths in Australia
- Burden of disease

Elsewhere in this report, information about older people's health is available on health risk factors, health service use and selected health conditions.

For more information on this topic, see Older people.

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Health of people in prison

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On this page

People in prison are a particularly vulnerable population. They are generally more disadvantaged, with higher health care needs than the wider Australian population. With more than 62,000 receptions into and releases out of prison each year, the health of people in prison impacts and contributes to the broader public health (ABS 2023a).

About the data

Data for the National Prisoner Health Data Collection (NPHDC) are collected by the AIHW approximately 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; 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 prison clinics.

Like any survey, the NPHDC has limitations including:

- 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 people in prison 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 some 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 2022:

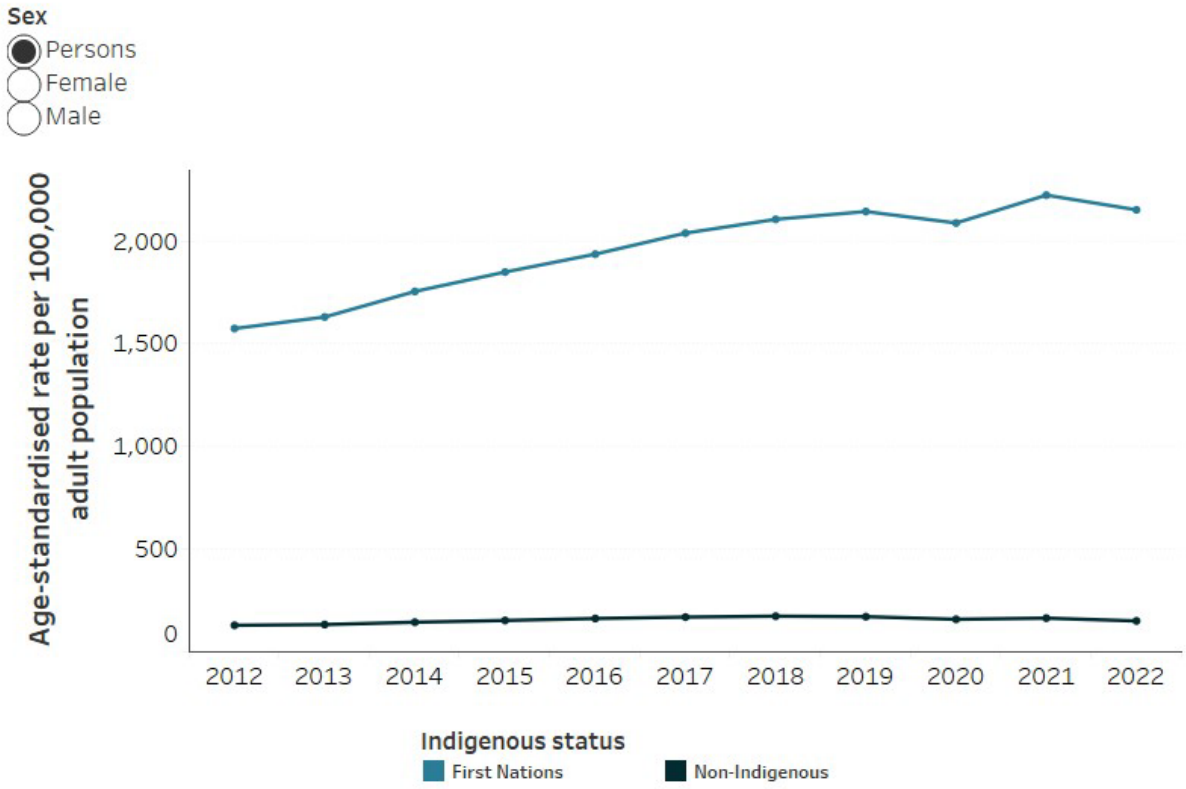
- There were about 40,600 people in Australia's prisons.
- Just over 9 in 10 (93%) people in prison were male.
- About 1 in 3 (32%) people in prison were Aboriginal and Torres Strait Islander (First Nations) people (ABS 2023b).

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 health conditions, communicable disease, tobacco smoking, high-risk alcohol consumption, and illicit drug use than the general population (AIHW 2023).

The prison population differs from the general population in several ways. People in prison are mostly male, and First Nations people are over-represented. In 2022, despite First Nations people making up only 3.8% of the total Australian population, First Nations people made up 32% of all people in prison (ABS 2023b, 2023c).

Between 2012 and 2022, the age-standardised rate of imprisonment among First Nations people increased 37% from 1,574 to 2,151 per 100,000 adults (Figure 1). Over the same period, the age-standardised rate of imprisonment for non-Indigenous Australians increased 16% from 130 to 151 per 100,000 adults (ABS 2023b). Between 2012 and 2022, the ratio of First Nations to non-Indigenous Australian imprisonment rates increased from 12.1 to 14.3.

Figure 1: Age-standardised rates of adult imprisonment by Indigenous status and sex, 2012 to 2022



Note: Age-standardised imprisonment rates adjust crude rates to account for age differences between study populations.
Source: ABS 2023b.
https://www.aihw.gov.au

Mental health

Mental health is fundamental to social wellbeing, and affects individuals, families, and the wider community (ABS 2018). 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 the 371 prison entrants surveyed in the 2022 NPHDC:

- More than half (51%) reported having been told they had a mental health condition at some point during their lives.
- Females (28%) were more likely than males (19%) to report taking mental health-related medication.
- One in 7 (15%) were referred to the prison mental health service after their reception assessment (AIHW 2023).

In the 2022 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 the 431 prison dischargees surveyed in the 2022 NPHDC:

- 4 in 5 (81%) reported their mental health improved or stayed the same while in prison.
- Males were more likely than females to report an improvement in their mental health while in prison (47% compared with 39%).
- Females (44%) were more likely than males (33%) to report their mental health stayed the same while in prison.

For information on the mental health of First Nations people in prison, see The health of First Nations people in prison.

Health conditions

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, obesity, tobacco smoking, at-risk alcohol consumption and illicit drug use (AIHW 2022).

In the 2022 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: asthma, arthritis, back problem, cancer, cardiovascular disease, chronic kidney disease, diabetes, osteoporosis, and pulmonary disease. Asthma and back problem were the most reported chronic condition amongst prison entrants, with 27% reporting that they have been diagnosed with either condition at some point in their lives (Table 1).

Table 1: Prison entrants' chronic physical health conditions, 2022

	Prison entrants ever diagnosed with a chronic condition (%)	Prison entrants with a current chronic condition (%)
Arthritis	12	11
Asthma	27	18
Back problem	27	23
Cancer	2.4	0.3
Cardiovascular diseases	13	8

	Prison entrants ever diagnosed with a chronic condition (%)	Prison entrants with a current chronic condition (%)
Chronic kidney disease	2.7	1.9
Diabetes	7.5	5.9
Osteoporosis	1.3	1.1
Pulmonary disease	7.8	3.5
Any chronic condition	52	42

Notes

1. Proportions are representative of this data collection only, and not the entire prison population.
2. Excludes Victoria, which did not provide data for the 2022 NPHDC.
3. 'Any chronic condition' does not represent a sum of the conditions, as one prison entrant might have multiple conditions.

Source: Entrants form, 2022 NPHDC.

The health of First Nations people in prison

Existing social and health determinants put First Nations people 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 First Nations people entering prison reported good mental health, they were more likely than non-Indigenous Australians to report having some chronic illnesses (AIHW 2023).

Of the 183 First Nations people surveyed upon entering prison and the 200 First Nations people surveyed upon discharge from prison in the 2022 NPHDC:

- More than 2 in 3 (69%) prison entrants rated their mental health as excellent, very good, or good.
- Around 2 in 5 (43%) prison entrants had been told by a health professional that they had a mental health condition at some point during their lives.
- About 1 in 7 (14%) prison dischargees reported their mental health had worsened during their time in prison.

In the 2022 NPHDC, nearly half (49%) of First Nations prison entrants reported a past diagnosis of a chronic physical condition. Asthma was the most commonly reported chronic condition amongst First Nations prison entrants, with 26% reporting that they have been diagnosed with the condition at some point in their lives, followed by back problem (24%) and cardiovascular disease (15%). First Nations prison entrants were similarly as likely as non-Indigenous prison entrants to report currently having asthma

(17% compared with 19%), arthritis (12% compared with 9.8%) and cardiovascular disease (9.8% compared with 6.5%).

Strengthening cultural safety for First Nations peoples' health care can improve their access to and quality of care (AHMAC 2016). First Nations prison dischargees were asked whether they received services 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 200 First Nations people surveyed upon discharge from prison:

- Nearly two-thirds (65%) of prison dischargees reported they received culturally appropriate health care in prison.
- About 1 in 4 (26%) prison dischargees reported receiving treatment or consultation from an ACCHO and/or AMS service while in prison.
- Female First Nations prison dischargees were more likely to report receiving culturally appropriate health care (76%) than male First Nations dischargees (63%).

Impact of COVID-19

From March 2020, a range of measures were 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.

People in prison are known to have a high vulnerability to infectious diseases due to the living conditions within prison (Ndeffo-Mbah et al. 2018) and as such, COVID-19 posed a serious risk to the physical health of this population. Measures introduced to reduce the spread of COVID-19 are also likely to have had an impact on the mental, emotional and social wellbeing of a person in prison (Department of Health and Aged Care 2022). However, there is currently limited data available to understand the extent to which COVID-19 has impacted the health and wellbeing of people in Australia's prisons.

In the 2022 NPHDC, almost 4 in 5 (79%) prison entrants reported they had received a COVID-19 vaccine. Of these prison entrants:

- 6.5% had received 1 dose
- 36% had received 2 doses
- 47% had received 3 doses
- 8.8% had received 4 or more doses.

In prison, 84% of dischargees reported being quarantined or isolated due to COVID-19. Males and females were similarly likely to report being quarantined or isolated due to COVID-19 (84% and 83% respectively).

Where do I go for more information?

For more information on the health of people in prison, see:

- The health of people in Australia's prisons 2022
- Australian Bureau of Statistics (ABS) Prisoners in Australia, 2023
- ABS Corrective services, Australia

For more on this topic, see People in prison.

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Health of people with disability

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On this page

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. Social, cultural and economic determinants of health can be of particular importance for people with disability (see Social determinants of health and What are determinants of health?).

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 2019) (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 and their health risk factors.

Measuring and defining 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 and 2022 National Health Survey (NHS). The SDAC is conducted somewhat infrequently, with data from the 2022 iteration of the survey not expected to be released until July 2024.

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'. All other people with disability are referred to in this section as 'people with other disability'.

The NHS uses the ABS Short Disability Module to identify disability, including restrictive long-term health conditions. 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.

Unlike the SDAC, the NHS does not report on people living in institutional settings, such as aged care facilities. However, the NHS provides data on people without disability as well as those with disability, enabling comparisons between the 2 groups.

Profile of people with disability

The disability population is diverse. It encompasses people 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 increased to an estimated 4.4 million in 2018 (up from an estimated 4.0 million in 2009), the estimated prevalence rate has decreased over this period (18.5% of the population in 2009 down to 17.7% in 2018) (ABS 2019).

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. For more information on the prevalence of disability, see People with disability in Australia, Prevalence of disability.

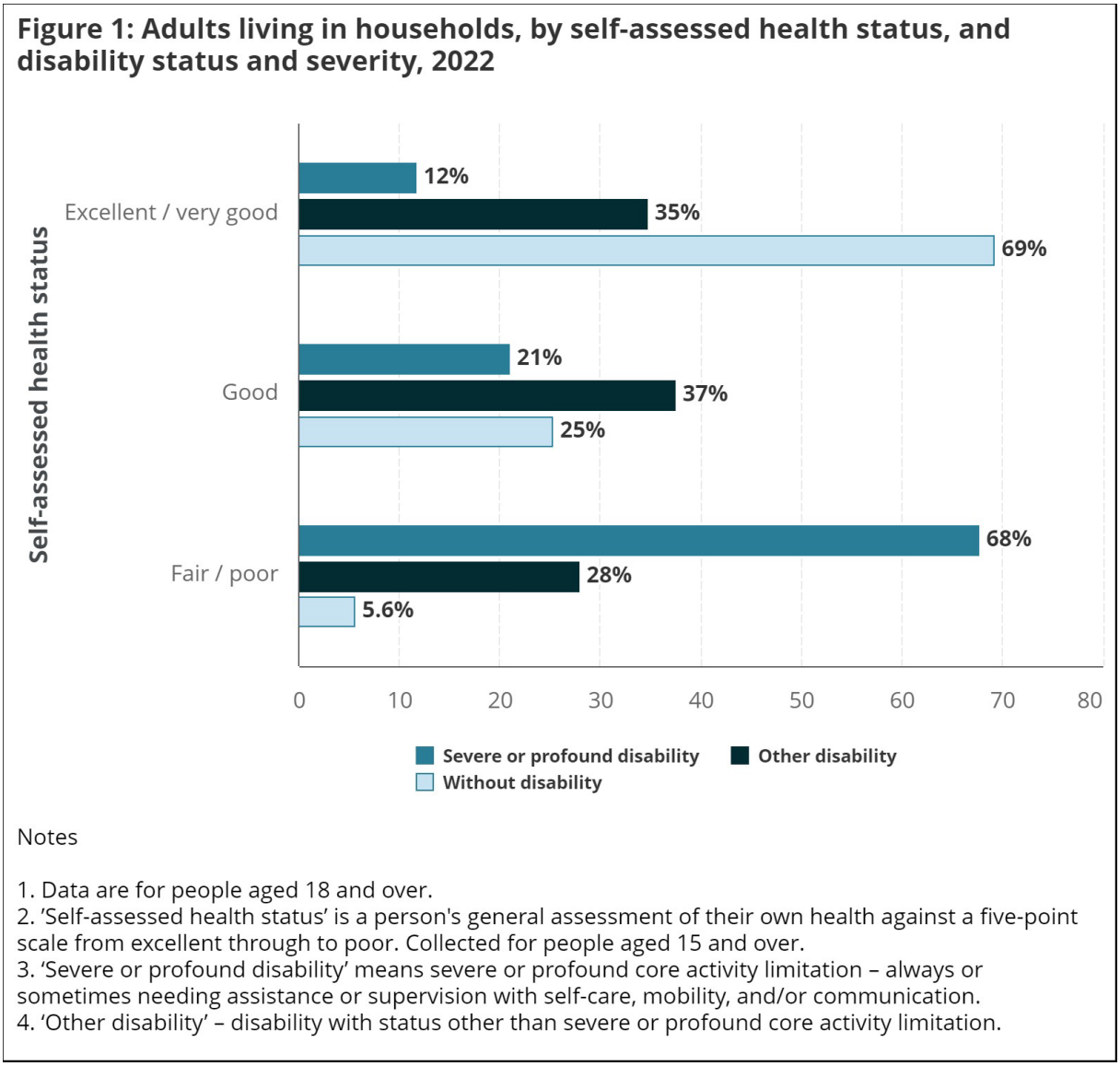
General health

Self-assessed health status is a commonly used measure of overall health in which a person is asked to compare their own health with others around them. The measure

reflects a person's perception of their own health at a given point and provides a broad picture of a population's overall health. Adults with disability are more likely to report poorer general health. In 2022:

- adults with other disability were less likely to assess their health as 'very good or excellent' than adults without disability (35% compared with 69%) (AIHW analysis of ABS 2023)
- adults with severe or profound disability (68%), were 12 times as likely as adults without disability (5.6%), and more than twice as likely as adults with other disability (28%) to assess their health as fair or poor (AIHW analysis of ABS 2023) (Figure 1).

Figure 1: Adults living in households, by self-assessed health status, and disability status and severity, 2022



Notes

1. Data are for people aged 18 and over.
2. 'Self-assessed health status' is a person's general assessment of their own health against a five-point scale from excellent through to poor. Collected for people aged 15 and over.
3. 'Severe or profound disability' means severe or profound core activity limitation – always or sometimes needing assistance or supervision with self-care, mobility, and/or communication.
4. 'Other disability' – disability with status other than severe or profound core activity limitation.

Source: AIHW analysis of ABS 2023.

For more information, see People with disability in Australia, Health status.

Mental health

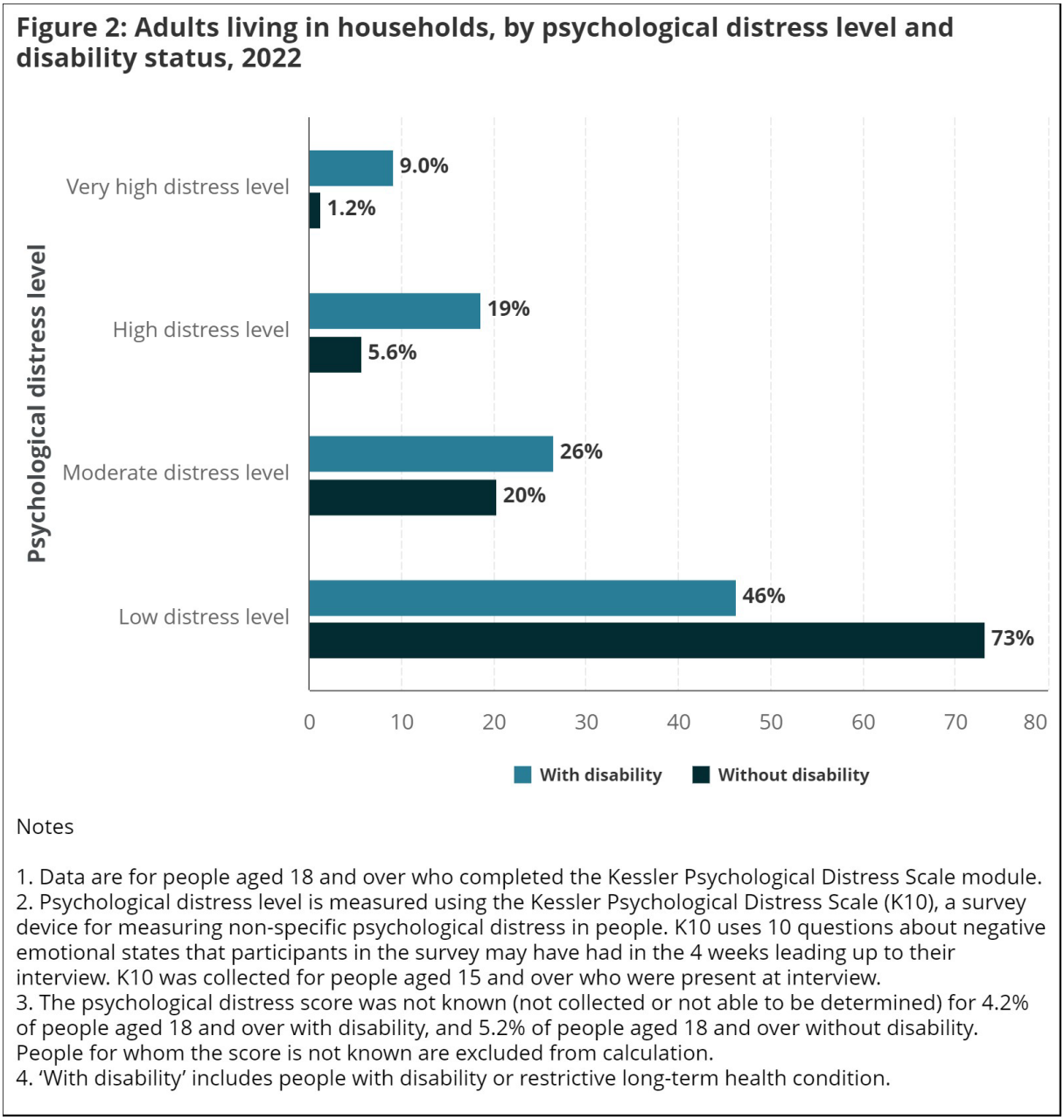
Mental health conditions can be both a cause and an effect of disability, and often involve activity limitations and participation restrictions beyond the 'core' areas of communication, mobility and self-care – for example, in personal relationships.

Almost 1 in 2 (48%) people with severe or profound disability, and 37% of people with other forms of disability, self-reported anxiety disorders such as feeling anxious, nervous or tense, in the 2022 NHS. This compares with 14% of people without disability (AIHW analysis of ABS 2023).

An estimated 41% of people with severe or profound disability self-reported that they had mood (affective) disorders such as depression, compared with 29% of people with other forms of disability, and 7.3% of people without disability (AIHW analysis of ABS 2023).

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 to experience high or very high levels of psychological distress than adults without disability – 28% compared with 6.8% of those for whom the distress score is known (Figure 2). This is particularly true for adults with severe or profound disability (46% of those for whom the distress score is known) (AIHW analysis of ABS 2023). Note, the psychological distress score was not known for 13% of adults with severe or profound disability.

Figure 2: Adults living in households, by psychological distress level and disability status, 2022



Notes

1. Data are for people aged 18 and over who completed the Kessler Psychological Distress Scale module.
2. Psychological distress level is measured using the Kessler Psychological Distress Scale (K10), a survey device for measuring non-specific psychological distress in people. K10 uses 10 questions about negative emotional states that participants in the survey may have had in the 4 weeks leading up to their interview. K10 was collected for people aged 15 and over who were present at interview.
3. The psychological distress score was not known (not collected or not able to be determined) for 4.2% of people aged 18 and over with disability, and 5.2% of people aged 18 and over without disability. People for whom the score is not known are excluded from calculation.
4. 'With disability' includes people with disability or restrictive long-term health condition.

Source: AIHW analysis of ABS 2023.

For more information, see People with disability in Australia, Health status.

Main conditions of people with disability

For about 3 in 4 (77%) Australians with disability in 2018, their main health condition (the one causing the most problems) was 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 2019).

Mental or behavioural disorders were reported as the main condition 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 2019).

For more information on the prevalence of disability within specific health conditions, see People with disability in Australia, Chronic conditions and disability.

Psychosocial disability

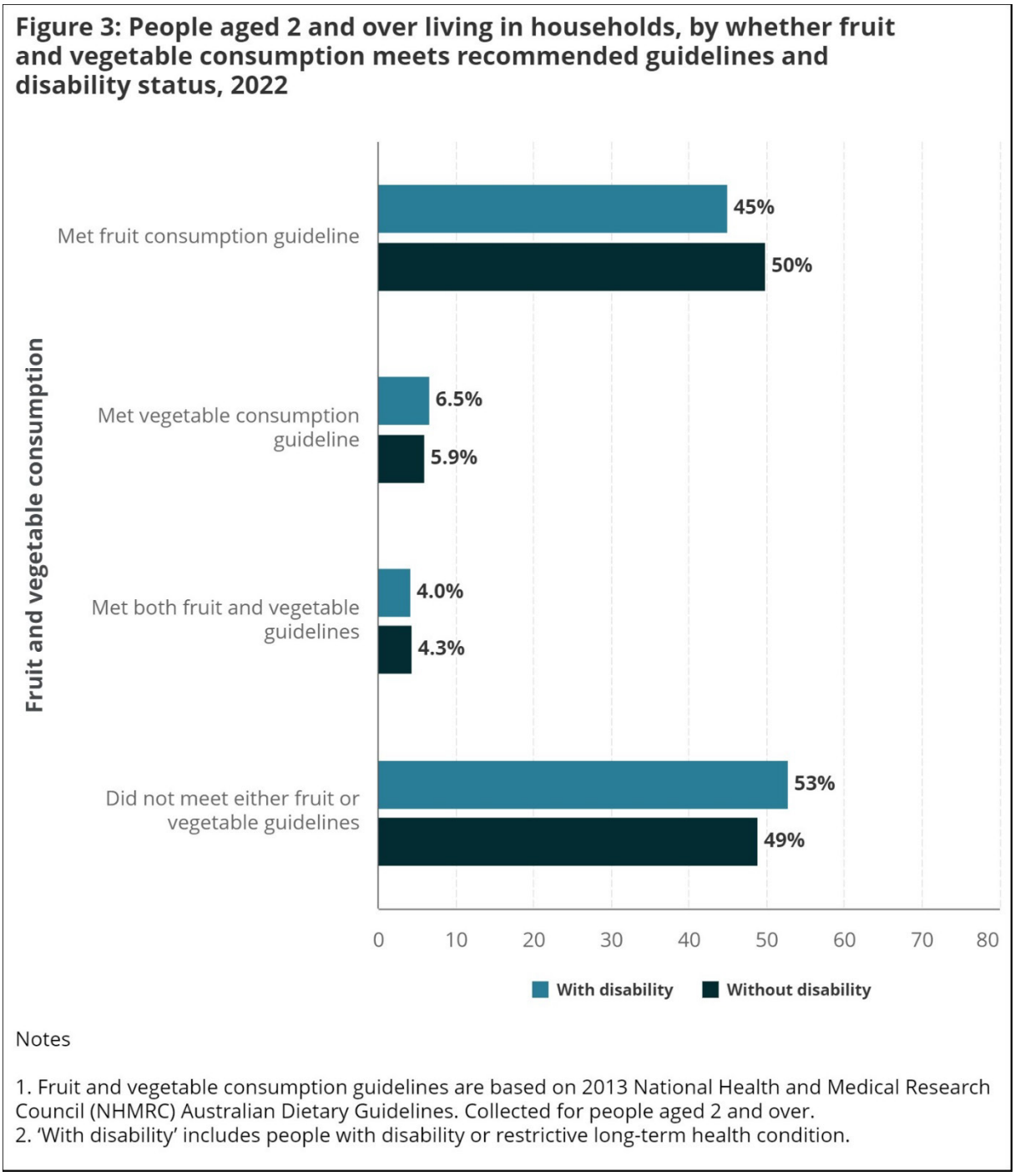
In 2018, 26% of all people with disability in Australia had psychosocial disability, that is disability related to nervous or emotional condition, mental illness or condition, memory problems or periods of confusion, or social or behavioural difficulties. For 59% of people with psychosocial disability, their disability is severe or profound (ABS 2020).

Health risk factors

People with disability generally have higher rates of some modifiable health risk factors and behaviours than people without disability. 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.

The 2022 NHS shows that 53% of people with disability aged 2 and over reported eating insufficient serves of fruit and vegetables per day (AIHW analysis of ABS 2023) (Figure 3). This is similar for people without disability (49%).

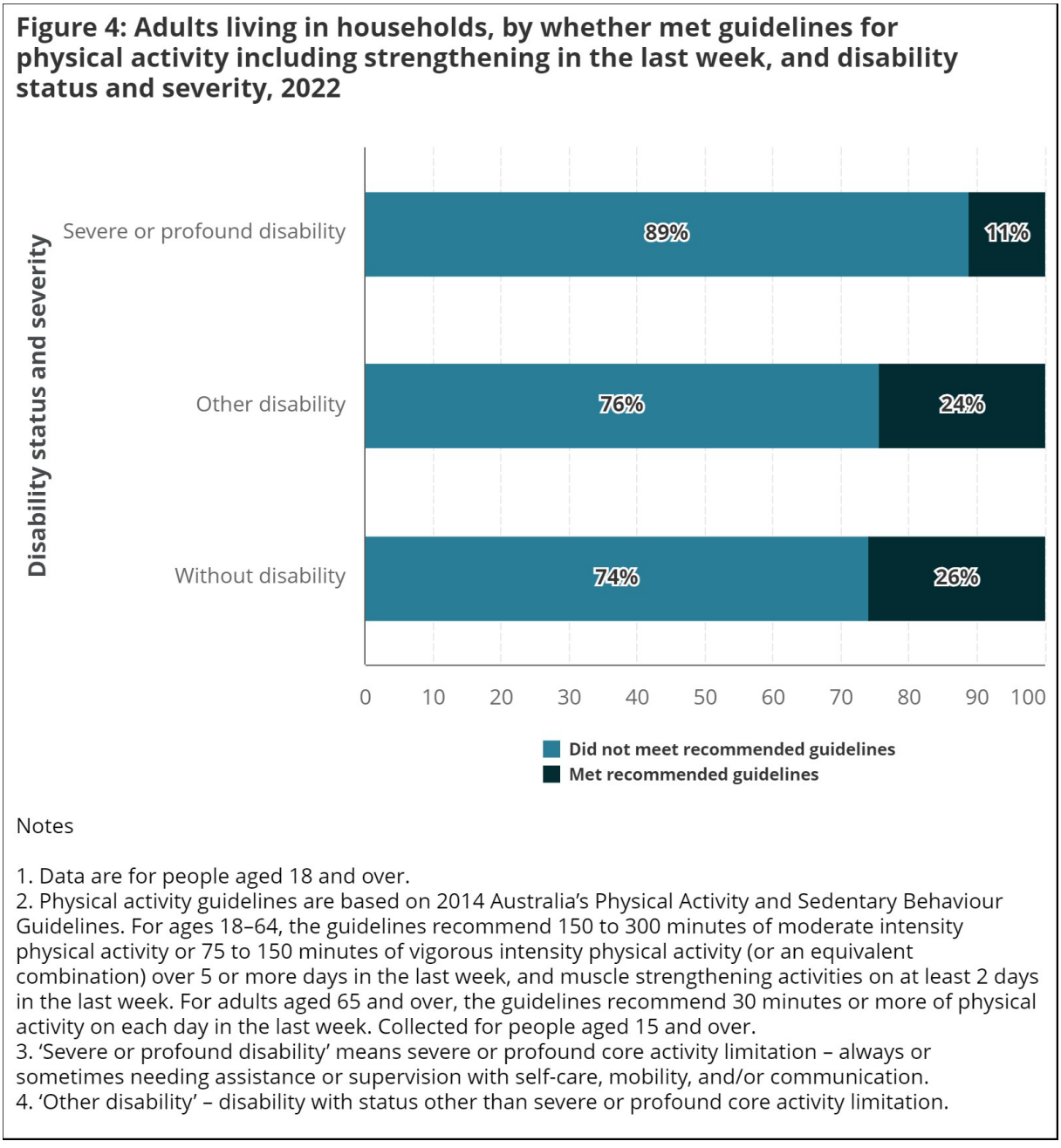
Figure 3: People aged 2 and over living in households, by whether fruit and vegetable consumption meets recommended guidelines and disability status, 2022



Source: AIHW analysis of ABS 2023.

Adults (aged 18 and over) with severe or profound disability are more likely than those with other disability or without disability to report an insufficient level of physical activity in the last week (89%, compared with 76% and 74%, respectively) (AIHW analysis of ABS 2023) (Figure 4).

Figure 4: Adults living in households, by whether met guidelines for physical activity including strengthening in the last week, and disability status and severity, 2022



Source: AIHW analysis of ABS 2023.

Additionally, in 2022, compared with adults without disability, adults with disability were more likely to:

- be considered overweight or obese, with a Body Mass Index over 25 (72% compared with 62%)
- report daily smoking (14% compared with 8.6%)

- have uncontrolled high blood pressure (29% compared with 20%) (ABS 2022).

For more information, see People with disability in Australia, Health risk factors and behaviours.

Reporting on health and wellbeing of people with disability for Australia's Disability Strategy

Australia's Disability Strategy 2021–2031 (the Strategy) is Australia's national disability policy framework. It sets out a plan for continuing to improve the lives of people with disability in Australia through to 2031.

The Strategy is supported by an Outcomes Framework. The Outcomes Framework is a key initiative under the Strategy to measure, track and report on the outcomes for people with disability across 7 outcome areas.

One of these outcome areas is Health and Wellbeing. This outcome area is about making it easier for people with disability to get good health care and services when they need it. It includes 4 priorities with a total of 11 measures that are used to track what changes over time. The priorities are:

- Health and wellbeing
- Prevention and early intervention
- Mental health
- Emergency responses.

For more information, see Reporting on Australia's Disability Strategy 2021–2031.

Where do I go for more information?

For more information on the health of people with disability, see:

- People with disability in Australia
- ABS Disability, Ageing and Carers, Australia: summary of findings, 2018
- ABS National Health Survey, 2022
- Reporting on Australia's Disability Strategy 2021–2031

For more on this topic, see Disability.

References

ABS (Australian Bureau of Statistics) (2019) *Disability, Ageing and Carers, Australia: summary of findings, 2018*, ABS website, accessed 13 October 2023.

ABS (2020), *Psychosocial disability*, ABS website, accessed 12 January 2024.

ABS (2022) *National Health Survey, 2022*, ABS website, accessed 1 February 2024.

ABS (2023) *Microdata: National Health Survey, 2022*, ABS, AIHW analysis of detailed microdata in DataLab, accessed 7 February 2024.

WHO (World Health Organization) (2001) *International Classification of Functioning, Disability and Health,* WHO website, accessed 16 October 2023.

Health of veterans

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/veterans/health-of-veterans

On this page

While good health is a requirement for joining the Australian Defence Force (ADF), the experience of military service means current and ex-serving ADF members may have different health challenges compared to other Australians. This is why monitoring of the health and wellbeing of the ADF veteran population is important.

Who are veterans?

This page generally defines veterans as current or ex-serving members of the ADF, including both permanent members and Reservists. Non-veterans are those who have never served in the ADF. Where different definitions are occasionally used on this page, this is noted.

Key findings

Male veterans have higher rates of long-term health conditions than non-veteran males

Male veterans have similar risk factors for ill health to non-veteran males

Ex-serving veterans are more likely to need assistance with core activities than non-veterans

Australia's veteran population

According to the 2021 Census of Population and Housing, more than half a million Australians (581,000) have ever served in the ADF, representing 2.8% of Australians aged 15 and over. Around 84,900 (15%) are currently serving ADF members (60,300 permanent and 24,600 reservists), and over 496,000 (85%) are ex-serving (ABS 2022a).

The age and sex profile of veterans is different to non-veterans (Figure 1):

- Veterans are mostly male – 86% (497,000) compared to 48% of non-veterans aged 15 and over. Fourteen per cent (84,100) of veterans are female.
- Ex-serving veterans are an older population – 53% (263,000) are aged 65 years and over, compared with 20% of the non-veterans aged 15 and over (ABS 2022a).

This means that some health issues that are more common in males and older people will be more common in veterans compared to non-veterans.

Which veterans does this page focus on?

Information on this page mostly focuses on ex-serving male veterans.

