Suicide & self-harm monitoring

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Suicide & self-harm monitoring data

Approximately 3000 deaths by suicide occur each year in Australia
In 2019, there were 3,318 deaths by suicide—an average of about 9 deaths per day—with an age-standardised rate of 12.9 per 100,000 population.

Males are 3 to 4 times more likely to take their own life than females
In 2019, there were 2,502 male deaths at a rate of 19.8 per 100,000; there were 816 female deaths at a rate of 6.3 per 100,000. In 2019, the number of deaths by suicide was markedly higher for males than females in all age groups, except young children.

Suicide is the leading cause of death for young people
Suicide was the leading cause of death among people aged 15-49 in 2019.

The highest proportion of deaths by suicide occur during mid-life
More than half of all deaths by suicide in 2019 (55%) occurred in people aged 30-59 (1,816 deaths) compared with 23% for those aged 15-29, and 21% for those aged over 60.

Females are more likely than males to be hospitalised for intentional self-harm
In 2018-19 females made up almost two-thirds (64%) of intentional self-harm hospitalisations.

Results of a birth cohort analysis show trends in suicides have changed over time
Suicide rates for the most recently-born female cohorts are higher than those for earlier female cohorts at the same age while suicide rates for the most recently-born male cohorts are similar to, or lower than, earlier male cohorts at the same age.

Using linked data, the estimated suicide risk is higher among those with fewer years of education
Among males aged 25-54 with secondary school or no education, the cumulative suicide risk is 2.6 times higher than among males with a university degree. This gradient between highest and lowest levels of educational attainment for females was consistent with that seen for males—with a smaller ratio (1.6 times).

Early indications from ambulance attendance data in 2019 suggest females are more likely to attempt suicide than males
Rates of ambulance attendances for suicide attempt and self-injury were higher for females than males. By contrast, attendance rates for suicidal ideation and mental health showed less variation between the sexes.

Suicide & self-harm monitoring brings together key statistical data on suicide and self-harm from multiple national sources that will be updated regularly as new data become available. Here, you can examine the data through interactive visualisations and read information on the demographics, trends, methods and risk factors of suicide and self-harm in Australia.

This website represents only one part of a comprehensive program of work on suicide and self-harm in Australia by the AIHW (for more information see About the National Suicide and Self-harm Monitoring Project).

Why is it important to collect data about suicide and self-harm?
Monitoring of suicide and intentional self-harm—how many people harm themselves, when, where and how—can provide a better understanding of the nature of suicide and self-harm in Australia and help determine who may be at increased risk. Reporting of these data can raise community awareness of suicide and self-harm, further research, improve responses and support services for those that need them, and inform the design and targeting of suicide prevention activities.

Considerations when using these data
The assembling and national reporting of deaths by suicide has up to an 18-month time lag. Suicide registers that exist in several jurisdictions can provide more timely data on suspected suicides—a key aim of this project is for suicide registers to exist in all jurisdictions (see below). Additionally, hospital admissions data are collated as an annual release with a 12-month lag. Ambulance data are currently
available for some states and territories for 2019 (see Ambulance attendances, self-harm behaviours & mental health), with the intention to provide quarterly data updates. In addition, monthly data for Victoria from January to June 2020 is also reported (see COVID-19). Further information on the collection of data and sources is available in the Technical notes.

Coronial suicide registers capable of providing timely data on deaths suspected to have been by suicide have been established in Victoria, Queensland, Western Australia and Tasmania. New South Wales will have established a suicide register by October 2020. The AIHW is working with State Coroners and Department of Health officials in South Australia, the Australian Capital Territory and the Northern Territory to establish suicide registers in these jurisdictions. If all of these jurisdictions establish registers then registers will exist in every state and territory.

AIHW has established arrangements with Victoria, Queensland and Tasmania to supply regular, up-to-date data on suspected suicides. Data from these registers will not be publicly available unless the relevant jurisdiction decides to release data.

Deaths by suicide may be presented by year of occurrence of death or year of registration. Although reporting of deaths by suicide by year of death can provide more reliable information on trends in occurrence than reporting by year of registration, the latest data available may underestimate the number of deaths, especially those in the later months of the year, due to a lag in registration. For this reason, and unless otherwise specified, year of registration of death has been used to allow the latest year of data to be compared with previous years. In both cases, the latest years of data are coded with preliminary causes of death information and may underestimate causes of death that are usually certified by a coroner, including deaths by suicide. For more information on how deaths are registered, coded and updated, see Technical notes.

Issues with small numbers and the need for caution
Deaths by suicide are statistically rare events. Small numbers can raise privacy and confidentially issues but also statistical concerns. For this report, values based on small numbers of deaths, hospitalisations for intentional self-harm or ambulance attendances have been suppressed in order to maintain data confidentiality, and/or avoid publishing statistics of low reliability. See Technical notes for further information.

The statistics on deaths by suicide reported here fluctuate from one period to the next—mostly due to small counts (and in the case of females, very small counts)—especially in many smaller subgroups (for example, individual age groups or small geographic areas). Estimates of rates are also subject to random variability. Statistics based on small numbers of deaths by suicide should be interpreted with caution and all rates and their comparison with rates in other populations should be reported in context. For further insight into the methodological challenges and statistical issues of monitoring suicide and self-harm, see Suicide Mortality in Australia: Estimating and Projecting Monthly Variation and Trends From 2007 to 2018 and Beyond.

How to use the interactive data visualisations

- Due to large data sets, visualisations may take time to load.
- Visualisations are compatible with Chrome, Microsoft Edge and Firefox.
- Each panel may contain more than one visualisation. You can interact with the visualisations to see the specific data you are interested in by either selecting from the filter(s) at the bottom of the chart, or in the case of maps, from the pop up box by clicking on an area of interest.
- Hover over each data point to see the underlying data and, if available, further details.
- The Data downloads page provides the source data as Excel (.xlsx) files. The relevant source supplementary table is cited at the bottom of each visualisation.
- Each visualisation may be downloaded and exported or shared.
- A print friendly PDF of all pages of text and the default visualisations related to suicide and self-harm may also be downloaded—click on the ‘Download all data pages’ button.
- See Technical notes for information about data sources, data quality and methodology.

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Suicide & self-harm monitoring

Deaths by suicide in Australia

If at any point you feel worried about harming yourself while viewing the information on this website—or if you think someone else may be in danger—please stop reading and seek help.

Important points to remember about deaths by suicide:

Each statistic represents a person—with a family and community grieving for their loss

Although it is a relatively rare cause of death—in 2019, 2% of all deaths were by suicide—it can have devastating and long-lasting effects on those left behind.

The reasons people take their own life are complex

Suicide can affect anyone—regardless of their personal characteristics and family background—but some populations are at greater risk.

There is also no single reason why a person chooses to end their life—the reasons are often complex. For information on risk factors see Behaviours and risk factors.

Deaths by suicide are preventable

Monitoring the number, trends and rates of suicide in Australia is key to understanding who is at risk and for the planning and targeting of suicide prevention activities.

It is our endeavour that by bringing together various data sources we can strengthen the evidence base to build a more coherent picture of suicide and self-harm in Australia in order to improve the effectiveness of suicide prevention.

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Deaths by suicide 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, looking at trends and variations by sex and age—how many there were, how old they were when they died, and the methods used over time. 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.

Suicide deaths by sex, Australia, 1907 to 2019.

The line graph shows age-standardised rates of suicide for males, females and persons from 1907 to 2019. Users can also choose to view the number of deaths by suicide and male to female rate ratios from 1907 to 2019 and median age at death by sex from 1964 to 2019. The data can be viewed for any period between the years for which data are available. The visualisation includes text boxes with numbers and rates of deaths by suicide in Australia in 2019 for persons, males and females. In 2019, there were 3318 suicide deaths recorded at a rate of 12.9 deaths per 100,000 population; there were 2502 deaths by suicide for males, with a rate of 19.8 and 816 for females, with a rate of 6.3.

Numbers of deaths by suicide increased steadily over the first half of the 20th Century (from 461 in 1907 to 760 in 1950), with peaks and troughs in numbers of suicides corresponding with significant world events (see below). However, since the 1950s numbers of deaths by suicide increased more steeply over time—in part driven by population growth. Peaks in numbers of deaths by suicide occurred during the 1960s and late 1990s. Since the mid-2000s numbers of deaths by suicide in Australia have increased to about 3,000 Australians dying by suicide each year.
Have suicide rates changed over time?
Between 1907 and 2019, 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, see Impact of social and economic events.
- Suicide rates tended to increase from 1907 to 1915 (from 16.9 to 18.2 deaths per 100,000 population). Rates then fluctuated throughout the late 1910s and early 1920s (from 13.1 deaths per 100,000 population in 1918 to 16.2 in 1920, returning to 12.8 in 1922), before increasing to a peak of 17.8 in 1930.
- Rates then declined throughout the 1930s and early 1940s, reaching a low of 8.4 deaths per 100,000 population in 1943 and 1944 (however, suicide rates for the war years may have been underestimated, see Impact of social and economic events below).
- Rates tended to increase throughout the 1950s, peaking at 18.4 deaths per 100,000 population in 1963. Rates remained high throughout the 1960s while the 1970s and early 1980s saw a decline in rates (from 15.4 deaths per 100,000 population in 1971 to 11.6 in 1984).
- Rates began to rise in 1985 and fluctuated from 14.3 in 1987 to 11.9 in 1993 with a recent peak of 14.8 in 1997. This was followed by sustained declines over the early 2000s, with a low of 10.2 per 100,000 population in 2006.
- After 2006, suicide rates began to rise. In 2019, the rate was 12.9 deaths per 100,000 population—down from a high of 13.2 in 2017.

It is important to note that deaths by suicide were underestimated in the collection of routine deaths data, particularly in the years before 2006 (AIHW: Harrison et al 2009; De Leo, 2010; AIHW: Harrison & Henley 2015). Since then, the Australian Bureau of Statistics (ABS) has introduced a revisions process to improve data quality by enabling the revision of cause of death for open coroner’s cases over time.

Deaths registered in 2019 and 2018 are preliminary and data for 2017 are revised and therefore, data for these years are subject to further revision by the Australian Bureau of Statistics. Data from 1907 to 2016 are final (for further information see Technical notes).

What’s changed in the last decade?

Trends in suicide rates, especially recent trends—over the last 10 years, are a matter of public and policy interest. However, interpretation of trends and changes in rates is complicated by large yearly variation due to small numbers of deaths by suicide. Caution is advised when making year to year comparisons.

- Over the last decade, the age-standardised suicide rate for males increased from 17.5 deaths per 100,000 population in 2010 to 19.8 in 2019. Female rates also increased from 5.0 deaths per 100,000 population in 2010 to 6.3 in 2019.
  For detailed analysis of recent trends in suicide in Australia, see Suicide Mortality in Australia: Estimating and Projecting Monthly Variation and Trends From 2007 to 2018 and Beyond.

Impact of social and economic events

While an individual’s reasons are personal and often complex, overall peaks and troughs in rates and numbers of deaths by suicide coincide—more or less—with social and economic events.

Falls in the male suicide rate coincided with both World Wars 1 and 2. These falls are at least partly a statistical artefact due to the fact that deaths from all causes (including deaths by suicide) of Australian service personnel while overseas were not included in Australian death registration data, while population estimates were not adjusted to allow for the absence of these personnel (AIHW 2005; AIHW: Harrison & Henley 2014).

The highest annual age-standardised rate for males in the last century occurred in 1930 (29.8 deaths per 100,000 population), during the Great Depression—a period of high unemployment, particularly among males. The rise in both male and female suicide rates in the 1960s has been attributed, in part, to the unrestricted availability of barbiturate sedatives (Oliver & Hetzel 1972; Whitlock 1975). Subsequent falls in these rates in the late 1960s and early 1970s have in turn been attributed to the introduction of restrictions to the availability of these drugs in July 1967 (AIHW: Harrison & Henley 2014). High rates of suicide in the late 1980s and early 1990s coincide with a period of economic uncertainty in Australia.

Males have consistently higher rates of suicide than females

Since 1907, the male age-standardised suicide rate has been consistently higher and more variable than the female rate. Variations in the overall suicide rate in Australia have been largely driven by changes in the male suicide rate.

The peak in overall suicide rates in 1930 was driven by an increase in male suicide rates, peaking at 29.8 deaths per 100,000 in 1930—the highest rate ever recorded. Similarly, the increase in overall suicide rates in the 1990s was also mainly driven by an increase in male rates. The peak in the 1960s reflects a rise in suicide rates for both males and females.

The male suicide rate ranged from a high of 5.6 times that of females in 1930 to lows of less than twice the female rate in the 1960s and early 1970s—mainly due to the marked rise in female suicide rates at this time. Since then, the male suicide rate has fluctuated around 3-4 times that of the female rate.

Although males are more likely to die by suicide, females are hospitalised for intentional self-harm (with and without suicidal intent) almost twice as frequently as males (see Intentional self-harm hospitalisations). Furthermore, early indications from ambulance attendance data reporting on attendances for suicide attempts in 2019 suggest females are more likely to attempt suicide than males (see Ambulance attendances, self-harm behaviours and mental health).
Patterns of suicide by age have changed over time

Age-specific suicide rates for males are higher than those for females across all age groups for all years. Use the year slider to see how patterns of suicide in males and females have changed in Australia over time. Hover over the graph to display the tooltip to see the trend in deaths by suicide by sex over time for each age group.

A more detailed breakdown by 5-year age groups is provided for the most recent suicide data from 2018: see Australia’s Health Suicide and intentional self-harm snapshot. The highest proportion of deaths by suicide occur during mid-life. More than half of all deaths by suicide (55%) in 2019 occurred in people aged 30-59 (1,816 deaths) compared with 23% for those aged 15-29, and 21% for those aged 60 and over. Some of the highest suicide rates for both males and females occur in their 40s; in 2019, the highest suicide rates were in males aged 45-49 (32.2 deaths per 100,000 population) and 85 and over (32.3) and in females aged 40-44 (9.7).

Suicide deaths by age and sex, Australia, 2019.

The butterfly chart shows the age-specific rates of suicide for males and females by age groups (15–19, 20–39, 40–59 and 60 and over). Users can also choose to view numbers of deaths by suicide for males and females in these age groups. Data can also be viewed by year from 1907. In 2019, age-specific suicide rates were much higher in males than females for all age groups, and the highest rates were in males aged 40-59, at 28.8 per 100,000 population.

For approximately the first half of the period 1907 to 1990, age-specific suicide rates in males generally increased with age; however, by the start of the 1990s this pattern had changed substantially with suicide rates highest in younger males aged 20-39. Since 2008, the highest suicide rates have been observed in middle-aged males (aged 40-59).

Throughout 1907 to 1990, the lowest suicide rates in males were observed in those aged 15-19.

- From 1907 to 1970, suicide rates in males aged 15-19 were less than 10 deaths per 100,000 population. Rates then increased throughout the 1970s and 1980s peaking at 21.0 deaths per 100,000 population in 1988, while still remaining the lowest of the reported age groups.

Males aged 20-39 had the second-lowest age-specific suicide rates for most of the 20th Century; however, during the late 1980s and throughout the 1990s this age group had the highest suicide rates.

- From 1907 to 1977, suicide rates for males 20-39 were around 20 deaths per 100,000 population) with peaks of 27.2 in 1914, 24.6 in 1930 and 26.1 in 1963 and a low of 6.0 in 1944.
- From the early 1980s, suicide rates in this age group increased steadily to more than 30 deaths per 100,000 population, reaching a high of 39.2 deaths per 100,000 population in 1998.
- Rates fell steadily to 19.6 deaths per 100,000 population in 2013 but since have risen above 20 deaths per 100,000 to 25.4 in 2019.
The pattern of age-specific suicide rates for middle-aged males (aged 40-59) was different to that of younger age groups, with the highest rates being observed in the first part of the 20th Century and then falling to lower levels.

- The highest age-specific suicide rate for males aged 40-59 was 49.8 deaths per 100,000 population in 1912. Peaks of more than 47 deaths per 100,000 population were also seen in 1913 (47.0) and 1930 (48.2). Age-specific rates then fell to a low of 16.5 deaths per 100,000 population in 1944.
- Rates tended to increase throughout the 1950s and 1960s peaking again at 36.8 deaths per 100,000 population in 1963, before falling to 21.2 in 1983.
- Since then, rates for this age group have fluctuated from 29.6 deaths per 100,000 population in 1987 to 20.4 in 2004 then increasing to a recent high of 29.2 in 2015. Rates have since fluctuated with 28.8 deaths per 100,000 in 2019 for males aged 40-59.

A similar pattern was seen in males aged 60 and older.

- The age-specific suicide rate for males aged 60 and older was about 40 deaths per 100,000 population from 1907 to 1967 (with peaks at 57.3 deaths per 100,000 population in 1915 and 56.5 in 1930 and a low of 29.8 in 1943).
- From 1968 suicide rates for males aged 60 and older have generally fallen, to an all time low of 16.8 in 2005. Since then rates have increased to a high of 21.7 in 2015, and remained around 20 deaths per 100,000 population; in 2019 the rate of suicide for males aged 60 and over was 20.7.

Age-specific suicide rates for females showed comparatively little variation over time—except for a peak in multiple age groups during the 1960s.

- For the first half of the 20th Century, age-specific rates in females aged 40-59 fluctuated between 5 and 10 deaths per 100,000 population, with peaks of 12.4 in 1915 and 13.5 in 1957. Rates peaked at 22.1 deaths per 100,000 population in 1963 and remained above 20 until peaking a second time in 1967 at the highest rate recorded for females (22.5 deaths per 100,000 population). Rates then fell to a low of 5.5 deaths per 100,000 population in 2005. Age-specific suicide rates have since increased in this age group to 8.9 deaths per 100,000 population in 2019.
- Similar patterns were seen for females aged 20-39 and 60 and older, albeit with lower suicide rates.
- A different pattern has been observed in females aged 15-19. Suicide rates fluctuated from around 2 to 6 deaths per 100,000 population from 1907 to the late 1930s. The fluctuations in rates have been mainly due to small numbers of deaths by suicide in this age group. Rates then declined to around 1 to 2 deaths per 100,000 population during the 1940s and 1950s. Rates then increased in the 1960s to the late 1990s, fluctuating between 2 and 6 deaths per 100,000 population. Since then, suicide rates have increased to between 3 and 8 deaths per 100,000 population with the highest rate recorded in this age group in 2012 (8.3 deaths per 100,000 population). In 2019 the rate was 6.6 for females aged 15-19.

How have methods of suicide changed over time?

Understanding the methods used for suicide can play an important role in suicide prevention. These data are provided to inform discussion around restriction of access to means as a policy intervention for the prevention of suicide.

Please consider your need to read the following information. If this material raises concerns for you or if you need immediate assistance, please contact a crisis support service, available free of charge, 24 hours a day, 7 days a week.


The pattern of methods used for suicide has changed greatly, sometimes rapidly, over the last century as new methods have become available or as restrictions to the availability of some methods have been introduced. The methods of suicide used by males and females differed over the period 1907 to 2019; however, as males account for the majority of deaths by suicide the methods used by males have a greater influence on the overall pattern than the methods used by females.

The classification system used to code causes of deaths data, ICD-10, uses the term 'mechanism' to refer to the external cause of death. Throughout Suicide & self-harm monitoring 'mechanism' has been used in data visualisations, while the term 'method' has been used in the accompanying text.

Suicide deaths by sex and mechanism, Australia, 1907 to 2019.

The line graph shows age-standardised suicide rates by mechanism for poisons, gas, firearms, hanging and other mechanisms from 1907 to 2019. Users can also choose to view age-standardised rates and numbers of deaths by suicide, by sex and mechanism (including all mechanisms) from 1907 to 2019 and median age at death by sex and mechanism from 1964 to 2019. The data can be viewed for any period between the years for which data are available. The highest suicide rates by mechanism between 1907 and 2019 were for poisons in the 1960s, at around 7 to 8 deaths per 100,000 population falling steeply throughout the 1970s to below 3 from 1981. Around this time, suicide rates by hanging began to rise steeply, becoming the highest by mechanism after 1988 and more than doubling from 3.2 deaths per 100,000 population in 1988 to 7.8 in 2019.
Hanging (ICD-10 X70) has become the most common method of suicide in Australia and use of this method increased substantially over the last 25 years. Age-standardised rates of suicide by hanging remain much higher for males than females, but have increased for both sexes.

- Rates of suicide by hanging were relatively steady from 1907 to the late 1980s, with rates around 3 deaths per 100,000 population for males and 1 and lower for females.
- From the late 1980s, rates of hanging increased as other methods of suicide (firearms and poisoning by gas) declined.
- Hanging became the most common method of suicide for males in 1989 and for females in 1997. Age-standardised suicide rates by hanging in males have more than doubled since then—from 5.7 per 100,000 population in 1989 to 12.5 in 2019—and in 2019 accounted for almost two-thirds (62%) of male deaths by suicide.
- Similarly, the rate of suicide by hanging has increased more than 1.7 times in females from 1.9 deaths per 100,000 population in 1997 to 3.3 in 2019. In 2019, hanging caused half (50.4%) of all deaths by suicide in females, having increased steadily from 30% of deaths by suicide in 1997.

Use of firearms (ICD-10 X72–X75) was the most common method of suicide for males from 1907 to the late-1980s.

- In males, the rate of suicide by use of firearms was more than 5 deaths per 100,000 population per year for most of 1907 to 1993 (with a peak of 10.2 deaths per 100,000 population in 1914 and a fall below 5 deaths per 100,000 population in 1941 to 1946).
- In contrast, female rates of suicide by this method were low throughout this period (less than 0.6 deaths per 100,000 population).
- Rates of suicide by use of firearms declined steeply for both males and females from 1987 after the introduction of gun control restrictions in some states of Australia, and fell further after additional reforms in 1996.

In the 1920s, poisoning by gas (ICD-10 X67), largely due to carbon monoxide poisoning, became a new method of suicide in Australia with the introduction of the domestic gas supply and the motor vehicle to Australia.

