



Injury in Australia

Web report | Last updated: 24 Oct 2023 | Topic: [Injury](#) | [Media release](#)

About

Injury is a major cause of hospitalisation and death in Australia. This web report explores injury hospitalisations in 2021-22 and injury deaths in 2020-21. It describes the main causes of injury and their impact on specific populations.

Cat. no: INJCAT 213

- [Introduction](#)
- [Causes](#)
- [Seasonal differences](#)
- [Data](#)

Findings from this report:

- [The top 3 causes of injury hospitalisation in 2021-22 were falls, contact with objects, and transport accidents](#)
 - [The top 3 causes of injury death in 2020-21 were falls, suicide and accidental poisoning](#)
 - [Males accounted for 54% of injury hospitalisations in 2021-22 and 61% of injury deaths in 2020-21](#)
 - [Male motorcyclists aged 15-24 had the highest rate of injury hospitalisations where causes were specified.](#)
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Introduction

Injury is an [Australia's health](#) topic

- [Burden of disease](#) | 14 Dec 2023
- [Health of people with disability](#) | 07 Jul 2022
- [Chronic conditions and multimorbidity](#) | 14 Dec 2023



Injuries are a major health care issue in Australia, and the [leading cause of death](#) for people aged 1-44.

In the latest years for which data were available, injuries in Australia accounted for:

- 8.1% of the [burden of disease](#)
- 7.6% of [health expenditure](#).

Injuries caused around:



538,000 hospitalisations in 2021-22

2,100 per 100,000 population



13,900 deaths in 2020-21

54 per 100,000 population

Injury burden and spending

[Burden of disease](#) measures the impact of illness and injury through time spent in ill health and premature death. In 2022, injuries were the 6th highest cause of total disease burden in Australia, accounting for 8% of total burden. Most of the injury burden (83%) was due to premature death (fatal burden), while 17% was due to years lived in ill health or with disability (non-fatal burden).

Over two-thirds (70%) of the total burden due to injuries was experienced by males, while 30% was experienced by females. Injuries accounted for 11% of total burden for males, compared to 5% for females. Suicide and self-inflicted injuries accounted for 36% of total injury burden, followed by falls (19%), poisoning (16%), road traffic injuries - motor vehicle occupants (8%), and homicide and violence (4%).

Spending on injuries is captured in the [Disease expenditure](#) database, including costs from injury hospitalisations and treatment in primary care settings. In 2019-20, a total of \$140.4 billion was allocated to health conditions, of which 8% (\$10.7 billion) was spent treating and managing injury. The majority occurred in hospital settings (\$8.6 billion, including emergency departments and outpatient clinics), with approximately \$584 million occurring in general practice, \$484 million in medical imaging and \$223 million in PBS expenditure. These estimates may reflect greater data capture for hospital presentations in the disease expenditure analyses, as many injuries are treated in settings such as physiotherapy or sports medicine clinics, or self managed, which may not be fully captured in these estimates.

Injury costs are reported by both the nature and cause of injury. By nature of injury (excluding 'other' injuries), soft tissue injuries, hip fractures, tibia and ankle fractures, dislocations, and poisoning had the highest spending. In terms of the cause of injury (excluding 'other' causes), spending was highest for falls, road traffic injury - motor vehicle occupants, homicide and violence, suicide and self-inflicted injuries, and road traffic injury - motorcyclists.

The main causes of injury

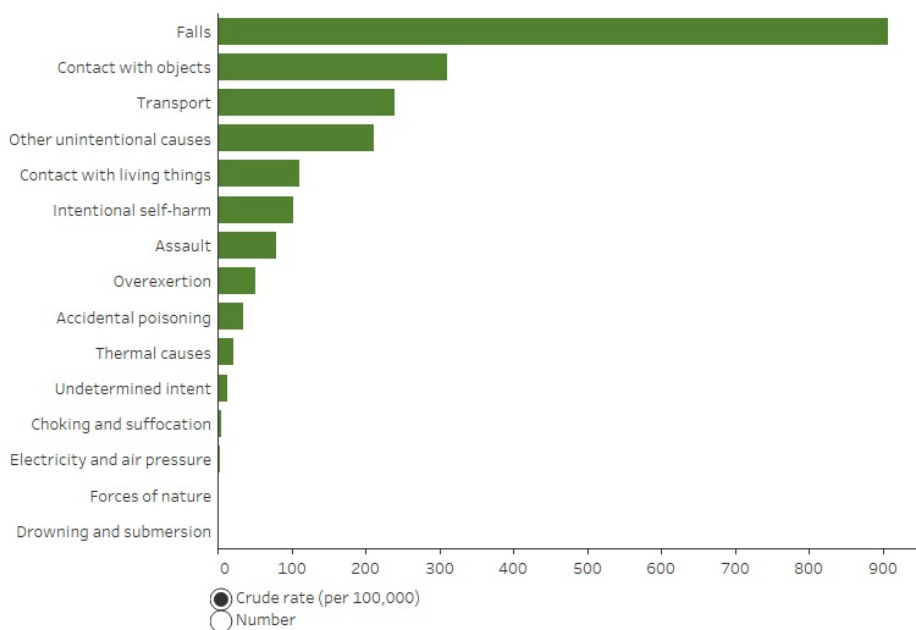
This report divides hospitalisations and deaths from injury into 15 categories, representing the main causes of injury in Australia (see Figure 1). These categories are based on the causes of injury listed in each hospital and death record.