Sometimes, the health outcomes of different groups of veterans can vary (for example, between males and females, or between current and ex-serving veterans). Because most veterans are ex-serving males, findings about the health of all veterans collectively can be biased towards the outcomes of this larger group, and may not accurately reflect the health of other smaller, but equally important, sub-populations.

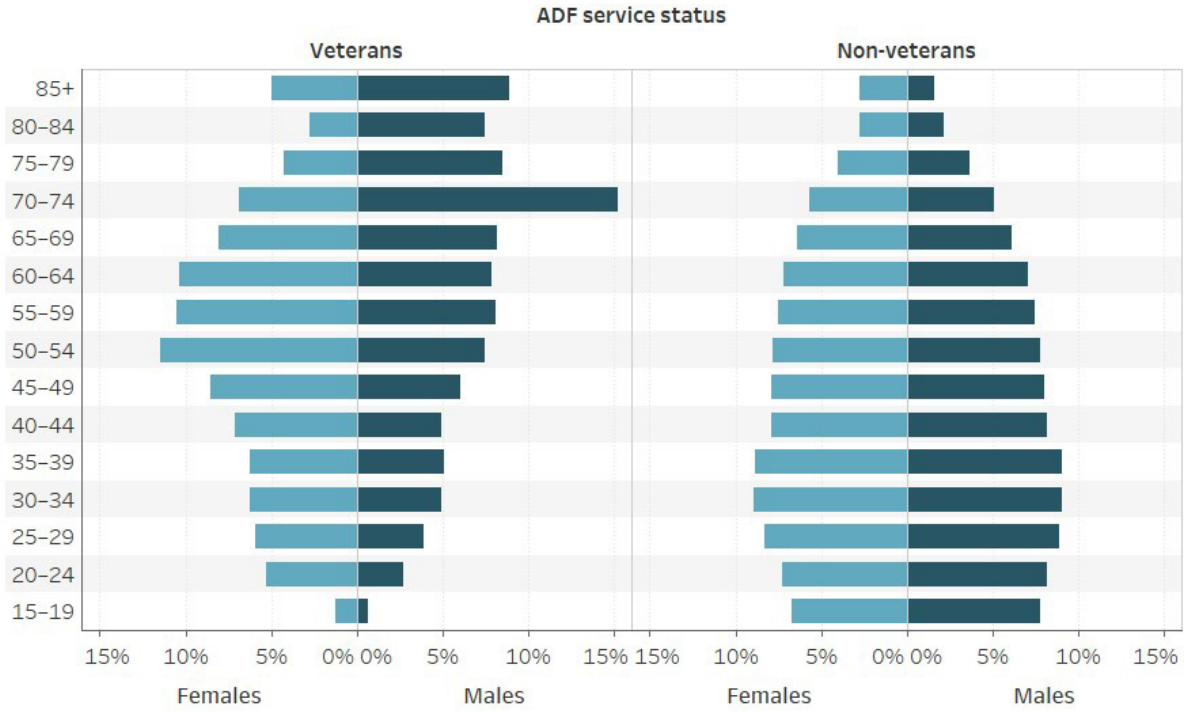
One way to avoid this issue is to report on different groups of veterans separately (for example, reporting on males and females separately). However, this is not always possible because of the smaller size of some groups. This can create issues with maintaining those veterans' confidentiality and the statistical robustness of any findings. This limitation is common in survey data, where only a sample of the whole population is used.

Where findings are limited to a certain sub-population of veterans on this page, this is noted.

Data sources

The findings in this page are produced from several different data sources, including survey, administrative and census data. They often also cover different time periods. This means that the veteran study populations can vary across data sources, and this should be considered when interpreting results throughout this page.

Figure 1: Australian veteran and non-veteran populations, by sex and age group, 2021



Source: ABS 2022a
https://www.aihw.gov.au/

Health status

Self-assessed health

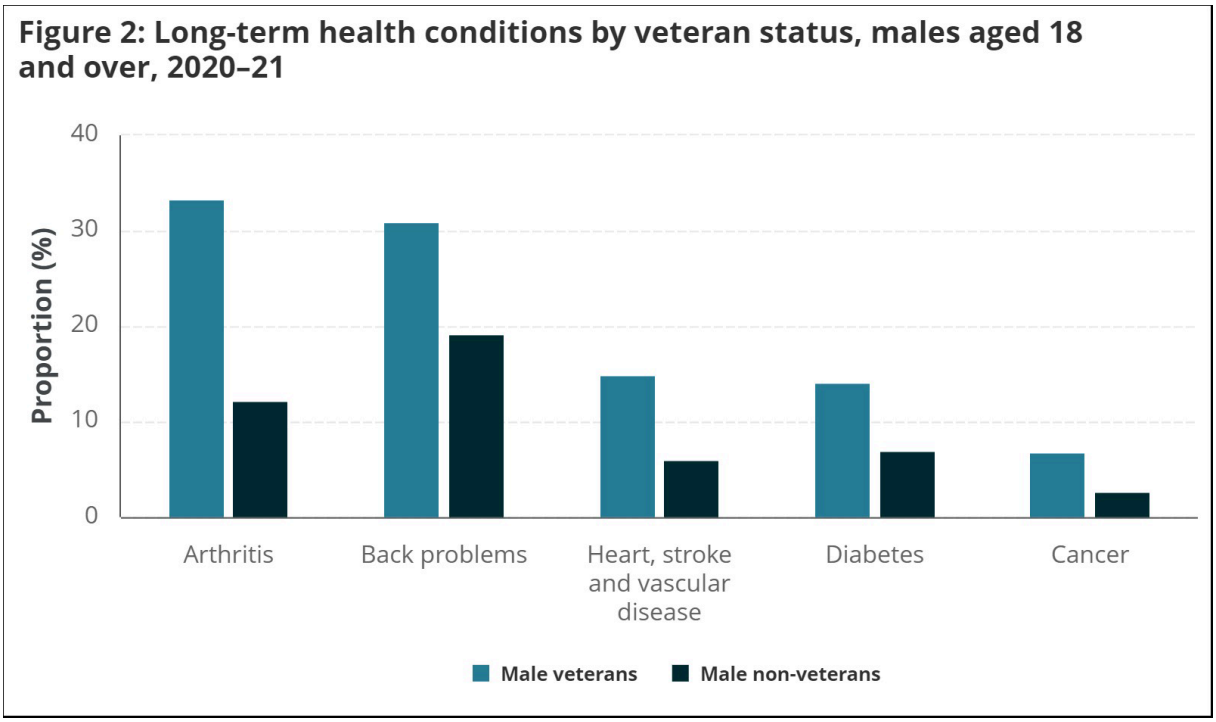
In 2020–21, male veterans were less likely to rate their health as excellent or very good than male non-veterans (45% compared with 57%, respectively). This may be explained in part by the older age of Australia's male veteran population (AIHW analysis of ABS 2023).

Long-term health conditions

In 2020–21, male veterans reported a higher prevalence of several long-term health conditions than male non-veterans (AIHW analysis of ABS 2023) (Figure 2). Similarly to self-assessed health, this may be explained by the older age of Australia's male veteran population.

The prevalence of different long-term health conditions among male veterans was similar between veterans who were clients and/or beneficiaries of DVA, and non-DVA veterans (AIHW analysis of ABS 2023).

Figure 2: Long-term health conditions by veteran status, males aged 18 and over, 2020–21



Mental health

Why do rates of mental health conditions differ between data sources on this page?

This section uses 2 different data sources to report on rates of mental health conditions in veterans:

- The 2020–22 National Study of Mental Health and Wellbeing (NSMHW), which uses diagnostic criteria to determine whether respondents had a mental health condition in the 12 months before the survey. This analysis includes both males and females, and is limited to people aged 16–85.

- The 2020–21 National Health Survey (NHS), which asks respondents to self-report whether they had a current and long-term mental health condition at the time of the survey. This analysis is limited to males aged 18 years and over.

These data sources use different methodologies and definitions for determining whether a person has a mental health condition. Data limitations mean neither are capable of exploring the mental health of higher risk sub-populations of veterans, such as those who are ex-serving.

This means that rates of mental health conditions discussed here may not reflect the experiences of all veterans. AIHW recommends that these results be interpreted with caution.

Mental health conditions from the 2020–22 NSMHW

In the 2020–22 NSMHW, veterans were less likely to have reported a mental health disorder in the previous 12 months than non-veterans (17% compared with 22%, respectively). In particular, they were less likely to have reported an anxiety disorder in the previous 12 months (14% compared with 17%, respectively). Rates of affective disorders (7.7%) and substance use disorders (2.4%) among these veterans were similar to non-veterans (7.5% and 3.3%, respectively) (ABS 2022b).

Mental health conditions from the 2020–21 NHS

In 2020–21 NHS, male veterans were more likely to report a current and long-term mental or behavioural condition than male non-veterans (27% compared with 17%, respectively). In particular, they were nearly twice as likely (21%) to report having a long-term anxiety-related disorder compared with male non-veterans (11%) (AIHW analysis of ABS 2023).

Mental health consultations

The 2020–21 NSMHW showed that around 17% of all veterans had at least one mental health related consultation with a health professional in the previous 12 months. This was similar to non-veterans (17%) (AIHW analysis of ABS 2022b).

Self-harm and suicidal thoughts and behaviours

The 2020–21 NSMHW found that around 1 in 15 (6.4%) of all veterans reported having self-harmed in their lifetime, compared with around 8.5% of non-veterans (AIHW analysis of ABS 2022b).

Rates of suicidal thoughts and behaviours over the lifetime were similar between veterans and non-veterans:

- 19% of all veterans and 16% of non-veterans had experienced suicidal thoughts.
- 8.6% of all veterans and 7.7% of non-veterans had made suicide plans.
- 7.8% of all veterans and 4.7% of non-veterans had attempted suicide (AIHW analysis of ABS 2022b).

However, this may not reflect the experiences of all sub-populations of Australia's veterans.

Disability

How do we define disability on this page?

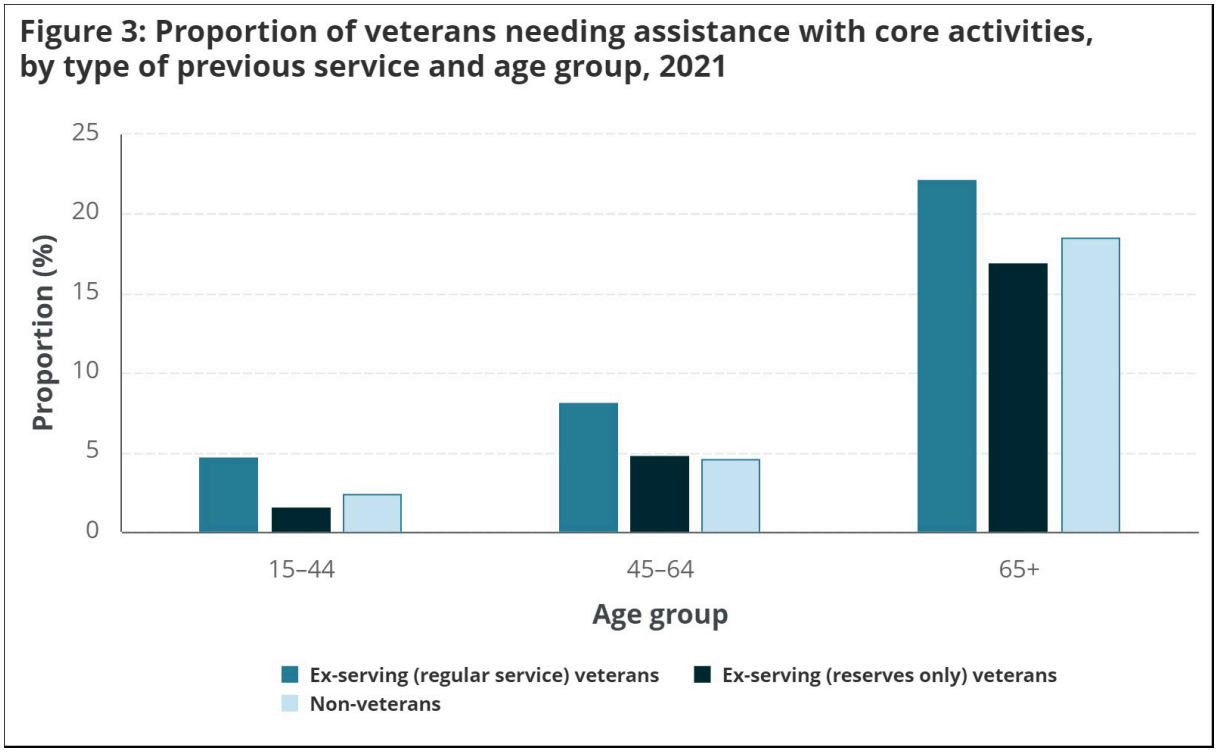
A disability or restrictive long-term health condition exists if a limitation, restriction, impairment, disease, or disorder has lasted, or is expected to last, for 6 months or more, and restricts everyday activities (ABS 2019).

According to the 2020–21 NHS, a disability or restrictive long-term condition is classified by whether or not a person has a specific limitation or restriction. There are 5 levels of activity limitation in the 2020–21 NHS: profound, severe, moderate, mild and school/employment restriction. These are based on whether a person needs help, has difficulty, or uses aids or equipment with any core activities (mobility, self-care, and communication).

According to self-reported data from the 2020–21 NHS, almost 2 in 5 (37%) male veterans had a disability with a limitation or restriction, while 1 in 5 (20%) had a disability but with no limitation or restriction. These proportions were around twice as high as those of male non-veterans (17% and 12%, respectively) (AIHW analysis of ABS 2022a).

Among the 496,000 ex-serving veterans aged 15 years and over captured within the 2021 Census of Population and Housing, 13% need assistance with core activities including self-care, body movement and communication, due to a long-term health condition or disability (ABS 2022a). Ex-serving veterans who served in the regular forces were more likely to need assistance with core activities than non-veterans, regardless of age (Figure 3).

Figure 3: Proportion of veterans needing assistance with core activities, by type of previous service and age group, 2021



Health risk factors

According to self-reported data from the 2020–21 NHS, male veterans had similar risk factors for ill health to male non-veterans, including:

- daily smoking (11% compared with 13%)
- excessive alcohol consumption (40% compared with 33%)
- insufficient fruit consumption (55% for both)
- insufficient vegetable consumption (94% compared with 96%)
- insufficient physical activity (70% for both).

Male veterans were more likely to be overweight or obese than male non-veterans (75% compared with 61%) (AIHW analysis of ABS 2023), although the fact that the body-mass index (BMI) methodology does not distinguish between the weight of fat or muscle in an individual should be noted (Health Direct 2024).

Deaths

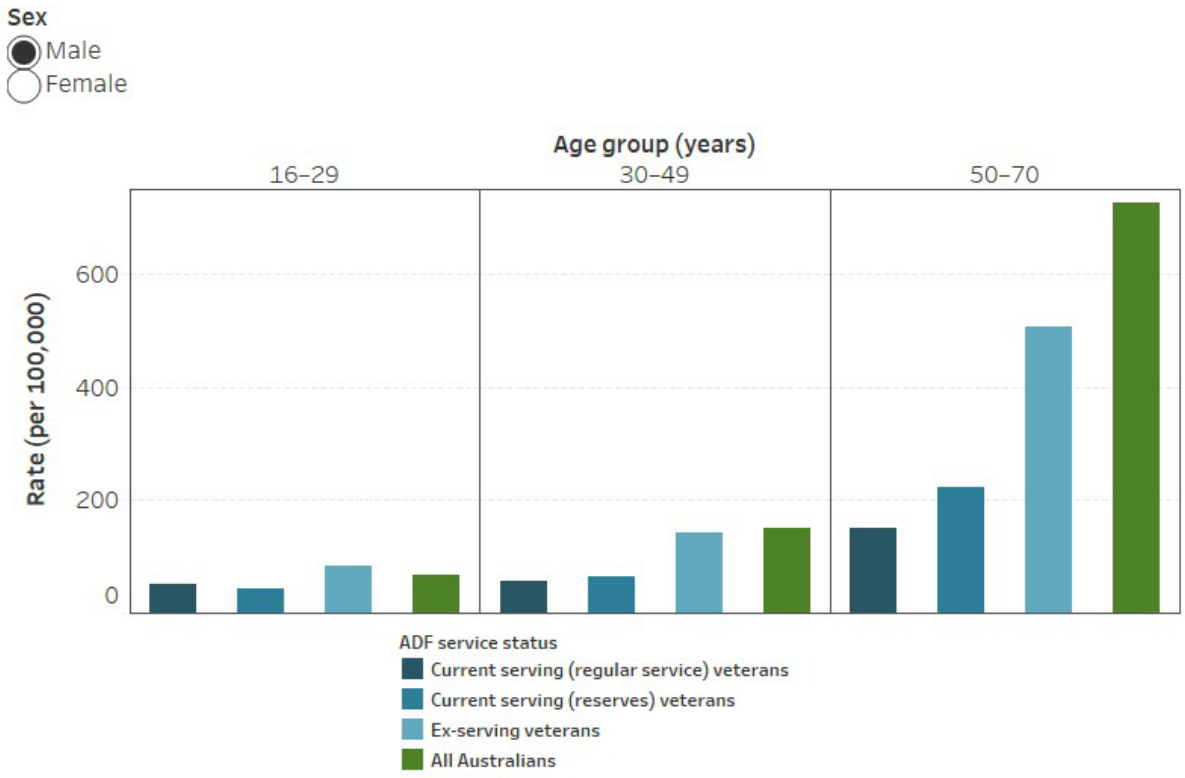
Between 2001 and 2019, there were 12,060 deaths among people with at least one day of ADF service since 1 January 1985. Of these, around 10,800 (89%) occurred among ex-serving ADF members, almost 600 (5.0%) among permanent ADF members and 680 (5.6%) among Reservists.

Between 2002 and 2019, age-specific rates across all causes of deaths for permanent, reserve, or ex-serving ADF males were lower than rates for all Australian males (Figure 4). The exception to this was for ex-serving ADF males aged 16–29, where the rate was higher.

Age-specific rates across all causes of death for permanent and reserve ADF females were lower than rates for all Australian females (Figure 4). Compared with all Australian females:

- ex-serving ADF females aged 16–29 had a higher rate across all causes of death.
- ex-serving ADF females aged 30–49 had a similar rate.
- ex-serving ADF females aged 50–70 had a lower rate.

Figure 4: Age-specific rates for all causes of death for veterans and all Australians, by age group and sex, 2002–2019



Source: AIHW analysis of linked Department of Defence historical personnel data–PMKeyS–NDI data 1985–2019; AIHW NMD 2002–2019
https://www.aihw.gov.au/

Notes

6. Rate of all-cause mortality in the Australian population matched by sex and within the same age range.
7. Includes veterans with at least 1 day of service since 1 January 1985.

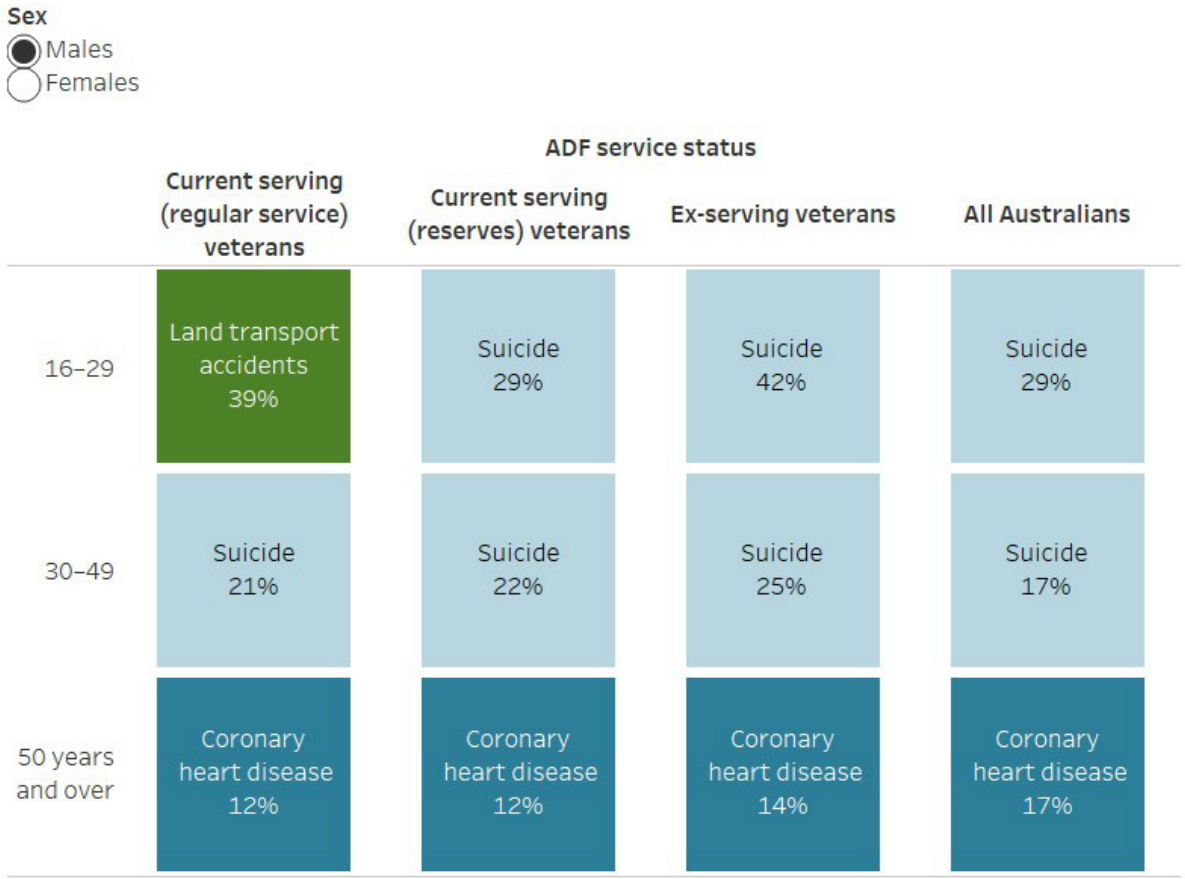
Leading causes of death

Figure 5 provides the top leading causes of death in permanent, reserve, and ex-serving veteran males and ex-serving veteran females for 2002–2019 for age groups, with the Australian comparison.

For permanent, reserve, and ex-serving ADF males, and all males in the Australian population aged 16–49, the leading cause of death was suicide, except for permanent males aged 16–29 where the leading cause was land transport accidents. For those aged 50 years and over, the leading cause of death for all groups was coronary heart disease.

The leading cause of death for ex-serving ADF females, and all females in the Australian population was death by suicide for those aged 16–29. For those aged 30–49 and 50 years and over, the leading cause of death varied for ex-serving ADF females, and females in the Australian population.

Figure 5: Leading causes of death among veterans and all Australians, by sex, age group and service status, 2002–2019



Source: AIHW analysis of linked Department of Defence historical personnel data–PMKeyS–NDI data 1985–2019, AIHW NMD 2002–2019.
https://www.aihw.gov.au

Notes

e. Male results exclude 174 male deaths that have no underlying cause recorded.

f. Female results exclude one female death that has no underlying cause recorded.

g. Proportions are of all deaths with an underlying cause of death within each age group.

Deaths by suicide

Help or support

If you need help or support, please contact:

Open Arms – Veterans and Families Counselling- external site opens in new window – Phone: 1800 011 046

Open Arms Suicide Intervention- external site opens in new window

Defence All-hours Support Line (ASL)- external site opens in new window – Phone: 1800 628 036

Defence Member and Family Helpline- external site opens in new window – Phone: 1800 624 608

Defence Chaplaincy Support- external site opens in new window

ADF Mental Health Services- external site opens in new window

Lifeline- external site opens in new window – Phone: 13 11 14

Suicide Call Back Service- external site opens in new window – Phone: 1300 659 467

Beyond Blue Support Service- external site opens in new window – Phone: 1300 22 4636

For information on support provided by Department of Veterans Affairs (DVA), see:

Mental health support services- external site opens in new window

Free mental health care for veterans- external site opens in new window

Between 1997 and 2021, males currently serving in the permanent or reserve forces were around half as likely to die by suicide as all Australian males. However, ex-serving males were 26% more likely to die by suicide than all Australian males (AIHW 2023a).

While the rate of suicide for ex-serving females was lower than that for ex-serving males, ex-serving females were more than twice as likely to die by suicide than all Australian females.

The suicide rate for ex-serving males who separated involuntarily for medical reasons was around three times the rate of those who separate voluntarily (67.1 compared with 21.5 per 100,000 population per year). However, the suicide rate for ex-serving females was similar between those who separated involuntarily for medical reasons and those who separated voluntarily.

Health service use

Medicines

In 2017–18, more than 1 million medications were dispensed under the Pharmaceutical Benefits Scheme/Repatriation Pharmaceutical Benefits Scheme (PBS/RPBS) to around 70,000 ex-serving veterans with service between 1 January 2001 and 1 July 2017. This was an average of 16 medications dispensed per person.

After accounting for age and sex differences, similar proportions of ex-serving veterans and all Australians were dispensed medications in 2017–18 (72% and 71%, respectively) (AIHW 2019).

Hospitalisations

Who funds veteran hospitalisations?

Hospital care for veterans is generally funded by the Department of Defence for permanent and reserve ADF members, while DVA generally funds hospital care for eligible ex-serving ADF members and eligible dependants.

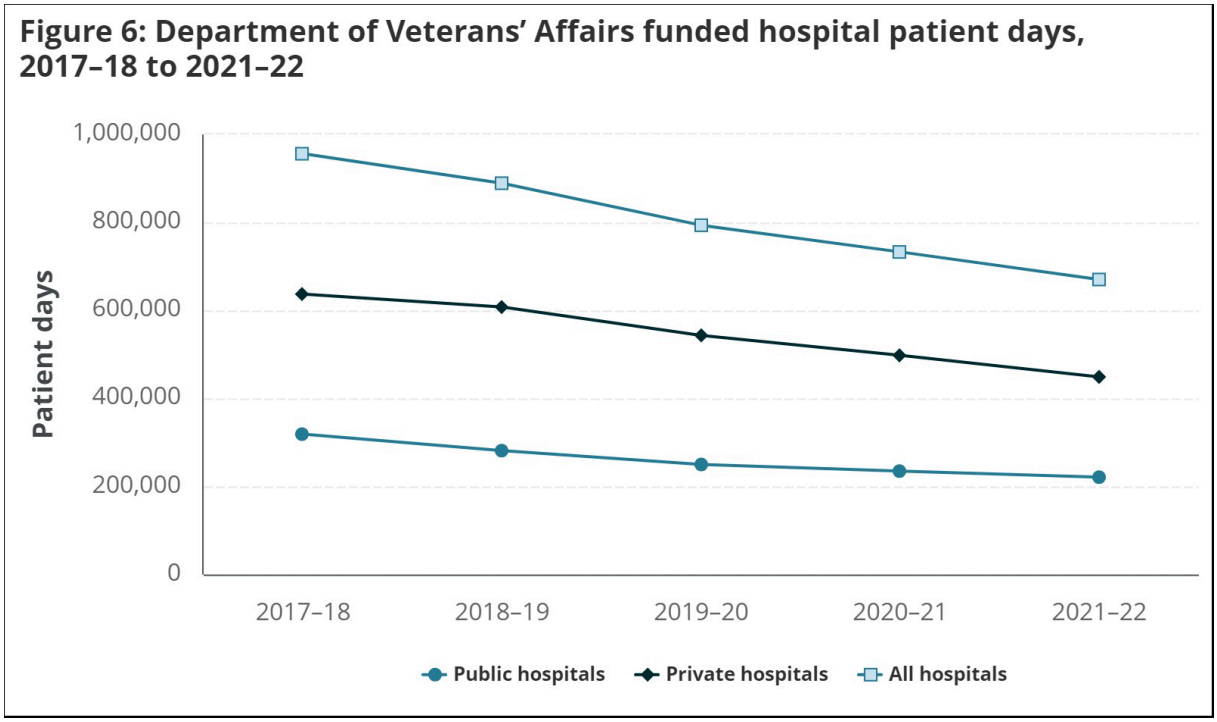
Individuals are asked on presentation at a hospital if they are eligible. If a veteran does not identify as a veteran on presentation at a hospital, the hospital care they receive is funded the same way as non-veterans.

In 2021–22, around 11,800 hospitalisations were funded by the Department of Defence, and 179,000 were funded by DVA. Combined, this represented 1.6% of all hospitalisations. DVA- and Defence-funded hospitalisations occurred most frequently in private hospitals (73% of DVA-funded hospitalisations and 89% of Department-of-Defence-funded hospitalisations). For all other Australian hospitalisations, 40% were in private hospitals.

DVA-funded hospitalisations decreased by 6.6% on average each year between 2017–18 and 2021–22, while total hospitalisations in Australia increased by an average of 0.9% over the same time period.

Between 2017–18 and 2021–22, the number of DVA admitted patient days decreased by 8.5% on average each year (Figure 6). This may be due to the declining number of DVA-funded hospitalisations, potentially caused, in part, by the declining number of the older DVA Gold Card population and increasing number of younger DVA White Card holders (DVA 2023). In comparison, patient days across all Australian funding sources has remained relatively stable over the same period, increasing by 1.3% on average each year (AIHW 2023b).

Figure 6: Department of Veterans' Affairs funded hospital patient days, 2017–18 to 2021–22



Health expenditure

DVA health expenditure

In 2021–22, DVA spent $2.8 billion on health, mostly on hospital services ($1.0 billion), primary health care ($0.7 billion) and referred medical services ($0.6 billion) (AIHW 2023c). DVA spending on health declined in real terms over the decade to 2021–22 across several areas of spending:

- public hospitals (decreased an average of 8.8% per year)
- private hospitals (decreased an average of 6.4% per year)
- primary health care (decreased an average of 4.1% per year)
- referred medical services (decreased an average of 2.2% per year).

Based on the number of people in the DVA treatment population (which includes all DVA Orange, Gold and White cardholders), DVA spent $10,190 on health per member of the treatment population in 2021–22, which is 8.8% higher than the health spending per person in the total Australian population ($9,365). This average health spending per member of the DVA treatment population peaked in 2014–15 and decreased over the period 2015–16 to 2021–22. This recent downward trend in the health spending per member of the DVA treatment population is due to the decline in the number of Veteran Gold Card Holders and increase in those of Veteran White Card Holders. DVA will pay for the hospital treatment costs for Veteran White Card holders for accepted conditions or

conditions under non-liability health care whereas all hospital services that meet the clinical needs of Veteran Gold Card holders are paid by DVA (AIHW 2023c).

Defence health expenditure

In 2021–22, the Department of Defence (Joint Health Command) spent $568 million on health. This was a decrease of 4.2% ($25.0 million) from 2020–21 in real terms. In descending order, the areas of spending were:

- other health practitioners ($164 million)
- referred medical services ($128 million)
- unreferred medical services ($88 million)
- private hospitals ($74 million)
- dental services ($52 million)
- administration ($37 million).

Where do I go for more information?

- General
  - Veterans
- Profile of veterans
  - Service with the Australian Defence Force: Census- external site opens in new window
  - Department of Defence annual reports- external site opens in new window
  - DVA annual reports- external site opens in new window
- Health status
  - National Heath Survey- external site opens in new window
- Social determinants of health
  - Wellbeing characteristics
  - Sources of income
  - Social connectedness
- Health risk factors
  - Smoking among Australia's veterans 2020–21
- Mental health
  - National Study of Mental Health and Wellbeing- external site opens in new window
- Suicide
  - Serving and ex-serving Australian Defence Force members who have served since 1985: suicide monitoring 1997 to 2021

- Health service use
  - Medications dispensed to contemporary ex-serving Australian Defence Force members, 2017–18
  - Admitted patients
  - Specialist homelessness services annual report 2022–23
  - Health expenditure Australia 2021-22

Visit Veterans for more on this topic.

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Health of young people

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/children-youth/health-of-young-people

On this page

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 2021a). A recent survey of youth found that the environment, equity and discrimination, and the economy and financial matters were the top 3 most important issues in Australia today identified by young people (McHale et al. 2023).

This page focuses on key health issues that adolescents and young adults face.

Precise age ranges used for reporting the health of young people varies between data sources, but generally includes teenagers and young adults up to the age of 24. For information about children, see Health of children.

Profile of young people

At 30 June 2023, an estimated 3.3 million young people aged 15–24 lived in Australia. Just over half of these people were male (52%, or 1.7 million) and 48% (1.6 million) were female. Young people aged 15–24 made up 13% of the total population (ABS 2023h).

Australia's young people

In 2022, among all young people aged 15–24:

- Three-quarters (75%) lived in Major cities (AIHW analysis of ABS 2023m)
- One in 5 (20%) lived in the lowest socioeconomic areas (AIHW analysis of ABS 2023m).
- Just over 1 in 5 (21%) were born overseas (ABS 2023b).

As of 30 June 2021, Australian Bureau of Statistics' (ABS) estimates that 5.3% of young people were Aboriginal and Torres Strait Islander people (ABS 2023a).