- Rates of poisoning by gas peaked in 1963 in females (2.1 deaths per 100,000 population) and were also high for males (4.8). Rates then declined throughout the 1970s—this has been attributed to the replacement of toxic ‘town gas’ by less toxic gases in most of Australia at this time (AIHW: Harrison & Henley 2014).
- Rates of poisoning by gas subsequently increased once again in the 1980s and 1990s, peaking for males (5.8 deaths per 100,000 population) and for a second time in females at a much lower level (1.2 deaths per 100,000 population) in 1997 as a result of the increasing use of motor vehicle exhaust gas (AIHW: Harrison & Henley 2014).
- A decline in poisoning by gas after 1997 was likely due to the introduction of emission controls that greatly reduced the amount of carbon monoxide permitted in the exhaust gas of new motor vehicles (AIHW: Harrison & Henley 2014).

Exposure to poisonous substances excluding gas (ICD-10 X60–X66, X68–X69) was the most common method of suicide for females from 1907 until 1997.
For most of the first half of the 20th Century, rates of poisoning by substances (excluding gas) were approximately 2 deaths per 100,000 population in females; however, during the 1960s rates increased 4 times—peaking at 8.4 in 1967—before returning to previous levels in the 1980s.

A similar peak in suicide rates by this method was seen in males, with rates more than doubling in the 1960s to a peak of 8.2 deaths per 100,000 population in 1963 before falling again in the 1970s and 1980s.

These peaks in suicide rates due to poisonous substances (excluding gas) during the 1960s have been attributed mainly to the unrestricted availability of barbiturate sedatives (AIHW: Harrison & Henley 2014). These trends were not associated with compensatory falls in the use of other methods of suicide during this time. In July 1967, in response to concerns over misuse of these drugs, the supply of barbiturates was limited and deaths by suicide from poisoning (excluding gas) in both males and females declined soon after (AIHW: Harrison & Henley 2014).

In 2019, poisoning by substances (excluding gas) was the second most common means of suicide among females with a rate of 1.8 deaths per 100,000 population—accounting for almost a third of female deaths by suicide each year for the last decade.

Age-standardised rates for suicides by other methods (ICD-10 X71, X76-X84, Y87.0) are only available from 1964.

Rates for these methods were relatively stable over the period 1964 to 2019 for both males and females.

It is not possible to report on these different methods individually, as the numbers are too small to report for privacy or data reliability reasons.

References


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Birth cohort analysis of deaths by suicide

Analysing deaths by suicide according to the period in which people were born can provide additional insights to that obtained by examining suicide rates by period of death (see Deaths by suicide over time).

A ‘birth cohort’ is a group of people born within the same defined period. People in a birth cohort age together over time and experience the same events and changes in technology or cultural norms at the same age.

This birth cohort analysis relates deaths by suicide to period of birth (birth cohort) and age at death. It examines how suicide rates change within birth cohorts as they age and how they vary between birth cohorts when compared at the same age.

Data sources and methods

This analysis is based on data from the AIHW National Mortality Database, which holds records for deaths in Australia from 1964.

Suicide rates by age at death (5-year age groups: ages 10-14 years and older) were calculated for each birth cohort. Birth cohorts can be defined in terms of any range of birth dates for which data are available; the cohorts presented here are those born in each 5-year period from 1954–58 through to 2004–08. The earliest birth cohort, those born in 1954-58, can be followed for over 60 years. For more information on data sources and methods, see Suicide in Australia: Trends and analysis 1964 to 2018.

How do suicide rates change among birth cohorts?

The interactive data visualisation shows how suicide rates have changed as people in each birth cohort have aged—with each line representing a birth cohort. By comparing the earlier birth cohorts with those born more recently, see how the age groups most at risk change.


The line graph shows age-specific rates of suicide for 5-year birth cohorts from 1954–1958 to 2004–2008 by age at death from 15-19 to 60-64 for males by all mechanisms. Users can also choose to view suicide rates by sex, mechanism and age at death. The highest suicide rate was in males born 1969-1973 who died aged 25-29, followed by males in this cohort who died aged 20-24.
In the earlier male birth cohorts (born 1954–58 to 1974–78) peaks in suicide rates for each subsequent birth cohort tended to be higher and occur at successively younger ages of death—with peaks tending to coincide with deaths occurring in the 1990s (period of death). For more information, see Suicide deaths over time. Suicide rates in these cohorts then tended to decline as they aged.

For example, peak suicide rates in males born in:

- 1954–58 occurred at age 40–44 (29.4 deaths per 100,000 cohort members)
- 1959–63 occurred at age 35–39 (31.0)
- 1964–68 occurred at age 30–34 (34.0)
- 1969–73 occurred at age 25–29 (36.9)
- 1974–78 occurred at age 20–24 (33.4).

For the majority of the male cohorts born in the later years, from 1974–78 onwards, suicide rates were still rising at the end of the available data; the oldest people in these cohorts were aged 42–46 years in 2018.

Suicide rates in female cohorts were much lower than those of male cohorts and for the earlier born cohorts tended to increase as they aged.

- For example, the highest suicide rates in female cohorts were in those born in 1964–68 and 1969–73—the same cohorts that had the highest rates in males. However, peaks in suicide rates for these female cohorts tended to occur at older ages (9.7 and 9.5 at age 50–54 and 45–49, respectively) than in male cohorts (which peaked in early adulthood and then declined).

How do suicide rates vary between birth cohorts when compared at the same age?

The interactive data visualisation shows how suicide rates have changed for people of the same age, but born at different times—each line representing the same age group. By following the suicide rate of a specific age group, see how suicide rates have changed for people born between 1954 and 2008.


The line graph shows age-specific suicide rates for ages of death from 10–14 to 60–64, by 5-year birth cohorts from 1954-1958 to 2004-2008 by all mechanisms for females. Users can also choose to view suicide rates by sex, mechanism and for selected age-ranges at death. The rates of suicide among young females aged 15–19 at death showed the greatest change between the earliest and latest born cohorts for which data are available, almost doubling from 3.6 per 100,000 population in the 1954–1958 cohort to 6.4 in the 1999–2003 cohort, with some fluctuation in between these cohorts.
In females, the suicide rate at age 15–19 for those born most recently (1999–2003) was 1.8 times higher than the earliest cohort born in 1954–58. This pattern was not observed in males of the same age.

- For females born in 1999–2003, the suicide rate reached 6.4 deaths per 100,000 cohort members at age 15–19—considerably higher than females born in 1954–58 (3.6 deaths per 100,000 cohort members).

Suicide rates at age 45–49 have increased with each successive birth cohort in both males (from 24.1 in those born in 1954–58 to 29.5 deaths per 100,000 cohort members in those born in 1969-73) and females (from 6.7 to 9.5 deaths per 100,000 cohort members in the same cohorts).

Suicide rates across male cohorts compared at the same age show no clear pattern. Rates at younger ages of death (15–19 and 20–24) tended to be higher for those born prior to 1979–83 than in those born in more recent cohorts (1984-1988 onwards).

- For males born in 1984-88 the suicide rate at age 20-24 was almost half that of the cohort born in 1969-73 (18.0 deaths per 100,000 cohort members compared with 35.1).
- Rates of suicide at age 15-19 for males born in 1974-78 were 1.8 times higher than those with the lowest rate born in 1954-58 (18.0 deaths per 100,000 cohort members and 10.0, respectively). Rates at age 15-19 were 12.3 deaths per 100,000 cohort members in the most recent male birth cohort for which data are available (1999-2003).

**Trends in methods of suicide by birth cohort and age at death**

The classification system used to code causes of deaths data, ICD-10, uses the term ‘mechanism’ to refer to the external cause of death. Throughout Suicide & self-harm monitoring ‘mechanism’ has been used in data visualisations, while the term ‘method’ has been used in the accompanying text.

The interactive data visualisations show which methods underlie changes in suicide rates as people in each birth cohort have aged (top visualisation)—and underlie changes in suicide rates for people of the same age, but born at different times (second visualisation).
Rates of suicide by hanging (ICD-10 X70):

- tended to increase for both male and female birth cohorts as the cohort aged (top visualisation).
- tended to increase in most age groups with each successive birth cohort in females; the pattern in males was less consistent (second visualisation). For example:
  - rates of suicide by hanging at ages 15–19 increased for each successive female birth cohort from a low of 0.1 per 100,000 cohort members in those born in the earliest cohort (1954-58) to a high of 4.9 in those born in the most recent cohort (1999-2003).
  - in the 2 most recently born female cohorts for which there are data available at ages 15-19 (born in 1994-98 and 1999-2003), rates of suicide by hanging were as high or higher than, rates at almost any other age in all other female cohorts.
  - for males, rates of suicide by hanging at ages 15–19 do not show the same pattern as females; rates in male cohorts increased up until those born in 1979-1983 and have since remained at about the same level (9.5 deaths per 100,000 cohort members for the latest birth cohort, born 1999-2003).

Rates of suicide by use of firearms (ICD-10 X72–X75) for both males and females peaked at younger ages (15–19 or 20–24) in all birth cohorts and then declined as cohorts aged (top visualisation). Suicide rates by this method tended to be lower for each successive birth cohort at all ages for which there are data available.

- Each more recently born male cohort (born 1969-73 to 1989-93) had successively lower suicide rates by use of firearms at age 20–24 (7.3, 3.6, 1.5, 1.0 and 0.8 deaths per 100,000 cohort members).
- A similar pattern was seen for female cohorts; however, rates were low.

Rates of suicide due to exposure to poisons excluding gas (ICD-10 X60–X66, X68–X69) in female cohorts were similar to that of male cohorts throughout the period 1964 to 2018 (0–3.6 deaths per 100,000 cohort members compared with 0–4.3, respectively)—unlike that of other suicide methods (top visualisation). Rates of suicide by this method were still rising for most male and female cohorts at the end of the available data.

Reference

Suicide & self-harm monitoring

Deaths by suicide, by states and territories

Patterns of deaths by suicide between states and territories can reveal insights that may be masked by results for the whole of Australia. Variations in the rates of deaths by suicide across states and territories may help to highlight different risk factors and assist in better targeting of suicide prevention activities. For example, differences in the ratio of urban to regional and remote areas may explain some of the differences across states and territories given that the rates of suicide tend to be higher in regional and remote areas, see Suicide by remoteness areas.

Information based on the deceased’s usual state or territory of residence is available for deaths registered after 1979. Deaths by suicide may be presented by either year of death or by year of registration. Reporting by year of death can provide more reliable information on trends in occurrence than reporting by year of registration; however, the latest data available underestimates the occurrence of recent deaths due to a lag in registration, for more information, see Technical notes. Here, statistics based on both year of registration of death and year of occurrence of death are presented.

Suicide deaths by states and territories, Australia, 1979 to 2019.

The line graph shows age-standardised suicide rates by year of registration for all states and territories and Australia from 1979 to 2019. Users can also choose to view age-standardised suicide rates, numbers of deaths by suicide, year-on-year change in age-standardised suicide rate and year-on-year change in numbers of deaths by suicide, by year of registration and year of death. Data can be viewed for any period between 1979 and 2019. During this period, rates in the Northern Territory tended to be the highest and were the most variable, ranging from slightly above the national rate in 1999 (14.3 deaths per 100,000 population compared with 13.2) to nearly 3 times the national rate in 2007 (29.8 compared with 10.6).
How do suicide rates vary across states and territories?

From 1979 to 2019, age-standardised suicide rates based on death registrations:

- tended to be lower for New South Wales, Victoria and the Australian Capital Territory than the overall Australian suicide rate while rates for all other jurisdictions tended to be higher
- tended to be highest in the Northern Territory (14.2 to 29.8 deaths per 100,000 population); however, it was one of the jurisdictions with the lowest number of deaths by suicide (from a high of 56 in 2014 to a low of 7 in 1982).

In 2019:

- the age-standardised suicide rate ranged from 10.7 per 100,000 population in Victoria to 21.0 per 100,000 in the Northern Territory.

Age-standardised suicide rates allow for comparisons between states and territories by adjusting for differences in age structures and population size. Rates fluctuate over time—particularly in the smaller jurisdictions—due to the small number of deaths by suicide that are registered each year. Caution is advised when comparing state and territory data. Differences in coronial processes, data processing or coding practices should also be taken into consideration when comparing data across jurisdictions and over time.

In 1979, the highest number of deaths by suicide was in:

- New South Wales (539 deaths), followed by Victoria (462), Queensland (296), South Australia (178) and Western Australia (116).

By 2019, the highest number of deaths by suicide was in:

- New South Wales (937), followed by Queensland (784), Victoria (717), Western Australia (418) and South Australia (251).

However, it should be noted that New South Wales and Victoria have the largest populations in Australia and the populations of both Queensland and Western Australia increased considerably from 1979 to 2019.

What is the effect of reporting deaths by suicide by year of occurrence?

The data for age-standardised rates and number of suicide deaths are broadly similar when analysed by year of death or year of registration. Minor differences arise due to the elapsed time prior to registration with recent years showing some differences due to incomplete coronial processes and registrations.

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Suicidal behaviours are defined as thinking about or planning taking one’s own life (suicidal ideation) or attempting suicide.

Understanding the prevalence of suicidal behaviours in Australia is important as this may help to reduce stigma, increase help-seeking behaviour and improve suicide prevention activities.

Many people experience thoughts of suicide:
- the 2007 National Survey of Mental Health and Wellbeing indicated that 2.1 million or 1 in 8 (13%) Australians aged 16–85 had serious thoughts about taking their own life at some point in their lives (Slade et al. 2009).

Yet, while thinking about suicide is common, not everyone goes on to develop a suicide plan or take their own lives. Despite this, it is important to take seriously any person seeking assistance because of suicidal thoughts.

People who experience suicidal ideation and make suicide plans are at increased risk of suicide attempts and those who experience all forms of suicidal thoughts and behaviours are at greater risk of dying by suicide (see Psychosocial risk factors and suicide).

The National Suicide and Self-harm Monitoring Project has funded the collection of data on suicidal behaviours through the National Ambulance Surveillance System. This system uses coded ambulance clinical records from jurisdictional ambulance services across Australia to capture information related to ambulance attendances for mental health and self-harm behaviours (see Ambulance attendances). However, not all people with suicidal behaviours will make contact with these services. Instead, an indication of the prevalence of these behaviours in the community may be derived from surveys of representative samples of the population.

A program of surveys, the National Survey of Mental Health and Wellbeing, began in Australia in the late 1990s. The 2007 National Survey of Mental Health and Wellbeing provided information on the 12-month and lifetime prevalence of mental disorders in the Australian population aged 16–85 years. The Intergenerational Health and Mental Health Study, designed to measure the prevalence of mental illnesses in Australia for the first time since the 2007 National Survey of Mental Health and Wellbeing, was scheduled to be undertaken in 2020 by the Australian Bureau of Statistics; however, due to the COVID-19 pandemic this face-to-face survey has been delayed.

Results from the 2007 National Survey of Mental Health and Wellbeing (Slade et al. 2009) indicate that:
- over 600,000 Australians aged 16-85 had made a suicide plan and over 500,000 attempted suicide during their lifetime
- females were more likely to be suicidal than males, with a higher prevalence of suicidal ideation in the 12 months before the administration of the survey (2.7% vs 1.9%). These findings are in contrast to the data on deaths by suicide, which show that males are more likely than females to die by suicide. (See Deaths by suicide over time)
- young females aged 16-24 reported the highest prevalence of suicidal behaviours in the 12 months before the administration of the survey (5.1% of females aged 16-24 years)
- mental health service use was relatively high among people who attempted suicide (73.4%) or made a suicide plan (68%) in the 12 months before the administration of the survey. However, although mental health service use was high for those who reported suicidal behaviours, 1 in 4 (25%) people who attempted suicide did not access services for mental health problems in the previous 12 months.

Reference

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Ambulance attendances, self-harm behaviours and mental health

The complete extent of non-fatal suicidal and self-harming behaviours in the community is unknown in Australia. Although, data on hospitalisations due to intentional self-harm provide an indication of the incidence of these behaviours in the community, only those with serious physical or mental health issues admitted for further treatment are included. In addition, clinical data from emergency departments (EDs) or primary health care services cannot currently capture those presenting with intentional self-harm or suicidal ideation in most jurisdictions. Many others will not seek medical treatment. An additional difficulty in determining the incidence of suicidal and self-harming behaviours in the community is that ICD-10 codes, used to classify morbidity in health datasets, cannot distinguish between different types of intentional self-harm (see Technical notes).

Clinical data from ambulance attendances have the potential to provide a more complete picture of suicidal and self-harming behaviours in Australia, and to identify opportunities for improved intervention or postvention—importantly—at a stage when further harm may be prevented.

The National Ambulance Surveillance System (NASS) is a world-first public health monitoring system providing timely and comprehensive data on ambulance attendances in Australia. The NASS is a partnership between Turning Point, Monash University and jurisdictional ambulance services across Australia. Through funding by the AIHW as a component of the National Suicide and Self-harm Monitoring Project, the NASS will collate and code monthly ambulance attendances data for participating states and territories for self-harm behaviours (suicidal ideation, suicide attempt, death by suicide, self-injury) and mental health.
Ambulance attendances, self-harm behaviours & mental health

This, the first delivery of coded ambulance attendance data, includes 1-month per quarter snapshots from Victoria (Vic), Tasmania (Tas) and the Australian Capital Territory (ACT) for 2019, and from the second quarter of 2019 for New South Wales (NSW).

See About to learn more about the ongoing developments relating to ambulance attendance data funded through this project. Data from other participating jurisdictions will be available over the remainder of 2020 and 2021, with monthly data for all jurisdictions available from mid-2021.

How many attendances for self-harm and mental health?

In 2019:

- ambulances attended a total of around 10,300 incidents involving suicidal behaviours (suicidal ideation, suicide attempt, death by suicide) in Victoria, Tasmania and the Australian Capital Territory during the months of March, June, September and December
  - 89% of which occurred in Victoria, in line with the population distribution between those jurisdictions.
- ambulances attended a further 8,100 incidents in NSW during June, September and December
- together these 4 jurisdictions account for 62% of the Australian population.

Taking into consideration the population differences of the 3 jurisdictions that provided data for all 4 quarters of 2019, the rate of ambulance attendances for suicidal ideation (thinking about killing oneself without acting on the thoughts (Klonsky et al. 2016)) ranged from:

- 84.6 per 100,000 population in Victoria (nearly 5,600 attendances) to 51.8 in Tasmania (about 280 attendances) with the ACT reporting a rate of 80.6 (about 340 attendances) (Supplementary table NASS S.1).

Attendance rates for suicide attempts (non-fatal intentional injury with suicidal intent, regardless of likelihood of lethality (Klonsky et al. 2016)) by comparison, were lower than ideation in all 3 jurisdictions. Rates of attendances for suicide attempts ranged from:

- 64.0 per 100,000 population in the ACT (about 270 attendances) down to 40.1 in Tasmania (about 210 attendances), with Victoria reporting a rate of 53.5 (over 3,500 attendances).

For comparison, the most recent ABS Causes of Death release reports the age-standardised death rate for death by suicide over the period 2014–2018 as being 10.1 per 100,000 for Victoria, 15.4 per 100,000 for Tasmania and 10.7 for the ACT (ABS 2019). The numbers of ambulance attendances for suicide attempts for the 3 months in 2019 in each of these three jurisdictions are substantially higher than the number of deaths by suicide for the entire 12 months in 2018. See Suicide deaths by states and territories.

Ambulances do not attend all deaths therefore fatal suicide (fatal intentional injury with suicidal intent; Klonsky et al. 2016) is under-represented. Rates of deaths by suicide have not been calculated because of small numbers, affecting the reliability of the estimates (see Technical notes for details).

Ambulance attendances for self-injury were the least common among the self-harm and mental health related incidents, likely in part, reflecting differences in the method of harm. In 2019:

- ambulances in Victoria, Tasmania and the ACT attended a total of around 1,400 incidents involving self-injury during the months of March, June, September, December; 87% of which occurred in Victoria
- around another 1,400 self-injury related ambulance attendances were recorded in NSW during June, September and December.

Self-injury related ambulance attendances may include a small number of suicidal behaviour attendances (see Technical notes for definitions).

In 2019, the rate of ambulance attendances for self-injury ranged from:

- 27.0 per 100,000 population in the ACT (nearly 120 attendances) down to 12.5 in Tasmania (nearly 70 attendances), with Victoria reporting a rate of 18.3 (over 1,200 attendances) (Supplementary table NASS S.1).

Mental health related ambulance attendances are classified by the presence of a mental health symptom preceding (24 hours) or during the ambulance attendance. See Technical notes for definition.
During a mental health related attendance if there is evidence of self-harm (suicidal ideation, suicide attempt, death by suicide or self-injury) the co-occurrence of these symptoms and behaviours are recorded. The following data report only mental health incidents, some of which will have co-occurring self-harm behaviours.

In 2019:

- ambulances attended around 12,000 mental health related incidents in Victoria, Tasmania and the Australian Capital Territory, with the majority occurring in the more populated state of Victoria (88%)
- another 11,700 attendances occurred in NSW during June, September and December.

In 2019, the rate of mental health related ambulance attendances ranged from:

- 160.0 per 100,000 population in Victoria (nearly 10,600 attendances) down to 135.1 in Tasmania (around 720 attendances); the ACT recorded a rate similar to Victoria (158.4; nearly 680 attendances) (Supplementary table NASS S.1).

**Age and sex patterns**

There are distinct differences between the sexes when examining deaths by suicide and intentional self-harm hospitalisations; higher rates of deaths by suicide are seen in males compared with females (see Deaths by suicide over time) while females have higher rates of hospitalisations for intentional self-harm—with and without suicidal intent (see Intentional self-harm hospitalisations. Ambulance attendances capture intent (see Technical notes on evidence) and therefore can provide information on the extent of these behaviours in the community.

In general:

- rates of ambulance attendances for suicide attempt and self-injury were higher for females than males.
- attendance rates for suicidal ideation and mental health showed less variation between the sexes.