Falls are the most common cause of both hospitalisations and deaths from injury in Australia. The next most common causes of injury leading to hospitalisation in 2021-22 were contact with objects (including blunt or sharp objects) and transport accidents. For deaths in 2020-21, the next most common causes were suicide, transport accidents and accidental poisoning.

Each of these 15 main causes of injury is explored on its own page.

Figure 1: Causes of injury hospitalisations and deaths

2 matching bar graphs on separate tabs, 1 for hospitalisations and 1 for deaths. The bars represent the 15 cause categories. The reader can choose to display either crude rate per 100,000 or number. For hospitalisations, falls shows the highest rate at 910 per 100,000.



Source: AIHW National Hospital Morbidity Database.
<http://www.aihw.gov.au/>

For more detail, see data tables A1-3 and D1-3.

Trends over time

From 2017-18 to 2021-22 the age-standardised rate of injury hospitalisations fell marginally by an annual average of 1%. The volatility seen between 2020 and 2022 is probably related to the social disruptions caused by COVID-19. From 2012-13 to 2016-17, the rate of hospitalisations increased by an annual average of 2.8%.

There is a break in the hospitalisations time series between 2016-17 and 2017-18 due to a change in data collection methods (see the technical notes for more details).

For injury deaths, the age-standardised rate in 2020-21 was 0.6% lower than a year earlier. Between 2011-12 and 2020-21, there was an average annual increase in the rate of 0.2% (Figure 2).

Figure 2: Number and age-standardised rate of injury hospitalisations and deaths, by year

Timeline showing age-standardised rate or number of injury hospitalisations (2010-11 to 2021-22) or injury deaths (2010-11 to 2020-21) for males, persons and females. There is a break in series between 2016-17 and 2017-18

Visualisation not available for printing

For more detail, see Data tables C1-3 and F1-4.

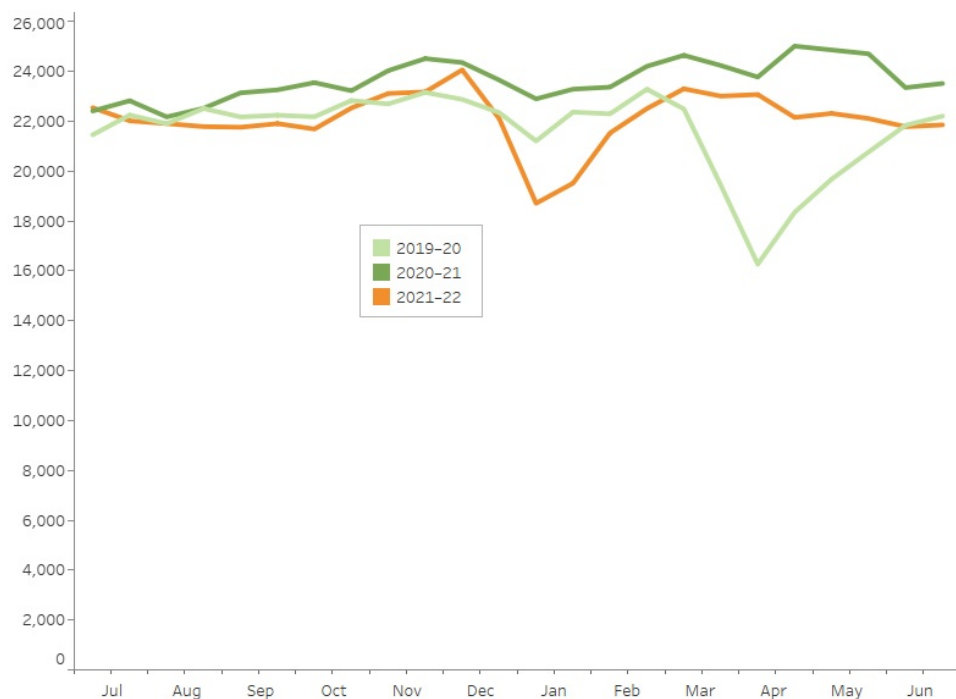
Seasonal differences

The total number of hospitalisations for injuries does not usually change much with the seasons. Data for the three most recent years suggest slightly lower numbers during July to October and a dip in January. The January dip in 2021-22 was larger than in the previous two years.