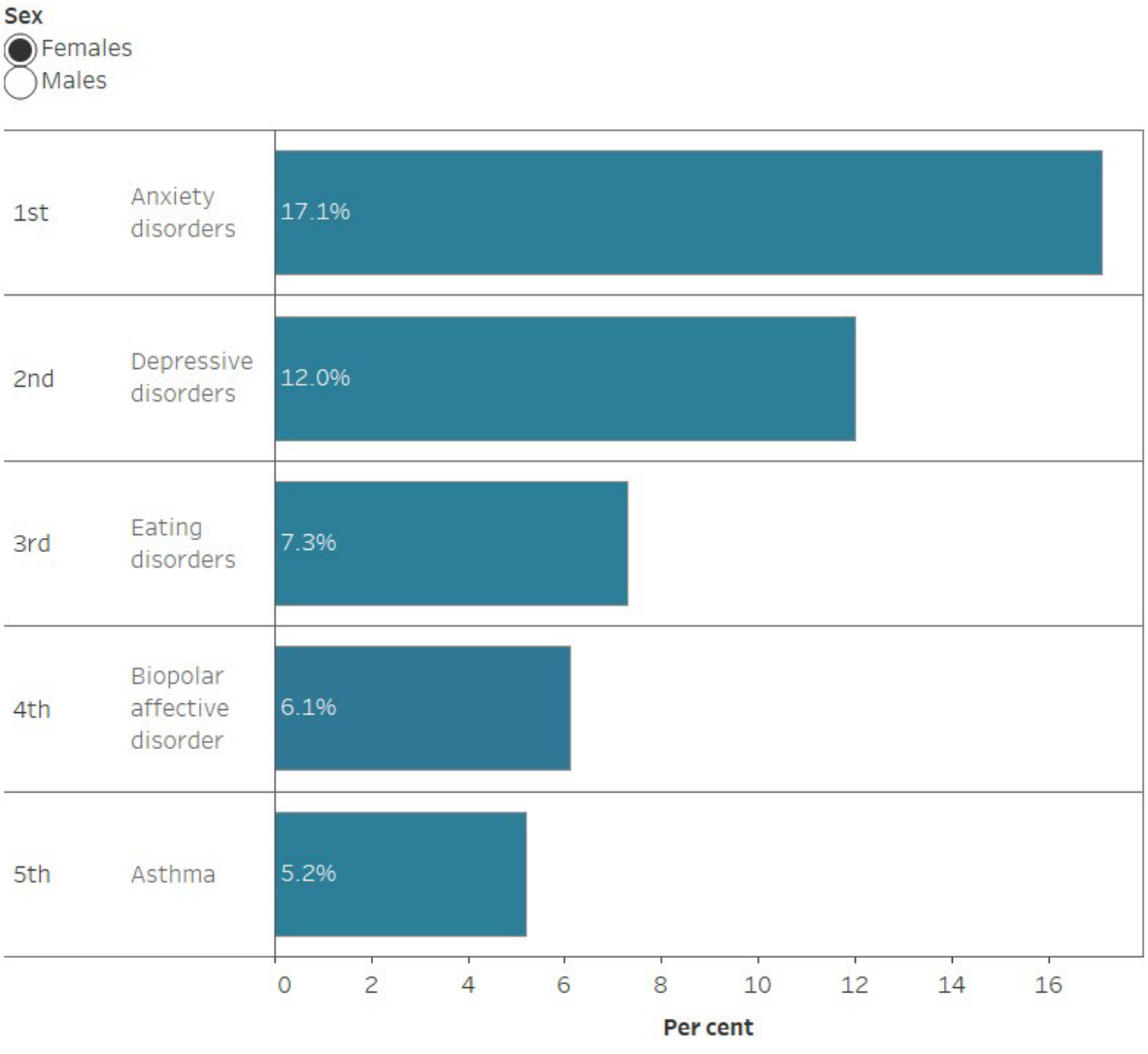
Health status of young people

Burden of disease

Burden of disease refers to the quantified impact of a disease or injury on a population, which captures overall health loss, that is, years of healthy life lost through premature death or living with ill health (see Burden of disease).

In 2023, mental health conditions, substance use disorders and injuries contributed the most burden for young people aged 15–24. The leading causes of total burden varied between males and females. Suicide and self-inflicted injuries were the leading specific cause of total burden among males, and anxiety disorders were the leading specific cause among females (Figure 1) (AIHW 2023b).

Figure 1: Leading causes of total burden among people aged 15–24, by sex, 2023



Source: AIHW 2023b
https://www.aihw.gov.au/

Chronic conditions

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 (AIHW 2023a).

According to self-reported data from the ABS 2022 National Health Survey (NHS), an estimated 3 in 4 (77%) young people aged 15–24 have one or more chronic conditions.

In 2022, the most common chronic conditions among young people aged 15–24 were:

- short sightedness/myopia (28%)
- hay fever and allergic rhinitis (27%)
- anxiety disorders (26%) and depression (17%), both mental and behavioural conditions (ABS 2023c).

Mental health

Measuring mental health

The most recent national data on child and adolescent mental health is from the 2013–14 Australian Child and Adolescent Survey of Mental Health and Wellbeing (also known as the Young Minds Matter survey). Modelling was used to update these estimates. To explore this in more detail, see Regional estimates of child and adolescent mental disorders- external site opens in new window. However, this report focuses on the original statistics reported at the national level from the Young Minds Matter survey from 2013–14.

Another insight into the mental health and wellbeing of Australians is provided by measures of psychological distress, which may include nervousness, agitation, psychological fatigue and depression. 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 (AIHW 2024c).

Surveys which measure psychological distress include the Household, Income and Labour Dynamics in Australia (HILDA)- external site opens in new window survey, National Study of Mental Health and Wellbeing (NSMHWB)- external site opens in new window and National Health Survey (NHS)- external site opens in new window.

The ABS recommends that the NSMHWB be used as the main source of prevalence data as it uses diagnostic criteria rather than self-reporting. For more information, see Comparing ABS long-term health conditions data sources- external site opens in new window.

According to the NSMHWB, in 2020–22, 26% of people aged 16–24 experienced high or very high psychological distress, and young women (34%) were more likely to experience high or very high psychological distress than young men (18%) (ABS 2023i).

Based on self-reported data from the NHS 2022, it was estimated that 20% of people aged 18–24 experienced high or very high levels of psychological distress, and young women were around twice as likely to experience high or very high psychological distress than young men (28% compared with 13%) (ABS 2023f).

In 2013–14, the Young Mind Matters Survey found that 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). The survey also found that anxiety disorders (7.0%) were the most common mental disorder (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.

For more information, 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
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.

The Young Minds Matter survey also found that in 2013–14 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).

For more information, see Suicide and intentional self-harm.

Disability

Data sources on disability

The Australian Bureau of Statistics' (ABS) Survey of Disability, Ageing and Carers (SDAC) collects a broad range of information about people with disability including levels of severity, and is the most detailed and comprehensive source of Australian disability data (ABS 2022b).

The 2018 SDAC provides the latest available data and is used on this page to provide information on the prevalence and experiences of disability among young people. Data from the 2022 SDAC is expected to be available from June 2024.

The 2021 Census of Population and Housing collected information on whether a person has a profound or severe core activity limitation, and need assistance in their day to day lives in one or more of the 3 core activity areas of self-care, mobility and communication due to a long-term health condition, a disability or old age. The prevalence of young people with a profound or severe core activity limitations on this page uses self-reported data from the Census.

The prevalence of young people with disability was similar in 2003 and 2018 (9.0% and 9.3%, respectively), with some change in the intervening surveys (6.6% in 2009 and 7.8% in 2012) (ABS 2019a).

Based on self-reported data from the 2018 SDAC, 9.3% of people aged 15–24 had disability (around 291,000 people) (ABS 2019a). The prevalence of disability was similar for males (9.2%) and females (9.5%). Of young people with disability, 6.9% had schooling or employment restrictions (ABS 2019a).

According to the 2021 Census, around 90,000 (3.0%) of people aged 15–24 had severe or profound core activity limitations (ABS 2022a). In comparison, around 66,000 (2.2%) of people aged 15–24 had severe or profound core activity limitations according to the 2016 Census (ABS 2018).

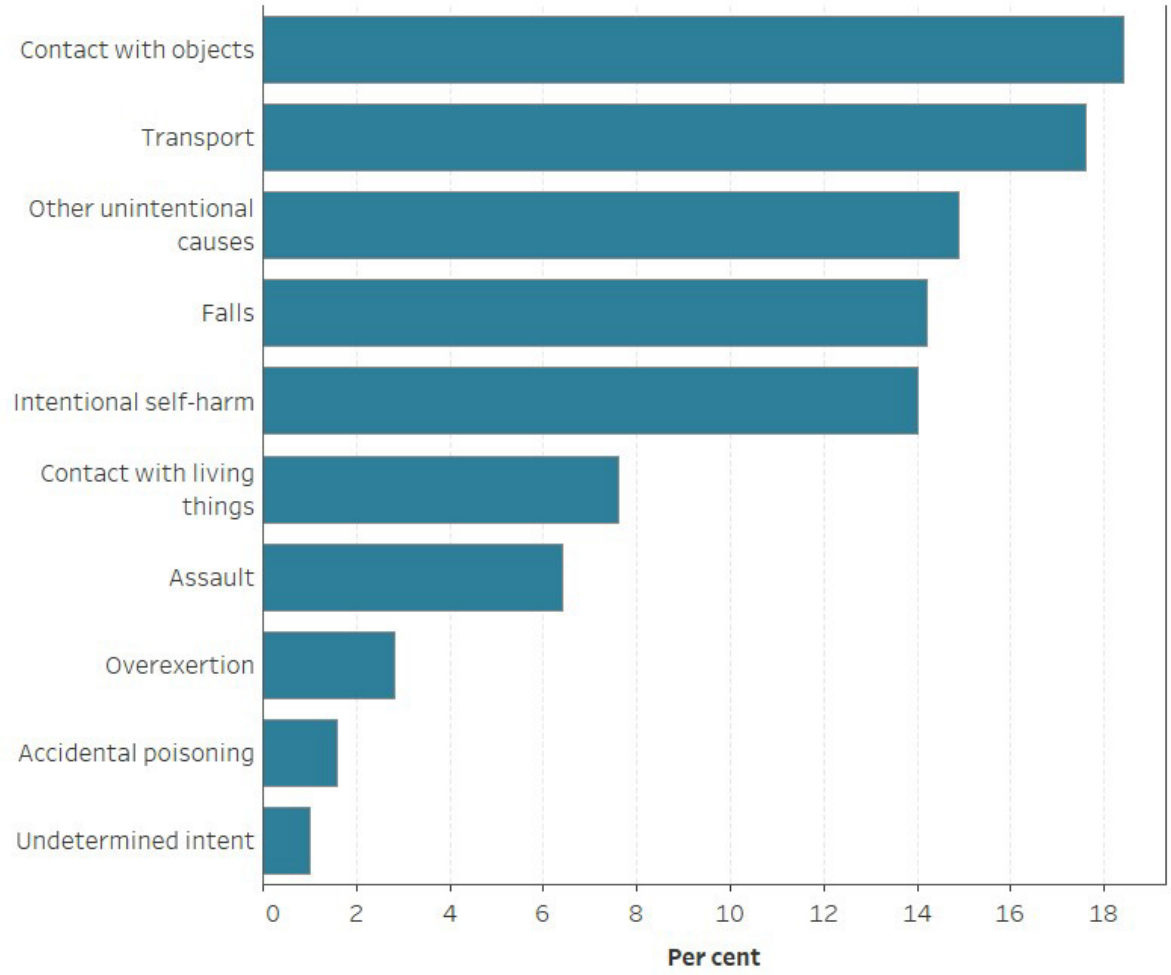
For more information, see Health of people with disability.

Injuries

In 2021–22, there were around 68,200 hospitalised injury cases among people aged 15–24 due to injury or poisoning – a rate of 2,200 per 100,000 (AIHW 2023e). The leading causes of injuries for young people were contact with objects (such as being struck or cut by something other than another human or animal), transport accidents and other unintentional causes (if there is no external cause of injury documented in the clinical record, and clarification is unable to be obtained from the clinician) (Figure 2).

For more information, see Injury.

Figure 2: Injury hospitalisations of people aged 15–24, by cause of injury, 2021–22



Notes

1. Definitions of intention self-harm will differ from those used in the Young Minds Matter Survey.
2. Cause of injury categories was classified according to the ICD-10-AM.

Source: AIHW 2023e.

https://www.aihw.gov.au/

Deaths

In 2021, the death rate among people aged 15–24 was 38 deaths per 100,000. The death rate among young people fell between 2009 and 2021, from 41 deaths per 100,000 to 38 deaths per 100,000, respectively. Death rates were higher among young males (52 per 100,000) than females (23 per 100,000) (AIHW 2023d).

Injuries were the leading cause of death among young people, accounting for 809 (69%) of the 1,200 deaths for 15–24-year-olds. Half (50%) of all injury deaths were caused by intentional self-harm (suicide), followed by land transport accidents (28%) and accidental poisoning (8%) (AIHW 2023c, 2023d).

In 2021, young people accounted for 13% of all intentional self-harm deaths. The age-specific rate of intentional self-harm among young people was 13 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 (17.5 per 100,000) than females (8.1 per 100,000) (AIHW 2023d).

For more information, see Life expectancy and causes of death and Suicide and intentional self-harm.

Health risk factors of young people

Overweight and obesity

A healthy body weight is an important factor for a young person's current and future health, with young people considered overweight or obese more likely to become or remain obese as adults (AIHW 2021b).

Based on measured height and weight data collected through the 2022 NHS, it was estimated that around:

- 1 in 4 (26% or 241,700) 15–17-year-olds were either overweight (18% or 165,400) or obese (9.2% or 84,700).
- 4 in 10 (42% or 909,000) 18–24-year-olds were overweight (27% or 590,300) or obese (14% or 309,200) (ABS 2023e).

For further detail of how overweight and obesity is defined and measured, see Overweight and obesity.

Substance use

Data sources on substance use

A number of nationally representative data sources are available to report on substance use among people aged 14–24. This includes the AIHW National Drug Strategy Household Survey (NDSHS) and the ABS National Health Survey (NHS)-external site opens in new window for the general population. For more information, see Alcohol, tobacco and other drugs in Australia and the National Drug Strategy Household Survey report 2022–23.

Differences in scope, collection methodology and design may account for variation in estimates reported, and comparisons between collections should be made with caution. For more information, see the technical notes.

In Australia, young people are identified as one of the priority groups in the National Drug Strategy 2017–2026, as they are more vulnerable to behaviours associated with alcohol, tobacco and other drug-related issues which can lead to adverse health and social outcomes (Department of Health 2017).

Tobacco smoking and e-cigarette use

Self-reported data from the 2022–23 NDSHS showed that fewer young people than ever before reported smoking tobacco daily. In 2022–2023, around 10,000 people aged 14–17 and 100,000 people aged 18–24 (compared with 200,000 in 2019) smoked daily in Australia. Consistent with previous years, males aged 18–24 were 1.4 times as likely to smoke daily as females (AIHW 2024d).

In contrast to tobacco, there was a sharp increase in the use of vapes and electronic cigarettes ('e-cigarettes') among young people between 2019 and 2022–23:

- Among people aged 14–17, use of e-cigarettes increased from 1.8% to 9.7%, becoming the age-group with the third-highest proportion of e-cigarette use. However, the estimate for 2019 should be interpreted with caution as the relative standard error (see glossary) is between 25% and 50%.
- People aged 18–24 were the most likely to use e-cigarettes, increasing from 5.3% in 2019 to 21% in 2022–23 (AIHW 2024d).

The NHS 2022 reported on smoking and e-cigarette use among young people aged 15–24. Estimates using self-reported data show that in 2022:

- Among people aged 15–17, 1.6% were daily smokers and 6.8% currently use an e-cigarette/vaping device.
- Nearly 1 in 10 (8.3%) people aged 18–24 were daily smokers and 9.3% currently use an e-cigarette/vaping device (ABS 2023g).

Alcohol consumption

In 2022–23, two-thirds (66%) of people aged 14–17 had never had a full serve of alcohol, compared with 16% of those aged 18–24. Between 2019 and 2022–23, the proportion of 14–17-year-olds consuming 4 or more drinks at least monthly has decreased from 8.9% to 5.5% (AIHW 2024a).

The NHS 2022 reported on alcohol consumption against the 2020 Australian Alcohol Guidelines among 15–24-year-olds. According to self-reported data from the 2022 NHS, around:

- Two in 3 (62%) people aged 15–17 reported they had never consumed a full serve of alcohol.
- One in 7 (14%) people aged 18–24 had never consumed a full serve of alcohol (ABS 2023d).

Use of illicit drugs

Between 2019 and 2022–2023, the proportion of young males who had recently used illicit drugs remained stable. There were however substantial increases in the recent use of illicit drugs among young females, from 9.2% to 17% for those aged 14–17 and from 27% to 35% for those aged 18–24 (AIHW 2024b).

For more information on substance use among young people, see Young people's use of alcohol, tobacco, e-cigarettes and other drugs.

Sexual and reproductive health

In 2021, the seventh National Survey of Australian Secondary Student and Sexual Health found:

- More than half (61%) of young people aged 14–18 surveyed reported they had sexual experience or were currently sexually active (defined as having experienced oral, vaginal or anal sex).
- Most young people reported that during their most recent sexual experience, they had discussed having sex (80%), sexual pleasure (65%) and using a condom (55%).
- Three-quarters of young people (75%) reported they had a condom available, but only 49% reported using a condom during their most recent sexual encounter.
- Almost three-quarters of young people (72%) agreed that young people should be tested for sexually transmitted infections (STIs). However, young people perceived some barriers with getting tested, with only 39% knowing where they could go to get tested, 26% agreeing that it was easy to get tested, and 33% agreeing that talking to partners about STI testing was difficult.
- A large proportion of students (77%) sought information about sex or sexual health from friends, followed by seeking information from websites (57%) and their mothers (50%), but the most trusted sources of information were general practitioners (GP) (78%).
- Almost all young people (96%) reported that relationship and sexuality education (RSE) is an important part of the school curriculum. Most (93%) reported receiving RSE at school however, only a quarter (25%) reported their most recent RSE class was very or extremely relevant to them (Power et al. 2022).

As the 2021 survey was extensively updated from previous years, comparisons to previous data were not included above. For findings from previous years, see the National Survey of Australian Secondary Students and Sexual Health- external site opens in new window.

Health care of young people

Mental health services

In 2021–22, people aged 12–24 made up 23% (643,000) of all people receiving Medicare-subsidised mental health-specific services (AIHW 2023f). People aged 18–24 years were most likely to receive services (18% of people aged 18–24 years) and females had a higher rate (13%) compared with males (8%) (AIHW 2023f). Note - an individual may receive a service from more than one type of provider and can be counted more than once.

In 2020–21, the most common provider for people receiving Medicare-subsidised mental health-specific services were General Practitioners (GPs), other psychologists, followed by clinical psychologists. These have remained the same in 2021–22.

For more information, 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. Since 2023, the routine 2-dose HPV vaccine schedule provided to young people aged 12 to 13 years became a single dose schedule due to changes to the National Immunisation Program (NIP) Schedule.

In 2022, the proportion of 15-year-olds who received at least one dose of the HPV vaccine, compared with 2021, were similar:

- 85% and 86% of girls respectively
- 83% and 84% of boys respectively (NCIRS 2023).

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) (AIHW 2022). In 2022, 87% of young people turning 15 years of age had received their dTpa booster dose and 76% of young people turning 17 years of age had received the meningococcal vaccine (NCIRS 2023).

For more information, see Immunisation and vaccination.

Patient experiences

The ABS Patient Experiences in Australia survey collects information about access and barriers to a range of health care services (ABS 2023k).

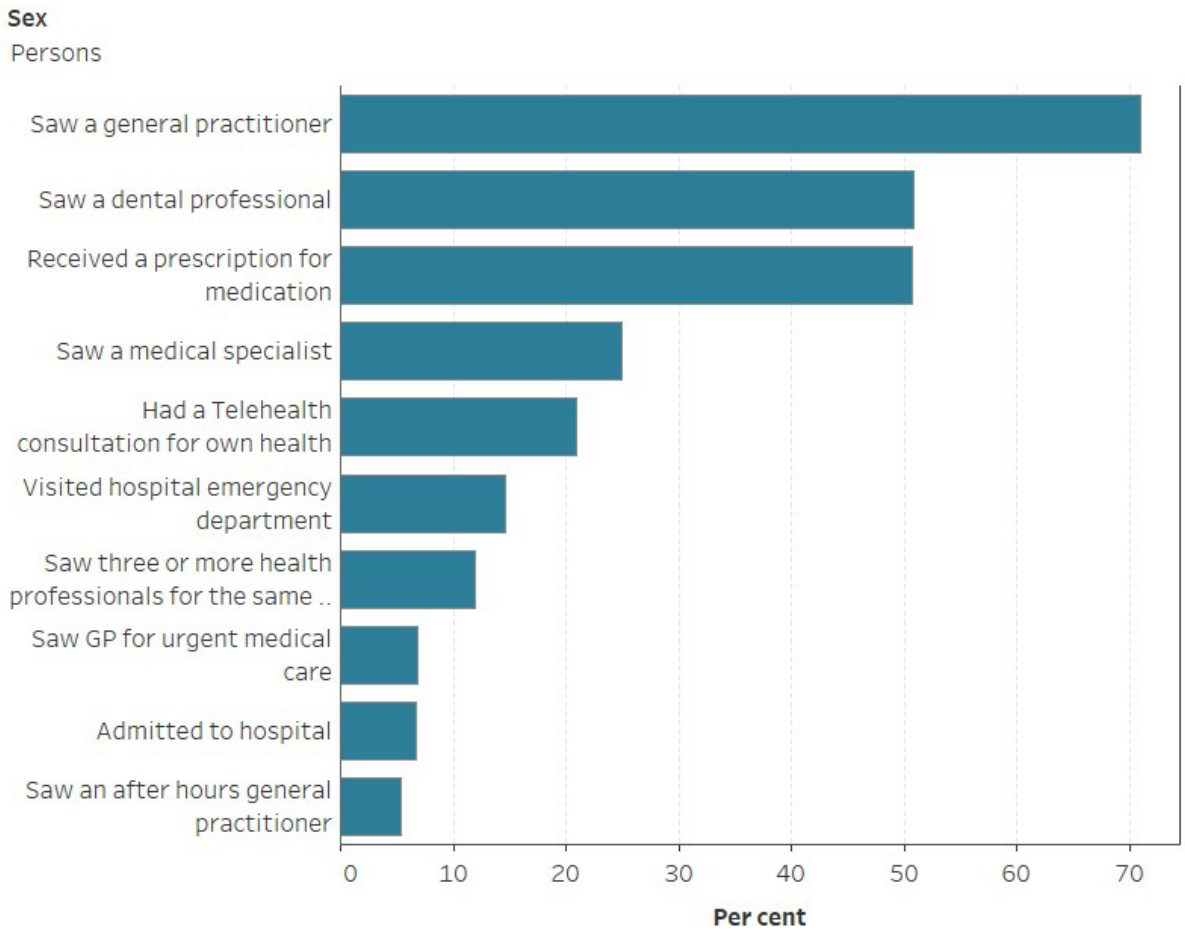
Health service use in 2022–23 remained similar to 2021–22 among 15–24-year-olds who:

- saw an after-hours GP (5.3% compared with 5.2%)
- received a prescription for medication (50.7% compared with 50.1%)
- saw a dental professional (50.8% compared with 49.9%) (ABS 2023i; ABS 2023l).

The proportion of young people who saw a medical specialist or visited hospital emergency department decreased slightly in 2022–23 (ABS 2023l).

In 2022–23, among people aged 15–24, females (27%) were more likely than males (16%) 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; ABS 2023l).

Figure 3: Experiences of health services in the last 12 months for people aged 15–24, by sex, 2022–23



Notes:
1. Includes only prescriptions received from GP.
2. Telehealth services refers to an appointment with a health professional over the phone, by video conferencing or through other communication technologies.

Source: AIHW 2023l
https://www.aihw.gov.au/

Where do I go for more information?

For more information on the health of young people, see:

- National Youth Information Framework (NYIF) indicators
- Australia's youth
- Aboriginal and Torres Strait Islander adolescent and youth health and wellbeing 2018
- Glossary

For more on this topic, visit Children & youth.

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 topic summary at:
https://www.aihw.gov.au/reports/australias-health/profile-of-australias-population

On this page

This page was written by the Centre for Population at Treasury- external site opens in new window for the AIHW.

Overview

Australia's population was 26.6 million at 30 June 2023, having grown around 1.4% a year on average over the past 3 decades, from 17.6 million at 30 June 1993.

Over this 30-year period:

- Net overseas migration (see glossary) was the main driver of population growth, directly contributing just over half of total population growth over the whole period.
  - Net overseas migration increased from a net inflow of 30,000 people in 1992–93 to 241,000 people in 2018–19. The introduction of international border restrictions in response to the COVID-19 pandemic led to the first net outflow of migrants from Australia since the Second World War (-85,000 people in 2020–21), before recovering to a net inflow of 528,000 people in 2022–23 as restrictions eased.
- Natural increase (births minus deaths) contributed almost half of population growth, although it has decreased from 139,000 people in 1992–93 to 106,000 people in 2022–23:
  - Fertility rates (see glossary) have declined, from 1.86 babies per woman in 1992–93 to 1.58 in 2022–23.
  - 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.
  - Life expectancies at birth (see glossary) have continued to increase, from 75.0 years for males and 80.9 years for females in 1993, to 81.2 years for males and 85.3 years for females in 2020–2022.

- Australia's population has grown older, with the median age increasing from 33.0 years at 30 June 1993 to 38.3 years at 30 June 2023. The percentage of the population aged 65 and over has increased from 12% to 17% over the same period.

Australia's population is concentrated in the *Major cities*, which are home to 73% of the total population. Around 1 in 4 (26%) live in *Inner regional* and *Outer regional* Australia, with the remainder (2%) living in *Remote and very remote* areas (Figure 1).

Australia's capital cities tend to be younger and age more slowly than regional areas. This is mainly because capital cities have historically attracted a larger share of overseas migrants, who tend to be younger than the overall population. In addition, younger people tend to move into capital cities from regional areas to pursue educational and job opportunities. While retirement-age people are less likely to move, when they do, they often move out of capital cities to regional areas. These factors more than offset higher fertility rates and lower life expectancies in regional areas.

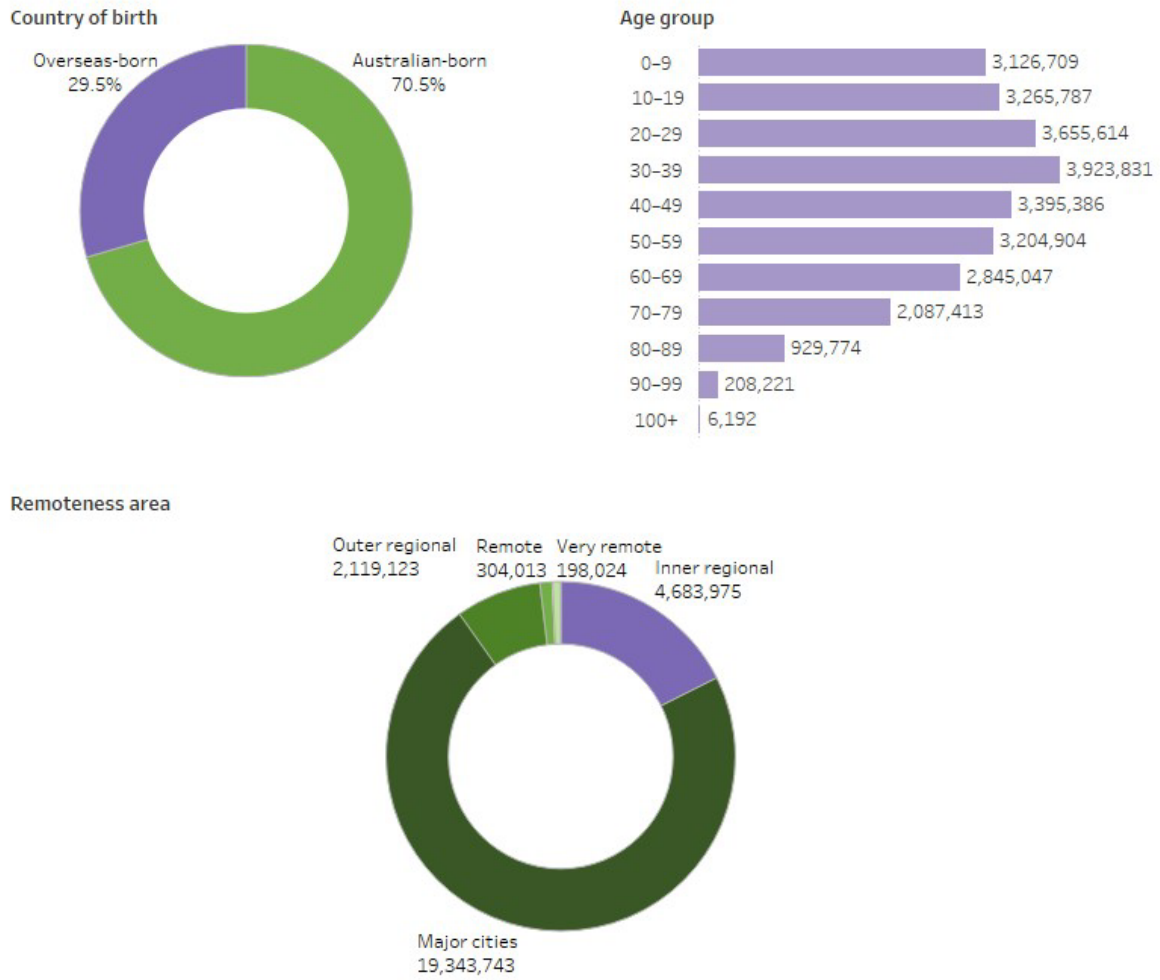
Australia's population is diverse. In 2022, 29.5% of people in Australia were born overseas (Figure 1), and almost half (48%) have a parent born overseas (ABS 2022; ABS 2023a). The Aboriginal and Torres Strait Islander (First Nations) population was 3.8% of the total Australian population at 30 June 2021, with 984,000 First Nations people (ABS 2023b).

The impact of COVID-19 on population growth

Australia's population growth was affected by the COVID-19 pandemic and the measures taken to limit the spread of the disease. Following the easing of international border restrictions and the return of overseas migration in late 2021, Australia's population growth recovered to 2.4% in 2022–23, from a historical low of 0.1% in 2020–21.

Longer-term trends prior to the pandemic, 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, continue to affect the size and distribution of the population. Over 2020–22, Australia recorded a decline in life expectancy (see glossary) for the first time since the early 1990s, by 0.1 years for both males and females. The COVID-19 pandemic is expected to continue to result in life expectancy being below the pre-pandemic trend before returning to the trend by 2026–27 (Centre for Population 2023).

Figure 1: Demographic snapshot, at June 2022 and June 2023



Notes
1. Data for country of birth is at June 2022, all other data is at June 2023.
2. 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 2023a, 2024a, and 2024b.
http://www.aihw.gov.au/

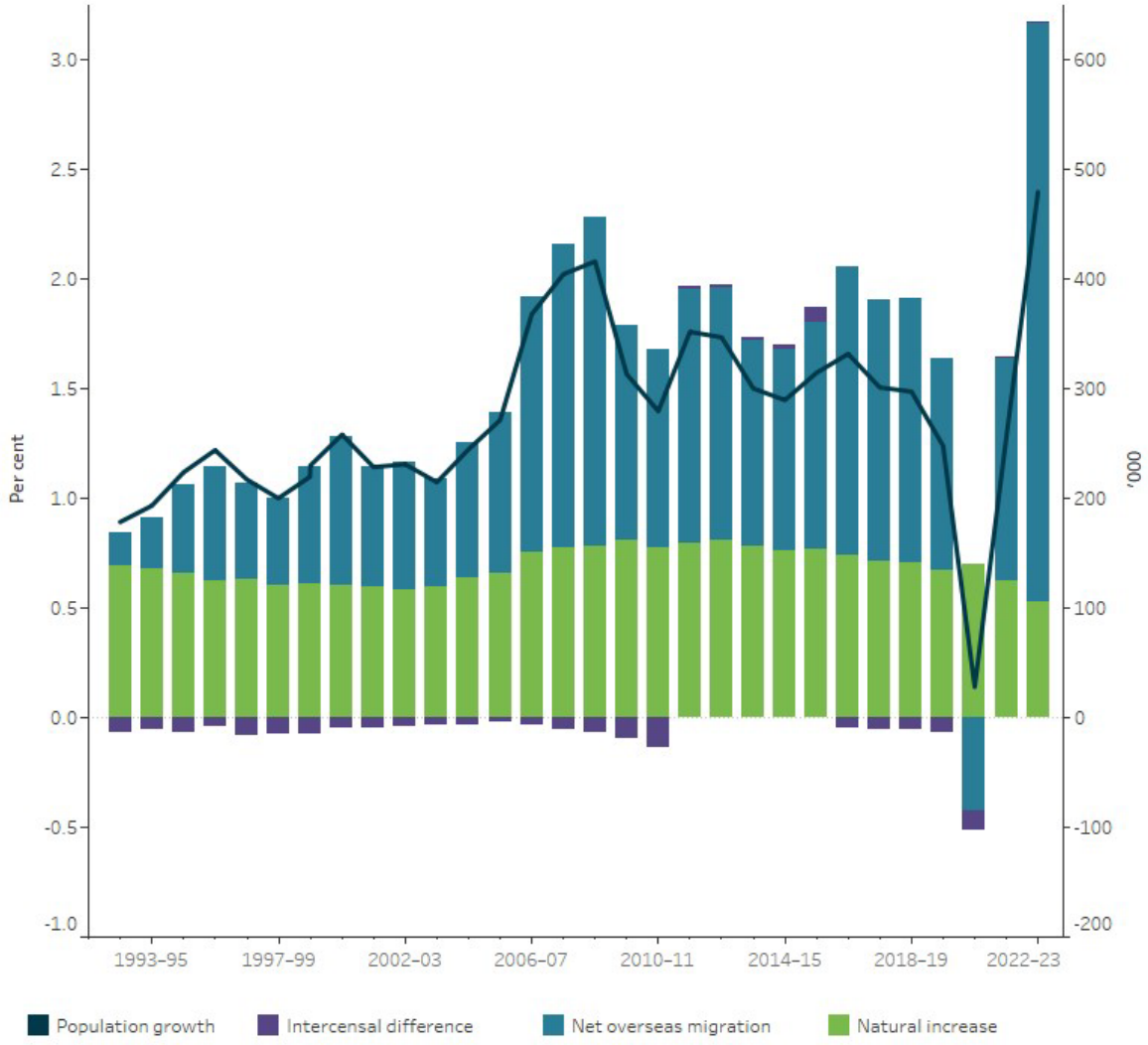
Past population growth and trends

Australia's population growth averaged 1.4% per year from 30 June 1993 to 30 June 2023. Natural increase has been relatively steady, while net overseas migration (see glossary) has fluctuated (Figure 2). Natural increase was the main driver of population growth during the early 1990s. However, from 2005–06 net overseas migration contributed more to annual population growth until the introduction of international border restrictions in response to the pandemic. As border restrictions eased, net overseas migration returned as the main driver of population growth in 2021–22. When averaged over the whole period, net overseas migration contributed 56% of population growth and natural increase contributed 44% of population growth.