The interactive data visualisation shows ambulance attendances for males and females by each attendance type and for each of the four states and territories. See how ambulance attendance types vary between the sexes.

Ambulance attendances for self-harm behaviours and mental health, by age and sex, selected states and territories, 2019.

The vertical bar graph shows the crude rate of ambulance attendances for suicidal ideation, suicide attempt, self-injury and mental health for males and females in Victoria for the combined quarterly snapshot months in 2019. Users can also choose to view crude rates and numbers of attendances for New South Wales, Tasmania or the Australian Capital Territory for all or selected self-harm behaviours and mental health. Across the 2019 snapshot months in Victoria, the highest crude rates of ambulance attendances for males and females were for mental health, at around 160 attendances per 100,000 population, followed by suicidal ideation, suicide attempt and self-injury. Crude rates for attendances for self-injury were around 14 for males and around 22 for females.
Rates of ambulance attendances for suicide attempt and self-injury were between 1.5 and 2.1 times higher for females than males.

Ambulance attendance rates for females involving a suicide attempt were:
- 85.3 per 100,000 population in the ACT, 64.6 in Victoria and 46.7 in Tasmania.

By contrast, the corresponding rates in males were:
- 40.8 per 100,000 population, 41.0 and 32.1, respectively.

Attendance rates for both males and females were highest for incidents relating to mental health. Rates ranged from:
- for females—192.3 per 100,000 population (about 420 attendances) in the ACT, and 144.1 in Tasmania (about 390 attendances) with Victoria reporting a rate of 161.8 (around 5,400 attendances).
- for males—156.8 per 100,000 population in Victoria down to 121.8 in the ACT.

Age and sex variation

The interactive data visualisation illustrates the distribution of self-harm and mental health related ambulance attendances for both males and females by age. For this visualisation, ambulance attendance data from 2019 in NSW, Victoria, Tasmania and the ACT have been combined.

In general, there were higher numbers of attendances in the younger age groups for both males and females for incidents involving:
- suicidal ideation and suicide attempts, in particular, ages 15–19 (about 930 and 800 attendances for females, respectively; around 740 and 310 attendances for males, respectively) and 20–24 years (Supplementary table NASS S.2).

By contrast, mental health related attendances for males were more common in older age groups spanning 25–39 years while those for females tended to be younger (15–29):
- for males the highest number of attendances in 2019 was over 1,300 involving males aged 25–29 years
- for females the highest number of attendances was in the 20–24 age group (over 1,300 attendances).

Due to the low number of ambulance attendances for deaths by suicide these data cannot be reported by age and sex.

Ambulance attendances for self-harm behaviours and mental health, by age group and sex, selected states and territories, 2019.

The butterfly chart shows the distribution of the number of ambulance attendances for suicide attempts by age group for males and females for quarterly snapshot data collected in Victoria, Tasmania and the Australian Capital Territory in March, June, September and December 2019 and in New South Wales in June, September and December 2019. Users can also choose to view ambulance attendance numbers by age.
group for suicidal ideation, self-injury and mental health. The number of attendances for suicide attempts generally decreased with increasing age group from 15-19 for both males and females. Females aged 15-19 had the highest number of ambulance attendances for suicide attempts, 793 attendances across the snapshot months for the selected states and territories.

References


Suicide & self-harm monitoring

Intentional self-harm hospitalisations

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What is intentional self-harm?

Intentional self-harm is often defined as deliberately injuring or hurting oneself, with or without the intention of dying. Intentional self-harm comes in many forms, and affects people from different backgrounds, ages and lifestyles. The reasons for self-harm are different for each person and are often complex.

The term ‘intentional self-harm’ in the National Hospital Morbidity Database (NHMD) provides information on patients admitted to hospital for self-poisoning or self-injury, with or without suicidal intent—and therefore includes both suicide attempts and non-suicidal self-harming behaviours.

Most people who self-harm do not go on to end their lives—but previous self-harm is a strong risk factor for suicide. Therefore, monitoring of intentional self-harm is key to suicide prevention.

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.
- Presentations to hospital emergency departments relating to suicide attempts or intentional self-harm cannot be easily identified in the current national emergency department data collection.
- Data collections from general practitioners or mental health services do not routinely capture patients treated for intentional self-harm.
- Data are available from ambulance attendance records and national population surveys (see below).

Improving self-harm data

The NHMD is the national source of hospitalisation data in Australia. Data on the patient’s diagnosis, interventions and ‘external cause’ (including intentional self-harm) are reported to the NHMD by all states and territories using the International statistical classification of diseases and related health problems, 10th revision, Australian modification (ICD-10-AM) and the Australian Classification of Health Interventions (ACHI). The World Health Organization’s Eleventh revision of the International Classification of Diseases (ICD-11)—yet to be adopted in Australia—has the capability to classify the intent of the external cause of an injury.

In recognition of the need for better data around suicide and self-harm, the AIHW is currently working with key stakeholders, including the Mental Health Information Strategy Standing Committee and Emergency Department data custodians to develop a nationally consistent method to identify and collect data on suicide-related ED presentations.

National survey data

The only nationally representative survey to collect data on self-harm is the Australian Child and Adolescent Survey of Mental Health and Wellbeing. In this survey, data on self-harm are available for adolescents aged 12-17. The 2007 National Survey of Mental Health and Wellbeing did not include questions on self-harm.

COVID-19

The data reported are up to 30 June 2019, as such this data precedes COVID-19.

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Intentional self-harm hospitalisations by states & territories

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see Technical notes.

Intentional self-harm hospitalisations, by states and territories, Australia, 2008–09 to 2018–19.

The line graph shows rates of intentional self-harm hospitalisations from 2008–09 to 2018–19 for each state and territory and the total for Australia. Users can also choose to view age-specific rate, numbers and proportion of hospitalisations for intentional self-harm by states and territory by sex and specific age groups. From 2008–09 to 2018–19, the Northern Territory had the highest rates of intentional self-harm hospitalisations. Rates in the Northern Territory increased from 164.6 per 100,000 population in 2008–09 to 266.0 in 2018–19. In 2018–19, Queensland had the second highest rate at 168.3 hospitalisations per 100,000 population. The total rate for Australia in 2018–19 was 117.8 per 100,000 population.

How do intentional self-harm hospitalisations vary across states and territories?

In 2018–19:

- there were more than 29,400 hospitalisations due to intentional self-harm in Australia, with the highest proportion (28.7%) in Queensland
- the rate of intentional self-harm hospitalisations varied between states and territories in 2018–19, with the Northern Territory reporting the highest rate (266 hospitalisations per 100,000 population), which is more than double the national rate (118)
the lowest rate was recorded in New South Wales (87 hospitalisations per 100,000 population). Reporting is based on a patient’s usual residence, not necessarily where they received treatment.

How have rates of intentional self-harm hospitalisations changed over time by state and territory?
Throughout 2008-09 to 2018-19, rates of intentional self-harm hospitalisations in Queensland, South Australia and the Northern Territory were consistently higher than that of the national rate.

From 2008-09 to 2018-19 the highest rates of hospitalisations due to intentional self-harm in Australia were generally in the Northern Territory.

- Over this period, rates of hospitalisations due to intentional self-harm in the Northern Territory increased 1.6 times from 165 hospitalisations per 100,000 population to 266.
- The most notable changes between 2008-09 and 2018-19 were seen in young females.
  - The rate of intentional self-harm hospitalisations for Northern Territory females in the 0-24 age group increased 4-fold (from 99 hospitalisations per 100,000 population in 2008-09 to 409 in 2018-19).
  - In Queensland the rate increased 1.8-fold for females in this age group (160 per 100,000 population in 2008-09 to 294 in 2018-19).
  - The rate for females in the 25-44 age group also increased in the Northern Territory and Tasmania (since 2012-13).
- In addition, rates of intentional self-harm hospitalisations for males aged 24 and below in the Northern Territory almost doubled from 91 hospitalisations per 100,000 population in 2008-09 to 178 in 2018-19.

Variation in hospital admission policy and practices between states and territories may have contributed to differences in the reporting of hospitalisation data, for further information see data quality statement (https://meteor.aihw.gov.au/content/index.phtml/itemId/724188).

- New South Wales and Queensland reported an increase in the number of hospitalisations due to intentional self-harm in 2016-17, before decreasing in 2017-18.
- Between 2011-12 and 2012-13, Victoria reported a substantial decrease in the number of hospitalisations due to intentional self-harm from more than 6,700 (121 hospitalisations per 100,000) to around 4,500 (79 hospitalisations per 100,000). This may reflect a change in Victoria’s emergency department admission policy, for further information see data quality statement (https://meteor.aihw.gov.au/content/index.phtml/itemId/724188).
Intentional self-harm hospitalisations by age groups

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see Technical notes.

Rates of hospitalisations for intentional self-harm are higher for females

In 2018–19:

- nearly two thirds of people hospitalised for intentional self-harm injuries were female (64%, or over 18,700 hospitalisations)
- the rate of intentional self-harm hospitalisations was higher for females than males (149 per 100,000 population compared with 86).

This is the opposite of what is seen in deaths by suicide, where rates are higher for males than for females (see Deaths by suicide over time). 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.

Intentional self-harm hospitalisations by age and sex, Australia, 2008-09 to 2018-19.

The butterfly chart shows the age-specific rates of intentional self-harm hospitalisations for males and females for specific age groups and all ages combined in 2018-19. Users can also view age-specific rate, numbers and the proportion of hospitalisations for intentional self-harm by sex for each age group and year from 2008-09 to 2018-19. In 2018-19, females had higher rates of hospitalisation for intentional self-harm than males up to age 80-84. The highest rates were in females aged 15-19 (555.5 hospitalisations per 100,000 population) and males aged 20-24 (168.2).
Rates of hospitalisations for intentional self-harm are higher for young people

Between 2008–09 and 2018–19, the rates of intentional self-harm hospitalisations were consistently high for young people. The highest rates in 2018–19 were recorded for:

- females aged 15–19 (555 per 100,000 population), followed by females aged 20–24 (336).

The highest rates for males also occurred in these younger age groups but rates were at least 2-fold lower than those of females. For example, in 2018–19:

- the rate of self-harm hospitalisations was 161 per 100,000 population for males aged 15–19, while those aged 20–24 reported the highest rate (168 per 100,000 population).

During this period, there was a steady increase in the rates for both males and females aged 15–19, while rates for other age groups remained relatively stable (see Intentional self-harm hospitalisations among young people).
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Intentional self-harm hospitalisations by method

Understanding the methods used for intentional self-harm can play an important role in its prevention. These data are provided to inform discussion around restriction of access to means as a policy intervention for the prevention of suicide and self-harm.

Please consider your need to read the following information. If this material raises concerns for you or if you need immediate assistance, please contact a crisis support service, available free of charge, 24 hours a day, 7 days a week.


The classification system used to code hospital admissions data, ICD-10-AM, uses the term ‘mechanism’ to refer to the external cause of a self-inflicted injury. Throughout Suicide & self-harm monitoring ‘mechanism’ has been used in data visualisations, while the term ‘method’ has been used in the accompanying text.

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see Technical notes.

Hospitalisations for intentional self-harm, by age, sex and mechanism, Australia, 2008-09 to 2018-19.

The line graph shows the age-specific rates of intentional self-harm hospitalisations for persons of all ages from 2008-09 to 2018-19 by method of self-harm. Users can also choose to view age-specific rate, numbers and proportion of hospitalisations for intentional self-harm by sex for each age group. From 2008-09 to 2018-19, the highest rates of intentional self-harm hospitalisations by method were for self-poisoning by drugs in the anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs category, which for all years except 2016-17, were more than twice the rates of the second highest category, non-opioid analgesics, antipyretics and anti-rheumatics. The third highest rates during the 10-year period were for self-injury with sharp object.
Most intentional self-harm hospitalisations are due to poisoning by pharmaceutical drugs

Between 2008-09 and 2018-19, the 2 most common methods of self-harm resulting in hospitalisation were:

- **Intentional self-poisoning by anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs (X61)**, responsible for 42% of hospitalisations for intentional self-harm in 2018-19. Benzodiazepines are included in this category.
  - In 2018-19, nearly 8,100 females were hospitalised as a result of this method of self-harm, compared with about 4,200 males.

- **Intentional self-poisoning by non-opioid analgesics, antipyretics and anti-rheumatics (X60)**, responsible for 19% of intentional self-harm hospitalisations in 2018-19.
  - This category includes anti-inflammatory drugs, such as ibuprofen, antipyretics (for example, aspirin and acetaminophen) and anti-rheumatics (some of which are used to treat arthritis).
  - More than 3 times as many females were hospitalised due to this method of self-harm in 2018-19 compared with males (over 4,400 and almost 1,300 hospitalisations, respectively).

Contact with sharp objects (X78) was another common method of self-harm resulting in hospitalisation.

- Contact with sharp objects accounted for 12% of all intentional self-harm hospitalisations in 2018-19, with more females than males hospitalised for this method of self-inflicted injury (almost 2,000 and 1,600 hospitalisations, respectively).

Hanging was the only method of intentional self-harm that resulted in more hospitalisations of males than females in 2018-19 (556 and 261 hospitalisations, respectively).
Suicide & self-harm monitoring

Populations & age groups

Suicide and self-harm can affect people of all ages (except very young children), races, ethnicities, sexual orientations and occupations. However, a number of subgroups are particularly important to examine in depth because their risk of suicide or self-harm is higher than that of other populations, the impact on the community is different or they have specific requirements for culturally appropriate suicide prevention or postvention services.

- Although deaths by suicide occur more often in older age groups, it is the leading cause of death in Australian children and adolescents. Deaths by suicide at any age have profound effects on the families, friends and communities of those that die, but arguably, these effects are even greater when the person is young (see Suicide among young people).
- Similarly to employment in general, serving in the Australian Defence Force (ADF) seems to be protective against suicide as rates in both serving and reserve men are lower than that of all Australian men. However, for ex-servicemen suicide rates are higher than the general population (see Australian Defence Force suicide monitoring).
- The suicide rate in Aboriginal and Torres Strait Islander peoples is twice that of the non-Indigenous population (see Suicide & Indigenous Australians)—although rates vary by community, age group and sex. The high rates experienced by Indigenous Australians are due to multiple, complex and interrelated social, cultural and historical influences, including colonisation, relocation of people to missions and reserves, transgenerational grief and trauma resulting from the removal of children, racism and continued socioeconomic disadvantage. However, it is important to acknowledge that Indigenous Australians may never experience suicidal behaviours or thoughts and aspects unique to their culture can be important protective factors against suicidal or self-harming behaviours.

Understanding differences in numbers and rates of suicide, intentional self-harm and suicidal behaviours in these populations is essential for more effective suicide prevention.

Other population groups identified as priority populations for suicide prevention in Australia include lesbian, gay, bisexual, transgender or intersex (LGBTI) populations and culturally and linguistically diverse (CALD) communities. It is currently not possible to discern these groups in the available suicide and intentional self-harm data sets; however, through the National Suicide and Self-harm Monitoring Project the AIHW is looking to expand data collection on these, and other population groups (see About for information on the project).
Deaths by suicide among young people

Suicide is the leading cause of death among Australians aged 15-24 (See Deaths in Australia). The proportion of deaths by suicide is relatively high among children and young people due to the fact these age groups do not tend to die from other causes.

In 2019:
- 384 Australian young people (aged 18-24) took their own lives
- 96 deaths by suicide occurred among children and adolescents (aged 5-17) with the majority occurring in those aged 15-17 (80% in 2019)
- deaths by suicide represented 40% of all deaths in young people aged 15-17 and 36% of all deaths in those aged 18-24—up from approximately 25% of all deaths in these age groups in 2010. In children aged 14 and below the proportion of deaths by suicide is low by comparison with the 2 older age groups; in 2019 deaths by suicide represented 7.4% of all deaths in this age group.

Suicide deaths of children and young people, Australia, 2010 to 2019.

The line graph shows the age-specific rates of suicide for children and young people aged 14 and below, 15-17 and 18-24 from 2010 to 2019. Users can also choose to view the number of deaths by suicide and deaths by suicide as a proportion of all causes of death for each age group over the period. The highest rates of suicide across the period were for young people aged 18-24, which increased from 10.8 deaths per 100,000 population in 2010 to a high of 16.1 in 2019.

Throughout 2010 to 2019, age-specific suicide rates:
- were higher for young adults (aged 18-24) than adolescents (aged 15-17) and children (aged 14 and below)
• increased in young people aged 18-24 (from 10.8 deaths per 100,000 population in 2010 to 16.1 in 2019) while remaining relatively stable for those aged 15-17 (7.9 to 8.9 deaths per 100,000 population)
• ranged from 0.5 deaths per 100,000 population in 2010 to 0.6 in children aged 14 and below.
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Intentional self-harm hospitalisations among young people

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see the Technical notes.

The data presented here are for children and young people aged between 0 and 24, grouped into 3 age ranges: 14 and below, 15-19 and 20-24 years. For children, especially those aged under 10, it is difficult to determine whether a self-inflicted injury was done with intent to self-harm.


The line graph shows age-specific rates of intentional self-harm hospitalisations for young people aged 14 and below, 15-19 and 20-24 from 2008-09 to 2019-19. Users can also choose to view age-specific rate, numbers and proportion of hospitalisations for intentional self-harm by sex for each age group. Between 2008-09 and 2019-19, rates of intentional self-harm hospitalisations were highest for young people aged 15-19 ranging from 246.8 per 100,000 population in 2008-09 to 427.7 in 2016-17 and down to 353.7 in 2018-19.

### Intentional self-harm hospitalisations in young people, 2008-09 to 2018-19

**Age-specific rate (per 100,000)**

- **Number**
- **Proportion of age group by sex**

**Note:** Age filter applies to proportion only. Sex filter applies to age specific rate and number only.

Young people have the highest rates of hospitalisation for intentional self-harm

In 2018-19:

- the age-specific hospitalisation rate due to intentional self-harm was lowest for children aged 14 and below (24 per 100,000 population)
- the rate for young people aged 15-19 was 354 hospitalisations per 100,000 population, while the rate for 20-24 year olds was lower, 250 per 100,000 population
- The age and sex-specific rate was highest for females aged 15–19 (555 hospitalisations per 100,000 population), followed by females aged 20–24 (336).
- Rates for young males were lower (161 and 168 for males aged 15–19 and 20–24, respectively).

Rates of intentional self-harm hospitalisations for girls and young females are rising

From 2008–09 to 2018–19:

- The rate of intentional self-harm hospitalisations in females aged 14 and below doubled (from 19.2 hospitalisations per 100,000 population in 2008–09 to 42.2 in 2018–19, with a peak of 48.9 hospitalisations per 100,000 population in 2016–17).
- The rate of intentional self-harm hospitalisations in females aged 15–19 has risen from 376 hospitalisations per 100,000 population in 2008–09 to 555 in 2018–19, with a peak of 687 hospitalisations per 100,000 population in 2016–17.
- Rates of intentional self-harm hospitalisations for females aged 15–19 were at least 60–70% higher than for males in this same age group.
- Rates of intentional self-harm hospitalisations for males have also increased over this period but not to the same extent as that of females; the greatest increase was in the 15–19 age group (from 125 per 100,000 population in 2008–09 to 161 in 2018–19).
Deaths by suicide amongst Indigenous Australians

Age-standardised suicide rates among Aboriginal and Torres Strait Islander people are substantially higher than those in non-Indigenous Australians. Reducing deaths by suicide and suicidal behaviour among Indigenous Australians is an issue of major concern for many Indigenous communities and a public health priority for all Australian governments.

Numbers of deaths by suicide and age-standardised rates are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only (see Technical notes for further information).

Suicide rates for Indigenous people fluctuated more widely and were higher than those for non-Indigenous people over the period. In 2019, suicide rates for Indigenous Australians, at 27.1 deaths per 100,000 population were more than double the rate for non-Indigenous people, at 12.7 per 100,000 population.

How do suicide rates differ between Indigenous and non-Indigenous Australians?

From 2001 to 2019, age-standardised rates:

- fluctuated in Indigenous males from a low of 25.1 deaths per 100,000 population (75 deaths) in 2008 to 39.4 (137 deaths) in 2019
- could not be reported for some years for Indigenous females due to small numbers of deaths by suicide; however, for those years that can be reported, rates fluctuated from 7.2 deaths per 100,000 population (22 deaths) in 2006 to 15.2 (58 deaths) in 2019
• for Indigenous people ranged from 1.4 to 2.3 times that of non-Indigenous Australians.

In 2019:

• suicide accounted for 5.7% of all deaths of Aboriginal and Torres Strait Islander peoples while the comparable proportion for non-Indigenous Australians was 1.9%

• 30% of all deaths by suicide in Indigenous people were female, this was greater than that seen in the non-Indigenous population (24% females).

Kreisfeld and Harrison (2020) found that over the period 2001-02 to 2015-16, there was an annual average rise of 0.4% in suicide rates for Indigenous males, while over the most recent 5-year period (2011-12 to 2015-16) the annual rate for Indigenous males increased by an average of 6.6%; however, these changes in rates were not statistically significant. For Indigenous females, over the period 2001-02 to 2015-16, modelling showed a statistically significant annual average rise in suicide rates of 5.8%; however, over the most recent 5-year period 2011-12 to 2015-16, rates fell by 2.5% per year, although this finding was not statistically significant (AIHW: Kreisfeld & Harrison 2020).

Caution should be exercised when analysing trends in deaths by suicide in Indigenous Australians due to data quality issues, including the under-identification of Aboriginal and Torres Strait Islander people in deaths data and the uncertainties in estimating and projecting the size and structure of the Indigenous population over time. Numbers of deaths by suicide and age-standardised rates are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. Data for Victoria, Tasmania and the Australian Capital Territory have been excluded (see Technical notes for further information). It is also important to remember that age-standardised rates based on only a small number of deaths by suicide will exhibit a large amount of variation and that increases in numbers of deaths by suicide and rates should be treated with caution as improvements in identifying Indigenous status among deaths data may (at least in part) account for the rise in case numbers and rates.

Reference

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Intentional self-harm hospitalisations & Indigenous Australians

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see the Technical notes.