From March 2020, a range of restrictions on travel, business and social interactions were introduced in response to COVID-19. These restrictions coincided with a temporary dip in injury hospitalisations (Figure 3).

For some injury cause categories, the number of hospitalisations does change with the seasons - explore the interactive display.

Figure 3: Seasonal differences in injury hospitalisations, 2019-20 to 2021-22



Notes

1. Admission counts have been standardised into two 15-day periods per month.
2. A scale up factor has been applied to June admissions to account for cases not yet separated.

Source: AIHW National Hospital Morbidity Database.

Age and sex differences

Rates of injury differ between males and females. The extent of this difference changes over the course of life - some causes of injury are more likely to impact younger males, while other causes are more likely to impact older females.

The following sections explore these differences in age and sex, firstly for injuries overall, and then considering specific causes.

Overall, males had higher rates than females for both injury hospitalisations and deaths. For hospitalisations, males had higher rates until around age 70, above which the rates were higher for females. For deaths, male rates were higher for all age groups except for 0-4-year-olds.

Hospitalisations

In 2021-22, 54% of injury hospitalisations were for males (293,000 cases) and 46% were for females (245,000 cases). Correspondingly, the age-standardised rate of injury hospitalisation was higher for males at around 2,300 per 100,000, compared with 1,700 per 100,000 for females.

The age distribution of injuries differs between the sexes, as illustrated in Figure 4. Comparing 5-year age groups:

- the highest number of male cases was in the 20-24 age group
- the highest number of female cases was in the 85-89 age group
- rates of injury for both males and females were relatively stable during childhood and the early to middle stages of adulthood, with a small rise in the 15-19 age group
- from around age 70, rates per 100,000 rise dramatically for both males and females.

Deaths

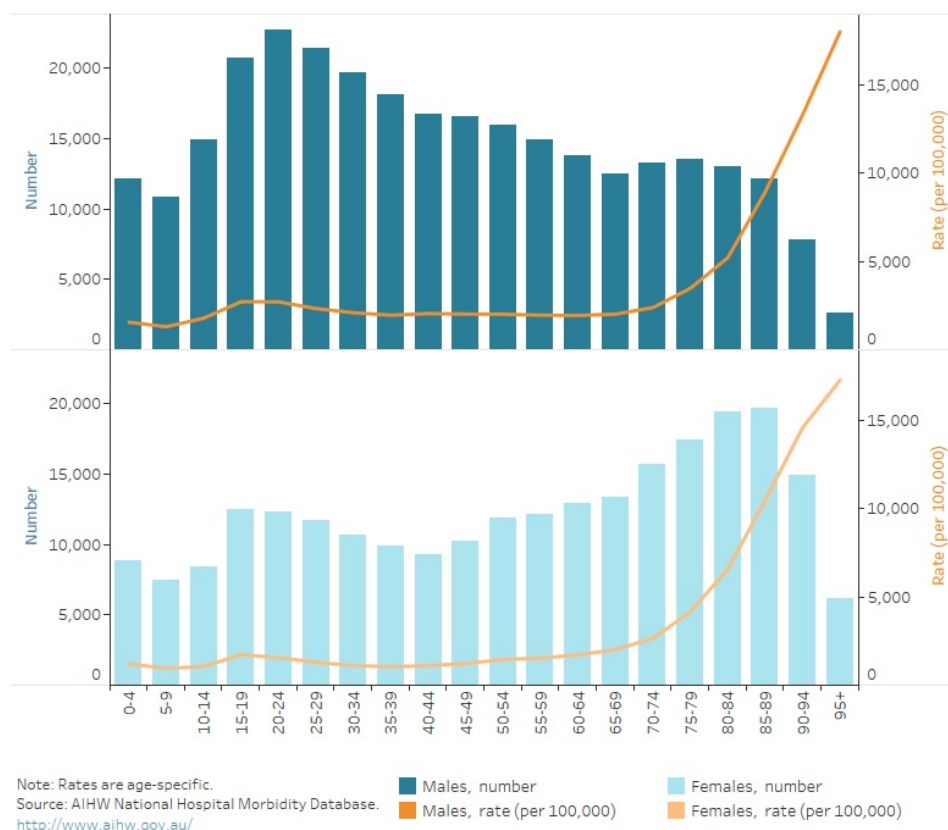
In 2020-21, almost two thirds of injury deaths (61%) were for males (8,600 deaths) and 39% were for females (5,400 deaths). Correspondingly, the age-standardised rates of death were 63 per 100,000 males, and 31 per 100,000 females. Over half of injury deaths (56%) were for people aged 65 and over.

Comparing life-stage age groups:

- rates of injury death peaked in older age groups (ages 65 and over), and were much higher than in younger age groups for both males and females
- rates of death were higher for males than females across all life-stages except for 0-4-year-olds (Figure 4).