More than two-thirds (68%) of Australia's population lived in the 8 capital cities at 30 June 2023, increasing from 65% in 1992 (ABS 2019; ABS 2024a). Over this period, most capital cities generally grew faster than their respective regional areas as overseas migrants tend to settle in cities and the younger age structure of cities results in greater natural increase.

In 2020–21, border restrictions and lockdowns led to regional areas growing at a faster rate than capital cities for the first time since 1993–94, with lower net overseas migration and fewer moves from regional areas to capital cities. In 2021–22, population growth in capital cities returned, growing slighter faster than regional areas (ABS 2024a).

Figure 2: Components of population change, Australia, 1992–93 to 2022–23



Source: ABS 2024b.
http://www.aihw.gov.au/

Net overseas migration

Net overseas migration (see glossary) was the main driver of Australia's population growth in the years prior to the COVID-19 pandemic.

Net overseas migration is the component of population change that has been most affected by the COVID-19 pandemic. The introduction of international border restrictions in early 2020 lowered net overseas migration to -85,000 persons in 2020–21, the first recorded net outflow since the Second World War. Following the easing of international border restrictions from late 2021, net overseas migration grew to 204,000 persons in 2021–22 to return to being the main driver of population growth, before further increasing to 528,000 persons in 2022–23. Much of the higher net overseas migration reflects a catch-up from the pandemic, as well as a surge in global demand for international study and a strong domestic labour market (Centre for Population 2023).

Natural increase

Since the late 2000s, natural increase has added on average around 150,000 people a year to the Australian population, although this has become smaller as a proportion of the population over time. Over the past 30 years, the total fertility rate has fallen from 1.86 babies per woman in 1992–93 to 1.58 in 2022–23, remaining below the replacement rate (see glossary) of 2.1 since the mid-1970s (ABS 2019, 2024b). At the same time, life expectancies at birth have increased and are among the highest in the world. Despite improving life expectancy (see glossary), the number of deaths has grown faster than births in recent years, reflecting Australia's ageing population.

The impact of the COVID-19 pandemic on Australia's fertility appears to have been relatively short-lived, with a small drop and subsequent rebound in births in 2021. This suggests that people adapted to the uncertainty of the pandemic and quickly caught-up on delayed childbearing plans (Gray et al. 2022).

Over the year to June 2023, there were 296,000 births, a decrease of 4.1 per cent from the previous year (309,000), and below the number of births in the prior to the pandemic in 2018–19 (305,000 births) (ABS 2024b).

Compared with many other advanced economies, Australia experienced low mortality during the early years of the COVID-19 pandemic. However, as infection rates increased from 2022, deaths from both COVID-19 and other causes increased. In 2022, deaths (191,000) were 11.7% higher than expected. This was a total 19,900 excess deaths in 2022 (or, 11,560 excess deaths after accounting for deaths above usual variation). During the first eight months of 2023, excess mortality continued but eased to 6.1%. COVID-19 remains a significant contributor to excess mortality, with deaths from or with COVID-19 accounting for around two-thirds of excess deaths since the start of 2022 (ABS 2023c).

Net interstate migration

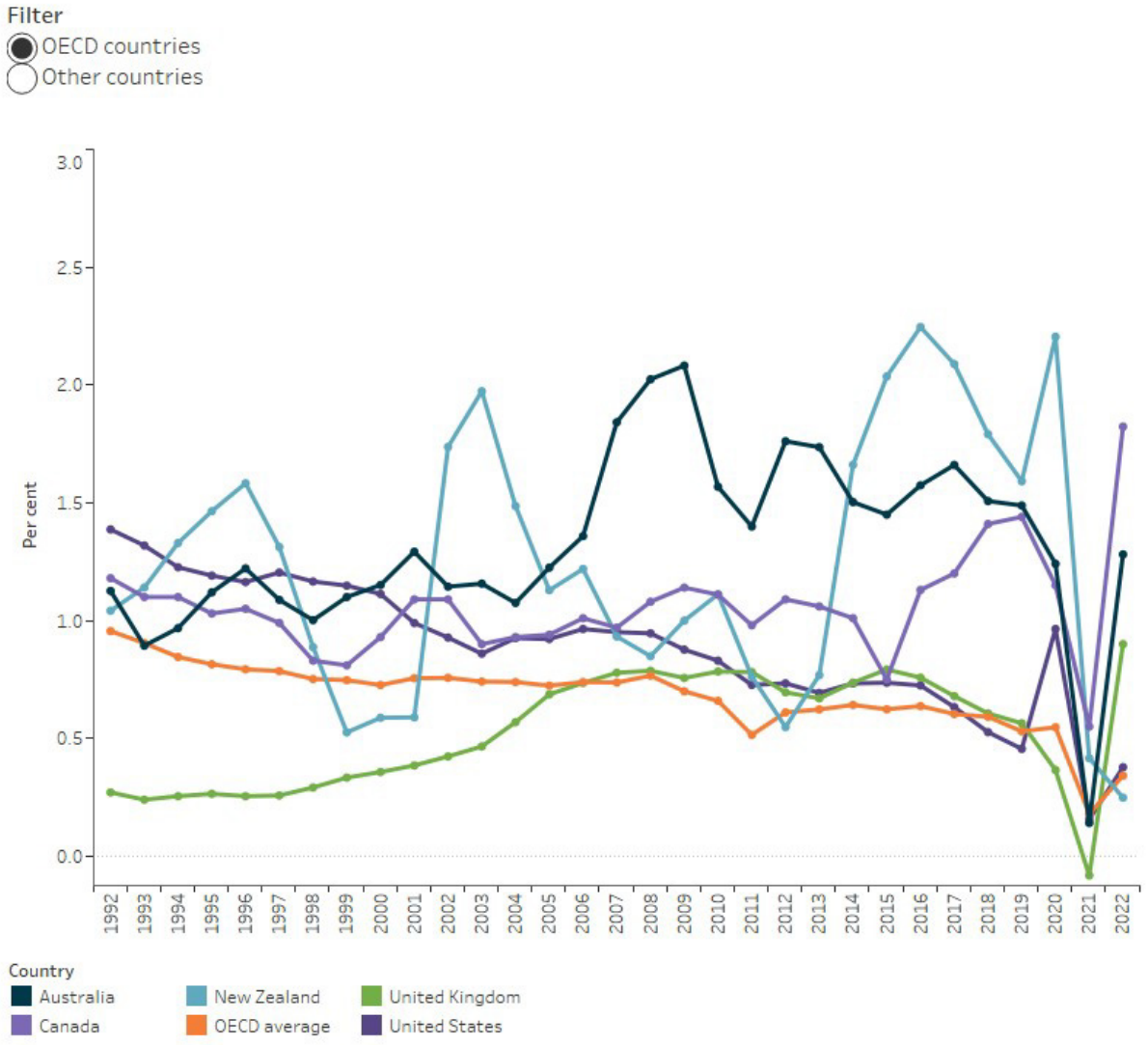
Australia has high rates of internal migration compared to other countries, although this rate has declined from peaks in the 1980s and 1990s (ABS 2018).

The COVID-19 pandemic reduced net internal migration across Australia as state and territory governments temporarily restricted movements in some cities, regions and across state borders. There was an 11.6% drop in the number of interstate moves from 2018–19 (476,000) to 2019–20 (421,000). There was a further fall to 366,000 in the year to June 2021. Recorded interstate moves increased in the year to June 2022 (484,000), but it is unlikely this many moves actually occurred (for more information, see National, state and territory population methodology- external site opens in new window). Interstate moves still remain below pre-pandemic levels, with 372,000 interstate moves recorded in the year to June 2023 (ABS 2024b).

Australia's population in a global context

Prior to the COVID-19 pandemic, Australia's population growth rate was higher than that of most other advanced countries, largely as a result of net overseas migration. Population growth decreased to 0.1% in 2021 due to a net outflow of migrants before increasing to 1.3% in 2022, which was above the OECD average for OECD countries (Figure 3). For other countries (not OECD members), China experienced no population growth (0.0%) while India (0.7%) and Indonesia (0.6%) experienced lower growth.

Figure 3: Population growth by country, 1992 to 2022

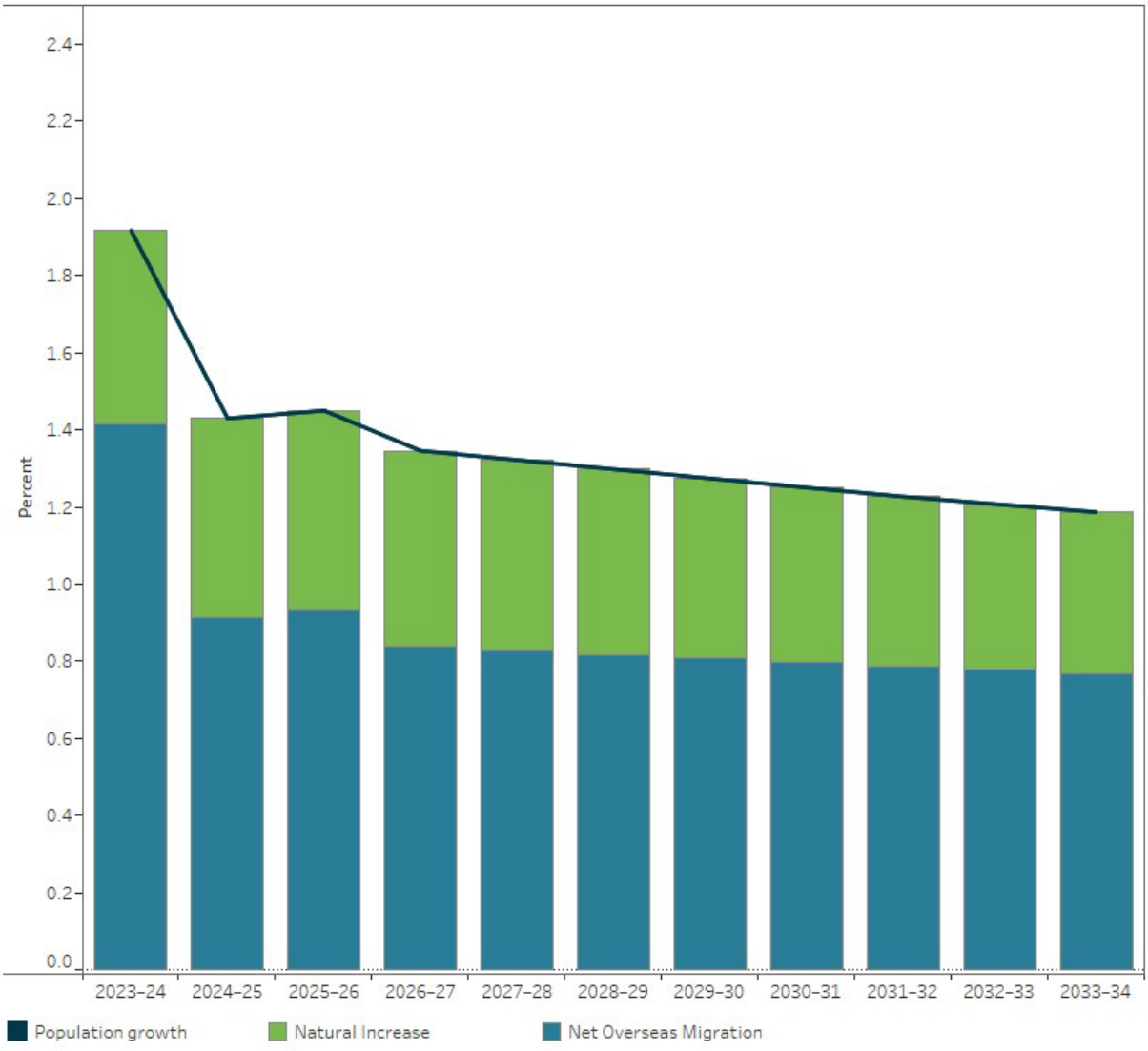


Sources: ABS 2024b; Office of National Statistics 2024; World Bank 2023.
http://www.aihw.gov.au/

Australia's future population

From 2023–24, net overseas migration is expected to slow, leading to a return to the pre-pandemic trend of slowing population growth. Figure 4 illustrates the population growth projections from the 2023 Population Statement. The 2023 Population Statement is the fourth edition of the Centre for Population's flagship annual publication. Each year's Statement provides insights on how the population has changed and projects future population changes over the next decade.

Figure 4: Projected population growth and components, Australia, 2023–24 to 2033–34



Source: Centre for Population 2023
http://www.aihw.gov.au/

Australia's population growth is projected to be 1.9% in 2023–24, before gradually declining to 1.2% by 2033–34. By this time, Australia's population is projected to be 30.9 million (Centre for Population 2023).

Net overseas migration

With the easing of COVID-19 travel restrictions from late-2021, net overseas migration has quickly recovered with the return of temporary visa holders and international students in Australia. Net overseas migration is forecast to be 375,000 in 2023–24 before returning towards pre-pandemic levels from 2024–25 (Centre for Population 2023).

Natural increase

Consistent with the observed long-run trend, natural increase is projected to continue to decline over the next 10 years reaching 127,000 in 2033–34. This decline is due to the number of deaths growing faster than births, as the population ages.

The total fertility rate is projected to continue its long-running decline from 1.65 babies per woman in 2023–24 to 1.62 babies per woman by 2030–31 and remain constant for the remainder of the projections period (to 2033–34). This decline reflects the trend of women having children later in life and having fewer children when they do. While total births are projected to increase from 318,000 in 2023–24 to 345,000 by 2033–34, births as a proportion of the population will fall.

Total deaths are projected to increase from 184,000 in 2023–24 to 218,000 by 2033–34, in line with the increasing size and ageing of the Australian population. The COVID-19 pandemic is expected to slightly increase mortality rates in Australia for those aged 50 and above, until 2025–26, before returning to pre-pandemic trends (Centre for Population 2023).

Net interstate migration

The level of interstate migration is expected to recover, increasing by 9.1% in 2023–24 to 406,000 moves before reaching around 450,000 in 2025–26. The distribution of interstate migration between states and territories is also expected to return to pre-pandemic patterns by 2025–26 (Centre for Population 2023).

States and territories

Population growth is forecast to continue to be strong in most states and territories in 2023–24. Victoria is forecast to be the fastest growing jurisdiction in 2023–24 and 2024–25. Tasmania is forecast to experience the lowest population growth in 2023–24.

From 2025–26, the Australian Capital Territory is expected to overtake Victoria as the fastest growing jurisdiction, driven by net overseas migration and a high contribution from natural increase, which reflects its younger age structure (Centre for Population 2023).

Where do I go for more information?

For the recent population projections, see:

- Centre for Population 2023 Population Statement- external site opens in new window
- Australian Treasury 2023 Intergenerational Report- external site opens in new window

This page was written by the Australian Government Centre for Population- external site opens in new window.

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Gray E, Evans A, and Reimondos A (2022) Having babies in times of uncertainty: first results of the impact of COVID-19 on the number of babies born in Australia- external site opens in new window, Australian Population Studies 6 (1), pp. 15-30, accessed 10 January 2024.

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Rural and remote health

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/rural-remote-australians/rural-and-remote-health

On this page

Around 7 million people – or 28% of the Australian population – live in rural and remote areas, which encompass many diverse locations and communities (ABS 2023h). 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 and 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 2 remoteness structure classification systems.

The Australian Statistical Geography Standard (ASGS) Remoteness Structure- external site opens in new window (ABS 2021) 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 2021).

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.

The Modified Monash Model (MMM)- external site opens in new window (Department of Health and Aged Care 2023b) is based on the ASGS Remoteness Structure and also town size. It classifies metropolitan, regional, rural and remote areas in Australia into seven categories:

- MM 1: *Metropolitan areas*
- MM 2: *Regional centres*
- MM 3: *Large rural towns*
- MM 4: *Medium rural towns*
- MM 5: *Small rural towns*
- MM 6: *Remote communities*
- MM 7: *Very remote communities*

Areas classified MM 2 to MM 7 are considered to be rural or remote.

The MMM was developed to better target health workforce programs and to attract health professionals to more remote and smaller communities. This report uses the MMM for presentation of access to primary health care and health workforce data.

Profile of rural and remote Australians

Most Australians live in *Major cities* than in regional or remote areas. As at 30 June 2022, the proportion of Australians by area of remoteness was:

- 72% in *Major cities*
- 18% in *Inner regional* areas
- 8.1% in *Outer regional* areas
- 1.2% in *Remote* areas
- 0.8% in *Very remote* areas (ABS 2023h).

First Nations people

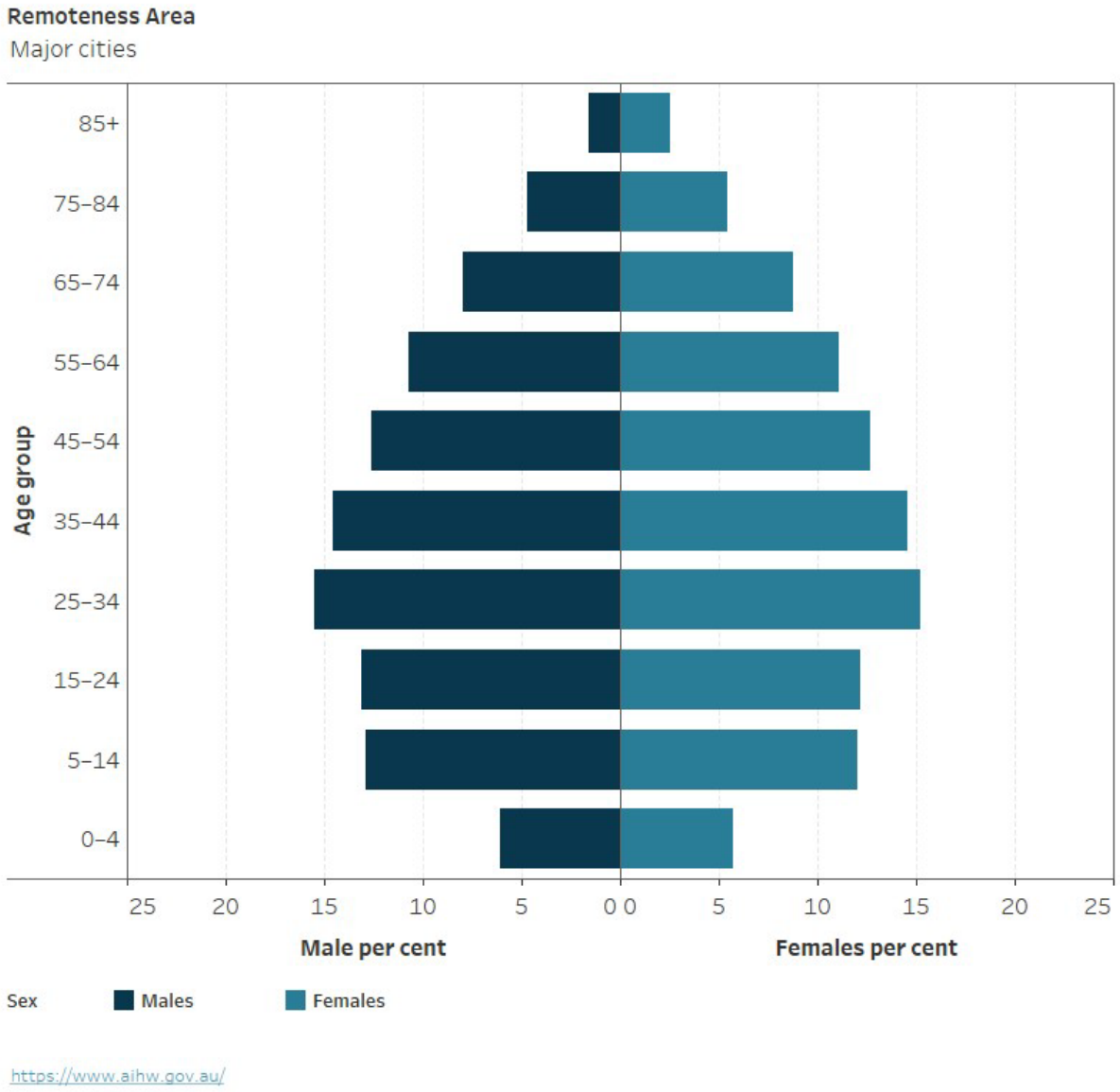
Aboriginal and Torres Strait Islander (First Nations) people are more likely to live in urban and regional areas compared with more remote areas. However, the proportion of the total First Nations population increases with remoteness from 1.9% in *Major cities*, to 32% in *Remote and very remote* areas based on estimated Indigenous population projections for 2021 (AIHW 2023k).

For more information, see First Nations people.

Age

On average, people living in *Inner regional* and *Outer regional* areas are older than those in *Major cities*. For *Inner regional* areas, 22.1% of the population were aged 65 years or older in 2022 compared with 15.5% in *Major cities*, 14.7% in *Remote* and 10.3% in *Very remote* areas (ABS 2023h).

Figure 1: Australian population, by age group, sex and area of remoteness, 2022



Note: Percentages for each remoteness area includes those from Other Territories.

Source: AIHW analysis of ABS 2023h; Table S1.

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 to make comparisons between remoteness areas, age-standardised results have been used for health risk factors and chronic conditions, where possible. Unadjusted (crude) rates are available in the supplementary data tables and are often available in the referenced and/or linked reports.

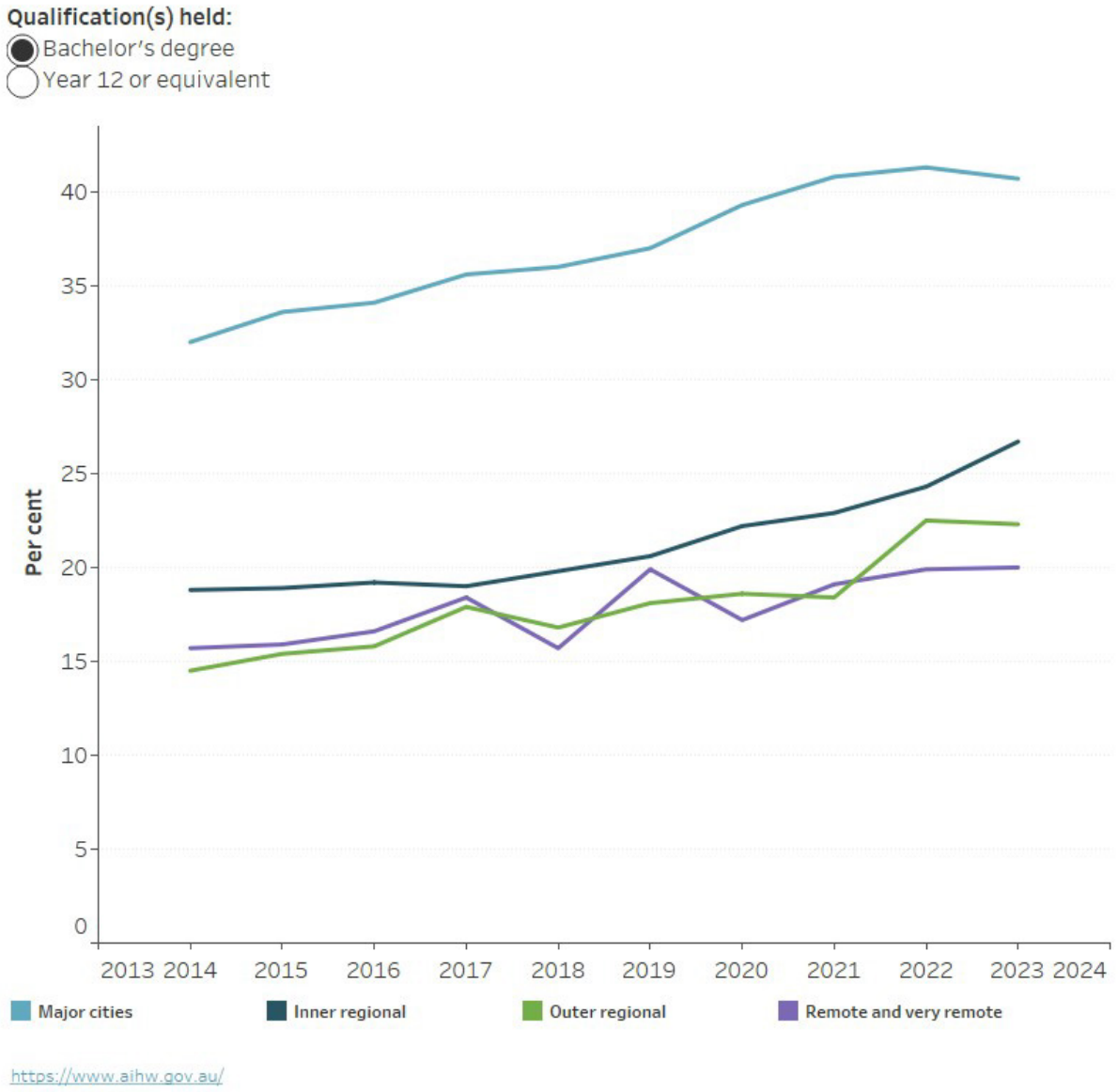
Education

Increasing levels of education is shown to have an overall positive effect on an individual's life satisfaction, particularly through the indirect effects of improved income and better health (AIHW 2023g).

In 2023, 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 (Figure 2; ABS 2023b). Around 3 in 5 people living in *Inner regional* (62%), *Outer regional* (59%) and *Remote and very remote* areas (59%) had completed Year 12, compared with 3 in 4 (78%) of those in *Major cities* (ABS 2023b). The gap in completion of year 12 between *Major cities* and *Remote and very remote* areas has narrowed slightly from 24% in 2014 to 19% in 2023 (Figure 2; ABS 2023b).

Similarly, a smaller proportion of people aged 20–64 living in *Inner regional* (27%), *Outer regional* (22%) and *Remote and very remote* areas (20%) had completed a bachelor's degree or above in 2022, compared with those in *Major cities (*41%) (ABS 2023b). The gap in completion of a bachelor's degree between *Major cities* and *Remote and very remote* areas has widened from 16% in 2014 to 21% in 2023 (Figure 2; Table S2; ABS 2023b).

Figure 2: People aged 20–64 with a Bachelor's degree or higher/Year 12 or equivalent qualification, by remoteness area, 2014–2023



Source: ABS 2023b

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

Employment underpins the economic output of a nation and enables people to support themselves, their families and their communities. Employment is also connected to physical and mental health and is a key factor in overall wellbeing (AIHW 2023f).

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 2023c). This may be due to fewer opportunities and access to work outside metropolitan areas and the smaller range of employment and career opportunities in these areas (ABS 2023c; 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 2019–20, Australians living outside capital cities had, on average, 15% less household income per week compared with those living in capital cities, and 22% less mean household net worth (ABS 2022a).

For more information, see Employment and unemployment and Income and income support.

Health risk factors

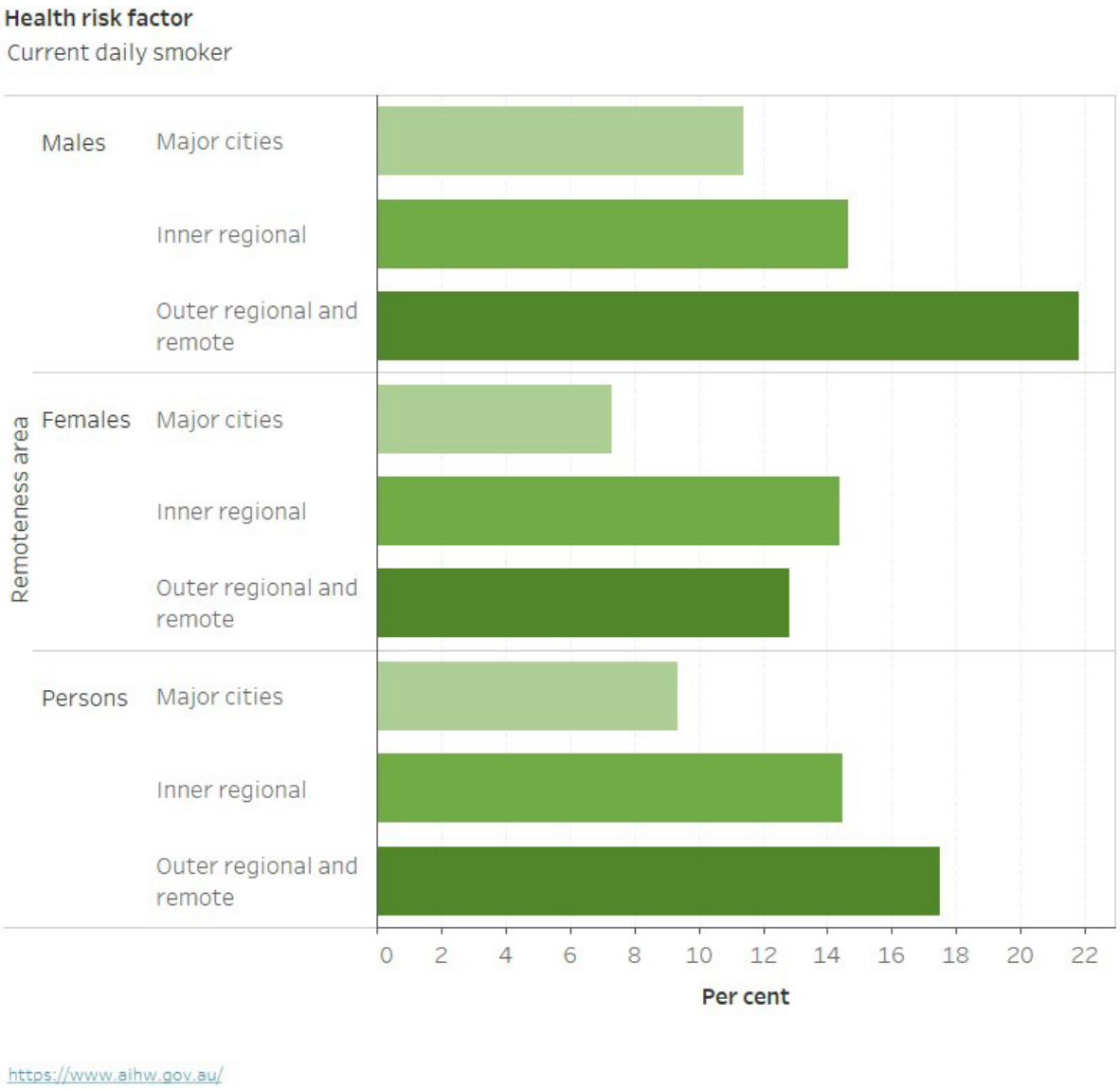
Health risk factors such as smoking, overweight and obesity, diet, high blood pressure, alcohol consumption and physical activity can influence health outcomes and the likelihood of developing disease or health disorders.

The AIHW National Drug Strategy Household Survey (NDSHS) collects information on tobacco smoking, alcohol consumption and illicit drug use among the general population in Australia. Data for daily tobacco smoking from the latest NDSHS 2022–23 shows the proportion of people aged 14 and over who smoke daily increases with increasing remoteness, from 7% for those living in *Major cities* to 10.5% for *Inner regional* areas, 11.4% for *Outer regional* areas and 20.4% for those living in *Remote and very remote* areas (AIHW 2024a). Since 2019, these proportions have declined slightly in all remoteness areas, except in *Remote and very remote* areas (AIHW 2024a).

In 2022, based on self-reported data from the Australian Bureau of Statistics' National Health Survey (NHS) and after adjusting for age, it was estimated that 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 increased risk of alcohol-related diseases or injuries, compared with people living in *Major cities* (Figure 3; Table S3).

For more information, see Alcohol, tobacco & other drugs in Australia.

Figure 3: Prevalence of health risk factors, by remoteness area, 2022



Notes:

1. Proportions were age standardised to the 2001 Australian Standard Population.
2. Excludes *Very remote* areas.
3. Estimates for overweight or obese and high blood pressure are based on measured data while estimates for all other risk factors are based on self-reported data. For more information, see National Health Survey Methodology (ABS 2023f).

Source: AIHW analysis of ABS 2023e; Table S3.

Family, domestic and sexual violence

Family, domestic and sexual violence is a major health and welfare issue in Australia. The ABS 2021–22 Personal Safety Survey estimated that 8 million adults had been victims of physical and/or sexual violence from a partner since the age of 15 (ABS 2023g).

Women living outside *Major cities* were 1.5 times as likely to have experienced partner violence than women living in *Major cities* (23% compared with 15%). For men living outside of *Major cities*, 6.6% experienced partner violence compared with 5.9% of men living in *Major cities* (AIHW 2019).

For more information, see Family, domestic and sexual violence.