The quality of the hospital data provided for Indigenous status varies between states and territories. For further information, see the data quality statement and the Technical notes.

Intentional self-harm hospitalisations, by age, sex and Indigenous status, Australia, 2008-09 to 2018-19.

The line graph shows age-specific rates of hospitalisations for intentional self-harm by age for Indigenous females. Users can also choose to view age-specific rate, numbers and proportion of hospitalisations for intentional self-harm by sex and Indigenous status for each age group. Rates for young Indigenous females aged 15-19 increased steeply from 690 per 100,000 population in 2014-15 to 1177 in 2016-17 and then declined to 1045 in 2018-19. This was the highest rate of all age-groups in 2018-19, well above the next highest rate of 743 per 100,000 population for Indigenous females aged 20-24. The rate for all Indigenous females generally increased across the period, with some fluctuations, from 255 in 2008-09 to 430 in 2018-19.

How common are hospitalisations for intentional self-harm among Indigenous Australians?

In 2018-19, the rate of intentional self-harm hospitalisations for Indigenous Australians (341 hospitalisations per 100,000 population) was about 3 times that of non-Indigenous Australians (109).

In 2018-19:
• the highest rate of hospitalised intentional self-harm for Indigenous Australians was in the 15-19 age group (668 hospitalisations per 100,000 population). The highest rate for non-Indigenous Australians was also recorded in the 15-19 age group but was less than half that of Indigenous Australians aged 15-19 (332). 
• Indigenous females aged 15-19 recorded the highest rate of intentional self-harm hospitalisations (1,045 hospitalisations per 100,000 population), followed by those aged 20-24 (743). 
• the highest rate of hospitalised intentional self-harm for Indigenous Australian males was in the 40-44 age-group (500 hospitalisations per 100,000 population), followed by those aged 30-34 (495) and 35-39 (494).

How have rates of intentional self-harm hospitalisations changed for Indigenous Australians?
From 2008-09 to 2018-19:
• the overall rate of hospitalised intentional self-harm for Indigenous Australians rose steadily (from 219 hospitalisations per 100,000 population to 341). 
• the rate of intentional self-harm hospitalisations for non-Indigenous Australians remained relatively steady over this period (115 in 2008-09 to 109 in 2018-19).

Over this same period, the Indigenous suicide rate ranged from 1.4 to 2.3 times that of non-Indigenous Australians (see, Suicide & Indigenous Australians).

Rates of hospitalisation for intentional self-harm have risen from 2008-09 to 2018-19 for both Indigenous females and males.
• Rates of hospitalised intentional self-harm for Indigenous females increased from 255 hospitalisations per 100,000 population in 2008-09 to 430 in 2018-19, while rates for Indigenous males rose from 184 hospitalisations per 100,000 population to 252. 
• The greatest increase in rates was seen in Indigenous females aged 15-19 (more than doubling from 480 hospitalisations per 100,000 population in 2008-09 to 1045 in 2018-19). Rates also increased more than 1.4 times for non-Indigenous females aged 15-19 during this period (from 366 per 100,000 population to 522). 
• Rates also increased markedly in Indigenous females aged 20-24 (from 442 hospitalisations per 100,000 population to 743), 25-29 (from 404 per 100,000 population to 601), 40-44 (from 378 to 710) and 50 and over (from 113 per 100,000 population to 236). 
• Rates in Indigenous males more than doubled in those aged 45-49 (from 220 hospitalisations per 100,000 population to 441), and increased more than 1.5 times in those aged 15-19 (184 per 100,000 to 303) and 50 and over (86 per 100,000 to 163).
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Australian Defence Force suicide monitoring

There is ongoing concern in the Australian community about suicide in serving and ex-serving ADF personnel. In particular, ex-serving ADF personnel have historically faced an increased risk of suicide. Reducing the rate of serving and ex-serving suicide is a priority for the Australian Government.

To increase understanding of the complex issue of suicide in serving and ex-serving ADF personnel the AIHW has been commissioned by the Department of Veterans’ Affairs (DVA) to develop reliable data and monitor the incidence of suicide in the 3 ADF service status groups—personnel serving full time, personnel serving in the reserves and ex-serving personnel (see Box 1).

Age-standardised suicide mortality ratio of Australian Defence Force personnel, 2007-09 to 2005-17.

The graph shows the age-standardised suicide mortality ratios of male serving, reserve and ex-serving ADF personnel to an age-matched population of Australian men, for 3-year periods from 2007-09 to 2015-17, with confidence intervals. The data can also be viewed by selected ADF serving group and with confidence intervals on or off. The age-adjusted suicide rate for serving men was significantly lower than rates for Australian men in each 3-year period from 2007-2009 to 2014-2016. The age-adjusted suicide rate for men in the reserves was significantly lower than in Australian men in each 3-year period from 2009-2011 to 2015-2017. The age-adjusted suicide rate among ex-serving men was significantly higher than in men in the Australian population in the 3-year period 2013-2015.

Note Statistically significant refers to a statistically significant difference between the ADF population group and an age-matched population of Australian men. Source: AIHW analysis of linked DMU5-SID data 2001-2018 NMD 2007-2018. Latest data: 2018 (next update October 2022)

Tool tip shows standardised mortality ratio (SMR; see Technical notes and Glossary for further information) and significance when the mouse is hovered over a data point.
The age-adjusted suicide rate for serving men was found to be significantly lower than rates for Australian men in each 3-year period from 2007-2009 to 2014-2016 and in 2016-2018. When compared with rates for Australian men, the age-adjusted suicide rate for serving men ranged between 63% lower (SMR=0.37) in 2012-2014 and 27% lower (SMR=0.73) in 2015-2017.

After adjusting for age, the suicide rate for men in the reserves was found to be significantly lower than in Australian men in each 3-year period from 2009-2011 to 2016-2018. When compared with rates for Australian men, the age-adjusted suicide rate among men in the reserves ranged from 32% lower (SMR=0.68) in 2007-2009 to 57% lower (SMR=0.43) in 2015-2017.

Conversely, the age-adjusted suicide rate among ex-serving men was significantly higher than in age-matched Australian men in 2013-2015 and 2015-2017. When compared with the rate for Australian men, the age-adjusted rate for ex-serving men was between 14% higher (SMR = 1.14) in 2009-2011 and 36% higher (SMR = 1.36) in 2013-2015.

For more information on Veterans and the National suicide monitoring of serving and ex-serving Australian Defence Force personnel see National suicide monitoring of serving and ex-serving Australian Defence Force personnel: 2020 update.

Box 1: ADF service status groups

**Serving full time:** ADF personnel serving in a regular capacity in the Royal Australian Navy (Navy), Australian Army (Army) or the Royal Australian Air Force (Air Force) on or after 1 January 2001, on continuous full-time service, or participating in a gap year program.

**Reserve:** ADF personnel in the active or inactive reserve forces for the Navy, Army or the Air Force on or after 1 January 2001. Most personnel leaving full-time service transition to the inactive reserve forces, unless prevented by medical or other grounds.

**Ex-serving:** ADF personnel in the serving or reserve population on or after 1 January 2001, who were subsequently discharged.
The use of mental health services, psychological distress, loneliness, suicide, ambulance attendances and COVID-19

The material below first provides a short overview on the use of mental health services; this is followed by an analysis of trends in the level of psychological distress and a description of trends in the number of suspected suicides in 2020.

While there has been a rise in the use of mental health services there is no evidence to date that COVID-19 has been associated with a rise in the suspected suicide rate.

Use of mental health services

The AIHW has been compiling detailed data every week on the use of mental health services and the various crisis help lines since April 2020 as part of the National Suicide and Self-harm Monitoring Project. These data are shared within government to inform the mental health response to the COVID-19 pandemic.

There have been notable rises in the use of crisis lines and mental health services since the onset of the COVID-19 pandemic. For example, calls to Lifeline in the 4 weeks from 10 August to 6 September 2020 were up 15.3% compared with the same time in 2019. Contacts to Beyond Blue (total of call, web chat and email) were up 38.6% over the same period while contacts (total of call, web chat, email and circles sessions) to the Kids Helpline were up 24.5%.

It is not clear to what extent this rise in contacts is driven by rises in psychological distress rather than a higher proportion of people seeking assistance for other reasons such as loneliness and concern about contracting COVID-19. Given that a range of survey data indicate that there have been rises in the level of psychological distress in 2020, increased contact with the crisis lines is almost certainly indicative of a rise in the need for assistance as a result of the pandemic.

The crisis line data also shows variation by state and territory with greater rises in the use of crisis lines evident in Victoria (and to a lesser extent New South Wales) when comparing the 4 weeks from 10 August to September 2020 to the same time in 2019, than in other jurisdictions combined.

There have also been rises in the use of Medicare subsidised mental health services. For example, the total number of mental health related MBS services provided in the 4 weeks to 6 September 2020 was 12.5% higher than in the equivalent period in 2019. The equivalent increase in Victoria over this period (20%) was considerably stronger than in other jurisdictions.

There has been strong take-up of MBS mental health services provided through telehealth—over a third of all MBS mental health services in the 4 weeks to 6 September 2020 were provided through telehealth.

Psychological distress

Psychological distress is commonly measured using the Kessler Psychological Distress Scale—10 items (K10). The K10 questionnaire was developed to yield a global measure of psychosocial distress, based on questions about people’s level of nervousness, agitation, psychological fatigue and depression in the past 4 weeks. The Kessler 6 Scale is an abbreviated version of K10.

There is a correlation between high levels of psychological distress and common mental health disorders. As a result, instruments such as K10 and K6 can be used to track probable changes in the incidence of these disorders. This is important, as there is an association between mental health issues and deaths by suicide. Data from the Queensland Suicide Register for 2014-16 based on police and coroners reports, suggest that ‘mental health conditions were prominent in those who died by suicide, with 51.5% reportedly having a diagnosed mental health condition.’ (Leske et al. 2020). Around 64% of people who died by suicide in 2019 had mental and behavioural disorders recorded as an associated cause of death (ABS 2020).

There are several ways to gain insights into the level of psychological distress in the community, and monitor trends over particular time periods.

One way is to look at trends in the use of mental health services. The AIHW has been compiling data each week on the use of mental health services and crisis lines during the pandemic. While this approach is useful, it is not a direct measure of the level of psychological distress as it does not capture those who do not seek out or do not have access to mental health services and crisis lines.
Another way to analyse trends in the level of psychological distress since the onset of the pandemic is to use sample surveys. This approach has been challenging since the onset of COVID-19 due to the fact that face-to-face surveys are very difficult to undertake at this time and pose a potential health and safety risk to interviewers and interviewees. This has led to a number of online surveys being conducted but many of these surveys are not based on probability sampling. In some cases, samples are drawn by inviting all members of the public above a certain age to respond, with unknown response rates. Other samples are drawn from panels where individuals opt-in online. While this sort of approach can provide some useful information, especially regarding associations between factors that may affect outcomes for respondents, results may not be representative of the Australian population. A major report on online panels for the American Association for Public Opinion Research (AAPOR 2010) noted that:

Researchers should avoid nonprobability online panels when one of the research objectives is to accurately estimate population values. There currently is no generally accepted theoretical basis from which to claim that survey results using samples from nonprobability online panels are projectable to the general population. Thus, claims of “representativeness” should be avoided when using these sample sources. Given the need for representative data, the AIHW collaborated with the Centre for Social Research and Methods at the Australian National University to include questions on loneliness and the level of psychological distress using the Life in Australia™ Panel, managed by the Social Research Centre. Importantly, this panel exclusively uses random probability-based sampling methods and covers both online and offline populations (that is, people who do and do not have access to the internet). In addition, as a panel it is possible to obtain longitudinal data including from the same respondents prior to the spread of COVID-19 which provides richer information than a series of cross-sectional snapshots, especially with regards to changes through time. Data on psychological distress were collected in April, May and August with further data collections planned for November, 2020.

Pre COVID-19 snapshot

To understand how COVID-19 may have affected Australians’ levels of psychological distress, it is important to look at data from before the pandemic. This is possible using results from the Australian Bureau of Statistics’ National Health Survey, which is conducted approximately every 3 years. It is particularly important to consider any existing trends prior to the pandemic— for example, if psychological distress was generally increasing among Australians in the years before COVID-19. Tables 1 to 3 show the proportion of males, females and people with high or very high levels of psychological distress as measured by the Kessler 10 Scale from 2004-05 to 2017-18. While the results vary by age, there is no consistent trend over this period. It is worth noting, however, that young women aged 18-24 consistently have higher levels of psychological distress than other groups. Having said that, there have been small increases in the proportion of both males and females with high or very high levels of psychological distress from 2011-12 to 2017-18, albeit with important fluctuations through time. The National Drug Strategy Household Survey (NDSHS) also shows rises from 2010 to 2019 (AIHW 2020).

Psychological distress and loneliness under COVID-19

The ANU poll results that are based on just over 3,000 respondents suggest that the proportion of the population experiencing severe psychological distress as measured by the Kessler 6 Scale rose from 8.4% in February 2017 to 10.6% in April 2020 with a subsequent fall to 9.7% in May 2020 (still significantly higher than in February 2017). However, there is a distinct pattern by age (Biddle et al. 2020b):

For those aged 45 to 54 years there was essentially no difference in this measure of psychological distress between February 2017, April 2020, and May 2020 (Kessler 6). For young Australians (18 to 24 year olds in particular, but also all those aged under 45), there was a significant worsening in psychological distress between February 2017 and April 2020. However, between April and May 2020, there was a slight improvement in psychological distress for young Australians, though psychological distress is still significantly and substantially above what it was in February 2017.

For older Australians (those aged 55 years and over), there was a slight improvement in the level of psychological distress between February 2017 and April 2020, and a further improvement between April 2020 and May 2020 (Biddle et al. 2020b). Based on a smaller ANU Pulse Survey, there was some evidence of further improvements in the level of psychological distress in late June/early July, however this was prior to increased COVID-19 infection rates and a second lockdown in Victoria.

The ANU also asked also respondents whether ‘in the past week, how often have you felt lonely?’ Analysis summarised in Biddle et al. (2020b) shows that those who experienced loneliness had higher rates of psychological distress than those who did not.

Between April and May, however, there was a significant decline in experiences of loneliness, with 36.1 per cent of the sample saying that they experienced loneliness at least some of the time, compared to 45.8 per cent in April. However, there was a distinct pattern by age with 18-24 year olds the only group to show no statistically significant reduction in the level of loneliness from April to May despite the fact that this group had a higher proportion of respondents saying that they felt lonely at least some of the time in April (63.3%) than any other age group.

There was a rise in reported loneliness from 36.1% in May 2020 to 40.5% in August. However, this rise only occurred in Victoria where ‘the proportion of the population who were lonely at least some of the time increased from 35.7% in May 2020 to 44.5% in August’ (Biddle et al. 2020c). In ‘the other seven States and Territories, there was no significant difference between loneliness in May 2020 (37.1%) and August 2020 (38.8%)’.

According to Biddle et al. (2020c):

Females continue to experience higher rates of loneliness than males (44.8 per cent in August for females, compared to 35.7 per cent for males), as do those aged 18 to 24 years. Between May and August 2020, however, the largest increase in loneliness was amongst those aged 75 years and over, with a more than 10 percentage point increase from 22.6 per cent in May to 33.2 per cent in August.
The ABS has also asked around 1,000 respondents about their level of psychological distress using Kessler 6 through their Rapid Surveys, which are based on a probability sample. However, the ABS sample does not have information from the same individuals prior to the spread of COVID-19. The results suggested higher levels of distress in April 2020 when compared with equivalent results from the 2017-18 National Health Survey (NHS). However, results in June (24-29 June) had improved so that according to the ABS:

Most of the results for June 2020 aligned with the results from the 2017-18 NHS. The only area that differed was in relation to feelings of nervousness. One in four Australians (25%) felt nervous at least some of the time in June 2020 compared to one in five (20%) in the 2017-18 NHS (ABS 2020).

One of the advantages of the data collected through ANU poll is the fact that longitudinal data are available. This makes it possible to model the factors that appear to be contributing to rises in the level of psychological distress during the pandemic. In this modelling (Biddle et al. 2020b), the strongest predictor of psychological distress (K6) is where people say that their stress has worsened (this is not that surprising). Increased loneliness is also a strong predictor of K6 scores even when other factors like changes in employment status are controlled for. This suggests that increased loneliness during the pandemic is of concern and that this is not just being driven by job loss.

Job loss itself was a predictor of K6 scores in May. Controlling for other factors, people who were employed in February 2020 but not in May had higher levels of psychological distress. Interestingly, in all the models those who live outside capital cities had lower rates of psychological distress than those who lived in capital cities, controlling for other factors. This probably reflects the fact that the economic impact of shutdowns has been higher in the major cities than it has been in regional or remote areas and that infection rates have also been higher. ABS employment data, for example, shows faster falls in employment in the major cities than in regional or remote areas.

Once you control for things like relationships worsening and stress rising and employment loss then young people were no longer worse off than older people when it comes to K6 scores. This suggests that rises in the level of psychological distress among young people are being driven by things like increased stress and job loss.

One final point worth noting is that in the regression analysis of K6 scores, previous K6 scores in February 2017 had a significant predictive effect on K6 scores for May 2020. This shows that people who are already experiencing high levels of psychological distress can be particularly vulnerable when the situation worsens.

More recent data show that after improving from April to May the level of psychological distress worsened from May to August and remains higher than it was prior to the pandemic. However, the worsening from May to August was concentrated among women with males showing no change from May to August (Biddle et al. 2020c). In addition while the initial rises in the level of psychological distress were higher among young people (particularly those aged 18-24), the only age group to experience a rise in psychological distress from May to August was people aged 75 and over (Biddle et al. 2020c). However, the level of psychological distress remains considerably higher among young people.

To test whether outcomes have worsened in Victoria relative to the rest of the country since the reintroduction of lockdowns, in July Biddle et al. conducted a Difference-in-difference analysis using linked data for May and August (that is, data across these months for the same people). This showed, a significant worsening in Victoria relative to the rest of the country on several outcomes including: psychological distress, loneliness, life satisfaction, satisfaction with direction of country, likely to be infected by COVID-19 and hours worked (Biddle et al. 2020c).

### Table 1: Proportion of persons with high/very high psychological distress, by age group and year

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*Source: ABS 4364.0.55.001 - National Health Survey*

### Table 2: Proportion of males with high/very high psychological distress, by age group and year

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Data on suspected deaths by suicide

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 based on previous experience including the relationship between unemployment and deaths by suicide. A ‘living systematic review’ (John et al. 2020) based on evidence until 7 June, has concluded that:

There is thus far no clear evidence of an increase in suicide, self-harm, suicidal behaviour, or suicidal thoughts associated with the pandemic. However, suicide data are challenging to collect in real time and economic effects are evolving. Our LSR will provide a regular synthesis of the most up-to-date research evidence to guide public health and clinical policy to mitigate the impact of COVID-19 on suicide. It is true that some key risk factors associated with deaths by suicide have worsened since the onset of COVID-19. For example, there has been considerable job loss and rises in the level of psychological distress. On the other hand, it is possible that a general sense of ‘we are all in this together’ could have a protective impact. From February to May 2020 there were rises in the level of trust in others and in governments in Australia (Biddle et al. 2020). In addition, some care is required as the vast majority of people who experience unemployment or high levels of psychological distress or mental health issues will never experience a suicide attempt. That said, it is very important to monitor trends in risk factors and trends in deaths by suicide in real time.

Another factor that should be considered is the impact of both JobKeeper and the JobSeeker supplement. This is important given the association between the risk of dying by suicide and socioeconomic outcomes. Modelling undertaken by the ANU suggests that not only are levels of poverty and housing stress lower than they otherwise would be a result of these payments they are also lower than they were prior to the spread of COVID-19 (Phillips et al. 2020). Households who mainly relied on the JobSeeker payment prior to COVID-19 and the introduction of the JobKeeper supplement saw their poverty rate fall from 67% prior to COVID-19 to 6.8% (Phillips et al. 2020). On a similar note Biddle et al. (2020d) found that real incomes actually rose for those in the bottom decile of the income distribution from February to August 2020. Using data from the Taking the Pulse of the Nation Survey, Botha et al. (2020) have shown that the level of psychological distress among the unemployed has fallen since May. The ANU modelling suggests that the protective impact of JobKeeper and the JobSeeker supplement on housing stress and poverty have been reduced somewhat by the changes to these payments announced in July (Phillips et al. 2020).

In Australia, data on suspected suicides in 2020 have been released for Victoria, Queensland and New South Wales from their respective suicide registers. In all cases there is no evidence to date of any increase relative to previous years. It is true that these data are not based on final determinations on the part of Coroners, but in the case of the Victorian Suicide Register:

Data changes are usually quite minor: analyses have shown that over time, the VSR coding team are consistently better than 95% accurate in identifying the cohort of deaths that are ultimately determined to be suicides (Coroners Court 2020a,b,c).

In recent years differences between the numbers in the Queensland Suicide Register and the data released by the ABS are quite small (Leske et al. 2020).

The number of suspected deaths by suicide in Victoria from 1 January to 31 October 2020 (580) was similar to the equivalent period in both 2019 (600) and 2018 (587). The monthly data show considerable volatility which: ‘demonstrates the importance of not attributing too much significance to the suicide frequency in any one month’ (Coroners Court 2020c).

Consistent with data from previous years, around three-quarters of suspected suicides in 2020 were among males with most deaths by suicide for both males and females occurring among those aged between 25 and 55 (Coroners Court 2020c). Although in most age groups the number of suspected deaths by suicide is consistent with previous years, numbers of suspected suicides among males aged under 18 years, males aged 65 years and over and females aged 35-44 years are somewhat elevated compared with what would be expected based on previous years. However, it is not possible to discount the effects of random fluctuation; the deaths are currently under coronial investigation to identify any potential underlying issues. The proportion of suspected suicides in metropolitan and regional areas in 2020 is similar to earlier years with approximately two-thirds occurring in metropolitan locations (Coroners Court 2020c).