Figure 4: Injury hospitalisations and deaths, by age group and sex

The graph has 2 tabs, one for hospitalisations and one for deaths. Each tab has 2 dual axis column and line graphs, one graph for males and one for females. The hospitalisations graphs present data for 5-year age groups from age 0 to 4 up to age 95 and over. The columns have the same left axis which presents number of cases. The graphs have the same right axis and present rate per 100,000. Male injury numbers peak in the 20-to-24-year age band while female numbers peak at 85 to 89 years. Rates for both sexes rise notably after around age 70. The deaths graph presents data for stage-of-life age groups.



For more detail, see [Data tables A1-3 and D1-3](#).

Cause and sex

The various causes of injury tend to affect one sex more than the other, usually males more than females. Males had higher rates of injury hospitalisation across all causes except falls and intentional self-harm.

Some causes, such as accidental poisoning, showed a relatively small difference in impact between the sexes, while others showed a large difference (Figure 5).

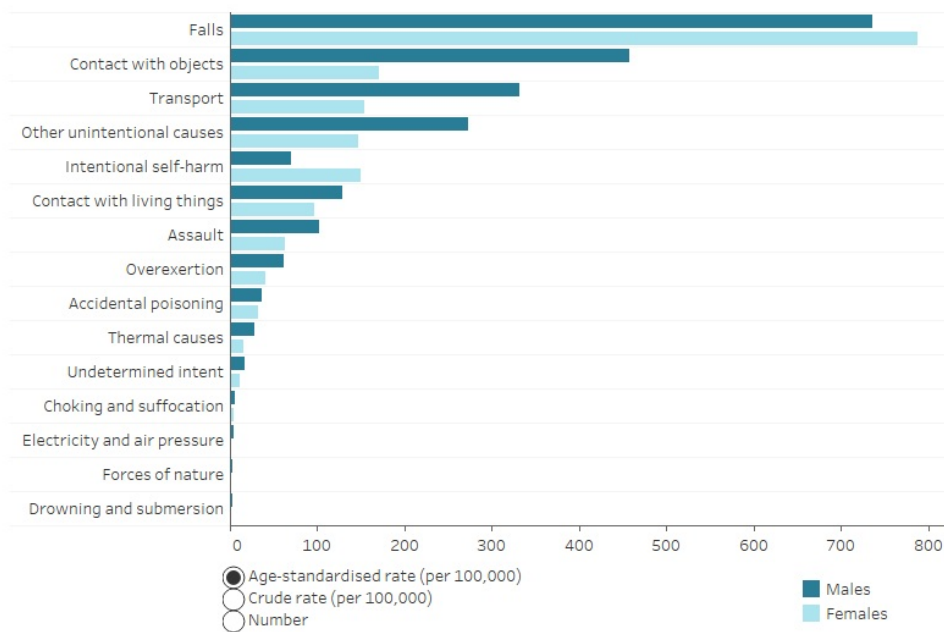
The largest differences in hospitalisation rates in 2021-22 were from:

- forces of nature (the rate for males was 2.8 times that for females) and
- contact with objects (the rate for males was 2.7 times that for females).

Males had higher rates of injury death than females across every cause category in 2020-21. For males, the highest age-standardised rate was for suicide, while for females it was for falls.

Figure 5: Injury hospitalisations and deaths, by cause and sex

2 matching bar graphs on separate tabs, 1 for hospitalisations and 1 for deaths. The bars represent males and females in the 15 cause categories. The reader can choose to display age-standardised rate, crude rate per 100,000 or number.



Source: AIHW National Hospital Morbidity Database.
<http://www.aihw.gov.au/>

For more detail, see [Data tables A1-3, D1-3 and B1-34](#).

Cause and age

Different age groups face different injury risk factors. As a result, injuries from the various causes occur in different proportions in each age group.

For injury hospitalisations in 2021-22:

- falls and contact with objects both placed in the top 3 causes across all life-stage age groups (Figure 6)
- falls accounted for 44% of all hospitalised injuries in the 0-4 age group, 14% in the 15-24 age group and 77% for the 65-and-over group.