Health status and outcomes

Chronic conditions

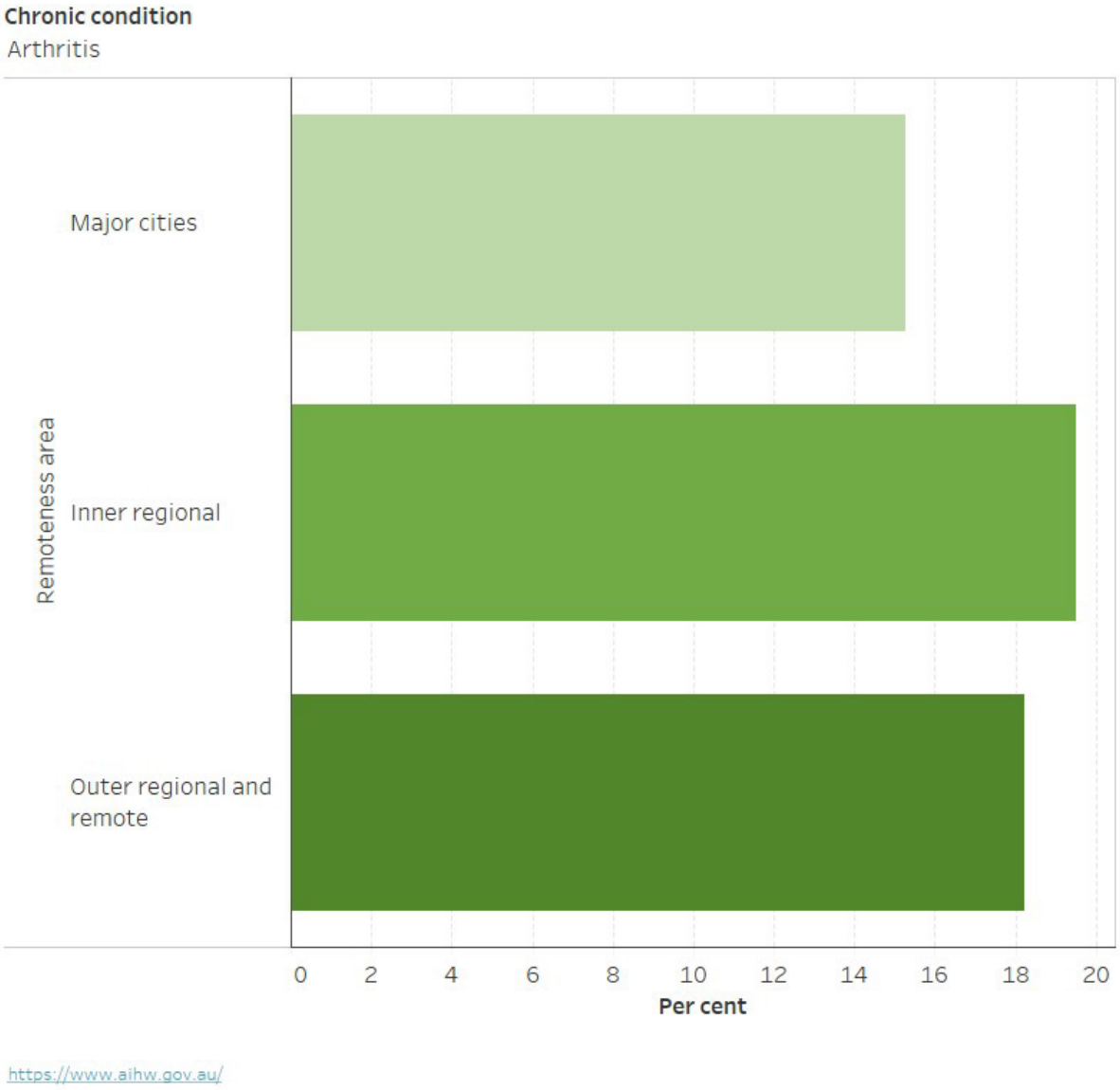
Chronic conditions are long-lasting and have persistent effects throughout a person's life. They are becoming increasingly common and are influenced by a wide variety of factors.

In 2022, based on self-reported data from the NHS and after adjusting for age, people living outside *Major cities* had higher rates of arthritis, and mental and behavioural conditions, while chronic obstructive pulmonary disease was higher in *Outer regional and remote* areas compared with *Major cities* (Figure 4; Table S4; ABS 2023e).

People living outside *Major cities* have lower usage of chronic disease management services, which can be due to availability of services or the health and age of the population within an area (AIHW 2022b).

For more information, see Chronic disease and Chronic conditions and multimorbidity.

Figure 4: Prevalence of selected chronic conditions, by remoteness areas, 2022



Notes:

1. Proportions were age standardised to the 2001 Australian Standard Population.
2. Excludes *Very remote* areas.
3. Data are self-reported. For more information, see National Health Survey Methodology (ABS 2023f).

Source: AIHW analysis of ABS 2023e; Table S4.

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 2021b).

However, the incidence rate for all cancers combined for *Very remote* areas may be influenced by lower population screening participation rates, later detection of cancer

and lower life expectancy due to death from other causes (AIHW 2021b; 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%) compared with 61% for all other areas, except for *Very remote* areas which had the lowest survival rate (55%) (AIHW 2021b).

For more information, see Cancer in Australia 2021 and Cancer.

Burden of disease

Burden of disease refers to the quantified impact of a disease or injury on a population, which captures overall health loss, that is, years of healthy life lost through premature death or living with ill health.

In 2018, after adjusting for age, the total burden of disease and injury in Australia increased with increasing remoteness (AIHW 2021a). The total burden was lowest in *Major cities* (174 DALY per 1000 population) rising to 200 and 204 for *Inner* and *Outer regional* areas, respectively, and 244 DALY per 1000 population in *Remote* and *very remote* areas. This pattern was mostly driven by fatal burden (years of life lost due to premature death).

Figure 5 shows that for some chronic conditions, the burden of disease increased with increasing remoteness, such as coronary heart disease, type 2 diabetes, chronic kidney disease, lung conditions and suicide and self-inflicted injuries. The burden of disease decreased with increasing remoteness for anxiety, back pain and dementia (Table S5; AIHW 2021a).

For more information, see Burden of disease.

Figure 5: Health burden for major diseases and injuries, by remoteness area, 2018

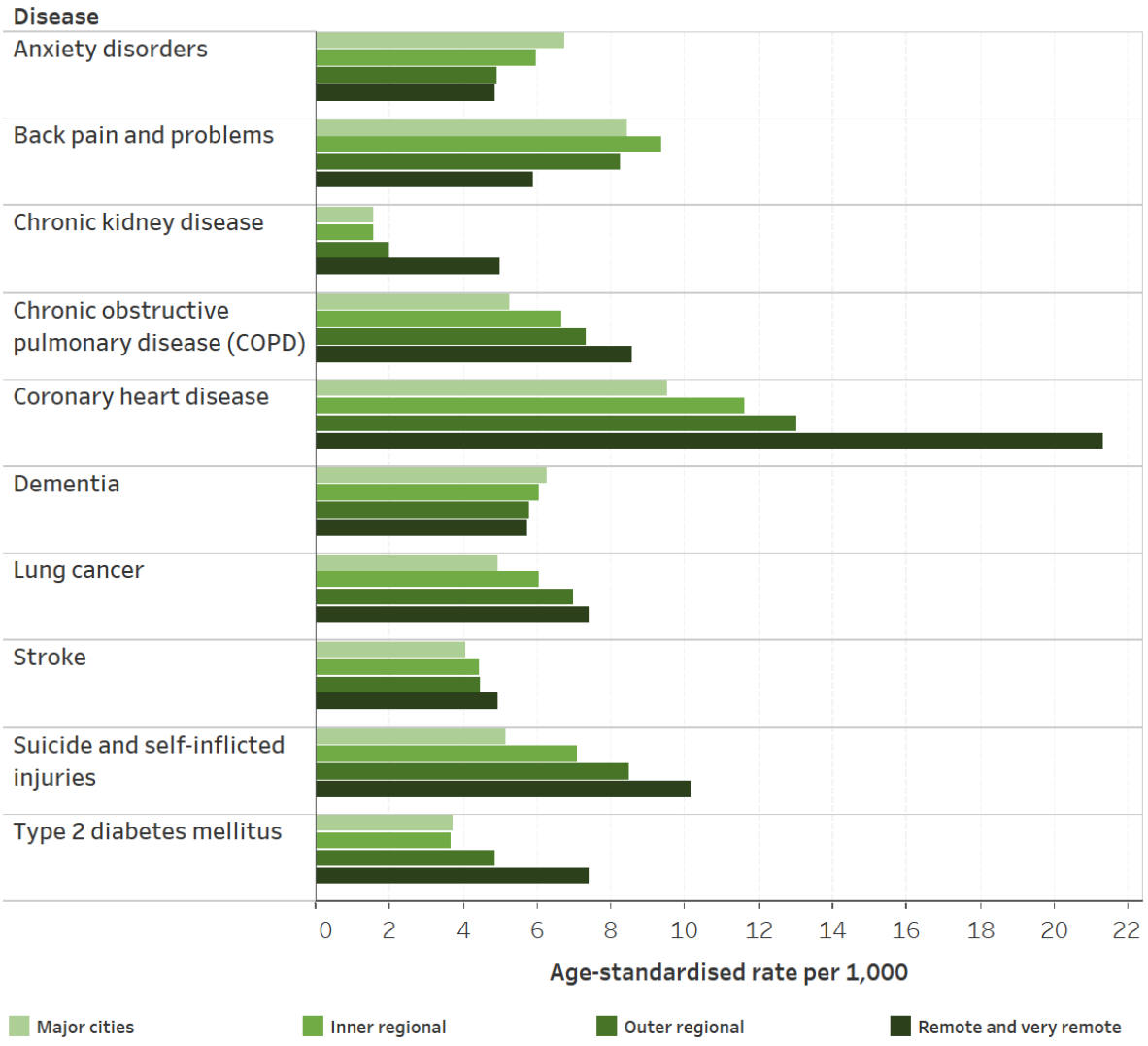


Chart: AIHW. Source: AIHW 2021a; Table S5.

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 2021, age-standardised mortality rates increased as remoteness increased for males and females (Table 1; AIHW 2023h). Compared with all of Australia:

- People living in *Inner* or *Outer regional* areas had a mortality rate 1.1 times as high.
- People living in *Remote areas* had a mortality rate 1.2 times as high.
- People living in *Very remote areas* had a mortality rate 1.5 times as high.

- Males had a higher mortality rate than females in all remoteness areas.

For more information, see *Deaths in Australia*.

Table 1: Median age at death, mortality rate, and rate ratio (relative to all of Australia), by sex and remoteness area, 2021

	Major cities	Inner regional	Outer regional	Remote	Very remote
Median age at death (Males)	80	79	77	73	67
Age-standardised rate (deaths per 100,00) (Males)	569	636	675	711	925
Rate ratio (Males)	0.95	1.06	1.13	1.19	1.55
Median age at death (Females)	85	84	83	79	69
Age-standardised rate (deaths per 100,00) (Females)	409	456	477	514	644
Rate ratio (Females)	0.96	1.07	1.12	1.20	1.51

Note: Rate ratios are calculated as the age-standardised rate for the geographic area of interest divided by the age-standardised rate for the reference group (all of Australia).

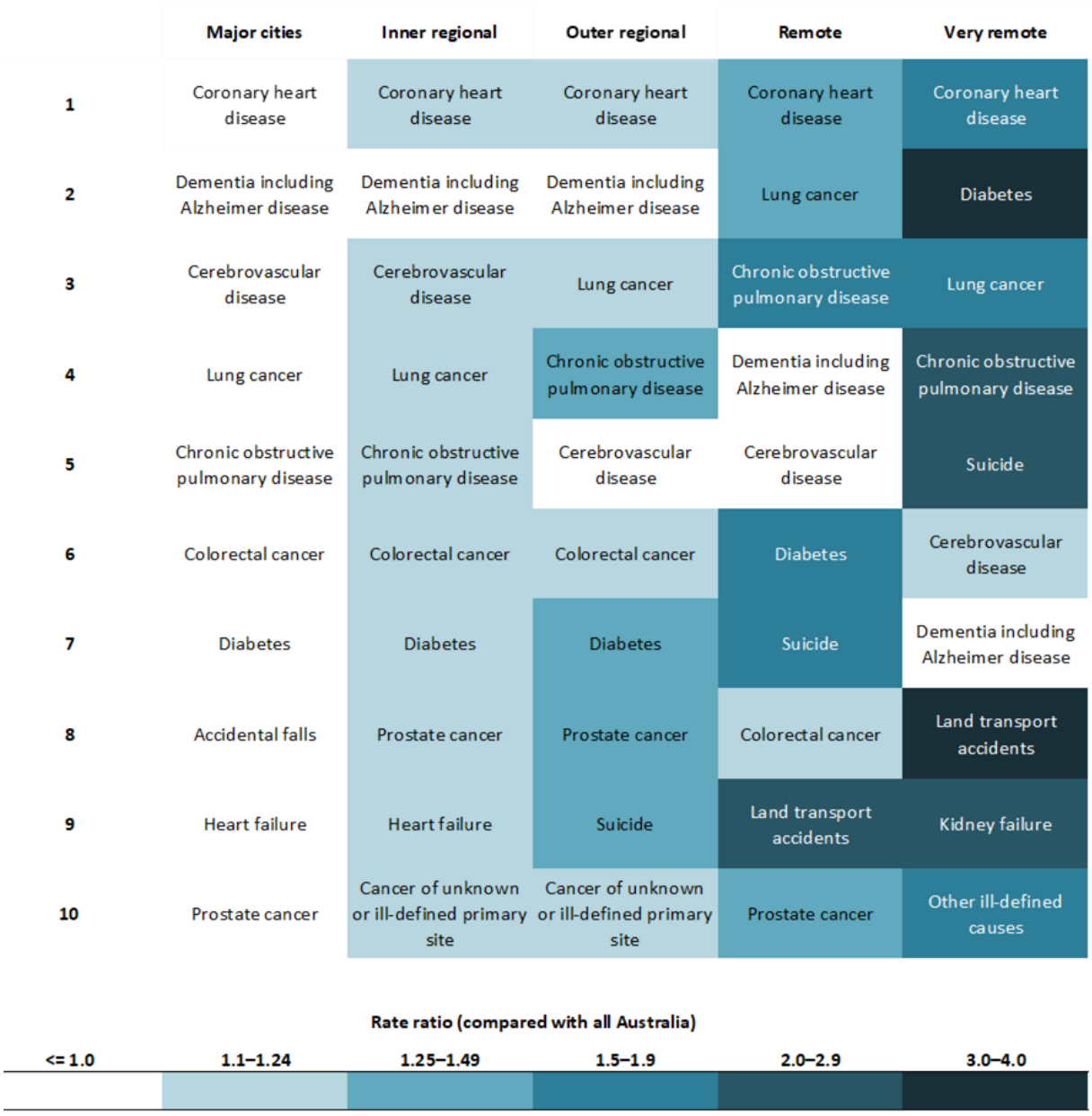
Source: AIHW 2023h.

Leading causes of death

Between 2017–2021, when comparing mortality rates for Australia overall, the leading causes of death varied by remoteness area (Figure 6; AIHW 2023h).

- Coronary heart disease was the leading cause of death across all remoteness areas. Age-standardised rates were between 1.1 and 1.7 times higher outside of *Major cities* 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 2023h).

Figure 6: Leading cause of death by remoteness area, with comparison of mortality rates to Australia overall, 2017–2021



Notes

1. Rates are age-standardised to the 2001 Australian standard population.
2. Leading causes of death are listed in order of number of deaths in each remoteness area from 2017–2021.
3. Boxes are coloured based on rate ratio comparing each region to Australia overall.

Source: AIHW 2023h; 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 information on examples and definitions of potentially avoidable deaths see Potentially avoidable deaths, 2022- external site opens in new window.

In 2021, 16% of all deaths in Australia were potentially avoidable (ABS 2023a). For males and females, the rate increased with increasing remoteness (Figure 7; Table S7). After adjusting for age and comparing with *Major cities*, the rates of potentially avoidable deaths were:

- 1.3 and 1.2 times as high in *Inner regional* areas for males and females
- 1.5 times as high in *Outer regional* areas for both males and females
- 2–3 times higher in *Remote* and *Very remote* areas (AIHW 2023h).

Figure 7: Potentially avoidable deaths by sex and remoteness area, 2021

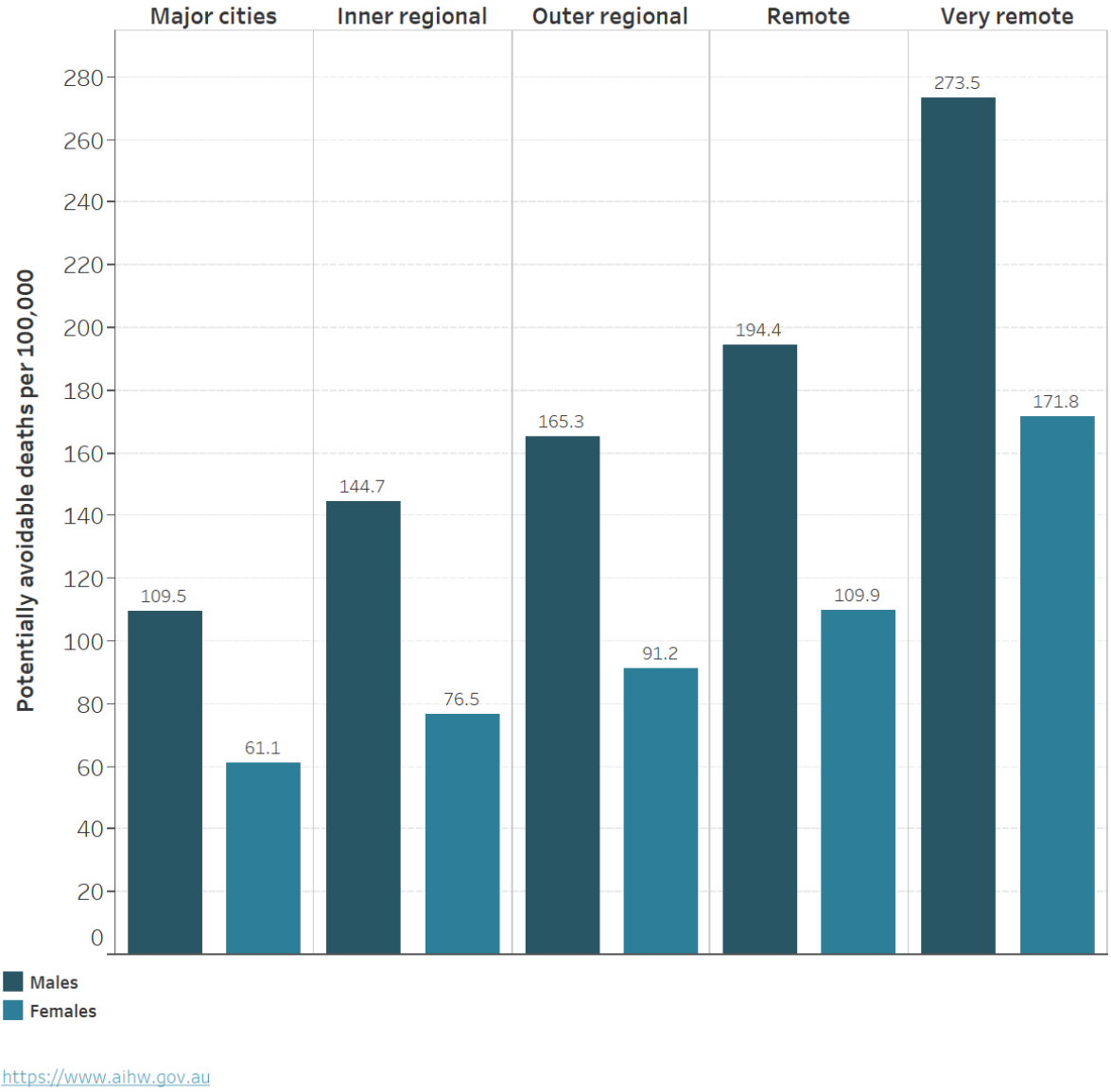


Chart: AIHW. Source: AIHW 2023h; Table S7.

For more information, 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 2020–2022, life expectancy at birth was lower for those living outside of metropolitan areas (greater capital city) (Table 2; ABS 2023d).

Table 2: Life expectancy by sex for Greater capital city and Rest of state 2020–2022

	Males	Females	Persons
Greater Sydney	**82.5**	**86.2**	**84.3**
Rest of NSW	79.5	84.1	81.7
Greater Melbourne	**82.3**	**86.0**	**84.1**
Rest of Vic.	79.5	84.1	81.8
Greater Brisbane	**81.2**	**85.3**	**83.2**
Rest of Qld	80.3	84.8	82.5
Greater Adelaide	**81.3**	**85.4**	**83.3**
Rest of SA	80.1	84.3	82.2
Greater Perth	**82.4**	**86.5**	**84.4**
Rest of WA	79.4	83.7	81.5
Greater Hobart	**80.6**	**85.1**	**82.8**
Rest of Tas.	79.9	83.7	81.8
Greater Darwin	**79.1**	**84.6**	**81.8**
Rest of NT	71.6	75.8	73.7

Source: ABS 2023d.

Access to health care

People living in remote and very remote areas can face barriers to accessing and using health care, due to various challenges: geographic spread, low population density, limited infrastructure, and the higher costs of delivering rural and remote health care can limit the availability of services. The additional time and transportation costs to

access health care services also means people in remote and very remote areas may delay access to preventive and primary health care and rely on hospital care to have their needs met (NRHA 2023).

Primary health care

Medicare claims data from 2022–23 show that the number of non-hospital non-referred attendances per person, such as general practitioner (GP) visits, were lowest in *Remote communities* (MM 6) and *Very remote communities* (MM 7) (4.2 and 3.4 per person respectively) (Table 3). However, bulk-billing rates were highest in *Very remote communities* (MM 7) (89%), lowest in *Regional centres* (MM 2) (75%) and similar across all other MMM areas (Table 3).

Table 3: Medicare GP Non-Referred Attendances by Modified Monash (MM) category, 2022–23

Modified Monash (MM) category	Total number of GP Non-referred Attendances	Number of GP Non-referred Attendances per person	Number of Bulk-billed GP Non-referred Attendances	Per cent Bulk-billed GP Non-referred Attendances
Metropolitan areas (MM 1)	122.1 million	6.6	99 million	80
Regional centres (MM 2)	14 million	6.1	11 million	75
Large rural towns (MM 3)	10.4 million	6.3	8.2 million	79
Medium rural towns (MM 4)	6.4 million	6.4	5.1 million	80
Small rural towns (MM 5)	11.1 million	6.2	9 million	81
Remote communities (MM 6)	1.2 million	4.2	978,000	79
Very remote communities (MM 7)	706,000	3.4	628,000	89

Note: The number of GP non-referred attendances per person was calculated using the Estimated Resident Population at 30 June 2022.
Source: Department of Health and Aged Care 2023a.

Cancer Screening

Participation in bowel, breast and cervical cancer screening varies with remoteness:

- In 2020–2021, the bowel cancer screening participation rate for people aged 50–74 was highest for people living in *Inner regional* areas (43%) and lowest for people living in *Very remote* areas (25%) (AIHW 2023i).
- In 2020–2021, the breast cancer screening participation rate for females aged 50–74 was highest in *Outer regional* and *Inner regional* areas at 55% and 52%, respectively, and lowest for participants living in *Very remote* areas at 37% (AIHW 2023e).
- In 2018–2022, the cervical screening participation rate for females aged 25–74 years was similar but declined across remoteness areas, from 70% in *Major cities* to 65% in *Outer regional* areas and 60% in *Very remote* areas (AIHW 2023j).

For more information, see General practice, allied health and other primary care services and Cancer screening.

Health workforce

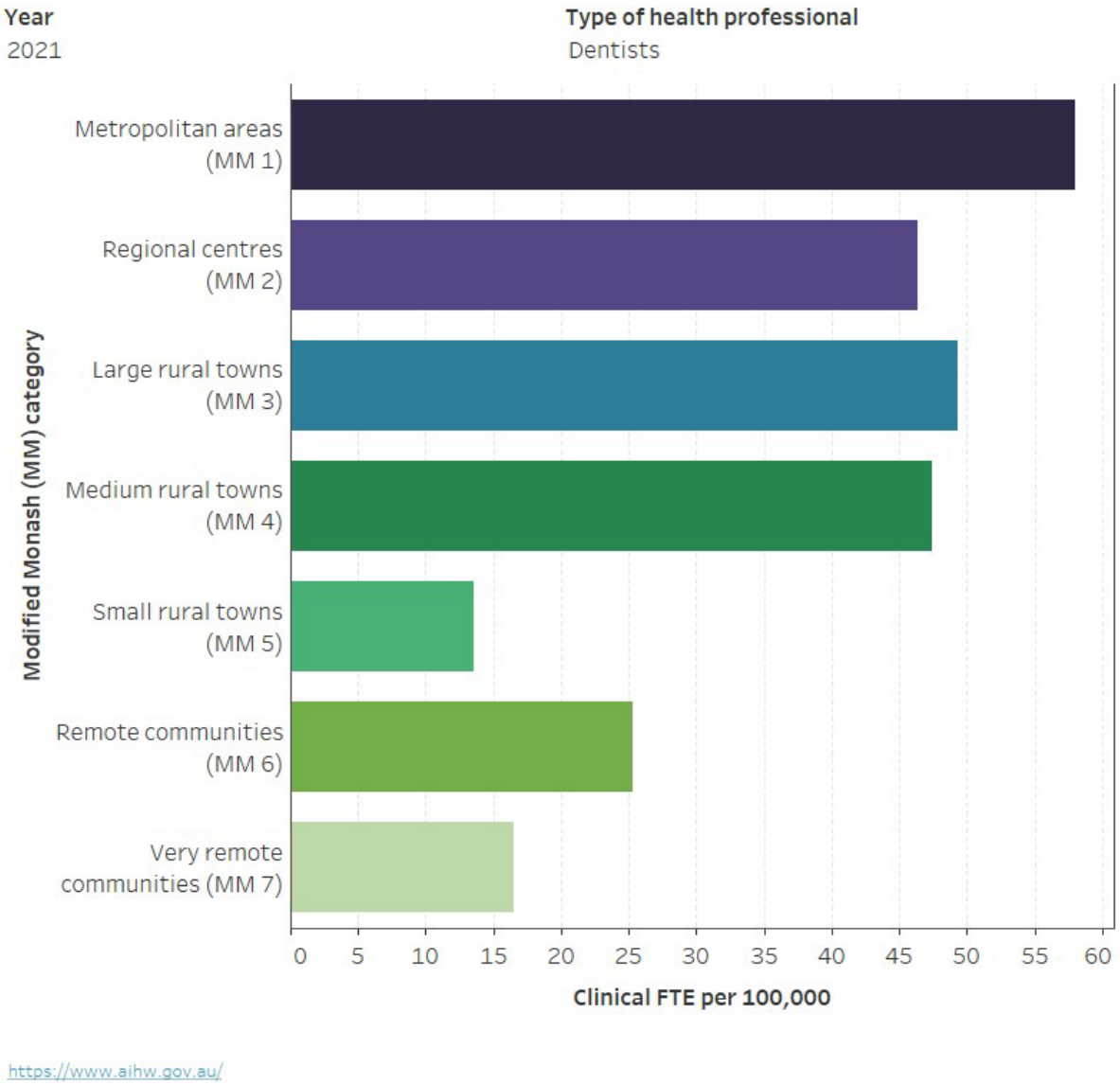
Australians living in rural, *Remote* and *Very remote* c*ommunities* generally have poorer access to healthcare than people in *Regional centres* and *Metropolitan areas*, and may need to travel long distances or relocate to attend health services or receive specialised treatment (AIHW 2022a). The clinical FTE rate indicates the full-time equivalent number of health professionals working clinical hours relative to the population. In 2016–2021 the clinical FTE per 100,000 population was:

- highest in *Metropolitan areas* (MM 1) for many health professionals including specialists (all doctors other than GPs who require a referral from another doctor), occupational therapists, dentists, pharmacists, physiotherapists, psychologists.
- higher in *Large rural towns* (MM 3) compared with *Metropolitan areas* (MM 1) for optometrists, podiatrists and nurses and midwives.
- highest in *Large rural towns* (MM 3), *Medium rural towns* (MM 4), and *Remote* (MM 6) and *Very remote* (MM 7) communities for GPs.
- lowest in *Small rural towns* (MM 5), for all health professionals (including GPs) except for pharmacists. (Department of Health and Aged Care 2022) (Figure 8; Table S8).

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 2019). 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).

For more information, see Health workforce.

Figure 8: Employed health professionals, clinical full-time equivalent (FTE) rate, by Modified Monash (MM) category



Notes:

1. Calculations are based on the FTE clinical rate and report health practitioners working in clinical practice using the Estimated Resident Population of that year.
2. FTE clinical rates are equal to the FTE number per 100,000 population, which is based on total weekly hours worked. For medical practitioners, the standard working week is 40 hours and for all other health practitioners it is 38 hours.
3. Modified Monash (MM) category is derived from Modified Monash (MM) category of main job where available; otherwise, Modified Monash (MM) category of principal practice is used as a proxy.
4. Numbers represent not only those in the labour force, but those employed and working in their registered profession.

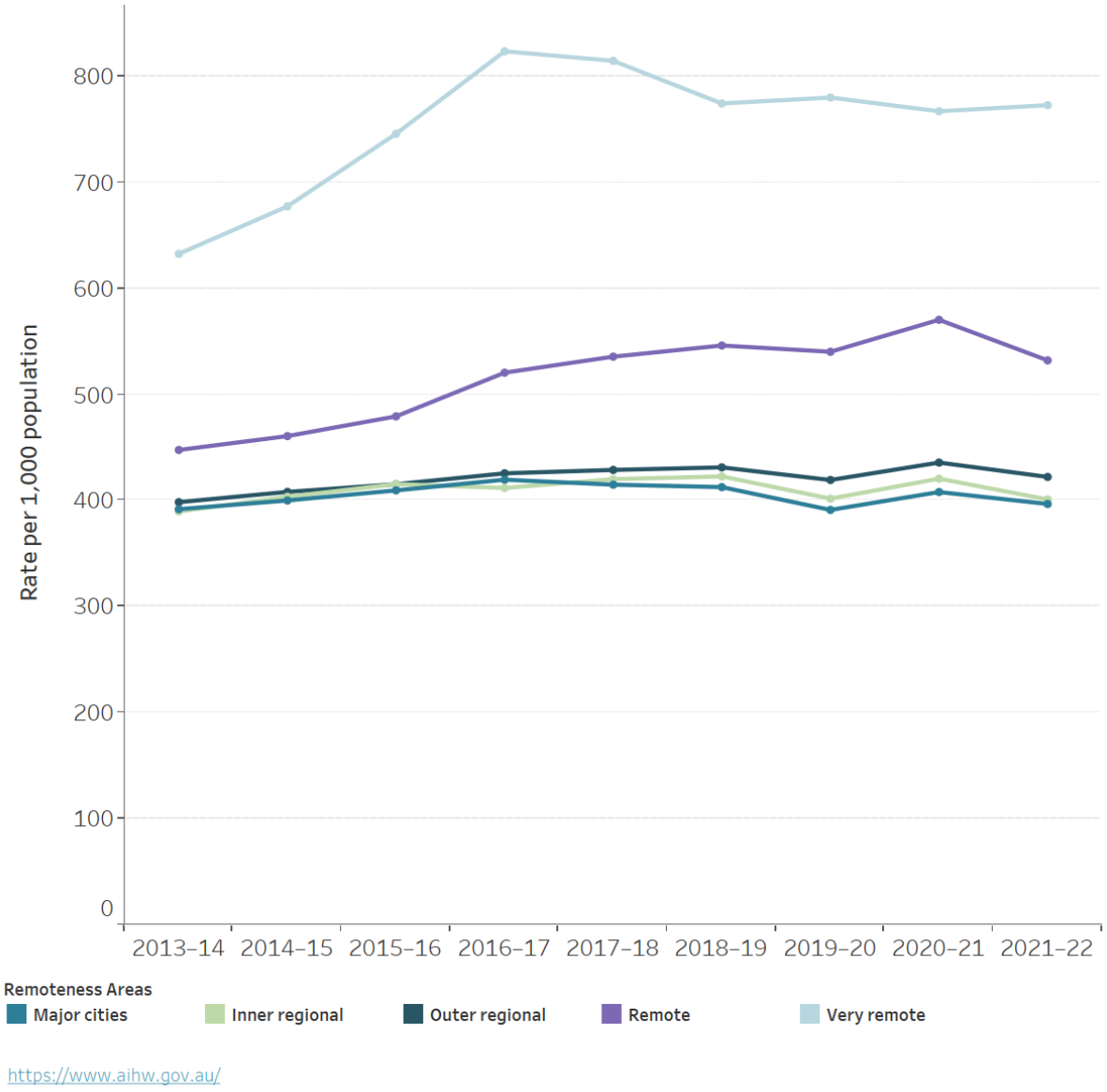
Sources: ABS 2022a; Department of Health 2022a; Table S8.

Hospitalisations

In 2021–22, the number of hospitalisations per 1,000 people was similar for *Major cities* and regional areas (AIHW 2023b). 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 1.3 times the rate, with no improvement since 2013–14 (Figure 9; AIHW 2023b).