Data from the Queensland Suicide Register (Leske et al. 2020) show that the number of suspected suicides from 1 January to 31 July 2020 (454) was similar to that of the same period in 2019 (445) and 2017 (456).
In analysing trends in the number of deaths by suicide it is important to take population into account given strong population growth in Australia—it is important to focus on trends in suicide rates. Monthly age-standardised suspected suicide rates in Queensland in 2020 for both males and females are similar to the previous 5 years; see Figure 1 and Figure 2 replicated with permission from Leske et al. (2020) and including updated data for August 2020.

Figure 1: Monthly age-standardised suspected suicide rate per 100,000, Queensland males, 1 January 2015-31 August 2020

Figure 2: Monthly age-standardised suspected suicide rate per 100,000, Queensland females, 1 January 2015-31 August 2020
While data for Queensland does not show rises in suspected suicide rates compared with previous reports the following is worth noting (Leske et al. 2020).

The 2020 iQSR data show that up until 31 July 2020, police officers mentioned COVID-19 in 32 of 454 suspected suicides (7%). In four instances, it was unclear if COVID-19 contributed to the suspected suicide. COVID-19 did appear to contribute towards 28 suspected suicides. COVID-19 may have influenced suspected suicides through affecting mood, coping, stress and anxiety (14 people); employment (11 people); social isolation (8 people); changes in access to healthcare support and items (5 people); relationship breakdown (1 person) and finances (1 person). There was overlap (e.g. access to healthcare items and losing employment influenced mood).

This information indicates that support offered to people who report that COVID-19 has impacted on mental health, employment, social connectedness, relationships, access to healthcare, and finances is valuable. Support for these concerns may prevent further suicides from occurring in similar circumstances.

The newly established New South Wales Suicide Monitoring System, launched by the NSW Government on 9 November 2020, reported 673 suspected suicides in NSW from 1 January to 30 September 2020. This is similar to the 672 suspected suicides reported for the same period in 2019 (NSW Ministry of Health 2020). Three-quarters of suspected suicides in 2020 were among males and more than half of all suspected suicides occurred among those aged between 25 and 55 (NSW Ministry of Health 2020).

The Chief Coroner of New Zealand also released annual provisional data on suspected suicides for the year to 30 June 2020 in 21 August this year. The data show that the provisional suicide rate is at its lowest in 3 years. According to the Coroner:

In the year to 30 June 2020, 654 people died by suicide, compared to 685 the year before—a decrease of 31 deaths, and a drop in the suicide rate from 13.93 deaths per 100,000 to 13.01.

The Coroner further noted that:

There was a decrease in the number of young people dying by suspected suicide, particularly in the 15-19 age range (down from 73 to 59) and the 20-24 age range (down from 91 to 60). Both rates decreased from 23.14 to 18.69 [deaths per 100,000] and from 26.87 to 17.77, respectively.

However, there was an increase in suspected suicides in the 80-84 age range, with 12 more people dying by suicide in the past year (18) than the year before (6). The rate increased from 6.49 to 19.48.

A key goal of the Suicide and Self-harm Monitoring Project is to establish suicide registers in all jurisdictions. Registers now exist in Victoria, Queensland, Tasmania, Western Australia and New South Wales. The AIHW is currently working with South Australia, the Australian Capital Territory and the Northern Territory to help establish suicide registers.

Ambulance attendances
A key part of the National Suicide and Self-harm Monitoring Project is the compilation and coding of data from ambulance attendances by Turning Point. This coding exercise is quite large as not only do Turning Point have to code data for 2020 they also have to code data for previous years to allow for analysis of trends.

The AIHW asked Turning Point if they could prioritise the coding of data for Victoria. Importantly, Turning Point are able to separate suicide attempts from self-injury and suicide ideation. Figure 3 shows monthly data on the number of ambulance attendances related to suicide attempts from January to June for 2020 and the equivalent periods in both 2019 and 2018. As the chart shows there is no clear difference from 2019 to 2020. The total number of ambulance attendances related to suicide attempts in Victoria from January to June 2020 was 2% lower than for the equivalent period in 2019. The number of ambulance attendances relating to suicidality (thinking about suicide) was also fairly similar across the 2 years (it was 4% higher in 2020).

Interestingly there was a pick up in the total number of mental health attendances (up 13% in the first half of 2020 compared with the same time in 2019). This is consistent with the overall greater use of mental health services in 2020 that is evident in other data. This highlights the fact that greater use of, and need for, mental health services does not necessarily equate to trends in the number of suicide attempts. The vast bulk of people who use mental health services will never have a suicide attempt but timely access to mental health services could reduce the number of deaths by suicide.

The number of self-injury ambulance attendances are up (17.6%) compared with 2019. This highlights the fact that self-injury and suicide attempts are not the same thing.

Figure 3: Monthly (Jan–June) ambulance attendances for suicide attempts, Victoria

![Figure 3: Monthly (Jan–June) ambulance attendances for suicide attempts, Victoria](image)

References


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Geography

Reporting deaths by suicide and hospitalisations for intentional self-harm at smaller, more ‘localised’ geographical areas, can reveal information that may be masked by reporting for the whole of Australia or by states and territories—allowing for a better understanding of suicidal behaviours for local communities, policymakers and researchers.

Although suicide has a significant impact on the community, it is a relatively rare cause of death in Australia meaning that depending on the level of geography considered, there may be areas where there are very few—or even no—deaths by suicide recorded in a given year. The number of hospitalisations for intentional self-harm are approximately 10 times that of deaths by suicide; however, further disaggregation (or breakdown) of the data by age or sex reduces the numbers of events able to be reported for each group in each small geographical area in a single year. Strict privacy and confidentiality controls or concerns regarding statistical reliability mean that small numbers (or rates based on them) cannot be publicly reported, thereby reducing the coverage of reportable data as smaller geographical areas are considered.

Numbers and age-standardised rates (where they could be reliably calculated) of deaths by suicide and hospitalisations for intentional self-harm have been reported by PHN area and Statistical Areas level 3 and 4. For the reporting of suicide and hospitalised intentional self-harm data by Statistical Area, the smallest possible geographical area has been used while still allowing for maximum coverage of reportable data across these small geographical areas.

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Deaths by suicide by remoteness areas

About 28% of the Australian population live in regional and remote areas—areas outside Australia’s major cities. There are many positive aspects about living in regional and remote areas, including higher levels of life satisfaction compared with those in urban areas (Wilkins 2015), increased community interconnectedness and social cohesion, and higher levels of community participation, volunteering and informal support from their communities (Ziersch et al. 2009). However, Australians living in these areas face unique challenges due to their geographic isolation, and often have poorer health and welfare outcomes than those living in major cities.

For further information on how the statistics reported here were calculated see Technical notes.

Suicide deaths by remoteness area, Australia, 2010 to 2019.

The line graph shows the age-standardised rates of suicide for Very Remote, Remote, Outer Regional and Inner Regional areas and Major Cities from 2010 to 2019. Users can also choose to view age-standardised rates and numbers of deaths by suicide for remoteness areas by sex. Between 2010 and 2019, residents of Very Remote areas had the highest rates of suicide, except for 2015, when the highest rates were in Remote areas, followed by Outer Regional areas and then Very Remote areas. Major Cities recorded the lowest rates of deaths by suicide over the period. Very Remote areas had 2.7 times the rate of Major Cities in 2019 (10.9 deaths per 100,000 population compared with 29.4).

Are people in regional and remote areas at greater risk of deaths by suicide?

From 2010 to 2019:

- numbers of deaths by suicide were highest in Major Cities and fell as remoteness increased, while age-standardised suicide rates tended to increase with the increasing remoteness
• suicide rates for residents of Major Cities were the lowest of all 5 remoteness areas each year and remained relatively stable over the period (9.5 to 11.6 deaths per 100,000 population)
• suicide rates for residents of Inner Regional, Outer Regional and Remote areas increased from 12.6, 14.4 and 17.5 deaths per 100,000 population to 16.8, 19.8 and 20.3, respectively
• suicide rates in Very Remote areas generally increased from 22.2 deaths per 100,000 population in 2010 to 29.4 in 2019 with fluctuations in rates due largely to the small population and small numbers of deaths by suicide in these areas
• the greatest proportion of deaths by suicide occurred in Major Cities and remained relatively stable at 61–65% over the period.

In 2019:
• the age-standardised suicide rate for residents of Major Cities (10.9 deaths per 100,000 population) was lower than the national rate of 12.9 deaths per 100,000 population
• rates for residents of all other remoteness areas were above the national rate
• the rate for residents of Very Remote areas (29.4 deaths per 100,000 population) was 2.7 times that of the rate for residents of Major Cities (10.9 deaths per 100,000 population); however, numbers of deaths were small (54 deaths in Very Remote areas and 2,041 in Major Cities)
• the proportion of deaths by suicide in Major Cities was 62%.

References


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Intentional self-harm hospitalisations by remoteness areas

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see the Technical notes.

Understanding the geographical distribution of hospitalisations due to intentional self-harm based on patients’ area of usual residence (see Technical notes for more information) can help target suicide prevention activities to areas in need.

Intentional self-harm hospitalisations, by age and remoteness areas, 2012-2013 to 2018-19.

The line graph shows age-specific rates of intentional self-harm hospitalisations for Very Remote, Remote, Outer Regional, Inner Regional, Major Cities and Total remoteness areas for all ages combined from 2012-13 to 2018-19. Users can also choose to view age-specific rate, numbers and proportion of hospitalisations for intentional self-harm by remoteness area and specific age groups. Between 2012-13 to 2018-19, rates for all ages were highest for residents of Very Remote areas, except for 2017-18, when the highest rate was for residents of Remote areas. Residents of Major Cities recorded the lowest rates of intentional self-harm hospitalisations during this period.

Are people in regional and remote areas at greater risk of intentional self-harm hospitalisations?

In 2018-19:

- residents of Very Remote areas recorded a rate of 202 hospitalisations per 100,000 population, almost double that of residents in Major Cities (103) which recorded the lowest rate
- the majority of intentional self-harm hospitalisations were residents of Major Cities (63%)
• young people aged 15–19 had the highest rates of intentional self-harm hospitalisations in each remoteness area
• the highest rate of intentional self-harm hospitalisations overall was in the 15–19 age group in Remote areas (574 hospitalisations per 100,000 population), followed by those aged 15-19 in Outer Regional areas (528).

A similar pattern was seen with deaths by suicide as age-standardised suicide rates tended to increase with remoteness of place of residence see Suicide by remoteness areas.

How have rates of intentional self-harm hospitalisations changed for remoteness areas?

Between 2012-13 and 2018-19:

• overall rates of intentional self-harm hospitalisations tended to increase in Very Remote (from 172 to 202 hospitalisations per 100,000 population), Remote (from 146 per 100,000 population to 183) and Outer Regional areas (from 137 per 100,000 population to 162)
• rates in Inner Regional areas remained steady (from 126 to 132), while rates in Major Cities fell over this period (112 to 104)
• the greatest increases in rates of intentional self-harm hospitalisations occurred in those aged:
  ▶ 25-29 in Remote areas (from 190 hospitalisations per 100,000 population to 392)
  ▶ 50-54 in Very Remote (from 83 per 100,000 population to 171) and Remote areas (from 85 per 100,000 population to 163)
  ▶ however, the number of hospitalisations for intentional self-harm for each of these groups was relatively small.
Suicide & self-harm monitoring

Deaths by suicide, by Primary Health Network areas

Where people live can impact on their risk of suicide and also their access to services. Reporting rates or numbers of deaths by suicide at Primary Health Network (PHN) areas allows for more localised information that may provide a better understanding of the incidence of deaths by suicide in the local community and allow clinicians, policymakers and researchers to better plan services or suicide prevention activities.

PHNs are organisations that connect health services across a specific geographic area (PHN areas). There are 31 PHN areas that cover the whole of Australia with the boundaries defined by the Australian Government Department of Health (https://www1.health.gov.au/internet/main/publishing.nsf/content/phn-maps-aust). For further information on how the statistics reported here were calculated see Technical notes.

Suicide deaths by Primary Health Network areas, Australia, 2010 to 2019.

The line graph shows the age-standardised rates of suicide for Australia and the Adelaide Primary Health Network (PHN) area from 2010 to 2019. Unlabelled and greyed rates for other PHNs are also displayed on the graph to show the range of rates across all 31 PHNs in Australia from 2010 to 2019. Users can choose to view age-standardised rates and numbers of deaths by suicide by selected PHN. From 2010 to 2019, the age-standardised rates of deaths by suicide across PHN areas generally ranged between 5.5 and 22.3 per 100,000 population with the Australian rate ranging between 10.5 and 13.2 over the same period.

How do suicide rates vary among PHN areas?
In 2019:

- age-standardised rates and numbers of suicides varied across PHN areas, ranging from 6.0 per 100,000 population in the Western Sydney PHN area to 21.4 in the Darling Downs and West Morton PHN area
- the greatest number of deaths by suicide occurred in the Hunter New England and Central Coast PHN (211).

Data are not published for PHN areas where there are small numbers of deaths by suicide due to privacy and confidentiality concerns or other concerns about the quality of the data (for example, age-standardised rates cannot be published for Western Queensland for most years).

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Intentional self-harm hospitalisations by PHN areas

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see the Technical notes.

The reporting of rates of intentional self-harm hospitalisations by PHN areas can provide localised information to enable PHNs to identify and investigate areas requiring more coordination of care to patients, by working directly with key primary and secondary health care providers and hospitals.

Intentional self-harm hospitalisations, by age and sex, by Primary Health Network areas, Australia, 2018–19.

The distribution plot shows the age-specific rates of intentional self-harm hospitalisations for males and females by all ages and broad age groups (0–24, 25–44, 45–64, 65 and over) for Primary Health Networks (PHNs) in New South Wales in 2018-19. The same data can be viewed for each of the other states and territories. Users can also choose to view horizontal stacked bar charts showing numbers and proportion of intentional self-harm hospitalisations for PHNs by all ages and age groups by sex. Rates for all ages were lowest in the Western Sydney PHN for both males (37.9 per 100,000 population) and females (63.2) and highest for males in the Hunter New England and Central Coast PHN (85.1) and for females in the Murrumbidgee PHN (156.7).

How do rates of intentional self-harm hospitalisations vary across PHN areas?

The rates of hospitalisations for intentional self-harm in 2018–19 varied greatly by PHN area.

In 2018–19:
the Western Queensland PHN area had the highest rate (329 hospitalisations per 100,000 population), while the Western Sydney PHN area had the lowest rate (50) (Supplementary table NHMD S.7).

the greatest number of intentional self-harm hospitalisations were in Brisbane South PHN (nearly 1,800) and the fewest in Western Queensland PHN (around 200).

In 2018-19, rates of intentional self-harm hospitalisation for females tended to be highest in those aged 24 and below.

- The highest rate of hospitalisation for intentional self-harm for females aged 24 and below was in the Western Queensland PHN area (571 per 100,000 population; 58 hospitalisations).
- The next highest rate for females aged 24 and below was in the Northern Territory PHN (409 per 100,000 population; 168 hospitalisations).

The highest rates of hospitalisations for intentional self-harm for males tended to be in the older age group, 25-44.

- The Western Queensland PHN area reported the highest rate for males in the 25-44 age group (306 per 100,000 population; 27 hospitalisations) followed by Country SA (253 per 100,000 population; 138 hospitalisations).
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Deaths by suicide, by local areas
Suicide rates reported for small geographic areas can provide information on the incidence of deaths by suicide in local communities. Understanding the attributes of populations that tend to influence the rate of suicide in different areas is important for suicide prevention activities.

In order to maximise the coverage of reportable data across small geographic areas, data on deaths by suicide have been aggregated (pooled) over 5 years (2014–18) and the lowest level of geography applied (Statistical area level 3; SA3). To allow for further disaggregation by sex, data are reported at a larger statistical area—level 4 (SA4).

Direct estimates of suicide rates based on small numbers can be highly variable from year to year. Rates based on 20 or fewer deaths over the 5-year period in each small geographic area have not been reported due to privacy and confidentiality issues and statistical concerns. See Technical notes to ensure the data are interpreted appropriately.

How to use these maps
Use the zoom and search functions to explore the map. Click on an area in the map to view additional information. Change maps by clicking on the tab at the bottom. The colour shading indicates different rates of deaths by suicide, with darker shades indicating a higher rate.

For the best experience, use Chrome, Edge or Firefox browsers. For more information on browser compatibility, see Supported browsers.

Deaths by suicide by SA3 areas, Australia, 2014-18.
The map shows the crude rate and number of deaths by suicide for persons by all ages for SA3 areas in Australia aggregated over 5 years, 2014-18. Users can also choose to view maps showing crude rates and numbers of deaths by suicide for males and females by SA4 areas. Over the 5-year period 2014-18, reportable suicide rates in persons at SA3 level were highest in Kimberley in Western Australia (41.9 deaths per 100,000 population), Outback - South in Queensland (30.7), Litchfield in the Northern Territory (26.7), Tablelands (East) - Kuranda in Queensland (26.4) and Burnett in Queensland (25.9). Reportable suicide rates were lowest in the SA3 areas of Chatswood - Lane Cove, Kogarah - Rockdale, and Carlingford (all areas of Sydney, New South Wales) (about 6 deaths per 100,000 population).
Note: Data behind these maps and for the latest reporting period 2015–2019 are available on the Data downloads page: AIHW National Mortality Database—Suicide (ICD-10 X60-X84, Y87.0). Choropleth maps of 2015–2019 data will be updated in a future release.

Over the 5-year period 2014–2018, reportable suicide rates in persons at SA3 level, were:
- highest in the SA3 areas of Kimberley in Western Australia (41.9 deaths per 100,000 population), Outback - South in Queensland (30.7), Litchfield in the Northern Territory (26.7), Tablelands (East) - Kuranda (26.4) and Burnett (25.9)—both in Queensland
- lowest in the SA3 areas of Chatswood - Lane Cove, Kogarah - Rockdale, and Carlingford (all areas of Sydney, New South Wales) (about 6 deaths per 100,000 population).

Over the same period (2014–2018), reportable suicide rates in males, at SA4 level, were:
- highest in the SA4 areas of Mandurah, Western Australia (36.1 deaths per 100,000 population), Wide Bay, Queensland (36.0), Queensland - Outback (35.8), Cairns, Queensland (35.5) and Western Australia - Outback (South) (33.0)
- lowest in the SA4 areas of Sydney - Ryde, Sydney - Parramatta, and Sydney - Inner South West (all New South Wales) (8.7, 9.7 and 10.1 deaths per 100,000 population).

While for females, suicide rates over the 5-year period 2014–2018, at SA4 level, were:
- highest in the SA4 areas of Western Australia - Outback (North) (14.2 deaths per 100,000 population), Northern Territory - Outback (13.6), Western Australia - Outback (South) (11.9), Queensland - Outback (11.5) and Bunbury in Western Australia (10.9)
- lowest in the SA4 areas of Melbourne - North West (Victoria) and Sydney - Blacktown and Sydney - South West (both New South Wales) (3.2 and 3.3 deaths per 100,000 population).

From 2014 to 2018 the SA3 areas consistently reporting the highest yearly suicide rates were:
- Kimberley (Western Australia), Burnett (Queensland), Daly - Tiwi - West Arnhem (Northern Territory), Tablelands (East) - Kuranda (Queensland) and Goldfields (Western Australia).

The AIHW is committed to continually improving the quality, ease-of-use, and timeliness of its products. In this product, we are using a new data visualisation tool to present results by geographical areas using maps. We welcome any feedback on this new presentation and hope that it will provide useful insights into the topic. As this tool is a relatively new addition to our website, we will be continuing to work to enhance its use and would welcome any feedback.
Suicide & self-harm monitoring

Intentional self-harm hospitalisations by local areas

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information see the Technical notes.

The rates of hospitalisations for intentional self-harm in small geographic areas can provide insight into the incidence of intentional self-harm in local communities.

Statistical Areas Level 3 (SA3s) is a type of geographical classification defined by the Australian Bureau of Statistics (ABS) to provide a regional breakdown of Australia. There are 336 geographical areas covering Australia, with boundaries defined by the ABS. Each SA3 generally has a population of between 30,000 and 130,000 people. Allocation to an SA3 for hospitalisation data is based on the patient’s usual place of residence, rather than where they received treatment.

Variations in hospitalisation rates between geographical areas may be due to a range of factors. Crude hospitalisation rates at SA3s should be interpreted with caution as areas with small populations are more sensitive to changes in the number of hospitalisations.

How to use these maps

Use the zoom and search functions to explore the map. Click on an area in the map to view additional information. Change maps by clicking on the tab at the bottom. The colour shading indicates different rates of intentional self-harm hospitalisations, with darker shades indicating a higher rate.

For the best experience, use Chrome, Edge or Firefox browsers. For more information on browser compatibility, see Supported browsers.

Intentional self-harm hospitalisations by SA3 areas, Australia, 2018–19.

The map shows the crude rate and number of intentional self-harm hospitalisations for females by all ages for SA3 areas in Australia in 2018-19. Users can also choose to view maps showing the same data for males or for persons by broad age groups (0-24, 25-44 and 45 and over). In 2018-19, rates of hospitalisations for intentional self-harm for females ranged from 34 per 100,000 population in Parramatta (New South Wales) to 1,245 in Barkly (Northern Territory).
Variation across local areas

In 2018–19, rates of hospitalisations for intentional self-harm across the more than 300 SA3s varied widely.

- For females, rates of hospitalisation ranged from 34 per 100,000 population in Parramatta (New South Wales) to 1,245 in Barkly (Northern Territory).
- For males, rates ranged from 22 hospitalisations per 100,000 population in Hobsons Bay (Victoria) to 574 in Caboolture Hinterland (Queensland).

Rates of intentional self-harm hospitalisations for different age groups also varied widely between SA3s.