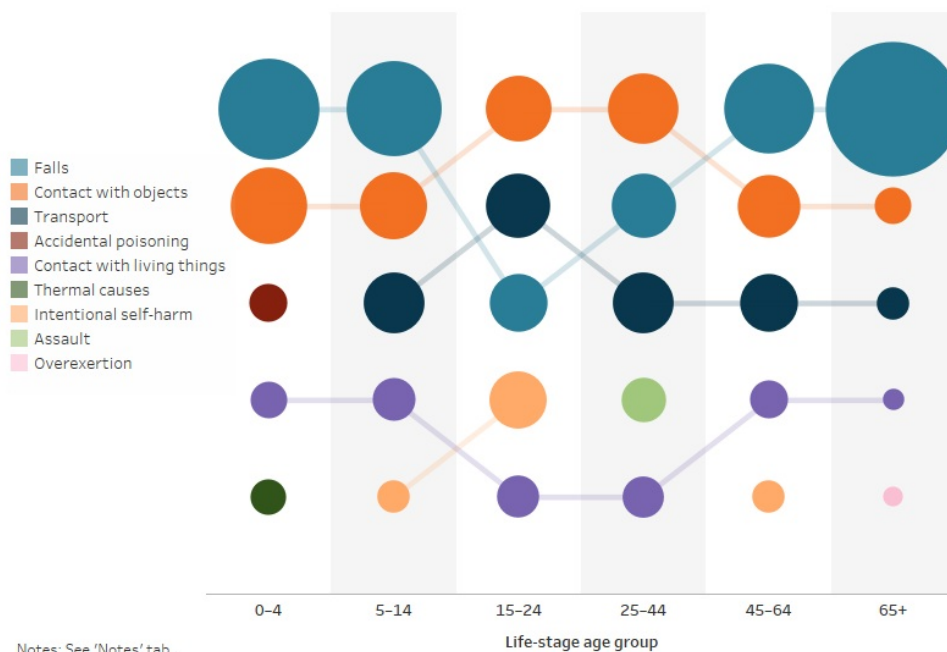
For injury deaths in 2020-21:

- Transport was the top cause for the two youngest age groups, suicide was the top cause for those aged between 15 and 64, and falls was the top cause for those aged 65 years and over
- falls was the cause for which the rate varied most across the life-stages, ranging from less than 1 death per 100,000 for children aged 0-4 up to 130 deaths per 100,000 for people aged 65 and over (Figure 6).

Figure 6 illustrates which causes of injury are most common for each life-stage age group. Hover over a point of interest for more detail.

Figure 6: Top 5 causes of injury leading to hospitalisation and death, by age

Bump chart showing how the causes of injury change order over life-stage age groups. Falls was the number 1 cause of hospitalisation for injury in the 0 to 4 age group, dropping to fourth in the 15 to 24 age group and then rising again to be the number 1 cause in the 65-and-over age group.



For more detail, see [Data tables A1-3 and B1-34](#).

Each cause is discussed further on [its own page](#).

Severity

There are many ways the severity, or seriousness, of an injury can be measured. Some of the ways to measure the severity of hospitalised injuries are:

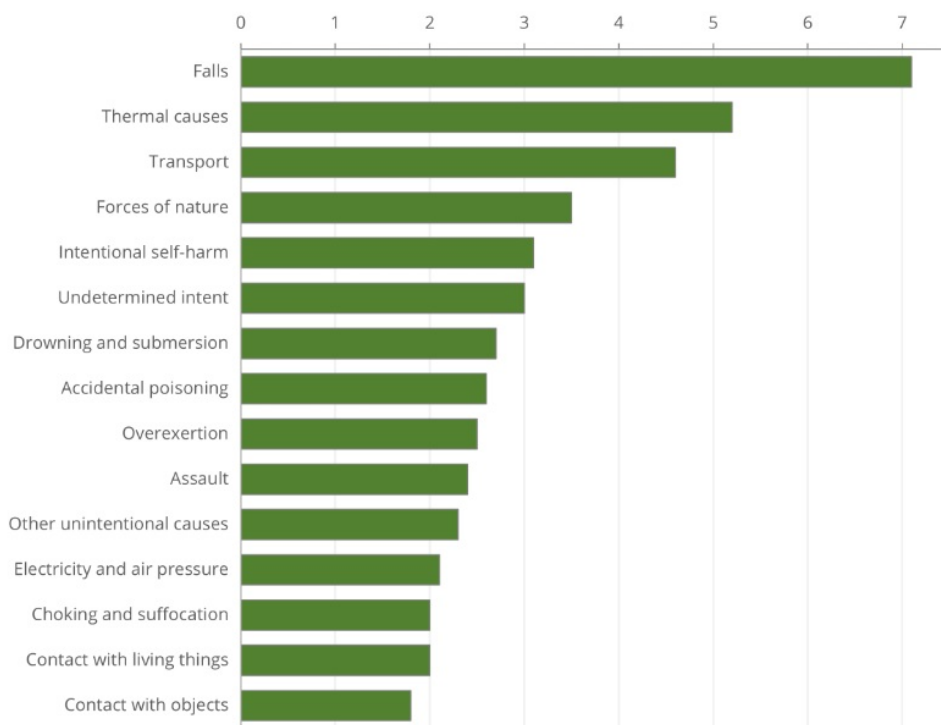
- number of days in hospital
- time in an intensive care unit (ICU)
- time on a ventilator
- in-hospital deaths.

Average length of hospital stay

In 2021-22, the most severe injuries in terms of average number of days in hospital were due to falls (7.1 days), thermal causes (5.2 days), and transport accidents (4.6 days) (Figure 7).