Figure 9: Hospitalisations, by remoteness area of usual residence, public and private hospitals, 2013–14 to 2021–22



Notes:

1. Separations per 1,000 population are reported as directly age-standardised rates based on Australian population as at 30 June of the year of interest, the Australian population as at 30 June 2001 was used as the reference population.
2. Remoteness of area of usual residence is based on the patient's area of residence (provided at Statistical Area level 2)

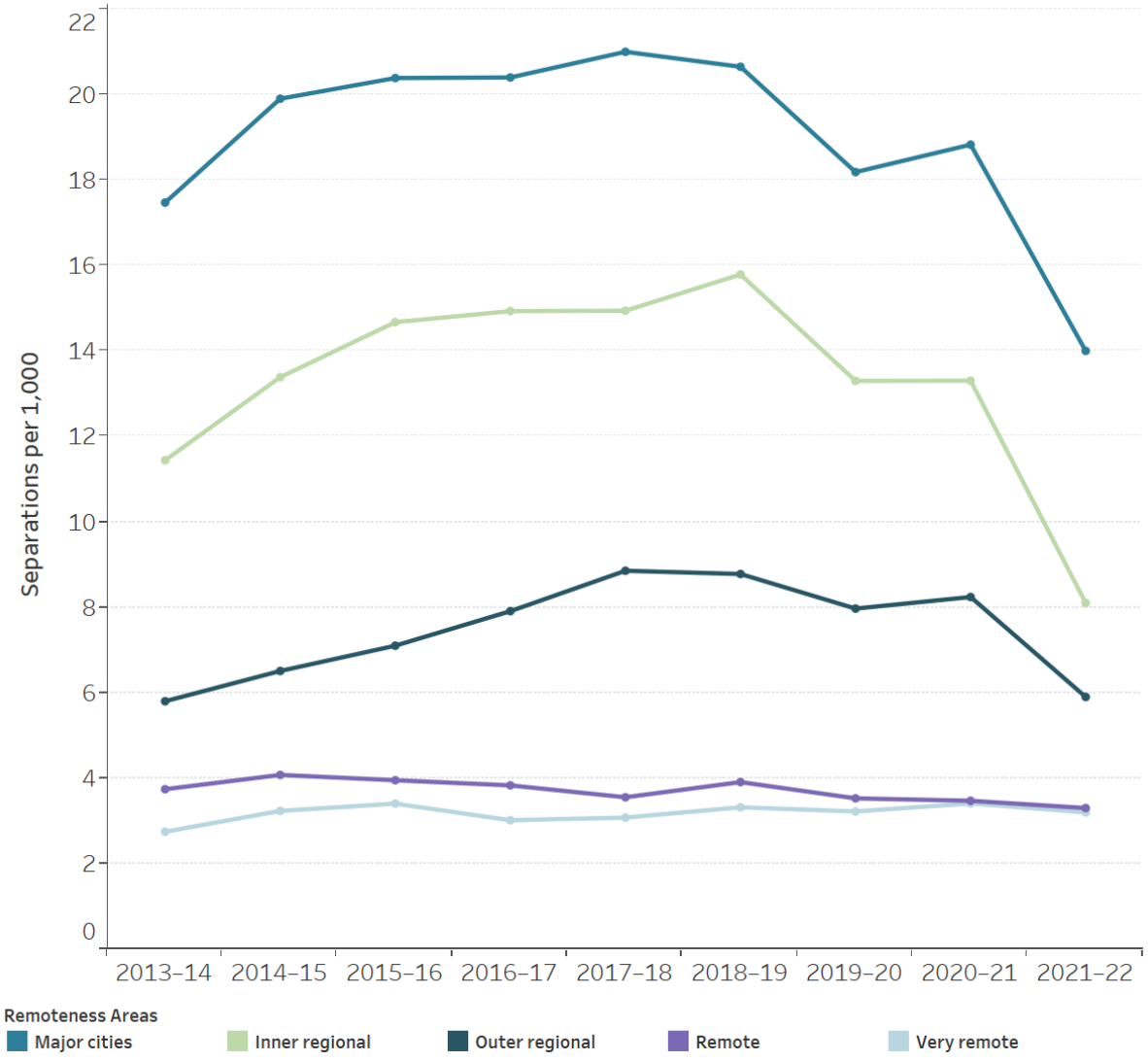
Chart: AIHW. Source: AIHW 2023b; Table S9.

Overall, there was a decrease in the rate of all hospitalisations in 2021–22 across all remoteness areas except for *Very remote* areas, which could be due to the impact of COVID-19 on provision of healthcare services and reduced flow of patients seeking in-hospital care (AIHW 2023a).

People in *Major cities* have higher rates of rehabilitation care hospitalisations compared with people living in other remoteness areas (Figure 10; Table S10; AIHW 2023c). In 2021-22, there were 14 hospitalisations per 1,000 population living in *Major* cities compared with 8 for *Inner regional* areas, 6 for *Outer regional* areas, 3 for both *Remote* and *Very remote* areas. In part, this may reflect the distribution of private hospitals across remoteness areas, as private hospitals accounted for 81% of rehabilitation care separations (AIHW 2023c).

For more information, see Hospitals.

Figure 10: Hospitalisations for rehabilitation care, by remoteness area of usual residence, public and private hospitals, 2013–14 to 2021–22



https://www.aihw.gov.au/

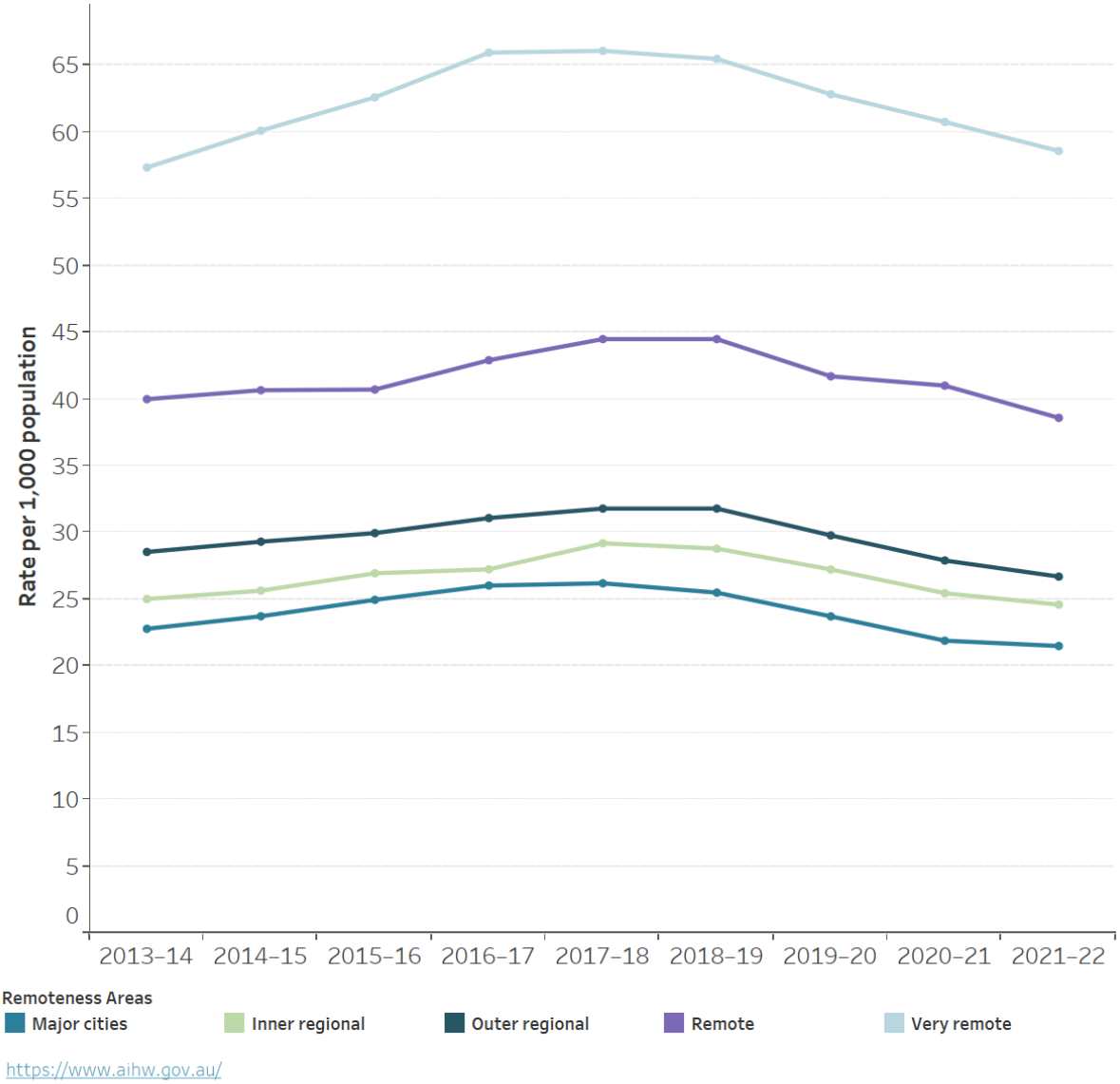
Potentially preventable hospitalisations

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. The rate of PPH increases with remoteness and is highest in *Very remote* and *Remote* areas (Figure 11; Table S11; AIHW 2023d).

When compared with *Major cities*, the rate of PPH in 2021–22 was:

- slightly higher in *Inner regional* and *Outer regional* areas (1.1 and 1.2 times as high, respectively)
- 2–3 times as high for people living in *Remote* and *Very remote* areas (AIHW 2023d).

Figure 11: Potentially preventable hospitalisations, by remoteness area of usual residence, all hospitals, 2013–14 to 2021–22



Notes

1. Separations per 1,000 population are reported as directly age-standardised rates based on the Australian population as at 30 June of the year of interest. The Australian population as at 30 June 2001 was used as the reference population.
2. Remoteness of area of usual residence is based on the patient's area of residence (provided as Statistical Area level 2 for most jurisdictions)

Chart: AIHW. Source: AIHW 2020, AIHW 2023d, Table S11.

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
- Cancer statistics for small geographic areas
- National Rural Health Alliance- external site opens in new window
- Glossary

For more on this topic, visit Rural and remote Australians.

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Aboriginal and Torres Strait Islander people

Determinants of health for First Nations people

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/australias-health/social-determinants-and-indigenous-health

On this page

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 (First Nations) 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 2023). These factors are interrelated and combine to affect the health of individuals and broader communities.

An overview of determinants of health for First Nations people is provided on this page. For more information, see the Aboriginal and Torres Strait Islander Health Performance Framework (HPF) (Tier 2). The HPF covers a range of measures of the determinants of health, including community, socio-economic, environmental, and health risk factors.

Historical context, culture and family connections

Colonisation has had a devastating impact on First Nations communities and culture. Violence and epidemic disease caused an immediate loss of life, and the occupation of land by settlers and the restriction of First Nations people to 'reserves' disrupted their ability to support themselves. Together with the forcible removal of First Nations children from their families and communities, First Nations people 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).

For First Nations people, 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 2023). Based on the Australian Bureau of Statistics (ABS) Aboriginal and Torres Strait Islander Health Survey 2018–19, an estimated 74% of First Nations people aged 18 and over (357,800 people) recognised an area as a homeland/traditional country, 65% (314,200 people) identified with a tribal group, language, clan, mission or regional group, and 27% (130,500 people) lived on their homeland (AIHW and NIAA 2020). See also Profile of First Nations people.

The importance of culture is recognised in the National Aboriginal and Torres Strait Islander Health Plan 2021–2031 which sets the policy direction for the health and wellbeing of First Nations people. 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 First Nations people, contemporary housing must embed culturally-responsive design, including consideration of kinship, family and community living arrangements (Department of Health 2021).

Family connections are affected by child removal, family violence, incarceration and the pervasive effects of intergenerational poverty (Dudgeon et al. 2021).

Contact with the child protection and criminal justice systems

Experience of maltreatment during childhood has serious and long-term impacts on social and emotional wellbeing and health (Emerson et al. 2015). The experience of child welfare policies by First Nations people has historically been traumatic, in particular, the policy of forcible removal of children from their families (see also Profile of First Nations people).

The majority of First Nations children are being raised in safe environments. However, First Nations children are over-represented in all aspects of the child protection system, reflecting a history of trauma and stressors which have impacted parents and communities.

The reasons for the overrepresentation of First Nations children in child protection systems are complex. They include the intergenerational effects of previous separations from family and culture and the legacy of past policies of forced removal of children from their families, known as the Stolen Generations (AIHW 2019; HREOC 1997).

First Nations people experience contact with the criminal justice system – as both offenders and victims – at much higher rates than non-Indigenous Australians. Detention and imprisonment compounds existing social and economic disadvantage and affects families and the broader community.

Data on the child protection and criminal justice systems show that:

- In 2021–22, 57,975 First Nations children came into contact with the child protection system (a rate of 170 per 1,000 population) – of these 13,553 children were the subjects of substantiated maltreatment (see glossary). The rate of substantiated maltreatment in First Nations children was 7 times as high as in non-Indigenous children (39.8 compared with 5.7 per 1,000 population).

- 24,610 First Nations children were on care and protection orders at 30 June 2022. The rate of care and protection orders was nearly 11 times as high for First Nations children as for non-Indigenous children (71.9 compared with 6.8 per 1,000 children).
- The rate of community supervision for First Nations people aged 10–17 in 2021–22 was 94 young people per 10,000 population, 17 times the rate for non-Indigenous young people (5.4 per 10,000 population).
- The rate of First Nations youth in detention on an average day in 2021–22 was 24 times as high as for non-Indigenous youth (28.3 compared with 1.2 per 10,000 population).
- As at 30 June 2022, 12,902 First Nations adults were in prison at a rate of 2,330 per 100,000 population, with 78% having experienced prior adult imprisonment. First Nations prisoners made up 32% of all prisoners (AIHW & NIAA 2024a, 2024b).

The Aboriginal and Torres Strait Islander Health Performance Framework has detailed information on contact with the criminal justice system and child protection among First Nations people. See Measure 2.11 Contact with the criminal justice system and Measure 2.12 Child protection.

Socio-economic and environmental factors

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, healthy food and health care services.

Levels of educational attainment among First Nations people have improved substantially over the past decade. Based on data from the ABS Census of Population and Housing, between 2011 and 2021:

- the proportion of First Nations people aged 20–24 who had attained at least a Year 12 or equivalent qualification increased from 52% to 68%
- the proportion of First Nations adults aged 20–64 whose highest level of education was Certificate III to Advanced Diploma increased from 24% to 34%, and the proportion whose highest level was a Bachelor Degree or above increased from 6.6% to 9.8% (AIHW and NIAA 2023b, 2023c).

In 2021, the employment rate – the number of employed people as a proportion of the working age population – was 56% for First Nations people aged 25–64. Between 2011 and 2016 the employment rate for First Nations people changed little; however, between 2016 and 2021, the employment rate for First Nations people aged 25–64 increased by 4.7 percentage points (51.0% to 55.7%). The proportion of First Nations people aged 25–64 who were employed was higher in non-remote areas than remote areas, and among those with higher levels of educational qualification (AIHW and NIAA 2023d).

The employment rate remains considerably lower among First Nations people than non-Indigenous Australians (56% compared with 78%) (AIHW and NIAA 2023d).

An adequate income is fundamental to being able to live a healthy life – it gives a person greater access to nutritious food, better housing, 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 2021:

- More than 1 in 3 (35%) First Nations adults lived in households with equivalised gross household incomes (which adjust for differences in income based on differences in household sizes) in the bottom 20% of incomes nationally.
- The average (median) weekly equivalised household income of First Nations adults was highest among those living in *Major cities* ($982/week) and lowest among those living in *Very remote* areas ($459/week) (AIHW and NIAA 2023e).

The Aboriginal and Torres Strait Islander Health Performance Framework has detailed information on education, employment and income among First Nations people. See Measure 2.04 Literacy and numeracy, Measure 2.05 Education outcomes for young people, Measure 2.06 Educational participation and attainment of adults, Measure 2.07 employment, Measure 2.08 Income and Measure 2.09 Index of disadvantage.

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).

First Nations people 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 First Nations people (AIHW and NIAA 2023a).

According to the ABS Census of Population and Housing, in 2021, 81% of First Nations people lived in appropriately sized (not overcrowded) housing (569,400 people). This was an increase from 75% in 2011 (AIHW and NIAA 2023a).

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%) First Nations 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
- the proportion of First Nations households living in housing with major structural problems was highest for those living in *Remote* and *Very remote* areas (41% and 50%

respectively, compared with between 27% and 35% in non-remote areas) (AIHW and NIAA 2022).

The Aboriginal and Torres Strait Islander Health Performance Framework has detailed information on housing among First Nations people. See Measure 2.01 Housing and Measure 2.02 Access to functional housing with utilities.

Health risk factors

Health risk factors, including overweight and obesity, alcohol consumption, smoking, dietary behaviours and insufficient physical activity, 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 First Nations 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).

The Aboriginal and Torres Strait Islander Health Performance Framework has detailed information on overweight and obesity among First Nations people. See Measure 2.22 Overweight and Obesity.

Alcohol consumption

Between 2001 and 2018–19, there was an increase in the proportion of First Nations people 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% (ABS 2019).

In 2018–19, based on data from the National Aboriginal and Torres Strait Islander Survey, a greater proportion (37%) of First Nations people 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 First Nations adults in non-remote areas (23%) (ABS 2019).

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 (AIHW and NIAA 2023g). High levels of alcohol consumption can increase the risk of lifetime harm. Exceeding alcohol risk guidelines can contribute to the risk of cancer, chronic liver disease and cardiovascular disease, among other health outcomes (NHMRC 2020).

In 2018–19, about 1 in 5 (20% or 97,100) First Nations 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 (ABS 2019). In this survey, exceeding the guidelines was defined as consuming more than two standard drinks per day on average in the last week. This was based on the National Health and Medical Research Council (NHMRC) 2009 guidelines that applied at the time of the survey. Note that in December 2020, the National Health and Medical Research Council (NHMRC) released updated alcohol guidelines, advising consumption of no more than ten standard drinks a week to reduce the lifetime risk of harm from alcohol-related disease or injury.

The Aboriginal and Torres Strait Islander Health Performance Framework has detailed on alcohol consumption among First Nations people. See Measure 2.16 Risky alcohol consumption.

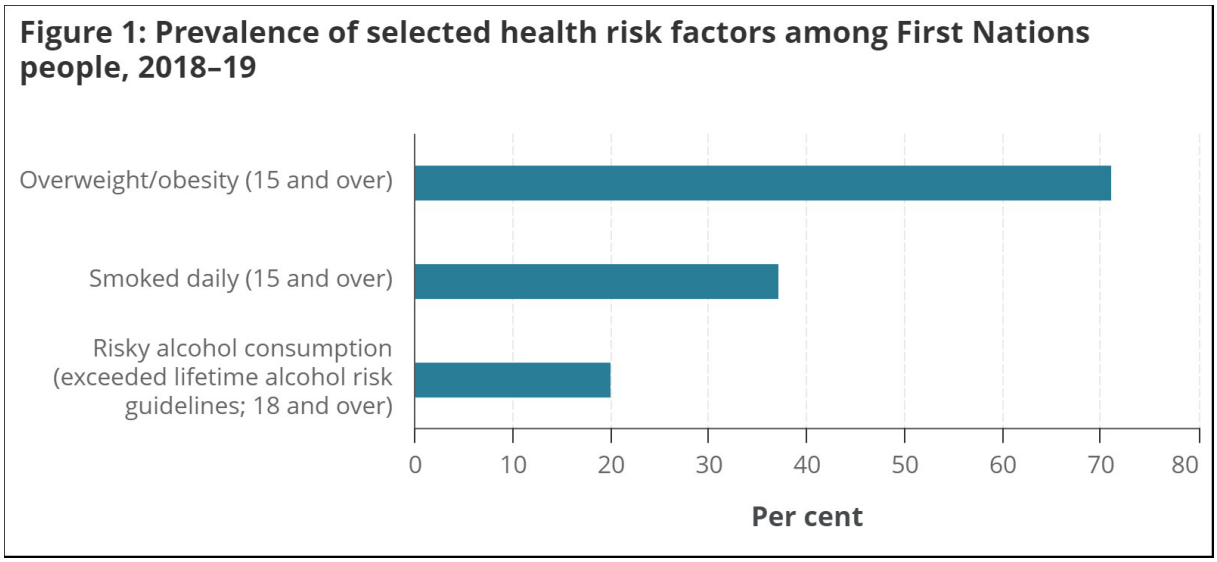
Tobacco smoking

Smoking is a major risk factor for cardiovascular disease, cancer, and respiratory disease (AIHW 2022). The proportion of First Nations people aged 15 and over who smoke every day has fallen substantially over the past decade. In 2018–19, 37% of First Nations people aged 15 and over (about 200,400) smoked every day (Figure 1), compared with 45% in 2008 (AIHW and NIAA 2023f). The largest falls in daily smoking rates have occurred among younger First Nations people.

In 2018–19, 85% of First Nations people aged 15–17 reported that they had never smoked, compared with 72% in 2008. The decline in daily smoking rates among First Nations adults occurred in non-remote areas – there was no significant change over this period in daily smoking rates among First Nations adults in remote areas (AIHW and NIAA 2023f).

The Aboriginal and Torres Strait Islander Health Performance Framework has detailed on tobacco smoking and second-hand smoking among First Nations people. See Measure 2.15 Tobacco use and Measure 2.03 Environmental tobacco smoke.

Figure 1: Prevalence of selected health risk factors among First Nations people, 2018–19



The health gap

Although there have been improvements in a range of health and social indicators for First Nations people, substantial disparities remain in many health outcomes between First Nations and non-Indigenous Australians. This is referred to as the 'health gap'.

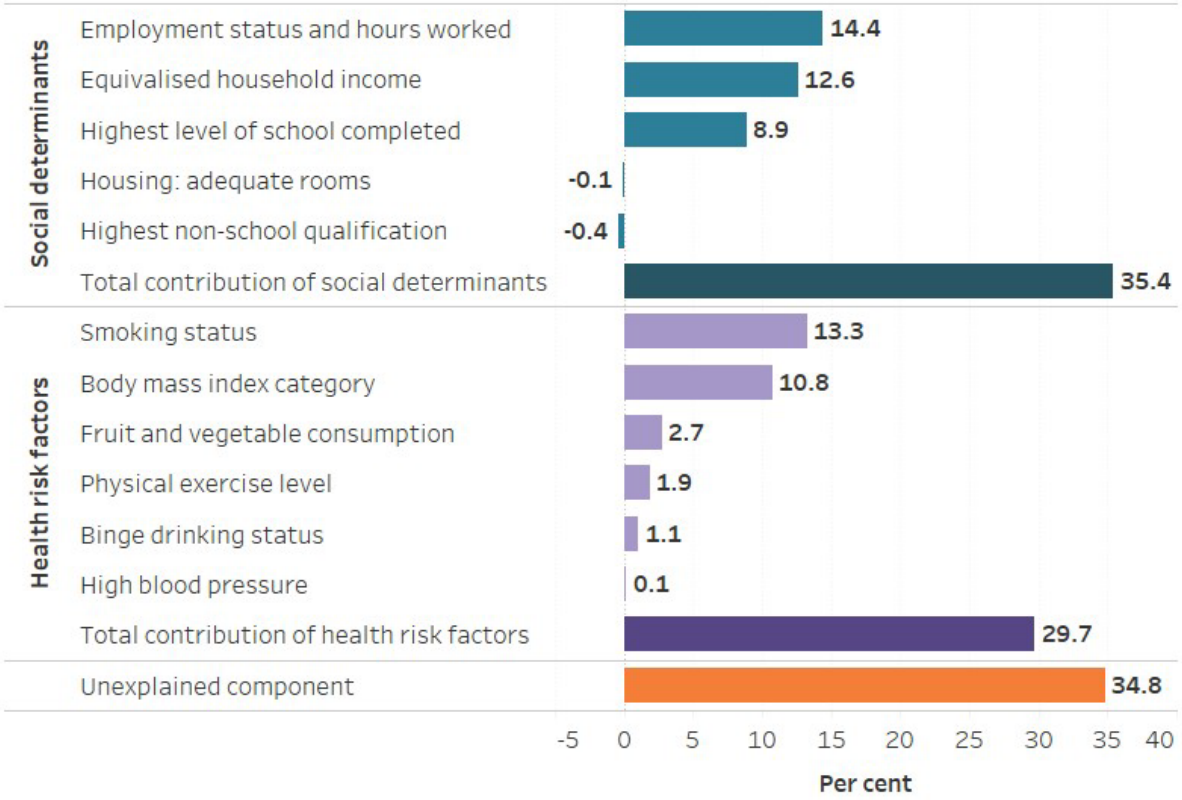
AIHW analysis of ABS health survey data from 2017 to 2019 estimated that just under 3 in 10 (29%) First Nations adults aged 18–64 were in 'good health', using a composite measure based on a number of survey questions, compared with 51% of non-Indigenous Australians. After accounting for the differences in average age, sex, marital status, remoteness and state/territory between First Nations and non-Indigenous survey respondents, the health gap between First Nations and non-Indigenous was 24.0 percentage points – a decrease from 26.9 percentage points in 2011–13.

Analysis of data for 2017–19 showed that an estimated 35% of the health gap was explained by social determinants, and a further 30% by selected health risk factors (Figure 2).

Around 35% of the gap was left unexplained by this analysis. This unexplained component of the health gap reflects the fact that the available data sources do not provide a complete picture of the differences in health between First Nations people and non-Indigenous Australians, and includes possible effects due to factors that may contribute to good health but which are not available in the survey data analysed. For example, these factors may include access affordable and culturally appropriate health care services, connection to country and language, and effects of structural disadvantage and racism.

For more information, see *Australia's health 2024: data insights* article Size and sources of the health gap for Australia's First Nations people 2017–2019.

Figure 2: Contribution of individual social determinants and health risk factors to the adjusted health gap between First Nations people and non-Indigenous Australians aged 18–64, 2017–19



Note: For additional analyses, see Size and sources of the health gap for First Nations people 2017–2019.

Source: AIHW analysis of ABS NATSIHS 2018–19 and ABS NHS 2017–18.

https://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 2024: data insights* article Size and sources of the health gap for Australia's First Nations people 2017–2019

For more information on this topic, see First Nations people.

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First Nations people and the health system

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/australias-health/indigenous-australians-use-of-health-services

On this page

Access to appropriate, high-quality and timely health care throughout life is essential for improving health outcomes for Aboriginal and Torres Strait Islander (First Nations) people (see glossary). Some aspects of health system performance for First Nations people have improved over the last decade. Barriers affecting access remain, however, as observed in the disparity in First Nations people's level of access compared with non-Indigenous Australians.

This page presents measures of health system performance for First Nations people drawn from the Aboriginal and Torres Strait Islander Health Performance Framework (HPF) (AIHW 2024a).

For general information about the First Nations population, see Profile of First Nations people.

Measures of health system performance

The Aboriginal and Torres Strait Islander HPF monitors progress against 68 measures organised under 3 tiers: health status and outcomes; determinants of health; and health system performance.

Tier 3 of the Aboriginal and Torres Strait Islander HPF includes 22 measures organised into 6 domains relating to health system effectiveness, responsiveness, accessibility, continuity, capability, and sustainability:

Effective, appropriate, efficient (8 measures)

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.

Efficient – the desired results are achieved with the most cost effective use of resources.

Measures include:

- Antenatal care (3.01)
- Immunisation (3.02)
- Health promotion (3.03)
- Early detection and early treatment (3.04)
- Chronic disease management (3.05)
- Access to hospital procedures (3.06)
- Selected potentially preventable hospital admissions (3.07)
- Cultural competency (3.08)

Responsive (5 measures)

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.

Measures include:

- Self-discharge from hospital (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 (3 measures)

Ability of people to obtain health care at the right place and right time irrespective of income, cultural background or physical location.

Measures include:

- Access to services compared with need (3.14)
- Access to prescription medicines (3.15)
- Access to after-hours primary health care (3.16)

Continuous (2 measures)

The ability to provide uninterrupted, coordinated care or service across programs, practitioners, organisations and levels over time.

Measures include:

- Regular general practitioner or health service (3.17)
- Care planning for chronic diseases (3.18)

Capable (2 measures)

An individual or service's capacity to provide a health service based on skills and knowledge.

Measures include:

- Accreditation (3.19)
- Aboriginal and Torres Strait Islander people training for health-related disciplines (3.20)

Sustainable (2 measures)

System's or organisations' capacity to provide infrastructure such as workforce, facilities and equipment, and be innovative and respond to emerging needs (research, monitoring).

Measures include:

- 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, see Determinants of health for First Nations people and Health and wellbeing of First Nations people.

Health system performance over time

The performance of the health system for First Nations people, as described by the measures drawn from the Aboriginal and Torres Strait Islander HPF, shows mixed results over the most recent decade. Among measures based on regularly reported data, some measures show improvement, but not all.

Improvements in health system performance for First Nations people include:

- Antenatal care (3.01): The proportion of First Nations women who accessed antenatal care (see glossary) in their first trimester of pregnancy increased from 50% to 71% between 2012 and 2020.
- Access to hospital procedures (3.06): The age-standardised proportion of hospitalisations (see glossary) of First Nations people with a procedure (see glossary) recorded increased by 19% between 2011–12 and 2020–21.
- Self-discharge from hospital (3.09): The age-standardised proportion of hospitalisations of First Nations people that ended in discharge at own risk decreased from 4.6% to 3.8% between 2011–12 and 2020–21.
- Aboriginal and Torres Strait Islander people in the health workforce (3.12): The rate of First Nations people employed in health-related occupations increased from 255 per 10,000 to 309 per 10,000 between 2011 and 2021.

- Access to services compared with need (3.14): The number of First Nation specific primary health care organisations increased from 147 to 211 between 2006–07 and 2021–22 (AIHW 2024b).
- Expenditure on Aboriginal and Torres Strait Islander health compared to need (3.21): There was a 38% increase in Australian Government expenditure on health services tailored to the needs of First Nations people between 2010–11 and 2019–20, from $703 million to $972 million.

Barriers to accessing health services

Barriers to accessing health services for First Nations people include services not being available in their area (especially for those living in remote areas), services being too far away, lack of transport, cost, waiting times, and the availability of culturally safe and responsive health services. The nuances surrounding these barriers are addressed in the measure Access to services compared with need (3.14) of the Aboriginal and Torres Strait Islander HPF.

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 First Nations people. A culturally safe health system is one that respects the cultural values, strengths and differences of First Nations people, 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 First Nations clients/patients to ensure that the system meets their needs (PM&C 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 (AIHW 2023). For the purposes of this framework, cultural safety is defined with reference to the experiences of First Nations health care users, the care they are given, and their ability to access services and to raise concerns.

Where do I go for more information?

For detailed information on the performance of the health system for First Nations people, 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 First Nations people's use of health services, see also:

- Health checks and follow-ups for Aboriginal and Torres Strait Islander people
- Aboriginal and Torres Strait Islander specific primary health care: results from the OSR and nKPI collections
- Cultural safety in health care for Indigenous Australians: monitoring framework.

For broader information on this population group, visit First Nations people.

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Health and wellbeing of First Nations people

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https://www.aihw.gov.au/reports/australias-health/indigenous-health-and-wellbeing

On this page

For Aboriginal and Torres Strait Islander (First Nations) 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 First Nations health and includes links to more detailed information.

Life expectancy and deaths

Life expectancy is widely used as an indicator of population health. Given current mortality patterns, First Nations males born in 2020–2022 could expect to live 71.9 years, and First Nations females 75.6 years (ABS 2023a). In general, life expectancy is lower in remote areas, with First Nations males and females living in *Major cities* expected to live around 5 years longer than those living in *Remote and very remote* areas. Due to significant changes in Indigenous identification over time in both the Census and in death records, it is not possible to compare estimates for 2020–2022 with those from earlier time periods (ABS 2023a).

Death rates among First Nations people have been falling in most age groups over the past 10 years, though the age-standardised death rate has risen by 4.1%. The median age at death for First Nations people in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined has increased from 57.2 years in 2012 to 62.3 in 2022 (ABS 2023c). In 2022, the leading causes of death among First Nations people in these 5 jurisdictions were coronary heart disease, diabetes, chronic lower respiratory diseases, cancers of the lung, bronchus and trachea, and intentional self-harm (ABS 2023b).

In the last few years, cancers have overtaken cardiovascular diseases as the most common group of diseases causing deaths among both First Nations and non-Indigenous Australians. Between 2006 and 2022, the age-standardised death rate for cardiovascular disease among First Nations people in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined fell by 22%, from 323 to 252 per 100,000, while the cancer death rate rose by 31%, from 205 to 269 per 100,000.

The Aboriginal and Torres Strait Islander Health Performance Framework provides detailed information on life expectancy and deaths among First Nations people, 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, lower back pain, 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 living with illness or premature death.

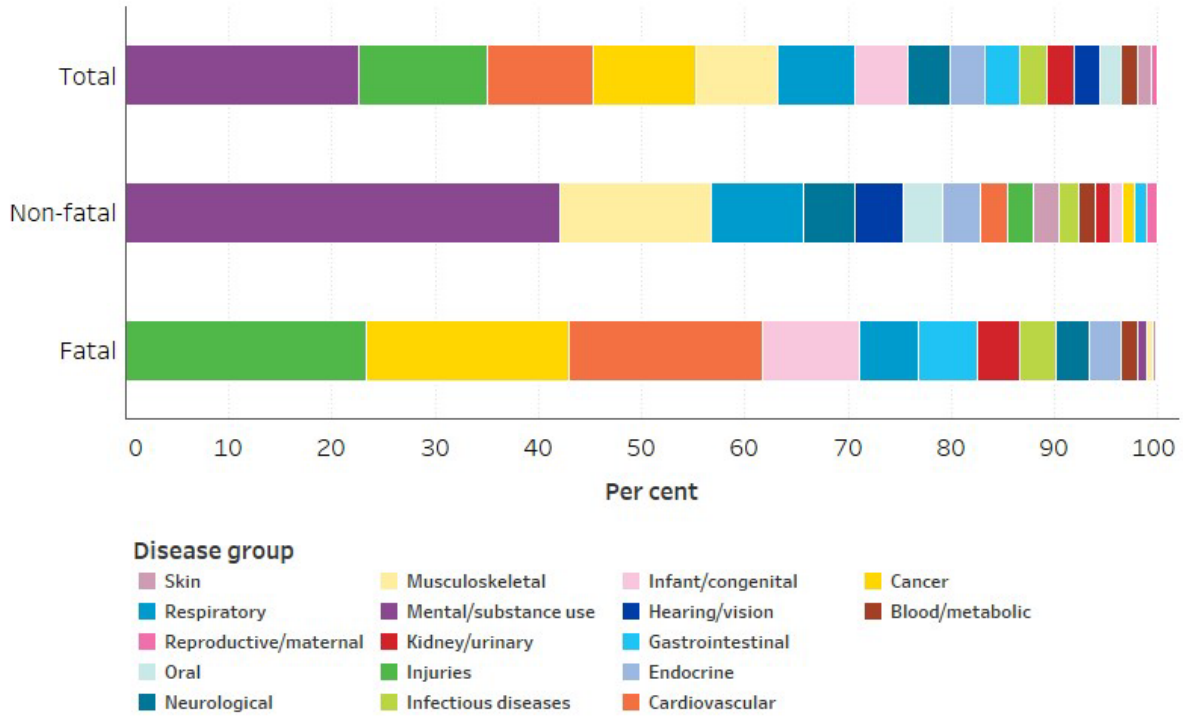
The latest available data from the Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2018 (AIHW 2022) found that, in 2018, First Nations people as a whole lost almost 240,000 years of healthy life due to ill-health and premature death – equivalent to 289 years for every 1,000 people. Just over half (53%) of the total was non-fatal burden, with 47% being fatal burden. After adjusting for population growth and ageing, there was a 15% decrease in total burden between 2003 and 2018. This was driven by a 27% drop in fatal burden over the period, while there was no substantial change in the non-fatal burden.