- Rates of hospitalisations for intentional self-harm for those aged 24 and below ranged from 43 hospitalisations per 100,000 population in Carlingford (New South Wales) to 600 in Barkly (Northern Territory).
- For the 25–44 age group, rates ranged from 19 hospitalisations per 100,000 population in Parramatta (New South Wales) to 1,325 in Barkly (Northern Territory).
- For those aged 45 and over, rates ranged from 25 hospitalisations per 100,000 population in Ku-ring-gai (New South Wales) to 289 in Alice Springs (Northern Territory).

The AIHW is committed to continually improving the quality, ease-of-use, and timeliness of its products. In this product, we are using a new data visualisation tool to present results by geographical areas using maps. We welcome any feedback on this new presentation and hope that it will provide useful insights into the topic. As this tool is a relatively new addition to our website, we will be continuing to work to enhance its use and would welcome any feedback.
Suicide & self-harm monitoring

Behaviours & risk factors

Risk factors are behaviours or aspects of lifestyle, environmental exposures or inherited characteristics that can interact to influence people’s risk of suicidal behaviours. Therefore, looking at risk factors at a population level can help target assistance.

It is important to remember that the presence of one or more of these risk factors cannot predict or explain suicide or intentional self-harm as each person’s experience is unique. Experiencing any of these risk factors does not necessarily mean a person has—or ever will—attempt suicide, but establishing whether a person has any of these risk factors can help determine whether they are at increased risk. Also, some people will have suicidal thoughts without having a history of any risk factors.

Risk factors and behaviours can be modifiable (change over time; for example, illicit drug use) or non-modifiable (permanent or constant; for example, a personal history of self-harm). They can also be background factors (such as a childhood history of abuse) or recent stressful life events. The presence of these factors and their influence is different from person to person over their lifetime and can vary by sex, culture and other characteristics.

Information on these risk factors in Australians has been obtained from a number of sources by making greater use of existing data sets or by integrating multiple data sets. This includes:

- the presence of psychosocial factors (for example, a past history of self-harm; relationship problems; legal issues; bereavement; unemployment; homelessness; and disability) in deaths by suicide obtained by manual review of reports and coronial findings held by the National Coronial Information System (NCIS) by the Australian Bureau of Statistics
- the effect of differences in educational attainment and labour force status in deaths by suicide obtained by integrating the ABS Causes of Death data set with that of the Census 2011
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Behavioural risk factor burden for suicide and self-inflicted injuries

According to the AIHW’s Australian Burden of Disease Study 2015, suicide and self-inflicted injuries was the third leading cause of premature death from injury or disease, accounting for an estimated 5.7% of the total years of life lost in Australia (AIHW, 2019). Moreover, suicide and self-inflicted injuries is the leading cause of premature death in young males and females aged 15-24 and in those aged 25-44. See Burden of disease for further information.

What is burden of disease?

Burden of disease analysis measures the impact of living with illness and injury and dying prematurely. The method uses the summary measure ‘disability-adjusted life years (or DALY) to measure the years of healthy life lost by combining premature death (years of life lost; YLL) with years lived with disability (YLD). For further information including a more comprehensive explanation of the methodology and data sources used, see Australian Burden of Disease Study: methods and supplementary material 2015.

The burden of suicide and self-inflicted injuries due to behavioural risk factors, known as attributable burden, has also been estimated in the Australian Burden of Disease Study. These estimates reflect the amount of burden that could have been avoided if all people in Australia were not exposed to the risk factor.


The horizontal stacked bar graph shows the estimated number of disability-adjusted life years (DALYs) of suicide and self-inflicted injuries attributable to various behavioural risk factors by age and sex in Australia in 2015. Users can also choose to view the attributable years of life lost (YLL), the attributable years lived with disability (YLD), and the results of previous studies in 2003 and 2011. ‘Child abuse and neglect’ during childhood was estimated to be responsible for the greatest number of attributable DALY for suicide and self-inflicted injuries in both males and females in Australia in 2015.
Child abuse and neglect during childhood was consistently the leading behavioural risk factor contributing to the years of healthy life lost due to suicide and self-inflicted injuries in both males and females in 2003, 2011 and 2015 associated with 23% of the years of healthy life lost due to suicide and self-inflicted injuries in males (about 24,000 DALYs) and 33% of the years of healthy life lost due to suicide and self-inflicted injuries in females (about 11,000 DALYs) in 2015 with the vast majority of these years of healthy life lost due to premature death.

In males, the second and third leading risk factors contributing to the years of healthy life lost due to suicide and self-harm were ‘alcohol use’ and ‘illicit drug use’ across all years of the Australian Burden of Disease Study 2015. In 2015:

- ‘Alcohol use’ was responsible for 17% of the years of healthy life lost due to suicide and self-inflicted injuries in males (about 17,000 DALYS).
- ‘Illicit drug use’ was responsible for 15% (about 16,000 DALYs).

For females, the second greatest contributor to the years of healthy life lost due to suicide and self-harm was ‘intimate partner violence’ (estimated in females only) which was consistent over time (2003, 2011 and 2015). For females, in 2015:

- 'Intimate partner violence' contributed 19% of the years of healthy life lost due to suicide and self-inflicted injuries in females (about 6,600 DALYs) in 2015.


This series of column graphs shows the same data as the previous visualisation with the data organised in a different way. The estimated number of disability-adjusted life years (DALY) of suicide and self-inflicted injuries attributable to selected behavioural risk factors is presented in males by age, in 2015. Users can also choose to view the data by sex, by attributable years of life lost (YLL), attributable years lived with disability (YLD) and by the results of previous studies in 2003 and 2011. The majority of attributable burden for each behavioural risk factor was experienced in ages 15-54, peaking at 25-34 years in males in 2015.
In 2015, ‘Child abuse and neglect’ during childhood was the greatest contributor to the years of healthy life lost due to suicide and self-inflicted injuries in both males and females in all age groups except those aged 85 and over; however, the majority of the burden was experienced in ages 15–54, with the number of DALYs for females being fairly similar across these age groups (about 2,000-2,500 DALYs) but peaking at age 25–34 for males (6,000 DALYs).

Similarly, the majority of the years of healthy life lost due to suicide and self-inflicted injuries attributable to ‘alcohol use’ or ‘illicit drug use’ was experienced in ages 15–54, peaking at 25–34 for males and 15–24 for females.

The years of healthy life lost due to suicide and self-inflicted injuries in females that were attributable to ‘intimate partner violence’ increased with age and peaked in the 45-54 age group.

Reference
Psychosocial risk factors and deaths by suicide

Capturing information on risk factors relating to deaths by suicide can highlight areas of a person's life experience that may need additional attention to provide the most effective suicide prevention interventions. However, it is important to note that the presence of one or more of these risk factors in an individual’s life does not necessarily mean they will have suicidal behaviours. The vast majority of people who experience these risk factors will not experience suicidal behaviours.

As part of the National Suicide and Self-harm Monitoring Project the AIHW has funded the Australian Bureau of Statistics (ABS) to identify and code (using ICD-10) psychosocial risk factors for deaths referred to a coroner, including deaths by suicide. Following on from a pilot study (ABS 2019), the ABS reviewed reports and coronial findings held by the National Coronial Information System (NCIS) on deaths registered in 2017, 2018 and 2019. Approximately 2,000 deaths by suicide each year in Australia had one or more psychosocial risk factor identified—approximately two-thirds of all deaths by suicide registered each year (ABS 2020). The types of psychosocial risk factors associated with deaths by suicide were age dependent and differed throughout the lifespan.

Most frequently occurring psychosocial risk factors in coroner-certified suicide deaths by age and sex, Australia, 2019.

The horizontal bar graph shows the proportion of coroner-certified deaths by suicide with psychosocial risk factors identified in males in Australia in 2019. The user can choose to view the data by sex, by age groups, and by the number of deaths by suicide with psychosocial risk factors identified. The risk factor identified in the greatest proportion of coroner-certified deaths by suicide in males at all ages was a ‘personal history of self-harm’ followed by ‘disruption of family by separation and divorce’. Data for 2017 and 2018 are also available to view.
From 2017 to 2019, the most commonly identified risk factors for males aged under 25 and 25–34 were a ‘personal history of self-harm’ (associated with about 20% of all deaths by suicide in these age groups in 2019), ‘disruption of family by separation and divorce’ (associated with 16% of all deaths by suicide in these age groups in 2019) and ‘problems in relationship with spouse or partner’ (associated with 12% of all deaths by suicide in males under 25 years and 17% of deaths by suicide in males aged 25–34).

These 3 risk factors featured across all male age groups to varying degrees; however, ‘problems related to other legal circumstances’ and ‘other problems related to housing and economic circumstances’ also emerged as common risk factors in middle-aged males (35–44, 45–54 and 55–64 years).

‘Limitation of activities due to disability’ was the most commonly identified risk factor in deaths by suicide in males aged 65 and over in 2017 to 2019.

In females, a ‘personal history of self-harm’ was the most common risk factor identified in all age groups, except for those aged 65 and older (for whom it was the second-most commonly identified risk factor in each year). In 2019, a ‘personal history of self-harm’ was associated with 19% of deaths by suicide in females aged 65 and older and 37% of deaths by suicide in females aged under 25.

For females aged 65 and over, ‘limitation of activities due to disability’ was the most common risk factor in each year (associated with 23% of deaths by suicide in this age group in 2019).

‘Disruption of family by separation and divorce’ and ‘problems in relationship with spouse or partner’ were generally the second- and third-most common risk factors in females aged under 45.

‘Disappearance and death of family member’ was also identified as one of the most frequently occurring psychosocial risk factors in each male and female age group.

Of note, ‘Social exclusion and rejection’ was only identified as a frequent risk factor for males aged under 25 (associated with 4% of deaths by suicide in this age group in 2019) while ‘Bullying’ was only commonly seen among females aged under 25 (associated with 4–10% of all deaths by suicide in females in this age group in 2017 to 2019).

‘Problems in relationship with parents and in-laws’ also only commonly occurred in those aged under 25 years (associated with 4-7% and 5-10% of deaths by suicide in males and females in this age group).

‘Unemployment, unspecified’ was a frequent risk factor in males in all age groups (associated with 2-6% of deaths by suicide in 2017 to 2019) except those aged 65 and older; however, this was not a common risk factor in females of any age.

There is no national standard for the collection of data on psychosocial factors—each state and territory has its own legislation and processes relating to coroner-certified deaths meaning that the type of information collected and held by the NCIS database differs slightly by jurisdiction. Also, due to the method used for the collection of data, protective factors are not included.

The ABS reviewed and coded psychosocial risk factors (defined as social processes and social structures which can have an interaction with individual thought, behaviour and/or health outcomes) associated with deaths by suicide in 2017 through a review of police, toxicology and pathology reports and coronial findings held by the NCIS. The AIHW is working with the ABS to continue this work and embed psychosocial risk factors in future national mortality data sets.

References


Suicide & self-harm monitoring

Social factors and deaths by suicide
There is growing evidence that social factors, including education, employment status, income level and wealth have a marked influence on people and generations living, working and contributing to society (WHO, 2020).

It is important to remember that the presence of one or more of these risk factors cannot predict or explain suicide or intentional self-harm as each person’s experience is unique. Experiencing any of these risk factors does not necessarily mean a person has—or ever will—attempt suicide, but establishing whether a person has any of these risk factors can help determine whether they are at increased risk. Also, some people will have suicidal thoughts without having a history of any risk factors.

The purpose of this analysis by the AIHW was to determine the relationship between education and suicide risk in Australia, in light of rising suicide rates and socioeconomic differentials in mortality reported in the US (Case & Deaton, 2015, 2017, 2020; Phillips & Hempstead, 2017) and other countries (e.g. Sweden; Socialstyrelsen National Board of Health and Welfare, 2017). Given the strong association between education and employment opportunity, particularly during prime working age (ages 25-54 years) this analysis explores both these factors, illustrating the utility of integrated data sets, Census 2011 and the Australian Bureau of Statistics (ABS) Causes of death data set, to investigate contextual factors associated with suicide risk. The information on educational attainment and employment are as reported at the time of Census 2011; death by suicide is reported between 2011 and 2017. For details of the methodology see Technical notes. The findings on educational attainment and employment highlight the importance of social determinants in suicide risk, with important prevention implications.

Educational attainment
The estimated suicide risk (measured as the age-adjusted cumulative incidence (risk) from 2011–2017) is higher among those with fewer years of education, as reported at Census 2011.

Among males with only secondary school or no education:
- cumulative suicide risk is 2.6 times higher than among males with a university degree (Table 1).

The education gradient in female suicide mortality was consistent with that seen for males, but the ratio is smaller (1.6 times) between the highest and lowest levels of educational attainment. These estimates are the first for Australia, and like other countries, show a strong relationship between educational attainment and the risk of suicide.

The estimated suicide risk is higher among males than females at all levels of educational attainment.

Among males with only secondary school or no education:
- the cumulative suicide risk is 3.5 times higher than among females with the same level of educational attainment (Table 2).

The gap is smallest for those with a university degree with the suicide risk for males 2.2 times higher than females.

Estimated suicide risk, by highest educational attainment and labour force status, by sex, aged 25-54 years, Australia, 2011 to 2017.

The vertical bar chart shows age-adjusted cumulative risk of suicide for males and females by highest level of educational attainment (secondary school or lower; diploma, certificate; and bachelor degree or higher). Users can also choose to view age-adjusted cumulative risk or proportion by labour force status. The lowest age-adjusted cumulative suicide risk among males was in those with a bachelor degree or higher while the highest age-adjusted cumulative suicide risk was seen in those with secondary school or lower as their highest level of educational attainment.

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Social factors and deaths by suicide
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It is important to remember that the presence of one or more of these risk factors cannot predict or explain suicide or intentional self-harm as each person’s experience is unique. Experiencing any of these risk factors does not necessarily mean a person has—or ever will—attempt suicide, but establishing whether a person has any of these risk factors can help determine whether they are at increased risk. Also, some people will have suicidal thoughts without having a history of any risk factors.

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The vertical bar chart shows age-adjusted cumulative risk of suicide for males and females by highest level of educational attainment (secondary school or lower; diploma, certificate; and bachelor degree or higher). Users can also choose to view age-adjusted cumulative risk or proportion by labour force status. The lowest age-adjusted cumulative suicide risk among males was in those with a bachelor degree or higher while the highest age-adjusted cumulative suicide risk was seen in those with secondary school or lower as their highest level of educational attainment.
Estimated suicide risk (measured as the age-adjusted cumulative incidence from 2011-2017) is lower among those with a job, as reported at Census 2011.

Among males of prime working age (25–54 years) who were not in the labour force (people who are neither working nor looking for work):

- cumulative suicide risk is 3.2 times higher than among males employed
- for males unemployed the risk is 2.5 times higher than those employed (Table 1).

For males who were not in the labour force the cumulative suicide risk was actually a little higher (rate ratio of 1.3) than for males who were unemployed at the time of the 2011 Census. This reminds us that in thinking about the relationship between labour force status and suicide, it is important to focus on people of workforce age who are not employed, regardless of whether they are classified as being unemployed.

Among females, employment is also associated with the lowest suicide risk but did not vary greatly between those not in the labour force and those unemployed.

The cumulative suicide risk for females not in the labour force was:

- 2.6 times higher than those employed
- for females unemployed the risk was 2.7 times higher than those employed.

<table>
<thead>
<tr>
<th>Educational attainment or labour force status</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 12 and below : Bachelor degree and higher</td>
<td>2.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Unemployed : employed</td>
<td>2.5</td>
<td>2.7</td>
</tr>
<tr>
<td>Not in labour force : employed</td>
<td>3.2</td>
<td>2.6</td>
</tr>
<tr>
<td>Not in labour force : unemployed</td>
<td>1.3</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Notes
1. Estimated suicide risk is measured as the age-adjusted cumulative incidence (risk) from 2011–2017.
2. Level of Highest Educational Attainment (HEAP) and Labour Force Status (LFS) is at Census 2011; death by suicide occurred between 2011 and 2017.
3. Analysis includes prime working age group (age at Census 2011): 25-54 years.
4. Year 12 and below includes no education.

A social gradient describes a spectrum from high to low socioeconomic position and shows that, in general, the lower an individual’s socioeconomic position the worse their health (WHO, 2020). While a social gradient was evident in both male and female employment circumstances, the estimated suicide risk is considerably higher for males than females across all 3 labour force categories (Table 2).

Among males not in the labour force:
- the cumulative suicide risk is 4.4 times higher than among females not in the labour force.

<table>
<thead>
<tr>
<th>Educational attainment or labour force status</th>
<th>Males : Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 12 and below</td>
<td>3.5</td>
</tr>
<tr>
<td>Diploma or Certificate</td>
<td>3.1</td>
</tr>
<tr>
<td>Bachelor degree and higher</td>
<td>2.2</td>
</tr>
<tr>
<td>Employed</td>
<td>3.7</td>
</tr>
<tr>
<td>Unemployed</td>
<td>3.4</td>
</tr>
<tr>
<td>Not in labour force</td>
<td>4.4</td>
</tr>
</tbody>
</table>

Notes
1. Estimated suicide risk is measured as the age-adjusted cumulative incidence (risk) from 2011–2017.
2. Level of Highest Educational Attainment (HEAP) and Labour Force Status (LFS) is at Census 2011; death by suicide occurred between 2011 and 2017.
3. Analysis includes prime working age group (age at Census 2011): 25-54 years.
4. Year 12 and below includes no education.

Future updates to Suicide & self-harm monitoring will include analysis where differences in the circumstances and characteristics of suicide deaths, including educational attainment and labour force status, will be modelled to better identify protective and risk factors.

Blakely et al. (2003) found similar associations between the risk of death by suicide by labour force status for New Zealand using linked data. However, they argue that while being unemployed was associated with a 2- to 3-fold increased relative risk of death by suicide compared with being unemployed, around half of this association might be explained by confounding mental illness.

References:


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Deaths by suicide, by socioeconomic areas

There is a strong association between socioeconomic status and deaths by suicide. Age-standardised rates and numbers of deaths by suicide tend to be higher for those living in lower socioeconomic areas (more disadvantaged areas). However, it is important to remember that suicide can affect all Australians and each person’s experience is unique; not everyone who lives in these areas will experience suicidal behaviours.

Socioeconomic status classifies individuals according to the socioeconomic characteristics of the area in which they lived prior to their death by suicide. These areas are defined using the ABS Index of Relative Socio-Economic Disadvantage (IRSD), which reflects the average level of socioeconomic disadvantage of the area, rather than individuals (see Technical notes for more information). Variables used in calculating the IRSD index include household income, unemployment and levels of education.

Suicide deaths by socioeconomic area and mechanism, Australia, 2010 to 2019.

The series of line graphs show age-standardised suicide rates for socioeconomic areas (Quintiles 1 to 5) from 2010 to 2019 for all mechanisms combined. Users can also choose to view age-standardised suicide rates and numbers of deaths by suicide by mechanism, and specified mechanisms as a proportion of all mechanisms, for each socioeconomic area. For all mechanisms combined, suicide rates from 2010 to 2019 generally declined as the level of disadvantage lessened, from Quintile 1 to 5. In the lowest socioeconomic area (with most disadvantage; Quintile 1), rates ranged between 13.0 and 19.4 deaths per 100,000 population from 2010 to 2017, falling to 18.6 in 2019. In the highest socioeconomic areas (least disadvantaged; Quintile 5) rates fluctuated from 7.5 to 10.1 deaths per 100,000 population. In 2019, the age-standardised suicide rate for the lowest socioeconomic area (Quintile 1) was 18.6 deaths per 100,000 population and 8.5 in the highest socioeconomic area (least disadvantaged; Quintile 5).
Highest rates of suicide occur in lowest socioeconomic areas

From 2010 to 2019, age-standardised suicide rates were highest for those who lived in the lowest socioeconomic areas (most disadvantaged areas), and generally decreased as the level of disadvantage lessened.

In 2019, the overall suicide rate for people living in the lowest socioeconomic (most disadvantaged) areas (18.6 deaths per 100,000 population; Quintile 1) was 2.2 times that of those living in the highest socioeconomic (least disadvantaged) areas (8.5 deaths per 100,000 population; Quintile 5).

As for rates, the number of deaths by suicide for the 5 socioeconomic areas declined as socioeconomic disadvantage decreased.

Suicide rates increased over time in lowest socioeconomic areas

Age-standardised suicide rates increased in those living in the lowest socioeconomic areas from 2010 to 2019, from 13.0 to 18.6 deaths per 100,000 population (Quintile 1). In contrast, little change was observed for those living in the 2 highest socioeconomic areas (Quintiles 4 and 5).

Henley and Harrison (2019) found that over the period 2009-10 to 2015-16, suicide rates increased significantly for those living in the lowest socioeconomic areas (most disadvantaged) by an average 3.5% per year while little change was observed for those in the highest (least disadvantaged) socioeconomic areas (0.2% change per year).

Methods of suicide vary by socioeconomic area

Understanding the methods used for suicide can play an important role in suicide prevention. These data are provided to inform discussion around restriction of access to means as a policy intervention for the prevention of suicide.

Please consider the need to read the following information. If this material raises concerns for you or if you need immediate assistance, please contact a crisis support service, available free of charge, 24 hours a day, 7 days a week.

Please consider the Mindframe guidelines if reporting on these statistics.

The classification system used to code causes of deaths data, ICD-10, uses the term ‘mechanism’ to refer to the external cause of death. Throughout Suicide & self-harm monitoring ‘mechanism’ has been used in data visualisations, while the term ‘method’ has been used in the accompanying text.

Throughout 2010 to 2019, age-standardised suicide rates generally decreased with decreasing socioeconomic disadvantage for hanging (ICD-10 X70) and firearms (ICD-10 X72-X75); however, there was little difference in suicide rates between socioeconomic areas for poisoning excluding gas (ICD-10 X60-X66, X68-X69), poisoning by gas (ICD-10 X67) or other methods (ICD-10 X71, X76-X84, Y87.0).

In 2019, the rate of suicide by hanging for those living in the lowest socioeconomic areas (Quintile 1) was 2.4 times higher than that of those living in the highest socioeconomic areas (Quintile 5) (11.6 vs 4.8 deaths per 100,000 population). For firearms the suicide rate for those living in the lowest socioeconomic areas (Quintile 1) was higher than for those living in the highest socioeconomic areas (Quintile 5); however, the numbers of deaths were low in both areas. For poisoning by gas and other methods of suicide there was little variation between the highest and lowest socioeconomic areas in 2019.