The average length of stay may be influenced by the age of those injured, with younger people staying fewer days in hospital than older people across all cause categories. Older people tend to recover more slowly and are more likely to have additional health problems or complications. This particularly affects the statistics for causes with higher proportions of older people, such as falls.

Figure 7: Average number of days in hospital, by cause of injury, 2021-22



Note: Includes admissions that are transfers from 1 hospital to another or transfers from 1 admitted care type to another within the same hospital, except where care involves rehabilitation procedures.

Source: AIHW National Hospital Morbidity Database.

Intensive care

Dropping from 12,900 in 2020-21, about 10,700 injury hospitalisations (2.0% of all cases) involved a stay in an intensive care unit (ICU) in 2021-22. Injuries due to intentional self-harm, undetermined intent and accidental poisoning were most likely to result in time in an ICU (Figure 8).

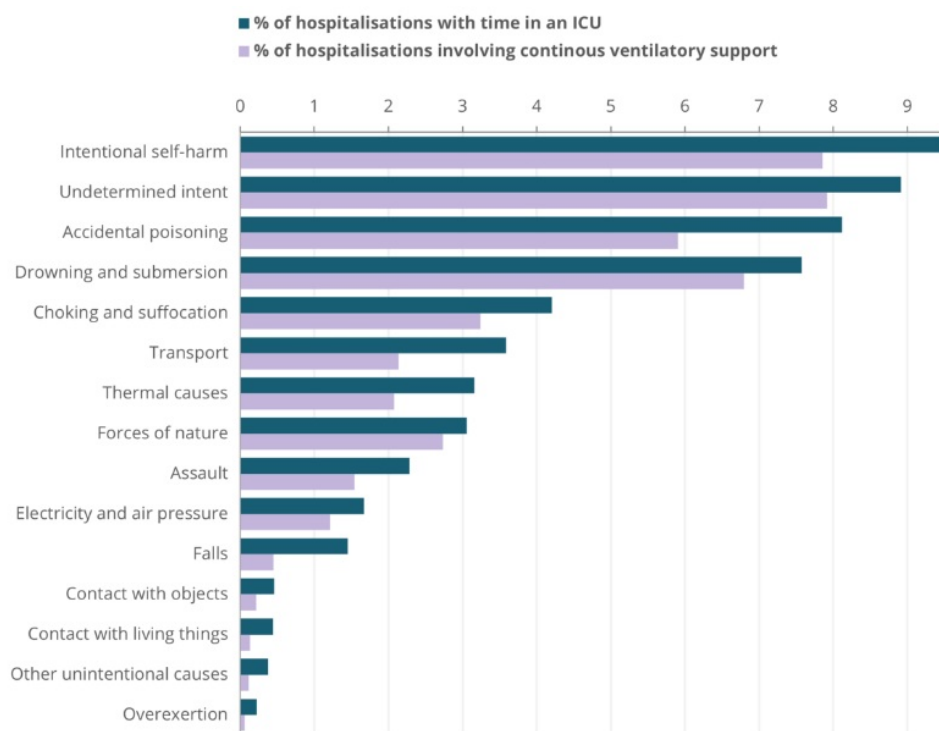
Continuous ventilatory support

Continuous ventilatory support or 'life support', is when a patient breathes via an artificial airway with the aid of a machine.

About 6,000 injury hospitalisations (1.1% of all cases) involved continuous ventilatory support in 2021-22. Most patients needing this level of support will be in an ICU.

Injuries due to intentional self-harm, undetermined intent and drowning and submersion were most likely to result in continuous ventilatory support (Figure 8).

Figure 8: Percentage of injury hospitalisations requiring time in an ICU and continuous ventilatory support, by cause of injury, 2021-22

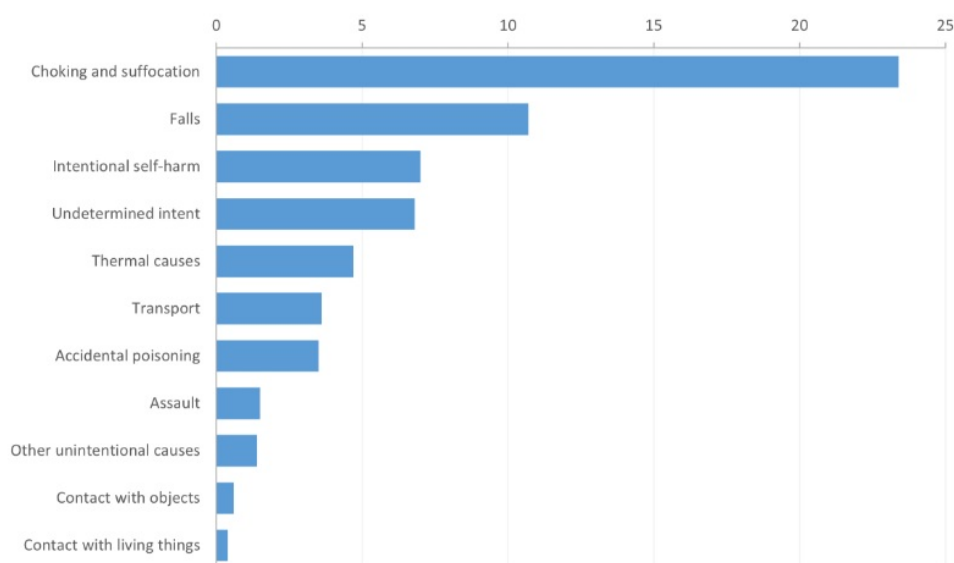


Source: AIHW National Hospital Morbidity Database.