The leading 5 disease groups contributing to burden in First Nations people in 2018 were:

- mental health & substance use disorders (such as anxiety, depression, and drug use), contributing 23% of total burden
- injuries (such as falls, road traffic injuries, and suicide), 12%
- cardiovascular diseases (such as coronary heart disease and rheumatic heart disease), 10%
- cancer and other neoplasms (such as lung cancer and breast cancer), 9.9%
- musculoskeletal conditions (such as back pain & problems and osteoarthritis), contributing 8.0% of total burden.

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 First Nations people, 2018



Source: AIHW 2022.
http://www.aihw.gov.au/

Coronary heart disease (see glossary) was the leading individual disease contributing to burden among First Nations people 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 First Nations people in recent years through the Better Cardiac Care measures for Aboriginal and Torres Strait Islander people.

Comparison of burden of disease results for First Nations and non-Indigenous Australians shows that, overall, First Nations people 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 First Nations people. 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).

First Nations people's 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. For more information, see Determinants of health for First Nations people.

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 (the Framework) 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 First Nations people, 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 and 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 First Nations people reported having a diagnosed mental health or behavioural condition and 3 in 10 (31%) First Nations 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 First Nations communities (Dudgeon et al. 2021).

For more 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 First Nations people is an issue of major concern for many First Nations communities and a public health priority for all Australian governments. Suicide was the fifth leading cause of death among First Nations people in 2022, accounting for 4.6% of all deaths (data for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only), and the 17th leading cause of death for non-Indigenous Australians in these 5 jurisdictions (1.6% of all deaths). It was also the leading cause of death for First Nations children aged 5–17 during the period 2018–2022 (ABS 2023b). Although suicide rates have increased in both the First Nations and non-Indigenous populations over the past 15 years, these data should be interpreted with caution due to data quality issues including changes in Indigenous identification over time (AIHW 2023a, 2023b). Data from 2018–2022 show that the rate of suicide deaths among First Nations people was more than twice that for non-Indigenous Australians, with the differences being greater for people aged under 45 (AIHW 2023b).

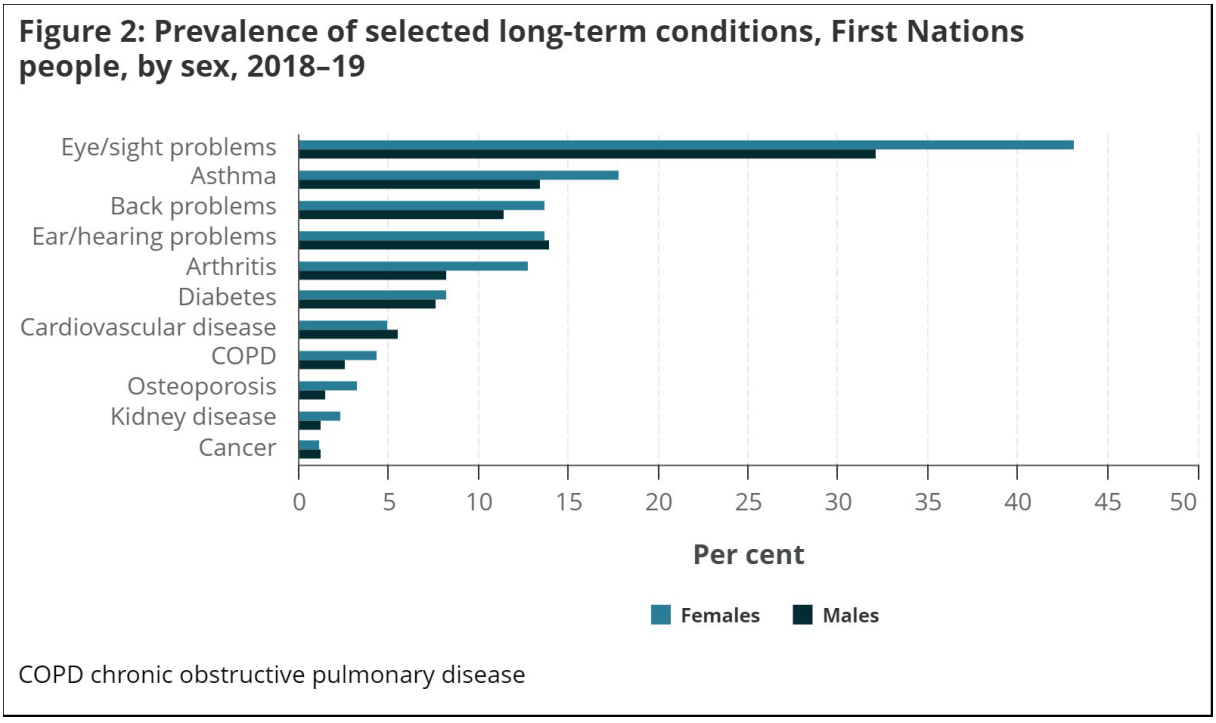
Suicide and self-harm behaviours arise from a complex web of personal, social, and historical factors (Dudgeon et al. 2017), but they can be prevented. For more information on suicide prevention among First Nations people, see the Indigenous Mental Health and Suicide Prevention Clearinghouse.

The impact of chronic conditions

Chronic conditions are long-term health conditions (that is, lasting for at least 6 months) that contribute to ill-health and may lead to premature death. People with one or more chronic condition can have complex health needs, and may require assistance with daily living activities. Examples of chronic conditions include heart disease, chronic obstructive pulmonary disease (COPD), chronic kidney disease, arthritis, depression, hearing problems, and dementia. Many chronic conditions are more common among First Nations people than among non-Indigenous Australians, and occur at a younger age.

In the 2018–19 National Aboriginal and Torres Strait Islander Health Survey, 2 in 3 First Nations respondents (67%) reported at least one long-term health condition, with 36% reporting 3 or more (ABS 2019). Commonly reported conditions included eye/sight problems (38%, an estimated 307,000 people), asthma (16%, 128,000), ear/hearing problems (14%, 112,000), back problems (13%, 102,000) and arthritis (10%, 86,000). An estimated 64,000 First Nations people (7.9%) had diabetes, 28,000 (3.4%) had COPD, and 15,000 (1.8%) had kidney disease (Figure 2).

Figure 2: Prevalence of selected long-term conditions, First Nations people, by sex, 2018–19



COPD chronic obstructive pulmonary disease

Source: ABS 2019.

Hearing health, eye health and oral health

Oral and hearing health problems are 2 issues that particularly affect First Nations children, especially those living in remote areas. Eye health problems causing preventable vision loss also have a substantial impact on First Nations adults.

Otitis media (inflammation and/or infection of the middle ear) is the main condition contributing towards hearing loss in First Nations 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 and Thomson 2013).

First Nations children are more likely than non-Indigenous children to experience tooth decay and to be hospitalised for dental problems (AIHW 2023a). Several factors contribute to the poorer oral health of First Nations 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 First Nations 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 First Nations people aged 40 and over at much higher rates than non-Indigenous Australians of the same age. The Eye health measures for Aboriginal and Torres Strait Islander people annual report provides an evidence base for monitoring changes in eye health among First Nations people, identifying inequalities and highlighting potential gaps in service provision.

It's not the same for everyone, everywhere

On average, First Nations people living in remote areas have 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.

Regional 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 First Nations 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 First Nations people. 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 with other First Nations people (AIHW 2019a, 2019b).

The Stolen Generations

Between approximately 1910 and 1972, thousands of Aboriginal and Torres Strait Islander 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 First Nations children during that period.

In 2018–19, there were an estimated 33,600 Stolen Generations survivors across Australia. Around 1 in 3 First Nations adults were estimated to be descendants of the Stolen Generations (AIHW 2021).

Where do I go for more information?

For more information on the health and wellbeing of First Nations people, 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 and Aged Care Aboriginal and Torres Strait Islander health

For more on this topic, see First Nations people.

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Profile of First Nations people

Find the most recent version of this topic summary at:
https://www.aihw.gov.au/reports/australias-welfare/profile-of-indigenous-australians

On this page

Aboriginal and Torres Strait Islander (First Nations) people are the first 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 First Nations people 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 demographic information on the First Nations population, including information on their languages and cultures. Information is also included on the Closing the Gap targets.

First Nations identification in data collections

In most Australian data collections, First Nations people refers to people who have identified themselves or have been identified by a representative (for example, their parent or guardian), as being of Aboriginal and/or Torres Strait Islander origin. For a few data collections, such as those associated with government grants and payments, information on acceptance of a person as being of Aboriginal and Torres Strait Islander origin by their community may also be required.

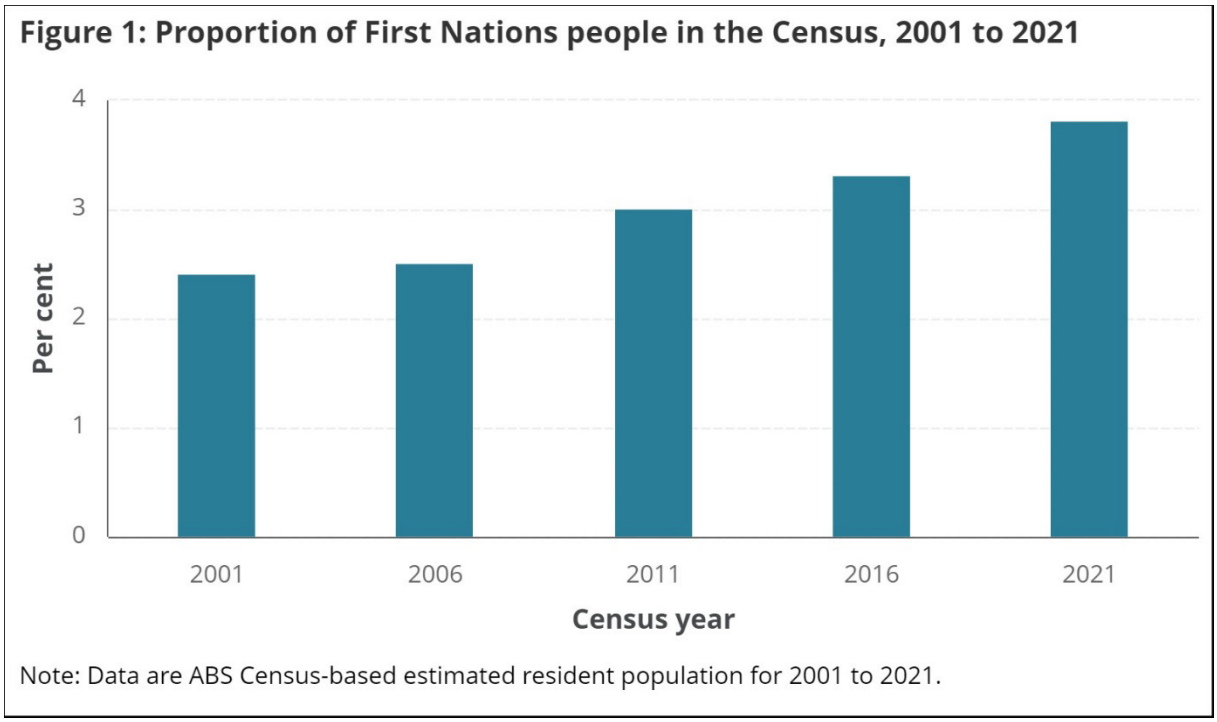
Colonisation is recognised as having a fundamental impact on the disadvantage and poor health of First Nations peoples worldwide, through social systems that maintain disparities (see for example, Thurber et al. 2022; Paradies 2016; Paradies and Cunningham 2012). In Australia, the historical and ongoing effects of colonisation and racism have contributed, at least in large part, to current inequities in the health and wellbeing of First Nations people. In contrast, cultural factors – such as connection to Country and caring for Country, knowledge and beliefs, language, self-determination, family and kinship, and cultural expression – can be protective and positively influence First Nations people's health and wellbeing (see for example, Thurber et al. 2022; Bourke et al. 2018).

Population size and location

As of 30 June 2021, Australian Bureau of Statistics' (ABS) estimates indicate that 984,000 First Nations people were living in Australia, representing 3.8% of the total Australian population. This was an increase of 23% (185,600 people) from the 30 June 2016 estimate of 798,400 (ABS 2018, 2022b).

The proportion of First Nations people has increased at the time of each Census of Population and Housing (the Census) since 2001 – from 2.4% in 2001, to 2.5% in 2006, 3.0% in 2011, 3.3% in 2016, and 3.8% in 2021 Census (Figure 1). This increase is not completely explained by demographic factors. Other factors, such as changing identification in the Census and throughout life, an undercount for ages 0–4 in the 2016 Census, greater participation in the 2021 Census and a higher response rate to the question on Indigenous status, have also contributed to changes in counts of First Nations people (ABS 2023).

Figure 1: Proportion of First Nations people in the Census, 2001 to 2021



Sources: ABS 2003, 2008, 2013, 2018, 2022b.

Based on 2021 Census counts of the First Nations population (around 812,700 people):

- 91.4% identified as being of Aboriginal origin
- 4.2% identified as being of Torres Strait Islander origin
- 4.4% identified as both Aboriginal and Torres Strait Islander (ABS 2022a).

About First Nations populations estimates

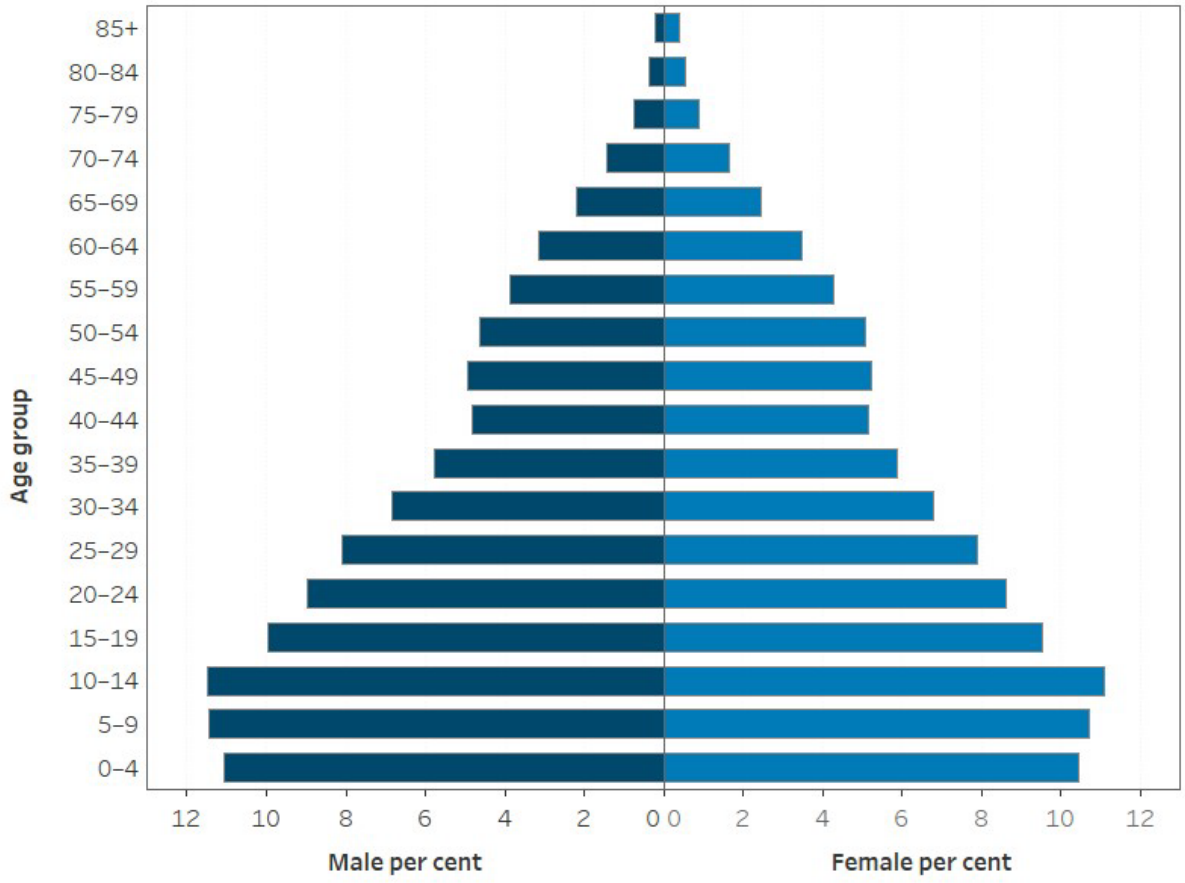
The ABS produces Estimated Resident Populations (ERPs) for First Nations people every 5 years (the Census years).

The 2021 estimates of First Nations population on this page are from the ABS final 2021 Census-based estimates of resident population of First Nations and non-Indigenous Australians. For more information, see Estimates of Aboriginal and Torres Strait Islander people .

Age distribution

The First Nations population has a relatively young age structure, with larger proportions of people aged 29 and under, when compared with the non-Indigenous population. As of 30 June 2021, an estimated one-third (34%) of the First Nations population was aged under 15, compared with 17% of non-Indigenous people in the same age group (ABS 2022b; Figure 2). The median age of First Nations people has increased – from 21 in 2011, to 23 in 2016 and 24 in 2021 (ABS 2022a).

Figure 2: First Nations population by age and sex, 30 June 2021



Note: Data are ABS 2021 Census-based estimated resident population.
Source: ABS 2022b.
https://www.aihw.gov.au/

Geographic distribution

First Nations people are more likely to live in urban and regional areas than remote areas, though the proportion of the total population who are First Nations is generally higher in more remote areas.

Based on 2021 Census-based estimates (ABS 2022b), among First Nations people:

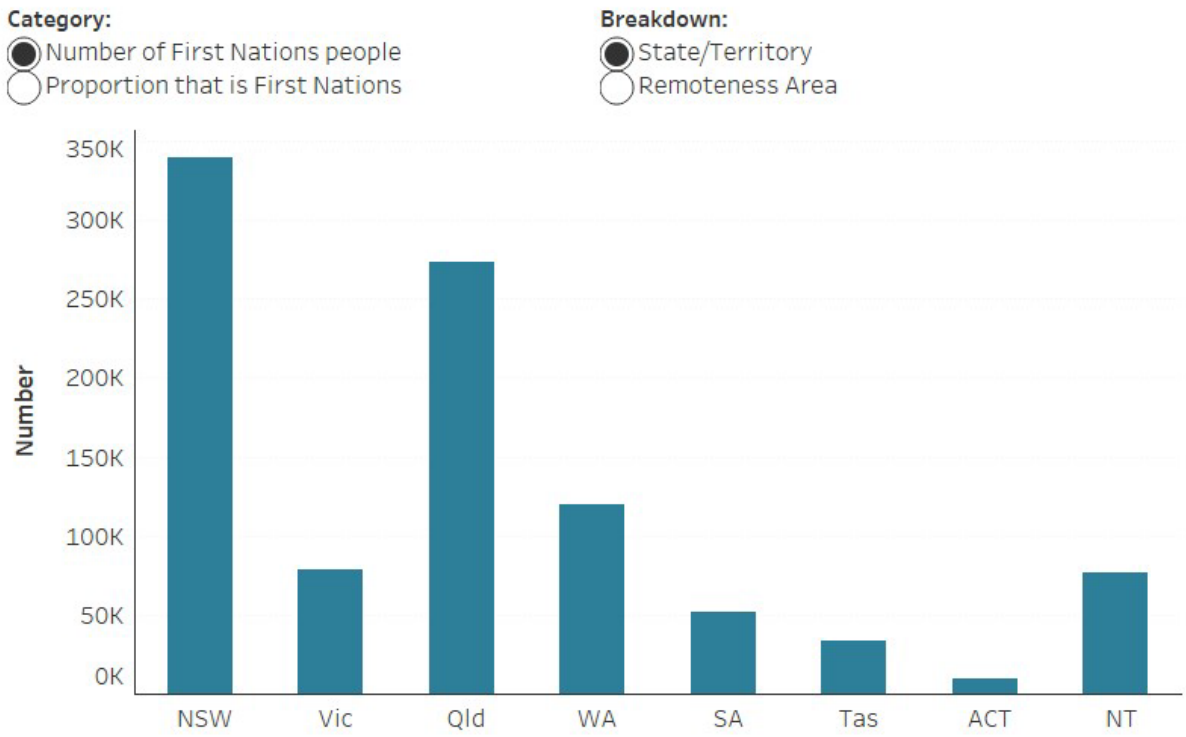
- 41% (401,700) live in *Major cities*
- 44% (431,000) live in *Inner and outer regional* areas
- 15% (150,900) live in *Remote and very remote* areas combined (Figure 3). This decrease from 17% in 2016 is due to the relative increase in the proportion of First Nations people identifying as Indigenous outside remote and very remote areas.

The proportion of the total population who were First Nations increased with remoteness, from 2.2% in *Major cities*, to 30% in *Remote and very remote* areas.

According to 2021 ABS Estimated Resident Population, over 34% of First Nations people (340,000 people) lived in New South Wales and 28% (273,000 people) in Queensland (Figure 3).

The Northern Territory had the highest proportion of First Nations residents among its population in 2021– about 31% (76,500 people) (Figure 3).

Figure 3: First Nations population by geography, 2021



Note: Data are ABS 2021 Census-based estimated resident population.
Source: ABS 2022b.
https://www.aihw.gov.au/

Language and culture

First Nations 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 First Nations people (Bourke et al. 2018).

In the 2021 Census, almost 1 in 10 (9.5% or around 77,000) First Nations people reported that they spoke an Indigenous language at home, with over 150 different Indigenous languages being spoken. The Australian Standard Classification of Languages (ASCL) used for the Census does not list all languages spoken and, in order to be separately identified, an Indigenous language must have 3 or more known speakers. Where responses to the Census question on language cannot be coded to a finer level or where there are not enough speakers of a language for it to be given a separate code, supplementary code of 'nec' is used.

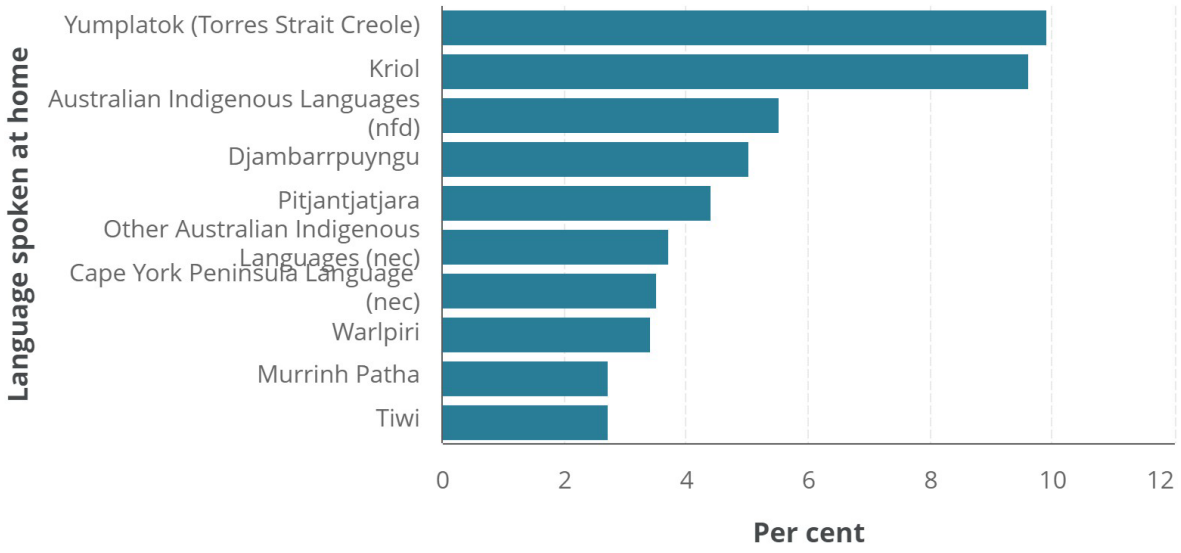
In 2021, the most common Indigenous languages spoken at home were Yumplatok (Torres Strait Creole) (around 7,600 or 9.9% of First Nations people who spoke an Indigenous language at home) and Kriol (around 7,400 people or 9.6%) (ABS 2022c; Figure 4). These were also the most commonly spoken languages in 2016 (ABS 2022c).

Yumplatok (Torres Strait Creole) and Kriol

During colonisation, speaking traditional languages was generally discouraged. This resulted in some languages being lost or merging with other languages to form new languages. Yumplatok and Kriol are both recently developed English-based creole languages (that is, these languages are a mixture of Standard Australian English and traditional languages). Yumplatok, in particular, is a common language shared by all Torres Strait Islanders and is often spoken in addition to other local languages.

Figure 4: Proportion of First Nations people who spoke an Indigenous language at home, by language spoken, top 10 most commonly spoken languages, 2021

Figure 4: Proportion of First Nations people who spoke an Indigenous language at home, by language spoken, top 10 most commonly spoken languages, 2021



Notes

1. Proportion is of First Nations people who spoke an Aboriginal and Torres Strait Islander language at home from the 2021 Census.
2. Australian Indigenous language, nfd' is a supplementary code in the ASCL and is not considered a language group.
3. Not elsewhere classified 'nec' is used for any language which is not separately identified in the ASCL because it does not meet the threshold for the minimum number of speakers.

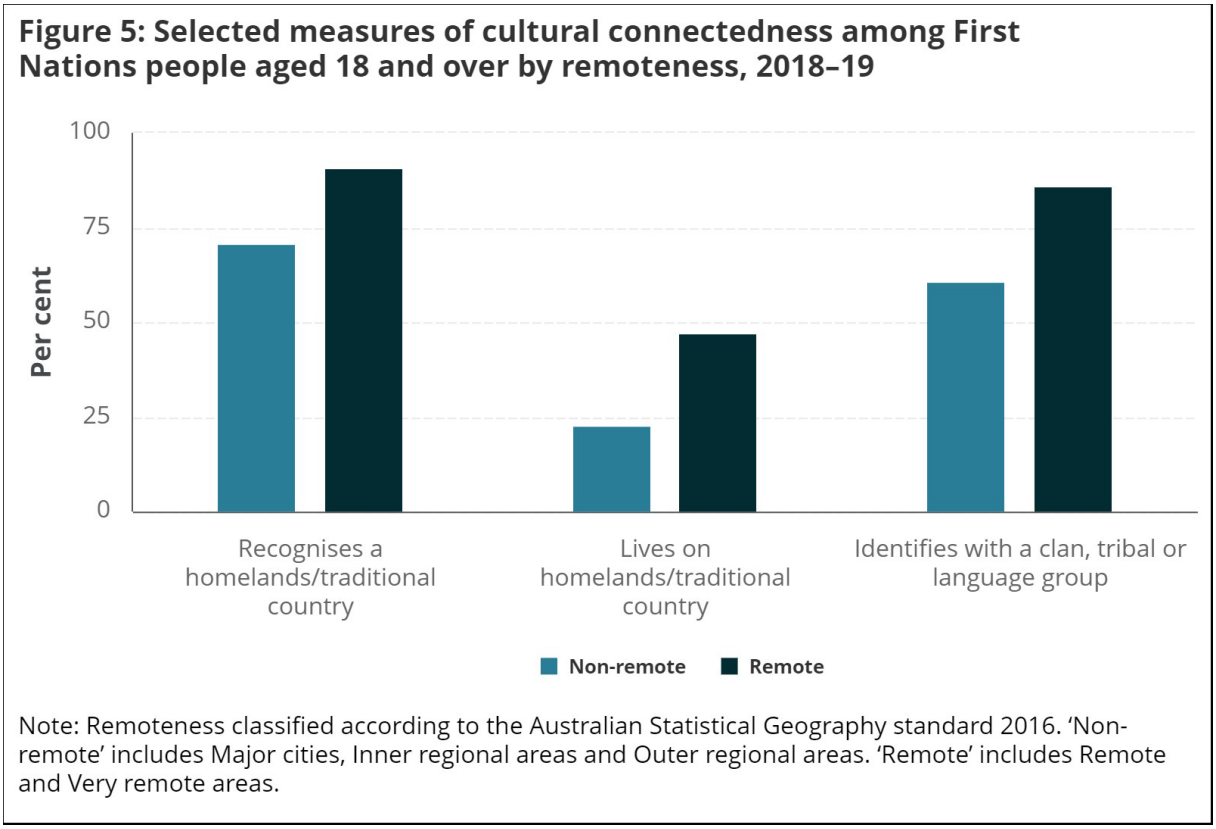
Source: ABS 2022c.

The proportion of First Nations people who spoke an Indigenous language at home has declined over time – from 16.4% in 1991 to 9.8% in 2016 and 9.5% in 2021 (ABS 2022c).

Data from the 2018–19 National Aboriginal and Torres Strait Islander Health Survey show that First Nations people have strong connections to their family, community and culture. In 2018–19, among First Nations people aged 18 and over an estimated:

- 74% (357,800 people) recognised an area as a homeland/traditional country – this was 90% in *remote* areas compared with 71% in *non-remote* areas.
- 65% (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.
- 27% (130,500 people) lived on their homeland – this was 47% in *remote* areas compared with 23% in *non-remote* areas (Figure 5; AIHW and NIAA 2020).

Figure 5: Selected measures of cultural connectedness among First Nations people aged 18 and over by remoteness, 2018–19



Source: AIHW and NIAA 2020.

Closing the Gap targets

Closing the Gap is a government framework aiming to reduce disadvantage among First Nations people. It was first agreed in 2008. Four of the original 7 targets expired unmet.

In 2020, there was a marked shift in the approach to the Closing the Gap framework, with the signing of a new National Agreement on Closing the Gap (National Agreement). For the first time, this agreement was developed in genuine partnership between Australian governments and the Coalition of Aboriginal and Torres Strait Islander Peak Organisations.

The National Agreement is built around 4 Priority Reforms that focus on changing the way governments work with First Nations people. The National Agreement also identifies 17 socioeconomic outcome areas with 19 targets across these areas (Table 1).

The targets in the National Agreement are monitored annually by the Productivity Commission and reported in their Closing the Gap Information Repository Dashboard (PC 2022).

Table 1: National Agreement on Closing the Gap socioeconomic outcome areas and targets

Socioeconomic outcome area	Target
1	Close the Gap in life expectancy within a generation, by 2031.
2	By 2031, increase the proportion of Aboriginal and Torres Strait Islander babies with a healthy birthweight to 91%.
3	By 2025, increase the proportion of Aboriginal and Torres Strait Islander children enrolled in Year Before Fulltime Schooling (YBFS) early childhood education to 95%.
4	By 2031, increase the proportion of Aboriginal and Torres Strait Islander children assessed as developmentally on track in all 5 domains of the Australian Early Development Census (AEDC) to 55%.
5	By 2031, increase the proportion of Aboriginal and Torres Strait Islander people (age 20–24) attaining year 12 or equivalent qualification to 96%.
6	By 2031, increase the proportion of Aboriginal and Torres Strait Islander people aged 25–34 years who have completed a tertiary qualification (Certificate III and above) to 70%.
7	By 2031, increase the proportion of Aboriginal and Torres Strait Islander youth (15–24 years) who are in employment, education or training to 67%.
8	By 2031, increase the proportion of Aboriginal and Torres Strait Islander people aged 25–64 who are employed to 62%.
9	a: By 2031, increase the proportion of Aboriginal and Torres Strait Islander people living in appropriately sized (not overcrowded) housing to 88%. b: By 2031, all Aboriginal and Torres Strait Islander households: • within discrete Aboriginal and Torres Strait Islander communities receive essential services that meet or exceed the relevant jurisdictional standard • in or near to a town receive essential services that meet or exceed the same standard as applies generally within the town (including if the household might be classified for other purposes as a part of a discrete settlement such as a 'town camp' or 'town-based reserve').
10	By 2031, reduce the rate of Aboriginal and Torres Strait Islander adults held in incarceration by at least 15%.

11	By 2031, reduce the rate of Aboriginal and Torres Strait Islander young people (10–17 years) in detention by at least 30%.
12	By 2031, reduce the rate of over-representation of Aboriginal and Torres Strait Islander children in out-of-home care by 45%.
13	By 2031, the rate of all forms of family violence and abuse against Aboriginal and Torres Strait Islander women and children is reduced at least by 50%, as progress towards zero.
14	Significant and sustained reduction in suicide of Aboriginal and Torres Strait Islander people towards zero.
15	a: By 2030, a 15% increase in Australia's landmass subject to Aboriginal and Torres Strait Islander people's legal rights or interests. b: By 2030, a 15% increase in areas covered by Aboriginal and Torres Strait Islander people's legal rights or interests in the sea.
16	By 2031, there is a sustained increase in number and strength of Aboriginal and Torres Strait Islander languages being spoken.
17	By 2026, Aboriginal and Torres Strait Islander people have equal levels of digital inclusion.

For more information on the Closing the Gap targets, see Community safety for First Nations people, Education of First Nations people and Employment of First Nations people.

First Nations COVID-19 advisory groups and response

The National Aboriginal Community Controlled Health Organisation (NACCHO), in partnership with the Australian Government, has been critical in responding to COVID-19 for First Nations people. NACCHO is the national leadership body for First Nations health in Australia. It provides advice and guidance to the Australian Government on policy and budget matters and advocates for community-developed solutions that contribute to the quality of life and improved health outcomes for First Nations people.

In March 2020, the Australian Government established the Aboriginal and Torres Strait Islander Advisory Group on COVID-19 (the Taskforce), co-chaired by NACCHO and the Department of Health. The Taskforce provides culturally appropriate advice to the Department of Health about health issues related to COVID-19, and developed the Management Plan for Aboriginal and Torres Strait Islander populations. This plan focuses on culturally appropriate testing and care for First Nations people. It supports health care professionals working with First Nations communities and peoples to develop and implement local operational plans.