The proportion of deaths by suicide by either exposure to poisonous substances excluding gas or other methods tended to increase with decreasing socioeconomic disadvantage while the proportion of deaths by either use of firearms or hanging tended to decrease.

Reference

Intentional self-harm hospitalisations by socioeconomic areas

Hospitalisations data for patients with intentional self-harm injuries includes those with and without suicidal intent. For further information refer to the Technical notes.

Socioeconomic status classifies individuals according to the socioeconomic characteristics of the area in which they live. These areas are defined using the ABS Index of Relative Socio-Economic Disadvantage (IRSD), which reflects the average level of socioeconomic disadvantage of the area (see Technical notes for more information).

Intentional self-harm hospitalisations, by age, sex and socioeconomic areas, Australia, 2012-13 to 2018-19.

The line graph shows age-specific rates of intentional self-harm hospitalisations from 2012-13 to 2018-19 by socioeconomic areas from Quintile 1, the most disadvantaged, to Quintile 5, the least disadvantaged. Users can also choose to view age-specific rates, numbers and proportion of hospitalisations for intentional self-harm by socioeconomic areas by sex and specific age groups. For the period 2012-13 to 2018-19, rates of intentional self-harm hospitalisations were highest in the most disadvantaged areas (Quintile 1) with the lowest rates in the least disadvantaged areas (Quintile 5). Rates varied across the period for all Quintiles. All Quintiles, except Quintile 5, recorded lower rates in 2018-19 than in 2012-13.

Does socioeconomic status affect risk of intentional self-harm?

Rates of hospitalisations for intentional self-harm tend to be higher for those living in lower socioeconomic (more disadvantaged) areas.

In 2018-19:
the rate for the most disadvantaged areas (Quintile 1) was 142 hospitalisations per 100,000 population, which is 1.6 times higher than the rate for the least disadvantaged areas (Quintile 5; 89 per 100,000 population).

A similar pattern was seen in suicide rates in 2018, see Suicide by socioeconomic areas.

How have rates of intentional self-harm hospitalisations changed for socioeconomic areas?

From 2012–13 to 2018–19:

- the highest proportion of intentional self-harm hospitalisations was for people living in the lowest socioeconomic (most disadvantaged) areas; this proportion has remained relatively stable over the period at around 25%
- rates for males in the lowest socioeconomic areas, Quintile 1 and 2, decreased over this period; Quintile 1 from 116 hospitalisations per 100,000 population in 2012–13 to 108 in 2018–19 and Quintile 2 from 99 in 2012–13 to 91 in 2018–19
- rates for females in lower (most disadvantaged) socioeconomic areas also decreased during this period, with an increase reported in Quintile 5 (most advantaged) only (106 per 100,000 population in 2012–13 rising to 119 in 2018–19).

In contrast, age-standardised suicide rates increased in the lowest socioeconomic areas between 2010 and 2018, for both males (from 20 to 25 deaths per 100,000 population, respectively) and females (from 5.8 to 7.0 deaths per 100,000 population, respectively). See Suicide by socioeconomic areas.

For both males and females, the highest age-specific rates of hospitalisations between 2012–13 and 2018–19 were recorded for those aged 25–44 in the lowest socioeconomic areas (Quintile 1), with the highest age-specific rates recorded for females in this age group.

- Rates for females aged 25–44 in Quintile 1 increased from 245 per 100,000 population in 2012–13 to 274 in 2015–16 before falling to 239 in 2018–19.

An increase in the rate of hospitalisations due to intentional self-harm for all socioeconomic areas was reported in 2016–17 before decreasing in 2017–18, which may be due to increases in hospitalisations in 3 states. Variation in hospital admission policy and practices between states and territories may have contributed to differences in the reporting of hospitalisation data. For further information, see the data quality statement (https://meteor.aihw.gov.au/content/index.phtml/itemId/724188).

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Deaths of despair

Since the late 1990s, there has been a marked increase in the overall mortality of middle-aged white non-Hispanic males and females in the United States (Case and Deaton 2015, 2017, 2020). This increase in mortality was largely attributed to increases in deaths by suicide, drug and alcohol poisonings (both accidental and undetermined intent) and deaths due to chronic liver diseases and cirrhosis—together termed ‘deaths of despair’ by Case and Deaton (Case and Deaton, 2015, 2017, 2020). They linked this trend to a decline in economic security, a lack of universal health care and the widespread availability of opioids (Case and Deaton 2015, 2017, 2020). In 2017, Case and Deaton suggested that a similar increase in mortality from deaths of despair may be emerging in other countries (Case and Deaton 2017).

Selected causes of death, by sex, Australia, 1997 to 2018.

The line graph shows age-standardised rates of death by suicide, alcoholic liver disease and cirrhosis, accidental poisoning, and all of these causes combined from 1997 to 2018. Users can also choose to view age-standardised death rates and numbers of deaths for this period by sex and cause of death. Rates of deaths by these selected causes of death show no clear trend over the period 1997-2018. Since 2014, the rate has remained around 23-24 deaths per 100,000 population which was similar to rates at the start of the period (1997 to 1999). Between these dates rates were lower (around 20.0 deaths per 100,000 population).

An analysis of Australian mortality data using methods similar to those used by Case and Deaton shows that Australians are not increasingly dying due to these ‘deaths of despair’ over time. The rates of combined deaths by suicide, alcoholic liver disease and cirrhosis, and accidental poisoning (deaths of despair) over the period 1997 to 2019 show no clear trend. Over the past 5 years the rate has remained around 23 to 25 deaths per 100,000 population (from 2015 to 2019), similar to rates at the start of the period 1997 to 1999; between these dates rates remained lower (around 20 deaths per 100,000 population).
Males are more likely than females to die by these selected causes of death (suicide, alcoholic liver disease and cirrhosis, and accidental poisoning). At the start of the period, rates of combined deaths by suicide, alcoholic liver disease and cirrhosis, and accidental poisoning in males were at a high of around 36–38 deaths per 100,000 population from 1997 to 1999 and female rates were around 11 deaths—about 3.2 to 3.4 times lower than males. In the past 5 years from 2015, death rates for both males and females have shown little variation with male rates ranging between 34 and 37 deaths per 100,000 population and female rates around 13 to 14 deaths—that is, these causes of death are about 2.7 to 2.8 times more common in males than females.

For males, deaths by suicide accounted for the majority (53-67%) of these ‘deaths of despair’ over the period 1997 to 2019. In contrast, deaths by suicide tended to account for less than half (43-48%) of these deaths in females.

References
Suicide & self-harm monitoring

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Technical notes
This section contains more detailed information about the data sources, codes and classifications, and analysis methods used in compiling data for Suicide & self-harm monitoring.

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Data sources

National Mortality Database

The AIHW National Mortality Database (NMD) contains records for deaths in Australia from 1964 to 2018. The database comprises information about causes of death and other characteristics of the person, such as sex, age at death, area of usual residence and Indigenous status.

The Cause of Death Unit Record Files are provided to the AIHW by the Registries of Births, Deaths and Marriages in each state and territory and the National Coronial Information System (managed by the Victorian Department of Justice). The cause of death data are compiled and coded by the Australian Bureau of Statistics (ABS) to the International Statistical Classification of Diseases and Related Health Problems (ICD) and maintained at the AIHW in the NMD. Registration of deaths is the responsibility of the Registry of Births, Deaths and Marriages in each state and territory.

To improve the quality of data, the ABS annually revises the causes of death for coroner-referred deaths to reflect the latest available information. This process applies to deaths registered after 1 January 2006. Deaths registered in 2015 and earlier are based on the final version of cause of death data; deaths registered in 2016 are based on the revised version; and deaths registered in 2017 and 2018 are based on the preliminary version. Revised and preliminary versions are subject to further revision by the ABS. For a more detailed description of the coverage and processing of deaths data, including deaths certified by the coroner, refer to the Explanatory Notes in ABS Causes of death, Australia (ABS Catalogue No. 3303.0), which is available from the ABS website [https://www.abs.gov.au/]

In the NMD, both the year in which the death occurred and the year in which it was registered are provided. Year of registration has been used for the purposes of monitoring deaths by suicide. Deaths based on the year the death occurred have also been presented; however, as some deaths at the end of each calendar year may not be registered until the following year, year of death information for the latest available year (2018) is generally an underestimate of the actual number of deaths that occurred in that year.

The data quality statements underpinning the AIHW NMD can be found on the following ABS internet pages:


For more information on the AIHW NMD see National Mortality Database and About National Mortality Database.

Quality of Indigenous status data

The Aboriginal and Torres Strait Islander status of a deceased person is captured through the death registration process; however, it is recognised that not all such deaths are captured through these processes, leading to under-identification. Also, data on deaths by suicide in Indigenous people have been compiled by jurisdiction of usual residence for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. Data for Victoria, Tasmania and the Australian Capital Territory have been excluded in line with national reporting guidelines.

National Hospital Morbidity Database

Data for patients who were hospitalised with intentional self-harm injuries are sourced from the AIHW’s National Hospital Morbidity Database (NHMD). Most of the data used for the monitoring of hospitalisations for intentional self-harm are from 2008-09 to 2018-19. For each reference year, the NHMD includes all hospitalisations for patients who were discharged between 1 July and 30 June.

The NHMD is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals. It is a comprehensive data set that has records for all episodes of admitted patient care from essentially all public and private hospitals in Australia.

The data supplied are based on the National Minimum Data Set (NMD) for Admitted Patient Care and include administrative, demographic, clinical and length of stay data, as well as data on the diagnoses of the patients, the procedures they underwent in hospital and external causes of injury and poisoning.
The purpose of the NMDS for Admitted Patient Care is to collect information about care provided to admitted patients in Australian hospitals. The scope of the NMDS includes episodes of care for admitted patients in all public and private acute and psychiatric hospitals, free standing day hospital facilities, and alcohol and drug treatment centres in Australia. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia’s off-shore territories are not in scope but may be included. Hospitals specialising in dental, ophthalmic aids and other specialised acute medical or surgical care are included.

**episode of care**: The period of admitted patient care between a formal or statistical admission and a formal or statistical separation, characterised by only one care type (see care type and separation). METeOR identifier: 268956.

**separation**: The process by which an episode of care for an admitted patient ceases. A separation may be formal or statistical. METeOR identifier: 327268.

**formal separation**: The administrative process by which a hospital records the cessation of treatment and/or care and/or accommodation of a patient.

**statistical separation**: The administrative process by which a hospital records the cessation of an episode of care for a patient within the one hospital stay.

The criteria used to describe intentional self-harm hospitalisations reported in *Suicide & self-harm monitoring* is described in the Codes and classifications section.

**Data limitations**

States and territories are primarily responsible for the quality of the data they provide. However, the AIHW undertakes extensive validations on receipt of data, checking for valid values, logical consistency and historical consistency. Where possible, data in individual data sets are checked with data from other data sets. Potential errors are queried with jurisdictions, and corrections and resubmissions may be made in response to these queries. Except as noted, the AIHW does not adjust data to account for possible data errors or missing or incorrect values.

The most recent Data quality statement for Admitted Patient Care is available in METeOR. The Data Quality Statement contains information on other changes that may affect interpretation of the data for the relevant year.

**Quality of Indigenous status data**

While the Indigenous status data in the Admitted Patient Care NMDS for all states and territories are considered of sufficient quality for statistical reporting, separations for Aboriginal and Torres Strait Islander people are generally under-enumerated. In 2011-12, about 88% of Indigenous Australians were identified correctly in hospital admissions data, and the ‘true’ number of separations for Indigenous Australians was about 9% higher than reported. Caution should be used in the interpretation of Indigenous status data because of the under-enumeration overall and differences in under-enumeration among the states and territories. The quality of the data for private hospitals is not known, but likely to be poor.

**National Ambulance Surveillance System**

The National Ambulance Surveillance System (NASS) is a new public health monitoring system providing timely and comprehensive data on mental health, intentional self-harm (including suicidal behaviours with self-injurious intent), and alcohol and drug harms in the community. Data for the National Ambulance Surveillance System (NASS) are compiled by Turning Point in partnership with Monash University and are sourced from paramedic electronic patient care records provided by Australian state and territory-based ambulance services. As part of the National Suicide and Self-harm Monitoring Project, the AIHW has contracted Turning Point through Monash University to develop the National Ambulance Surveillance System (NASS) for self-harm and mental health related attendances. Self-harm (suicidal ideation, suicide attempt, suicide, self-injury) and mental health related modules from the NASS are reported here. In this first release, data for New South Wales (NSW), Victoria, Tasmania and the Australian Capital Territory (ACT) have been reported. Data snapshots of 1 month per quarter for the months of March, June, September and December 2019 for Victoria, Tasmania and the ACT and for June, September and December 2019 for NSW are reported.

Information is obtained and coded through manual scrutiny of de-identified electronic patient care records (ePCRs), including paramedic clinical assessment, patient self-report, information from third parties and other evidence at the scene, such as written statements of intent (including social media, text messages and written notes), as recorded by paramedics. Intent of self-harm behaviours derived from the ePCR may be from either stated or physical evidence, or where there is evidence but the patient may have denied the behavioural intent (Lubman et al. 2020).

Self-harm related ambulance attendances are included if self-harm occurred in the preceding (past 24 hours) or during the ambulance attendance, with 4 categories of self-harm related ambulance attendances defined and coded as:

- self-injury (non-fatal intentional injury without suicidal intent)
- suicidal ideation (thinking about killing oneself without acting on the thoughts)
- suicide attempt (non-fatal intentional injury with suicidal intent, regardless of likelihood of lethality)
- suicide (fatal intentional injury with suicidal intent).
Suicide, suicide attempt and suicidal ideation are considered mutually exclusive; however, self-injury could be simultaneously coded with any other self-harm case category.

The number of attendances related to suicide is under-represented as ambulances do not attend all deaths. Furthermore, when they do attend there may be insufficient information to determine suicidal intent at the scene.

Mental health-related ambulance attendances are classified by the presence of a mental health symptom preceding or during the ambulance attendance; they do not equate to a diagnosis. Four categories of mental health-related ambulance attendances are defined and categorised as:

- anxiety: overwhelming and intrusive worry, and/or panic attack symptom profile
- depression: symptom profile consistent with depression, such as low mood, feelings of hopelessness, despair, worthlessness, anhedonia, change in sleep and/or appetite
- psychosis: presence of hallucinations or delusions
- other mental health symptom: mental health symptoms not otherwise unspecified.

Methods of suicide, suicide attempt or suicidal ideation are coded as are methods of self-injury and categories of suicidal ideation preparation (planned, unplanned and unknown if planned) using a modified ICD-10 coding framework.

For more information see Lubman et al. 2020 (https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0236344).

Data limitations

Data are collected for operational rather than monitoring or research purposes with paramedics only recording information that they either observe or is provided to them by the patient or bystanders, and which they deem clinically relevant to patient care. It is possible that relevant information with respect to self-harm or mental health variables is not recorded, or similar events may not be recorded consistently by different paramedics over time.

Multi-Agency Data Integration Project (MADIP)

The Multi-Agency Data Integration Project (MADIP) is a partnership among Australian Government agencies to develop a secure and enduring approach for combining information on healthcare, education, government payments, personal income tax, and demographics (including the Census) to create a comprehensive picture of Australia over time (ABS 2018).

Imputing weights for unlinked suicide deaths and 2011 Census

Overall Approach

In the ABS MADIP the 2011 Census and ABS death registrations for records where the underlying cause of death was determined to be death by suicide (ICD–10 X60-X84, Y87.0) from 2011 to 2017 have been integrated to the ABS Person Linkage Spine (Spine). The Spine is comprised of all persons in the Medicare Entrolments Database, Personal Income Tax or Social Security and Related Information data sets at any point between 2006 and 2016 (ABS 2019).

Using Spine IDs the ABS 2011 Census was linked to records of deaths by suicide at the person level to identify socioeconomic characteristics of people who have died by suicide. However, not all records were linked to the Spine. The linkage rates of 2011 Census and 2011-2017 records of deaths by suicide to the Spine is about 80.5% and 61.5%, respectively.

Data used in analysis:

- ABS estimated resident population (ERP) 31 December 2011
- Linked ABS 2011 Census population and

Method

To address the issue of unlinked deaths by suicide and 2011 Census records for this project, an imputation weighting technique has been used. This section describes the method used to develop these weights, which involved a three-staged approach.

First stage: imputing weights to scale up the Census population. The ABS historical ERP for 31 December 2011 by states, sex and 5-year age groups were used to derive weights by these demographic characteristics, based on the assumption that there were no significant differences in the age distribution of the population. The derived weight was applied at the person level for each record of Census that has Spine information to enable analysts to weight the analyses to the 31 December 2011 total ERP.

Unlike the original ABS research paper (ABS 2016) describing the creation of a linked data set between 2011 Census and deaths registered in the following 13 months, this project did not calculate weights for Indigenous and non-Indigenous populations as there is no analysis of deaths by suicide by Indigenous status. Also, note that Diplomatic personnel resident in Australia have not been excluded from total ERP.

Second stage: suicide weights were calculated by using all deaths by suicide from 2011 to 2017 by states and territories, sex and 5-year age groups. Suicide weights were then applied at person level to only those linked Census records with suicide information. This made it possible to weight the analyses to all deaths by suicide (18,848) from 2011-2017.
An issue with applying suicide weights is that suicide weights are slightly higher when compared with population weights applied in the first stage. As such, the combined weights of the linked records with both 2011 Census and suicide information when aggregated, the weighted ERP will be slightly higher than that of 31 December 2011. Hence the need for a scale down adjustment factor.

Third stage: Finally, a scale down adjustment factor, derived based on total ERP, linked deaths by suicide and all deaths by suicide, was applied at the person level to only Census records without linked death by suicide information. Hence the weights of the Census population with or without linked death by suicide information, aggregated to the 31 December 2011 ERP (22,340,025).

Cumulative suicide incidence (risk)
Australian residents in the 2011 Census, weighted to 31 December 2011 estimated resident population (ERP) and linked to ABS death registrations data from 2011 to 2017 created a binary outcome of either died by suicide (ICD 10 external cause codes X60-X84, Y87.0) or not. Note that deaths by suicide used in this analysis are based on year of occurrence. These may differ from deaths by suicide used in other AIHW publications which are based on year of registration. Since this is a closed population, several assumptions have been made about the 2011 Census weighted to 31 December 2011 ERP (denominator population) including that everyone in the 2011 Census population lived up to 2017 except for those who died by suicide. Note that some residents would have died of other causes of death other than suicide. Also, it is assumed that there has not been any migration since 31 December 2011. In addition, due to data quality issues, except for those who have died by suicide, the age in this analysis is at the time of the 2011 Census.

Over the period 2011 to 2017, Australia recorded more than 18,800 deaths by suicide of people who were in the 2011 Census. This resulted in a cumulative incidence of about 84 per 100,000 people during the 7-year period. The cumulative number and incidence of deaths by suicide that occurred over the 7 years varies considerably by sex, educational attainment and labour force status.

Uncertainty in the estimates
All data are subject to some level of uncertainty. For the data presented in this body of work the sources of uncertainty include:

- Linkage error: Uncertainty is introduced when there is error in linking data sets. The data used in this report carries some risk of linkage error. The linkage rate to the Spine was higher for 2011 Census (80.5%) than for 2011-2017 records of deaths by suicide to the Spine (61.5%). An attempt has been made to reduce this error through imputation weighting process but some uncertainty remains.
- Timeliness of data: Some of the data used in this analysis is Census data collected in August 2011. A person’s education status and employment status can change over time, particularly for certain population groups. The use of out-of-date information introduces a source of error to the analysis.
- Randomness in the number of deaths by suicide that occur in a given time period, 2011-2017: The number of deaths by suicide that occur in a given time period fluctuate, even if the underlying population risk remains the same. The exact distribution of the counts is unknown. With deaths by suicide being a rare event it is often assumed that the counts follow a Poisson distribution. If this is the case then the level of uncertainty due to randomness decreases as the number of deaths by suicide increase.

Australian Defence Force Suicide Data Sources
In addition to the NMD, the Australian Defence Force (ADF) suicide monitoring analysis used the following data sources:

National Death Index (NDI)
The NDI is managed by the AIHW and contains person-level records of all deaths in Australia since 1980 obtained from the Registrars of Births, Deaths and Marriage in each state and territory. Its use is confined to data linkage studies approved by the AIHW Ethics Committee for health and medical research. NDI records are supplemented with cause of death information from the NMD (AIHW 2018). The NDI is used in linkages with the Personnel Management Key Solution (PMKeyS) and Defence Suicide Database (DSD) to create the linked PMKeyS-NDI data set used in analysis of deaths by suicide in the ADF population.

Personnel Management Key Solution (PMKeyS)
PMKeyS is a Defence staff and payroll management system that contains information on all people with ADF service on or after 1 January 2001 (when the system was introduced). This database contains demographic and service information at a given point in time and is linked to the NDI to identify deaths, including deaths by suicide, in the 3 ADF service status groups.

Defence Suicide Database (DSD)
The DSD is maintained by Defence and contains information on suspected and confirmed deaths due to suicide of personnel serving full time since 1 January 2000. Suspected and confirmed deaths by suicide are included in the database only on the advice of the ADF Investigative Service. Cases are confirmed by receipt of a coronial finding of death by suicide. This database is linked to the PMKeyS and NDI and records with a status of ‘confirmed’ are used to supplement cause of death information from the NDI for numbers of deaths by suicide only.

For further information see Technical notes of the National suicide monitoring of serving and ex-serving Australian Defence Force personnel: 2019 update.

Australian Burden of Disease Study
Estimates of fatal (years of life lost, YLL) and non-fatal burden (years lived with disability, YLD) were sourced from the Australian Burden of Disease Study (ABDS) 2015. The ABDS 2015 used burden of disease analysis to measure the impact of 216 diseases and injuries on the health of the Australian population. The study provides a detailed picture of the burden of disease and injury in the Australian population in 2003,
2011 and 2015. It also includes estimates of the contribution made by selected risk factors on the disease and injury burden in Australia, and by socioeconomic areas for some risk factors.