In-hospital deaths

When an injured person is admitted to hospital, and dies despite the treatment provided, that can be an indication of the severity of their injuries. Figure 9 compares the causes of injury by the rate at which people died in hospital. Choking and suffocation had the highest rates of in-hospital death.

Figure 9: In-hospital deaths per 1,000 cases, by cause of injury, 2021-22



Note: Rates for the following causes were not published because of small numbers: Drowning and submersion, forces of nature, overexertion and electricity and air pressure.

Source: AIHW National Hospital Morbidity Database.

For more detail, see [Data tables A13-15](#).

Nature of injuries sustained

This section summarises:

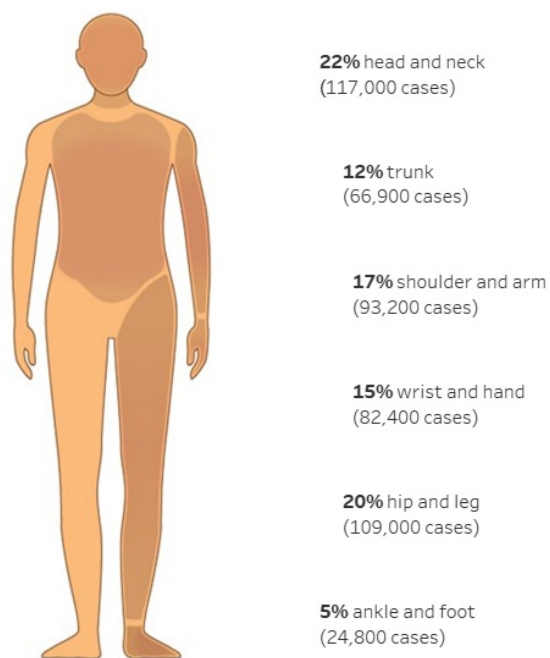
- the parts of the body injured in hospitalisations and
- the main types of injury.

Body part injured

In 2021-22, the head or neck was the body part most often identified as the main site of injury in hospitalisations (Figure 10). To some extent this probably reflects the serious nature of head and neck injuries.

Figure 10: Injury hospitalisations by main body part injured, 2021-22

Outline of a person with labels for body parts accounting for hospitalisation due to all injuries. Injuries to the head and neck accounted for the most hospitalisations while the ankle and foot accounted for the fewest hospitalisations



Notes

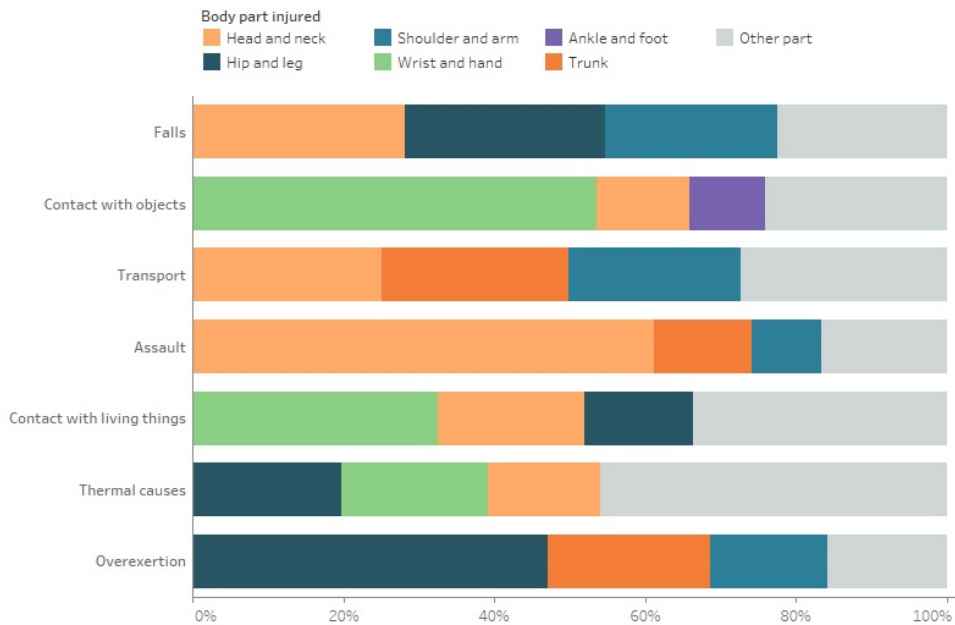
1. Main body part refers to the principal reason for hospitalisation.
2. 'Trunk' includes thorax, abdomen, lower back, lumbar spine and pelvis.
3. Number and percentage of injuries classified as *Other, multiple, and incompletely specified body regions* and Injuries not described in terms of body region not shown - see Data table A11.