After consultation with the First Nations health sector (through the Taskforce) and with state and territory governments, in March 2021, the Australian Government released the COVID-19 Vaccination Program – Aboriginal and Torres Strait Islander Peoples Implementation Plan.

This plan builds on Australia's COVID-19 Vaccine National Rollout Strategy (released 7 January 2021) and complements the Management Plan for Aboriginal and Torres Strait Islander populations. Under it, vaccines were administered to First Nations people at Aboriginal Community Controlled Health Organisations, state and territory government-run Aboriginal Medical Services and other providers.

The First Nations Peoples Strategic Advisory Group (FNPSAG) was set up in 2020 to support the Disability Royal Commission in its work by providing leadership and guidance on matters specific to First Nations people with disability. Regarding COVID-19, the FNPSAG released a Statement of Concern endorsed by over 70 disability organisations in March 2020 and an issues paper on emergency planning and response in April 2020. The FNPSAG noted in their Statement of Concern that First Nations people with disability are disproportionally affected by the COVID-19 pandemic because they have an increased risk of infection and death. They are also disproportionally affected by the associated social restrictions imposed on them and the resulting breaks in the continuity of essential services (Disability Royal Commission 2020a, 2020b).

Where do I go for more information?

For more information on First Nations people, see:

- Aboriginal and Torres Strait Islander Health Performance Framework
- Australian Bureau of Statistics Aboriginal and Torres Strait Islander Peoples.

For information on the Closing the Gap framework, such as the National Agreement and targets, see Closing the Gap.

For data on each Closing the Gap target by jurisdiction, see the Productivity Commission Closing the Gap Information Repository Dashboard.

For more on this topic, see First Nations people.

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Glossary

Aboriginal and Torres Strait Islander health worker: An Aboriginal and/or Torres Strait Islander person 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 and/or Torres Strait Islander household: Household that contains one or more people identified as being of Aboriginal and/or Torres Strait Islander origin.

Aboriginal and/or Torres Strait Islander people: People who have identified themselves, or have been identified by a representative (for example, their parent or guardian), as being of Aboriginal and/or Torres Strait Islander origin. See also First Nations people.

Aboriginal Community Controlled Health Organisation (ACCHO): A health organisation controlled by, and accountable to, Aboriginal and/or Torres Strait Islander people in those areas in which the organisation operates. An individual ACCHO aims to deliver holistic, comprehensive, and culturally appropriate health care to the community that controls it.

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 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.

acute: A term used to describe something that comes on sharply and is often brief, intense and severe.

adaptation (to climate change): Adjusting behaviours and adapting 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 (ABS 2022).

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.

Aeroallergen: An airborne substance that can cause an allergic reaction. Examples include pollen, fungal spores or dust mites.

affective disorders: A set of psychiatric disorders, also called mood disorders. The main types of affective disorders are **depression** and bipolar disorder. Symptoms vary by individual and can range from mild to severe.

age structure: Relative number of people in each age group in a population.

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.

air pollutants: Pollutants that include ozone (O3), nitrogen dioxide (NO2), particulate matter (PM10 or 2.5), carbon monoxide (CO), sulfur dioxide (SO2) and biological allergens.

alcohol-induced deaths: Deaths that can be directly attributable to alcohol use, as determined by toxicology and pathology reports.

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 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.

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.

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;
- 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 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.

antenatal: The period covering conception up to the time of birth. Synonymous with prenatal.

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.

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.

apparent consumption of alcohol: The total amount of alcohol made available for consumption in Australia each year. Apparent consumption does not measure the drinking habits of individuals.

arthritis: A group of disorders for which there is inflammation of the joints – which can then become stiff, painful, swollen or deformed. The 3 most common forms of arthritis are osteoarthritis, rheumatoid arthritis and gout.

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: 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.

Attendance at person's place of residence: A professional attendance in the patient's home, residential aged care facility (other than consulting rooms within a residential aged care facility), or other institution by a specialist, or consultant physician, in the speciality of palliative medicine following referral by a referring practitioner.

attendances: Face-to-face or telehealth consultations with practitioners who are authorised to provide services that attract Medicare benefits.

attributable burden: The amount of burden that could be reduced if exposure to the risk factor had been avoided.

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.

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 death**

baby length of stay: Number of days between date of birth and date of separation from the hospital of birth (calculated by subtracting the date of birth from the date of separation).

back problem: A range of conditions related to the bones, joints, connective tissue, muscles and nerves of the back. These conditions can affect the neck (cervical spine), upper back (thoracic spine) and lower back (lumbar spine) as well as the sacrum and tailbone (coccyx). Back problems are a substantial cause of disability and lost productivity.

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.

blue spaces: Are outdoor bodies of water that are either naturally occurring or manmade such as rivers, lakes, beaches and bays.

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): An internationally recognised standard for classifying overweight and obesity in adults. BMI is calculated by dividing a person's weight in kilograms by the square of their height in metres.

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 person assigns his or her entitlement to a Medicare benefit to the treating practitioner and the practitioner cannot charge a copayment, so there is no out-of-pocket cost to the person. Also known as direct billing.

buprenorphine opioid drug formulations: Come in various forms, such as buprenorphine (Subutex®), which acts in a similar way to methadone but is longer lasting and may be taken daily or every second or third day. Buprenorphine-naloxone (Suboxone®) is a combination of buprenorphine-naloxone product and is a sublingual tablet or film, and buprenorphine long-acting injection (LAI) is injected into the tissue under the skin either weekly or monthly.

burden of disease (and injury): The quantified impact of a disease or injury on a population using the disability-adjusted life years (DALY) measure. 1 DALY is equivalent to 1 healthy year of life lost.

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, obesity and severe alcohol abuse. It can lead to an enlarged, thickened and dilated heart as well as heart failure.

cardiovascular disease: Any disease that affects the circulatory system, including the heart and blood vessels. Examples include coronary heart disease, heart failure, rheumatic fever and rheumatic heart disease, congenital heart disease, stroke and peripheral vascular 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. These represent the 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 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 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: Refers to abnormalities of kidney structure or function, that are present for 3 months or more. It may be caused by several conditions – such as diabetes, high blood pressure or congenital conditions.

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.

chronic: Persistent and long-lasting.

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, when treatment is ceased or there is a change in the main treatment type, principal drug of concern or delivery setting.

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).

commercial determinants of health: Commercial determinants of health are the activities undertaken by commercial organisations that affect people's health, directly or indirectly, positively or negatively

communicable disease: An **infectious disease** or illness that may be passed directly or indirectly from one person to another.

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.

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.

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.

congenital abnormality: A defect present at birth.

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.

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 limitation: A limitation where someone needs help with, has difficulty, or uses aids or equipment for self-care, mobility and/or communication. See also **disability**, **mild or moderate core activity limitation** and **severe or profound core activity limitation**.

core activity: Term used in discussions of disability that refers to the basic activities of daily living: self-care, mobility and communication.

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 who, at the time of the survey, was living with the respondent 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.

currently smoke: Reported smoking tobacco daily, weekly or less than weekly at the time of the survey.

daily smoking: 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.

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.

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.

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: Services provided by registered dental practitioners. These include cleft lip and palate services; dental assessment; oral and maxillofacial surgery items; orthodontic, periodontic and periodontic services; and other dental items listed in the Medical Benefits Schedule. The term covers dental services funded by health funds, state and territory governments and by individuals' out-of-pocket payments.

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, health 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 person aged at least 18, who is expected to be released from custody during the data collection period, or due to be released within 4 weeks following the data collection period. Persons who were being transferred from one facility to another were not included as dischargees.

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 vector: Living organisms that can transmit infectious diseases between humans or from animals to humans; these are frequently blood sucking insects such as mosquitoes.

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.

disorder (health disorder): A term used synonymously with condition.

dispensed price maximum quantity (DPMQ): The price for dispensing the maximum quantity of a medicine under a given prescribing rule.

downstream factors: Individual-level factors which influence health or the management of individual risk factors.

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: Drug-related hospitalisations are hospitalisations where the principal diagnosis relates to a substance use disorder or direct harm due to selected substances.

dwelling density: The number of dwellings divided a given unit of area (for example, number of dwellings per hectare).

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 inhaled vapour usually contains flavourings and may contain nicotine as well.

economic/financial abuse: A pattern of control, exploitation or sabotage of a person's money, finances and/or economic resources.

elder abuse: A single or repeated act or lack of appropriate action, occurring within any relationship where there is an expectation of trust which causes harm or distress to an older person..

elective surgery: Elective surgery is planned surgery that can be booked in advance as a result of a specialist clinical assessment.

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.

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 who is aged at least 18, and entering full-time custody, either on remand or on a sentence. People currently in prison who were transferring from one prison to another were 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.

excess mortality: The difference between the actual number of deaths and the expected number of deaths (based on previous trends) in a defined time period.

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-smoking: Has smoked at least 100 cigarettes or equivalent tobacco in his or her lifetime, but not in the previous 12 months.

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 and domestic violence: Violence within family relationships. Family relationships can include partners, parents, kinship relationships, or carers and co-residents. Family violence is the term preferred by Aboriginal and Torres Strait Islander people, noting the ways violence can manifest across extended family networks.

fatal burden: Quantified impact on a population of premature death due to disease or injury. Measured as **years of life lost** (**YLL**).

fertility rate (total): The total fertility rate is a commonly used summary measure for the number of children a woman is expected to have during her lifetime. This provides an indication of the number of children a woman would have during her life if she experienced the age-specific fertility rates for that year over her entire lifetime.

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 Nations people: People who have identified themselves or have been identified by a representative (for example, their parent or guardian), as being of Aboriginal and/or Torres Strait Islander origin.

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 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.

gastrointestinal: A term relating to the stomach and the intestine.

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.

genomic sequence: A process to decipher the genetic material found in an organism or a virus to enable tracking of a virus.

genomic surveillance: Used to identify illness clusters before diagnoses are confirmed and reported to public health agencies, initiating a rapid response

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.

Gini coefficient: The Gini coefficient is the internationally accepted summary measure of inequality. Gini coefficient values range between 0 and 1. Values closer to 0 represent higher equality and values closer to 1 represent higher inequality.

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.

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”).

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.

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.

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**.

HDL cholesterol: Cholesterol packaged in high-density lipoprotein (HDL) particles. Often referred to as "good" cholesterol, HDL cholesterol transport LDL cholesterol away from arteries back to the liver to be broken down and removed from the body.

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 equity: Health equity is the absence of unfair, avoidable or modifiable differences in health between population groups.

health indicator: See **indicator.**

health inequality: Differences in health between population groups

health inequity: Health inequities are differences in health between population groups that are socially produced, systematic in their unequal distribution across the population, avoidable and unfair.

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 outcomes: A change in the health of an individual or population due wholly or partly to exposure to a causal factor, or 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: 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.

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).

hearing: The sense for perceiving sounds; includes regions within the brain where the signals are received and interpreted.

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: High blood pressure is defined as when the systolic blood pressure is greater than or equal to 140 mmHg, and/or diastolic blood pressure is greater than or equal to 90 mmHg. Hypertension is a diagnosed medical condition where **a person's** blood pressure is consistently high, a single high measurement indicates a need for further medical follow up. Generally, if **a person has** a high blood pressure reading taken on at least 2 separate days by a health professional, **this may indicate a diagnosis of** hypertension (Health Direct n.d.; Heart Foundation n.d).

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**).

homeless: See homelessness.

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 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.

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-substitute settings: They are clinically appropriate alternatives to treatments provided in hospital setting. These settings include patient's home known as hospital in the home or community healthcare clinics, as well as programs to manage or prevent chronic disease as treatment.

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 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).

illicit drugs: Illegal drugs, drugs and volatile substances used illicitly, and pharmaceuticals used for non-medical purposes.

illness: A state of feeling unwell, although the term is also often used synonymously with disease.

imaging: See **diagnostic imaging**

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.

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**.

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).

Impaired glucose tolerance (IGT): The presence of higher than optimal levels of glucose in the blood 2 hours after a 75g oral glucose tolerance test (OGTT) (7.8–11.0 mmol/L) but still below the level needed for a diagnosis of diabetes (≥11.1 mmol/L). IGT can be detected with or without impaired fasting glucose.

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) in a given period.

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).

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.

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 status: A data item that records whether a person has identified themselves or has been identified by a representative (for example, their parent or guardian), as being of Aboriginal and/or Torres Strait Islander origin.

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.

infant: A child aged under 1 year.

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 birth: Vaginal birth using forceps or vacuum extraction.

instrumental delivery: Vaginal delivery using forceps or vacuum extraction. See also **instrumental birth**.

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).

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. For mortality related data, the ICD-10 is used.

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.

interoperability: The ability of different information systems, devices and applications ('systems') to access, exchange, integrate and cooperatively use data in a coordinated manner.

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 **family 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**.

LDL cholesterol: Cholesterol packaged in low-density lipoprotein (LDL) particles. LDLs carry cholesterol to the various tissues for use. Elevated levels of LDLs contribute to fatty buildup within the artery walls (atherosclerosis), increasing the risk of heart attack and stroke.

life expectancy: Life expectancy measures how long a person is expected to live if the rest of their life follows the age and sex-specific mortality rates applicable to their respective year of birth. This is the expectation of the average years that a person lives at a specific age. In this summary, 'life expectancy' refers to 'life expectancy at birth'

lifetime risk (alcohol): The accumulated risk from drinking either on many drinking occasions, or regularly (for example, daily) over a lifetime. The lifetime risk of harm from alcohol-related disease or injury increases with the amount consumed.

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).

long COVID: A general term used to describe ongoing COVID-19 symptoms lasting more than 4 weeks. See post COVID-19 condition.

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 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 health 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 in the ABS Survey of Income and Housing 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.

lower income household: A household in the ABS Survey of Income and Housing containing persons between the 3rd and 40th percentiles of equivalised disposable household income.

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.

maternal death: The death of a woman while pregnant or within 42 days of the end of pregnancy, irrespective of the duration of the pregnancy. Maternal deaths are divided into two categories, direct and indirect.

maternal mortality ratio (MMR): The incidence of maternal death for a defined place and time, using direct and indirects combined (excluding coincidental deaths), over the number of women who gave birth.

median age: The age point at which half the population is older than that age and half is younger than that age.

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.

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 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 surcharge: A levy paid by Australian taxpayers who do not have private hospital cover and who earn above a certain income.

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: 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-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.

medication reviews: Reviews of medication for people taking 5 or more medications. Medication reviews aim to reduce the risk of potential harms associated with taking multiple medications for different conditions.

medications: Benefit-paid pharmaceuticals and other medications. More information can be found in mental health-related prescriptions section of *Mental health*.

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 issue (specialist homelessness services clients): Clients presenting to a specialist homelessness service identified as having a current mental health issue. They can be identified as such is they provide information on recent mental health disorders or concerns.

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 disorders**)**:** Disturbances of mood or thought that can affect behaviour and distress the person or those around them, so that the person has trouble functioning normally. They include **anxiety disorders**, **depression** and **schizophrenia**.

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: A limitation where someone 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.

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.

modifiable risk factors: Risk factors that can be modified or reduced (such as tobacco smoking).

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 depressionand bipolar 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 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.

mortality: Number or rate of deaths in a population during a given time period.

multidisciplinary care: Involves different healthcare providers collaborating on different aspects of an individual's health needs. This can include doctors, nurses and allied health professionals.

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.

muscle-strengthening activity: Any activity that improves the strength, power, endurance and size of skeletal muscles. See also physical activity.

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**.

musculoskeletal: A term that relates to the muscles, joints and bones.

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.

µg/m3: Millionths of a gram of matter per cubic metre of air, water or other fluid.

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 rate: Number of neonatal deaths per 1,000 live births.

neonatal mortality: The number of deaths of children under 28 days of age in a given year, expressed per 1,000 live births.

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.

net overseas migration (NOM): The net gain or loss of population through immigration to, and emigration from, Australia. It is measured by counting people who stay in Australia for 12 months or more over a 16-month period. This includes individuals on both permanent and temporary visas, as well as returning and departing Australian citizens.

Neuroendocrine neoplasms: Neuroendocrine neoplasms (tumours) develop in cells of the neuroendocrine system (nerves and glands that produce hormones), which are present in most organs but primarily in the gastro-intestinal tract, pancreas, and lungs.

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.

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 indicated they are not of Aboriginal and/or Torres Strait Islander origin.

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 painkillers/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.

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.

obstetrics: The branch of medicine and surgery concerned with childbirth and midwifery.

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.

opioid pharmacotherapy treatment: Opioid pharmacotherapy treatment, also known as opioid agonist therapy, is one of the most common treatments used for opioid drug dependence in Australia. It involves replacing the opioid drug of dependence (for example, codeine or heroin) with a safer, longer-lasting, medically-prescribed opioid. In Australia, 4 medications are registered as pharmacotherapy for people with opioid dependence (methadone, buprenorphine, buprenorphine-naloxone and buprenorphine long-acting injections).

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.

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.

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 disability: Disability with status other than **severe or profound core activity limitation**.

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.

Other palliative care hospitalisations: Hospitalisations with a recorded diagnosis of palliative care, but the care type is not recorded as palliative care.

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 cost/expenditure: The total cost between the provider fee and the Medicare benefit incurred by an individual for a health care service.

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).

outpatient clinics: The organisational units or organisational arrangements through which a hospital provides a service to a non-admitted patient.

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 but not obese: Defined for the purpose of population studies as a body mass index between 25 and less than 30.

overweight: Defined for the purpose of population studies as a body mass index of 25 or over. See also obesity.

Palliative care at phase level: A phase level data items describe a palliative care patient's stage of illness, functional impairment and their levels of pain and symptom distress. Five assessment tools are used to describe the clinical condition of a patient, which, in turn, contribute to a patient's care plan. These assessment tools are phase of care, SAS, PCPSS, Australia-modified Karnofsky Performance Status (AKPS), and Resource Utilisation Groups – Activities of Daily Living (RUG–ADL) which provide measures of quality and outcomes of care.
The PCOC analyses each service's data and compares these with the national average. The items at the phase level are used to quantify patient outcomes and are the focus of the PCOC benchmarks. The 4 palliative care phases are:

1. Stable phase
   Stable Phase Start: Patient problems and symptoms are adequately controlled by an established plan of care; further interventions to maintain symptom control and quality of life have been planned and the family/ carer(s) situation is relatively stable and no new issues are apparent.
   Stable Phase End: The needs of the patient and or family/carer(s) increase, requiring changes to the existing plan of care.
2. Unstable phase
   Unstable Phase Start: An urgent change in the plan of care or emergency treatment is required as the patient experiences a new problem that was not anticipated in the existing plan of care; and/or the patient experiences a rapid increase in the severity of a current problem; and/or the circumstances of the patient's family/carer(s) change suddenly, impacting on patient care.
   Unstable Phase End: The new plan of care is in place; it has been reviewed and no further changes to the care plan are required. This does not necessarily mean that the symptom crisis has fully resolved but there is a clear diagnosis

and plan of care (that is, the patient is stable or deteriorating) and/or death is likely within days (that is, the patient is now terminal).

3. Deteriorating phase
   Deteriorating Phase Start: The care plan is addressing anticipated needs but requires periodic review because the patient's overall functional status is declining; the patient has a gradual worsening of existing problem and/or a new but anticipated problem; and/or the carer(s)/ family undergo(es) gradually worsening distress that impacts on the patient's care.
   Deteriorating Phase End: The patient condition plateaus (that is, the patient is now stable); or there is an urgent change in the care plan or emergency treatment; and/or the family/ carer(s) have a sudden change in their situation that impacts on patient care, and urgent intervention is required (that is, the patient is now unstable); or death is likely within days (that is, the patient is now terminal).
4. Terminal phase
   Terminal Phase Start: Death is likely within days.
   Terminal Phase End: The patient dies or the patient's condition changes and death is no longer likely within days (that is, the patient is now stable or deteriorating).

Palliative care episode: A period of contact between a patient and a service where palliative care is provided in a single setting (for example, inpatient setting). A palliative care episode starts on the date a comprehensive palliative care assessment is undertaken and documented.
An episode ends when one of the following occurs:

setting of palliative care changes (for example community to inpatient)

principal clinical intent of the care changes and the patient is no longer receiving palliative care

patient is formally separated from the service

the patient dies.

Palliative care episodes include both open episodes (those without an episode end date in the reporting period), and closed episodes (see closed episodes).

Palliative care nurse: The classification of nurses in Australia varies with the type of training they have undertaken. Nurse practitioners, registered nurses and enrolled nurses need to complete a variety of short or more comprehensive courses (including postgraduate certificates and Master's degrees) to work in the field of palliative care, and postgraduate qualifications are generally required for nurses working in specialist palliative care services.

Palliative care phase: Palliative care phase refers to a distinct clinical period which reflects the stage of the patient's illness. Palliative care phase provides a good indication of the type of care required by a palliative care patient.

An episode of admitted patient palliative care may comprise of a single phase or multiple phases, depending on changes in the patient's condition. Phases are not sequential, and a patient may move back and forth between phases within the one episode of admitted patient palliative care.

palliative care: Treatment given primarily to control pain or other symptoms. Consequent benefits of the treatment are considered secondary contributions to quality of life.

Palliative care-related hospitalisations: Episodes of admitted patient care (or **hospitalisation**) where palliative care was a component of the care provided during all or part of the episode. These hospitalisations can be divided into 2 groups depending on how they are identified in the hospital data:

- primary palliative care hospitalisations: hospitalisations with a recorded care type of palliative care, and
- other palliative care hospitalisations: hospitalisations with a recorded diagnosis of palliative care, but the care type is not recorded as palliative care.

Palliative care-related prescriptions: Palliative care-related prescriptions are defined as medications listed in Palliative Care Schedule under the Pharmaceutical Benefits Scheme (PBS) and Repatriation Pharmaceutical Benefits Scheme (RPBS). Information on prescription medicines has been sourced from the processing of the PBS and RPBS. It refers to medications prescribed by approved prescribers and subsequently dispensed by approved suppliers (community pharmacies or eligible hospital pharmacies). Consequently, it is a count of medications dispensed, rather than a count of prescriptions written by clinicians.

Palliative medicine physician/ specialist: Palliative medicine physicians are required to have completed 3 years of full-time equivalent training in either a paediatric or adult setting under the supervision of a palliative medicine physician. Successful trainees gain the qualification of Fellow of the Royal Australasian College of Physicians (FRACP)/ Fellowship of the Australasian Chapter of Palliative Medicine (FAChPM) and are accredited to practice as a palliative medicine physician in Australia or New Zealand.

Palliative medicine physician/ specialist who, in order to be eligible for payment of MBS subsidies for palliative care services, must be a Fellow of the Royal Australasian College of Physicians who has completed the College training program in palliative medicine, or a Fellow of the Australasian Chapter of Palliative Medicine, or a Fellow of both.

Palliative medicine: Palliative medicine is defined as the specialist care of people with terminal illnesses and chronic health conditions in community, hospital, and hospice settings. Palliative medicine physicians work collaboratively with a multidisciplinary team of health professionals to provide end-of-life care, provide relief from pain and symptoms of illness, and optimise the quality of life for a patient. Palliative medicine

treats the physical aspects of illness, but also integrates psychological and spiritual facets of patient care.

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: Papanicolaou test, a procedure to detect cancer and pre-cancerous conditions of the female genital tract.

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 family and **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 contribution: See **co-payment**.

Patient co-payment: Under the Pharmaceutical Benefits Scheme (PBS) and Repatriation Pharmaceutical Benefits Scheme (RPBS), the cost of prescription medicines is subsidised by the Commonwealth government. Patients are classified as either general or concessional and are required to pay a patient co-payment towards the cost of their prescription, according to their entitlement. As of 1 January 2023, the co-payment was $30.00 (general) and $7.30 (concessional, including repatriation).

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 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. See self-assessed health.

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.

perinatal: Describes something that pertains to, or that occurred in, the period shortly before or after birth (usually up to 28 days after).

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**) **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 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 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 activity: Any bodily movement produced by skeletal muscles that requires enery expenditure. Physical activity includes sporting and leisure activities, as well as incidental activities done during work, for transport or household chores. See also **muscle-strengthening activity.**

Australia's Physical activity and exercise guidelines recommend that:

Children and young people (5–17 years) accumulate at least 60 minutes of moderate to vigorous physical activity (activity that makes the heart beat faster) each day, and also incorporate muscle-strenthening activity on at least 3 days per week..

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, and incorporate different types of activities, including muscle-strengthening activities.

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: Non-accidental physical act inflicted on a person by another person. 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. For some data sources, the term **physical abuse** is used to refer to physical violence in specific contexts or for a certain age group, such as elder abuse or child abuse. For example: in the Personal Safety Survey, physical abuse refers only to incidents that occurred before the age of 15; for child protection reporting, **physical abuse** refers to any non-accidental physical act inflicted upon a child by a person having the care of a child.

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

polymerase chain reaction (PCR) test: A laboratory test that detects genetic material from a specific organism, such as a virus that causes COVID-19.

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 COVID-19 condition: COVID-19 symptoms after 12 weeks that are not explained by an alternative diagnosis.

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**): Admission to hospital for a condition 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 (including by general practitioners, medical specialists, dentists, nurses and allied health professionals). 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 can be used as an indicator of the effectiveness of non-hospital care.

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: The supply of a medicine to a patient by a pharmacist under the PBS or RPBS, including community pharmacy and hospital settings.

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 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.

Primary palliative care hospitalisations: Hospitalisations with a recorded care type of palliative care.

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 receive treatment from an alcohol and drug treatment agency.

prison mental health service: A health service that provides screening of prisoners at intake, does psychiatric assessments, provides therapy or counselling by mental health professionals and distributes psychotropic medication. This may be part of or separate to the prison heath service.

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: Somone aged 18 and over who is held in custody and whose confinement is the responsibility of a correctional services agency. Comprises of sentenced individuals and people held in custody awaiting trial or sentencing (remandees or people on remand). Youth offenders, people in psychiatric custody, police cell detainees, those in periodic detention, asylum seekers or Australians held in overseas prisons are not included.

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.

private sector: Sector of the economy which is owned and controlled by individuals and companies. In contrast to the public sector which is owned and controlled by the government.

procedure: A clinical intervention that is surgical in nature, carries a procedural and anaesthetic risk, requires specialised training, and/or requires special facilities or equipment only available in an admitted patient care setting. Procedures therefore encompass surgical procedures as well as non-surgical investigative and therapeutic procedures.

protective factors: Factors that enhance the likelihood of positive outcomes and lessen the chance of negative consequences from exposure to risk.

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 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 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 patients: Patients who are admitted to hospital at no charge and are mostly funded through public sector health or hospital service budgets.

pulmonary disease/ chronic obstructive pulmonary disease (COPD): A preventable and treatable lung disease characterised by chronic obstruction of lung airflow that interferes with normal breathing and is not fully reversible.

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.

Reception: The formal process whereby sentenced persons are received into prison, either on remand or sentence.

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: Each state and territory is divided into several regions based on their relative accessibility to goods and services 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 Geography Standard (ASGS) in each Census year. The 5 Remoteness Areas are: Major cities, Inner regional, Outer regional, Remote and Very remote. Please refer to the **ASGS Remoteness Structure 2021** for more information.

remuneration: The average gross annual income, including social security contributions and income taxes payable by the employee.

renal disease: A general term for when the kidneys are damaged and do not function as they should.

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.

replacement-level fertility: Replacement-level fertility is the number of babies a female would need to have over her reproductive life span to replace herself and her partner. Given not all babies survive to reproductive age and babies are more likely to be male, replacement fertility is around 2.1 babies per woman in most advanced economies.

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.

respiratory disease group: Includes asthma, COPD, sarcoidosis (with lung involvement), interstitial lung disease (ILD), pneumoconiosis (asbestosis, silicosis, and other pneumoconiosis), upper respiratory conditions (mainly allergic rhinitis – also

known as hay fever) and other respiratory diseases (including bronchiectasis and respiratory disease due to inhalation of chemicals, gases, fumes, and vapours).

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.

restraint: The restriction of an individual's freedom of movement by physical or mechanical means.

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 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**.

risk: The probability of an event's occurring during a specified period of time.

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 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.

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.

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.

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:

- The consumer is alone.
- The seclusion applies at any time of the day or night.
- Duration is not relevant in determining what is or is not seclusion.
- 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. See **perceived health status.**

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: An episode of care for an admitted patient, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute care to rehabilitation). Separation also means the process by which an admitted patient completes an episode of care either by being discharged, dying, transferring to another hospital or changing type of care.

seroprevalence surveys (serosurveys): Surveys that estimate the percentage of a specific population that has been infected with a pathogen through serological testing. They can tell us about the total number of people who have been infected, including those infections that might have been missed.

service (Australian Defence Force): The three broad arms of the Australian Defence Force – the Navy, Army and Air Force.

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.

severe or profound core activity limitation: A limitation where someone 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.

sexual abuse: Behaviours of a sexual nature by one person upon another. Sexual abuse of a child refers to any act that exposes a child to, or involves the child in, sexual activities that: the child does not understand, the child does not or cannot consent to, are not accepted by the community, or are unlawful. 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: Behaviours that make a person uncomfortable and are offensive due to their sexual nature. Can include indecent phone calls, text messages, emails or social media posts; indecent exposure; inappropriate comments; and unwanted sexual touching.

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. Can include sexual abuse, sexual assault and sexual harassment.

sexually transmissible infection: An infectious disease that can be passed from one person to another by sexual contact. Examples include **chlamydia** and **gonorrhoea** infections.

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.

smoking status: Smoking 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:

current daily smoker: a respondent who regularly smoked one or more cigarettes, cigars or pipes per day

current smoker – other: a respondent who smoked cigarettes, cigars or pipes, less frequently than daily

ex–smoker: a respondent who does not smoke currently, but previously smoked daily, or has smoked at least 100 cigarettes, or smoked pipes or cigars at least 20 times in their lifetime

never smoked: a respondent who has never regularly smoked daily, and has smoked less than 100 cigarettes, or smoked less than 20 pipes or cigars in their lifetime.

The 2022–2023 National Drug Strategy Household Survey uses the following smoking definitions:

currently smoke: reported smoking tobacco daily, weekly or less than weekly at the time of the survey

daily smoking: 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

do not smoke: never smoked tobacco, or smoked tobacco previously but not currently (ex-smoking)

ex-smoking: has smoked at least 100 cigarettes or equivalent tobacco in their lifetime but does not smoke at all now

never smoked: smoked fewer than 100 cigarettes or the equivalent tobacco in their lifetime.

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 connectedness: A sense of belonging to the community, family and/or friends.

social determinants of health: 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.

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 disadvantaged areas: Socioeconomic categories are based on different aspects of disadvantage (for example, low income, low educational attainment, and high unemployment) and reflect the overall or average level of disadvantage of the population in an area. Individuals in the same area may differ from each other in their socioeconomic category. The socioeconomic categories are on a scale of 5: 1 (most overall disadvantaged) to 5 (least overall disadvantaged). A low score indicates a high proportion of relatively disadvantaged people in an area. Please refer to the **Socio-Economic Indexes for Areas (SEIFA) 2021** for more information.

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. In this report, 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). Levels of income, education and occupation are common person-based indicators of socioeconomic position.

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): Containing 10 grams of alcohol (equivalent to 12.5 millilitres of alcohol); also referred to as a full serve of alcohol.

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)**.

street connectivity: Describes how well streets are connected to each other, usually through density of path and road network connections.

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**.

Subsidised prescriptions: A Pharmaceutical Benefits Scheme (PBS) and Repatriation Pharmaceutical Benefits Scheme (RPBS) prescription is subsidised when the dispensed price of a medication exceeds the patient co-payment. The PBS and RPBS covers the difference between the full cost of the medication and the patient co-payment.

substance use disorder: A disorder of harmful use and/or dependence on illicit or licit drugs, including alcohol, tobacco and prescription drugs.

Substantiated maltreatment: An investigation concluded that a child had been, was being, or was at risk or significant risk of being, maltreated.

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.

suicidal behaviours: The collective term for suicidal ideation, suicide plans and suicide attempts.

suicidal ideation: Serious thoughts about ending one's own life.

suicide: An action intended to deliberately end one's own life.

syndromic surveillance system: Used to identify illness clusters before diagnoses are confirmed and reported to public health agencies, initiating a rapid response.

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.

telepsychiatry: The electronic transmission of psychiatric consultations, advice or services in digital form from one location to another using a data communication link. Now subsumed by telehealth items in the MBS.

The Intergovernmental Panel on Climate Change (**IPCC**)**:** The United Nations body for assessing the science related to climate change.

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), which totals disability-adjusted life years (DALY). 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.

transnational corporations: A corporation with operations in more than one country.

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 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: The majority of fats in both food and the body are Triglycerides. Triglycerides are used to store and transfer excess energy from the diet around the body. High levels of triglycerides contribute to fatty buildup within the artery walls (atherosclerosis), increasing the risk of heart attack and stroke.

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.

Under co-payment prescription: A prescription priced below the co-payment as defined in the *National Health Act 1953*. A Pharmaceutical Benefits Scheme (PBS) and Repatriation Pharmaceutical Benefits Scheme (RPBS) prescription is classified as under co-payment when the dispensed price of the prescription does not exceed the patient co-payment, and the patient pays the full cost of the 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.

upstream factors: Macro or population-level factors which influence health, such as political, economic, cultural systems.

urban heat islands: Occur when areas replace natural land and coverings with dense infrastructure such as buildings and roads which absorb and retain the heat and hence these urbanised areas experience higher temperatures than nearby rural areas.

urban sprawl: The unrestricted growth of areas outside of major urban areas which lead to urban development in more rural areas.

$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.

waste-water based surveillance: Genetic material of the SARS-CoV-2 virus is shed by infected asymptomatic and symptomatic individuals which can be detected in wastewater before clinical cases are identified.

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**.

wider determinants of health: The factors which influence health, most of them non-medical. These many factors, known as 'health determinants', may be risk or protective factors, and interact to influence the health of individuals and communities. Health determinants include general socioeconomic, cultural and environmental conditions, living and working conditions, social and community networks, individual behavioural and biological factors, health literacy and commercial determinants.

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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