The ABDS 2015 uses and adapts the methods of global studies to produce estimates that are more relevant to the Australian health policy context. The chosen reference period (2015) reflects the data availability from key data sources (such as the National Health Survey, deaths data, hospital admissions data and various disease registers) at the time of analysis.

Results from the study provide an important resource for health policy formulation, health service planning and population health monitoring. The results provide a foundation for further assessments.

Full details on the various methods, data sources and standard inputs used in the ABDS 2015 are available in Australian Burden of Disease Study 2015: methods and supplementary material.
Suicide & self-harm monitoring

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Codes and classifications

International Statistical Classification of Diseases (ICD) and Related Health Problems

The ICD, which was developed by the World Health Organization (WHO), is the international standard for coding morbidity and mortality statistics. It was designed to promote international comparability in collecting, processing, classifying and presenting these statistics. The ICD is periodically reviewed to reflect changes in clinical and research settings.

For Suicide & self-harm monitoring, deaths since 1964 (included in the NMD) classified as ‘intentional self-harm’ according to the relevant revisions of the ICD classification were included:

<table>
<thead>
<tr>
<th>ICD version</th>
<th>Years applicable</th>
<th>Intentional self-harm codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th revision</td>
<td>1958–1967</td>
<td>E970–E979 and E963</td>
</tr>
<tr>
<td>8th revision</td>
<td>1968–1978</td>
<td>E950–E959</td>
</tr>
<tr>
<td>9th revision</td>
<td>1979–1996</td>
<td>E950–E959</td>
</tr>
<tr>
<td>10th revision</td>
<td>1997 to date</td>
<td>X60–X84 and Y87.0</td>
</tr>
</tbody>
</table>


ICD-10-AM

Diagnosis, intervention and external cause data are reported to the NHMD by all states and territories using the International Statistical Classification of Diseases and Related Health Problems, 10th revision, Australian Modification (ICD-10-AM) and the Australian Classification of Health Interventions (ACHI). The Australian Coding Standards (ACS) are designed to be used in conjunction with the ICD-10-AM and ACHI to support sound coding convention.

The hospital separations reported were coded according to the applicable ICD-10-AM edition for the following years:


Records that satisfied the following criteria were included:

- a principal diagnosis in the ICD-10-AM range S00–T75, T77 (Injury, poisoning and certain other consequences of external causes)
- the first reported external cause code in the record in the ICD-10-AM range X60–X84, Y87.0 (external causes of morbidity).

Excluded from the criteria are:

- separations for which the care type was reported as Newborn (without qualified days), and records for Hospital boarders or Posthumous organ procurement
- separations with a mode of admission of ‘transfer from another hospital’
- separations with reported ICD-10-AM code Z50 (Care involving the use of rehabilitation procedures) in additional diagnosis.

Changes to the Australian Coding Standard for Rehabilitation in 1 July 2015 ICD-10-AM (9th Edition), means that the ‘reason’ for rehabilitation (codes S00–T98 Injury, poisoning and certain other consequences of external causes) will be assigned the principal diagnosis and the rehabilitation code (250) will be sequenced as the additional diagnosis. This change results in an increase in the number of separations in principal diagnoses with codes from S00–T98 from 1 July 2015 onwards. In order to reflect the number of injury separations where the primary clinical intent is acute care and not rehabilitation, records with Z50 (Care involving the use of rehabilitation procedures) in principal diagnosis or additional diagnosis for all years are excluded in the data set before and after the coding change.
Intentional self-harm hospitalisations reported in *Suicide & self-harm monitoring* may differ from other publications. The differences are small and may reflect differences in the inclusion criteria (e.g. Y87.0 included here) and/or exclusion criteria. Data may also be subject to periodic updates occurring after the original publication date.

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Suicide & self-harm monitoring

Methods
Crude rates
A crude rate provides information on the number of events relative to the population ‘at risk’ (for example, the entire population) in a specified period based on the Australian estimated resident population for the relevant analysis year. No age adjustments are made when calculating such a rate. Crude rates are used throughout this publication and expressed per 100,000 population.

Age-specific rates
Age-specific rates are calculated by dividing the number of events (for example, deaths) in each specified age group, by the total population at risk of the event in the same age group. Where age-specific rates are reported they are expressed per 100,000 population.

Age-standardised rates
Age-standardised rates enable comparisons between populations that have different age structures and over time as the age structure of the population of interest may change. This effectively removes the influence of the age structure on the summary rate—it is the overall death rate that would have prevailed in the standard population if it had experienced at each age the death rates of the population under study.

Direct standardisation was used in this report. To calculate age-standardised rates, age-specific rates (grouped in 5-year intervals) were multiplied against a standard population. Directly age-standardised rates were adjusted using the current Australian standard population (that is, the non-recast Australian estimated resident population (ERP) as at 30 June 2001).

Standardised Mortality Ratio
Standard mortality ratio (SMR) is a widely recognised measure used to account for differences in age structures when comparing death rates between populations. This method of standardisation can be used when analysing relatively rare events (i.e. where number of deaths is less than 25 for the analysed time period) (Curtin and Klein, 1995). The SMR has been used in the analysis of Australian Defence Force (ADF) deaths by suicide. It is used to control for the fact that the 3 ADF service status groups have a younger age profile than the Australian population, and rates of suicide vary by age in both the study populations and the Australian population. The SMRs control for these differences, enabling comparisons of suicide counts between the 3 service status groups and Australia without the confounding effect of differences in age. The SMR is calculated as the observed number of events (deaths by suicide) in the study population divided by the number of events that would be expected if the study population had the same age and sex specific rates as the as the comparison population.

Geography
Geographic location data are based on the area of usual residence of the deceased in the NMD or admitted patient in the NHMD. These data are specified using Statistical Area Level 2 (SA2) of the Australian Bureau of Statistics (ABS) Australian Statistical Geography Standard (ASGS) Edition 2016 for all states and territories. From 2016-17, the area of usual residence in the NHMD was voluntarily provided by some jurisdictions in the form of a Statistical Area level 1 (SA1).

Remoteness areas
Data for remoteness areas are based on a person’s usual residence, rather than where they died (NMD) or received treatment (NHMD). Data by remoteness are aligned to the 2016 Australian Statistical Geography Standard (ASGS) Remoteness Area Structure. Correspondence files are sourced from Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas (ABS cat. no. 1270.0.55.001). The 2016 ASGS Remoteness Structure categorises geographic areas in Australia into 5 classes of remoteness areas based on their relative access to services using the Accessibility/Remoteness Index of Australia which is, in turn, derived by measuring the road distance of a location from the nearest urban centre. The 5 classes are: Major cities, Inner regional, Outer regional, Remote, and Very remote. See the Australian Statistical Geography Standard (ASGS): Remoteness Structure, 2016 (https://www.abs.gov.au/ausstats/abs@.nsf/mf/1270.0.55.005) for further information on Remoteness areas including details of the nature of the changes between the ASGS 2011 and ASGS 2016.

Socioeconomic status
The Socio-Economic Indexes for Areas (SEIFA) is a suite of 4 summary measures, developed by the ABS based on Census data that ranks geographic areas across Australia in terms of their relative socioeconomic advantage and disadvantage. The SEIFA index used is the 2016 SEIFA Index of Relative Socioeconomic Disadvantage (IRSD) for use at Statistical Area Level 2 except for NHMD 2012-13 to 2016-17 data which uses the 2011 SEIFA IRSD.

The IRSD includes only measures of relative disadvantage. A low score indicates greater disadvantage in general (for example, an area has many households with low income, many people with no qualifications and many people working in low skill occupations). A high score indicates a relative lack of disadvantage in general (for example, an area has few households with low incomes, few people with no qualifications and few people working in low skilled occupations). It is important to understand that a high score reflects a relative lack of disadvantage rather than advantage and that the IRSD relates to the average disadvantage of all people living in a geographic area and does not reflect the socioeconomic status of all individuals living within the area.

Population-based Australian cut-offs for SEIFA quintiles have been used in this report. Population-based quintiles are calculated by dividing SEIFA areas into 5 equal groups in such a way that the population in each group is approximately equal. As SEIFA measures the characteristics of an area rather than individuals, the population in the most disadvantaged population-based quintile (‘1—Lowest’) is the 20% of the national population residing in the most disadvantaged areas, rather than the most disadvantaged 20% of the population.

See the Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA) Australia, 2016 (https://www.abs.gov.au/ausstats/abs@.nsf/mf/1270.0.55.001) for further information on SEIFA.

Primary Health Network

Primary Health Networks (PHNs) were established in 2015 by the Department of Health to commission medical services and improve the coordination of care for patients across specific geographic areas (PHN areas). There are 31 PHN areas that cover the whole of Australia.


Statistical Areas

Statistical Areas are a geographic classification defined by the Australian Bureau of Statistics. They encompass 4 levels, with increasing size and population: Statistical Areas Level 1 (SA1s); Statistical Areas Level 2 (SA2s); Statistical Areas Level 3 (SA3s); and Statistical Areas Level 4 (SA4).

Deaths by suicide and hospitalisations for intentional self-harm data at Statistical Area Level 2 (SA2) were aligned to Statistical Area Level 3 (SA3) and 4 (SA4) geographies based on the 2016 Australian Statistical Geography Standard (ASGS) structure. Correspondence files are sourced from Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas (ABS cat. no. 1270.0.55.001) (https://www.abs.gov.au/ausstats/abs@.nsf/mf/1270.0.55.001).

Using confidence intervals to test for statistical significance

Statistical significance is a measure that indicates how likely it is that an observed difference, or a larger one, would occur under the conditions of the null hypothesis.

In the analysis of deaths by suicide in Australian Defence Force personnel, 95% confidence intervals (CIs) are provided for each standardised mortality ratio to indicate the level of uncertainty around these estimates due to random fluctuations in the number of deaths by suicide over time. Estimates produced using low numbers can be sensitive to small changes in numbers of deaths over time and will therefore have wide CIs. 95% CIs are provided within this report as they may account for the variation in absolute numbers of deaths by suicide over time (related to the small sample size). It is important to note that there are other sources of uncertainty, such as linkage error, that are not captured by the provided CIs.

Use of CIs is the simplest way to test for significant differences between service groups and Australian comparison groups. For the purpose of this monitoring site, differences are deemed to be statistically significant if CIs do not overlap with 1.0 in the case of an SMR. The CIs in this report cannot be used to determine the significance of differences over time between overlapping 3-year time periods.

References


Suicide & self-harm monitoring

Data downloads

Data tables: National Ambulance Surveillance System
Source: National Ambulance Surveillance System for attendances related to self-harm behaviours and mental health

Data tables: National Mortality Database—Birth cohort analysis
From report: Suicide in Australia: Trends and analysis 1964 to 2018

Data tables: National Hospital Morbidity Database—Intentional self-harm hospitalisations
Source: National Hospital Morbidity Database
Download Data tables: National Hospital Morbidity Database—Intentional self-harm hospitalisations. Format: XLSX 381Kb

Data tables: National Mortality Database—Suicide (ICD-10 X60-X84, Y87.0) monthly variation
From report: Suicide mortality in Australia: Estimating and projecting monthly variation and trends from 2007 to 2018 and beyond
Download Data tables: National Mortality Database—Suicide (ICD-10 X60-X84, Y87.0) monthly variation. Format: XLSX 138Kb

Data tables: Burden of Disease—Suicide and self-inflicted injuries
Source: AIHW Analysis of Burden of Disease Study 2015 Database
Download Data tables: Burden of Disease—Suicide and self-inflicted injuries. Format: XLSX 157Kb

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Notes
Latest data updates
18 Nov 2020
- Updated mortality data; Geography - Suicide by PHN areas.
- Updated Victoria and New South Wales Suicide Register data; COVID-19 - Data on suspected deaths by suicide
9 Nov 2020
- Updated mortality data; Death by suicide in Australia; Populations & age groups; Geography; Behaviours & risk factors.
9 Oct 2020
- Updated Populations & age groups - Australian Defence Force suicide monitoring.

Amendments
9 Nov 2020
- Amended Populations & age groups - Suicide among young people.

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Suicide & self-harm monitoring

Glossary

Aboriginal or Torres Strait Islander: A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander. See also Indigenous.

additional diagnosis: The diagnosis of a condition or recording of a complaint—either coexisting with the principal diagnosis or arising during an episode of admitted patient care (hospitalisation)—that requires the provision of care. Multiple diagnoses may be recorded.

ADF personnel: Serving, reserve and ex-serving members of the Australian Defence Force; civilian personnel employed by the Department of Defence are excluded.

admission: An admission to hospital. 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.

administrative data collection: A data set that results from the information collected for the purposes of delivering a service or paying the provider of the service. This type of collection is usually complete (all in-scope events are collected), but it may have limitations for population-level analysis because the data are collected primarily for an administrative purpose.

age structure: The relative number of people in each age group in a population.

age-specific rate: The number of events for a specified age group over a specified period (e.g. calendar or financial year), divided by the total population in that age group. Reported as number per 100,000. The numerator and denominator relate to the same age group.

age-standardised rates: 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. Age-standardised rates are expressed per 100,000 population.

associated cause(s) of death: All causes of death listed on the death certificate, 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.

attributable burden: The disease burden attributed to a particular risk factor. It is the amount of burden that could be avoided if the risk factor were removed or reduced to the lowest possible exposure.


burden of disease: The quantified impact of a disease, injury or risk factor on a population, using the disability-adjusted life year (DALY) measure. One DALY is one year of ‘healthy life’ lost due to illness and/or death. The more DALY associated with a disease or injury, the greater the burden. The DALY is produced by combining the non-fatal and fatal burden together. People generally experience more burden as they age.

cause(s) of death: All diseases, morbid conditions or injuries that either resulted in or contributed to death—and the circumstances that produced any such injuries—that are entered on the death certificate. The coding of causes of death produces an underlying cause of death and, for many deaths, one or more associated cause(s) of death. See also multiple causes of death.

child: A person aged 0-14 years.

comorbidity: The occurrence of 2 or more health conditions in a person at one time. While the coexistence of these multiple conditions may be unrelated, in many instances there is some association between them.

confidence interval: A statistical term describing a range (interval) of values within which we can be ‘confident’ that the true value lies, usually because it has a 95% or higher chance of doing so.

contemporary ex-serving (Australian Defence Force): Australian Defence Force members who have had at least 1 day of full-time or reserve service on or after 1 January 2001, and have since been discharged from the Australian Defence Force.

current serving (Australian Defence Force): Australian Defence Force members who have had at least 1 day of full-time service on or after 1 January 2001, and are still serving in the Australian Defence Force.
**Crude rate:** The crude rate is the number of events recorded during a specified time period (e.g. calendar year) per 100,000 estimated resident population.

**DALY:** See **disability-adjusted life year**.

**Data linkage:** The process of combining (linking) information from two or more different data sources that are believed to relate to the same entity (for example, the same individual or the same institution). This linkage can yield more information about the entity and, in certain cases, provide a time sequence—helping to ‘tell a story’, show ‘pathways’ and perhaps unravel cause and effect. The term is used synonymously with ‘record matching and ‘data integration’.

**Death:** Any death which occurs in, or en route to Australia and is registered with a State or Territory Registry of Births, Deaths and Marriages.

**Determinant:** Any factor that influences how likely a population or individual will stay healthy or become ill or injured. Factors that increase the chances of ill health are known as risk factors, while those that promote good health are protective factors. Services or other programs that aim to improve health are usually not included in this definition.

**Disability-adjusted life year (DALY):** A measure of healthy life lost, either through premature death or living with disability due to illness or injury. It is the basic unit used in burden of disease and injury estimates.

**Episode of care:** The period of admitted patient care between a formal or statistical admission and a formal or statistical separation, characterised by only one care type (see care type and separation).

**Estimated resident population (ERP):** The official ABS 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.

**External cause:** The environmental event, circumstance, or condition that is regarded as the cause of injury, poisoning and other adverse effect.

**Fatal burden:** The quantified impact on a population of dying prematurely due to disease or injury, measured by years of life lost (YLL).

**Hospitalisation:** An episode of admitted patient care, 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 (e.g. from acute care to rehabilitation).

**Incidence:** Incidence is a measure of the number of new cases of a characteristic that develop in a population in a specified time period; whereas prevalence is the proportion of a population who have a specific characteristic in a given time period, regardless of when they first developed the characteristic.

**Index of Relative Socioeconomic Disadvantage (IRSD):** One of the set of Socio-Economic Indexes for Areas (SEIFA) for ranking the average socioeconomic conditions of a population in a geographic area. The IRSD was developed by the ABS for use at Statistical Area Level 2 and summarises attributes of the population that indicate disadvantage, such as low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations.

**Indigenous:** A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander. See also **Aboriginal or Torres Strait Islander**.

**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.

**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.

**Morbidity:** The ill health of an individual and levels of ill health in a population or group.

**Mortality:** Number or rate of deaths in a population during a given time period.

**Multiple causes of death:** All causes listed on the death certificate. This includes the **underlying cause of death** and all **associated causes of death**. This information is useful for describing the role of all diseases involved in deaths, where there is more than one cause contributing to the death. For deaths where the underlying cause was identified as an external cause multiple causes include circumstances of injury, the nature of injury as well as any other conditions reported on the death certificate.

**Non-fatal burden:** The quantified impact on a population of ill health due to disease or injury, measured as years lived with disability (YLD).

**Non-Indigenous:** People who have declared that they are not of Aboriginal or Torres Strait Islander descent.

**Prevalence:** The number or proportion (of cases, instances, and so forth) in a population at a given time.
prevention (of suicide): Action to reduce or eliminate the onset, causes, complications or recurrence of suicide.

Primary Health Networks (PHNs): Primary Health Networks were established on 1 July 2015 by the Australian Government Department of Health. They are independent primary health care organisations that commission services and are operated by not-for-profit companies, informed by clinical councils and community advisory committees.

Primary Health Network (PHN) areas: PHNs connect health services across a specific geographic area (a PHN area), with the boundaries defined by the Australian Government Department of Health. There are 31 PHN areas that cover the whole of Australia.

principal diagnosis: The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care (hospitalisation). 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).

protective factors: Factors that enhance the likelihood of positive outcomes and reduce the chance of negative consequences from exposure to risk.

psychological distress: Psychological distress is commonly measured using the Kessler Psychological Distress Scale—10 items (K10). The K10 questionnaire was developed to yield a global measure of psychosocial distress, based on questions about people’s level of nervousness, agitation, psychological fatigue and depression in the past four weeks. The Kessler 6 Scale is an abbreviated version of K10.

psychosocial factors: Social processes and social structures which can have an interaction with individual thought, behaviour and/or health outcomes.

public health: Activities aimed at benefiting a population, with an emphasis on prevention, protection and health promotion as distinct from treatment tailored to individuals.

quintile: A group derived by ranking the population or area according to specified criteria and dividing it into five equal parts. Commonly used to describe socioeconomic areas.

rate: A rate is one number (the numerator) divided by another number (the 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.

remoteness area: A classification of the remoteness of a location using the Australian Statistical Geography Standard Remoteness Area Structure (2016) which divides Australia into 5 classes of remoteness based on their relative access to services using the Accessibility and Remoteness Index of Australia which is, in turn, derived by measuring the road distance of a location from the nearest urban centre. The 5 Remoteness Areas are Major cities, Inner regional, Outer regional, Remote and Very remote.

reserve (Australian Defence Force): Australian Defence Force members who have had at least 1 day of reserve service on or after 1 January 2001.

risk factor: Any attributes, characteristics or exposures that increase the likelihood of a person developing a health condition or experiencing an event.

separation (from hospital): 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.

social determinants of health: The circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies and politics.

socioeconomic status: The social and economic position of an individual or group within the larger society. In this monitoring site, socioeconomic status is reported using the Socio-Economic Indexes for Areas, typically for 5 groups, from the most disadvantaged (lowest socioeconomic status areas) to the least disadvantaged (highest socioeconomic status areas).

Socio-Economic Indexes for Areas (SEIFA): A set of indexes, created from Census data, that represent the socioeconomic status of geographical areas in Australia according to their relative socioeconomic advantage and disadvantage. The SEIFA index used in this report is the Index of Relative Socioeconomic Disadvantage (IRSD). It is important to understand that the index value reflects the overall or average level of disadvantage of the population of an area; it does not reflect the socioeconomic status of individuals living within the area.

Socio-Economic Indexes for Areas (SEIFA) quintiles: Population-based quintiles are calculated by dividing SEIFA areas into 5 equal groups in such a way that the population in each group is approximately equal. As SEIFA measures the characteristics of an area rather than individuals, the population in the most disadvantaged population-based quintile (‘1—Lowest’) is the 20% of the national population residing in the most disadvantaged areas, rather than the most disadvantaged 20% of the population.

statistical areas: A geographical classification defined by the ABS. They encompass four levels, with increasing size and population: Statistical Areas Level 1 (SA1s); Statistical Areas Level 2 (SA2s); Statistical Areas Level 3 (SA3s); and Statistical Areas Level 4 (SA4s).

suicidal ideation: Serious thoughts about ending one’s own life.

suicidal behaviours: The collective term for suicidal ideation, suicide plans and suicide attempts.
suicide: An action intended to deliberately end one’s own life.

total burden: The sum of fatal burden (YLL) and non-fatal burden (YLD).

underlying cause of death: The disease or injury that initiated the train of events leading directly to a person’s death, or the circumstances of the accident or violence that produced the fatal injury. See also cause(s) of death and associated cause(s) of death.

usual residence: The area of the address at which the deceased lived or intended to live, for 6 months or more prior to death.

years lived with disability (YLD): The number of years of what could have been a healthy life that were instead spent in states of less than full health. YLD represent non-fatal burden.

years of life lost (YLL): The number of years of life lost due to premature death, defined as dying before the ideal life span. YLL represent fatal burden.