Source: AIHW National Hospital Morbidity Database.

Different causes tend to lead to different parts of the body being injured. Figure 11 shows the three most common body parts injured for some of the most common cause categories.

Figure 11: Top 3 body parts injured as a proportion of hospitalisations, for selected causes, 2021-22

Stacked bar graph showing the most commonly injured body parts by cause of injury, as a proportion of hospitalisations. The bars represent 6 causes: falls, contact with objects, transport, assault, contact with living things, thermal causes and overexertion. For each cause, the body part most commonly injured is shown. Body parts are categorised into head and neck, hip and leg, shoulder and arm, wrist and hand, ankle and foot, trunk and other part.



Source: AIHW National Hospital Morbidity Database.
aihw.gov.au

Note: 'Trunk' includes thorax, abdomen, lower back, lumbar spine and pelvis.

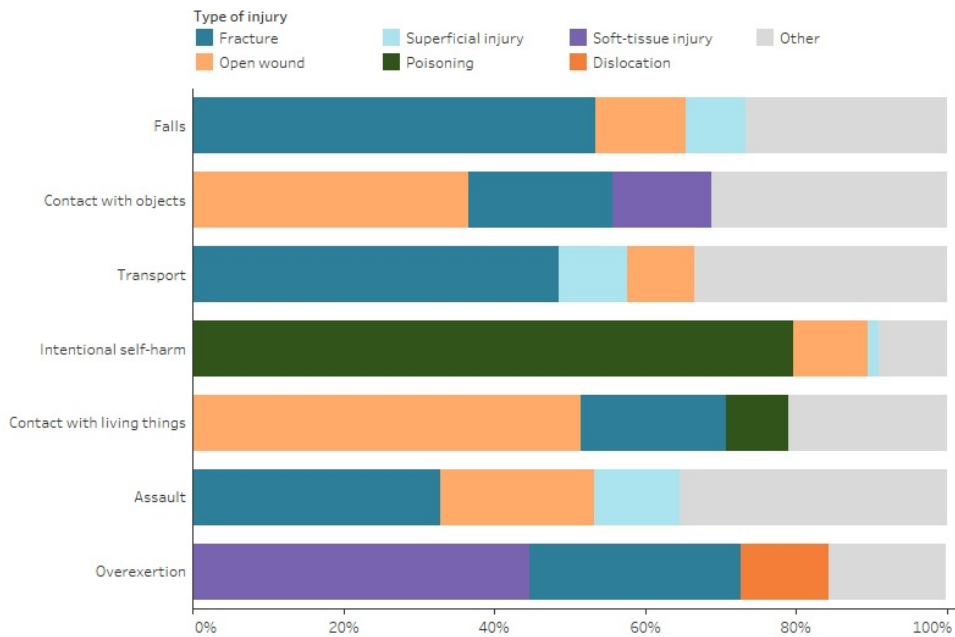
For more detail, see [Data table A11](#).

Types of injury

Different causes tend to lead to different types of injury. Figure 12 shows the most common types of injury in hospitalisations for selected causes. Fractures were the most common type for injuries caused by falls, transport and assault, while open wounds were the most common from contact with objects and contact with living things.

Figure 12: Top 3 types of injury leading to hospitalisation as a proportion for selected causes, 2021-22

Stacked bar graph showing the top types of injuries by percentage for injury hospitalisations by selected causes. Injury types are fracture, open wound, superficial injury, soft-tissue injury, intracranial injury, poisoning and other and unspecified. Fracture is the top type of injury for hospitalisation caused by falls and open wound is the top type of injury for hospitalisation caused by contact with living things.



Source: AIHW National Hospital Morbidity Database.
aihw.gov.au

For more detail, see [Data table A11](#).

Aboriginal and Torres Strait Islander people

Among Aboriginal and Torres Strait Islander people, there were 31,600 hospitalisations for injury in 2021-22, and 500 deaths in 2020-21. Falls and assault were the two most common causes of injury that led to hospitalisations (Table 1); suicide was the most common cause of injury deaths (Table 2).

Indigenous males, compared with Indigenous females were:

- 1.2 times as likely to be hospitalised due to an injury in 2021-22
- 1.9 times as likely to die from an injury in 2020-21.

Injury hospitalisation rates were highest for Indigenous Australians in the 25-44 age group (Figure 13).

Table 1: Injury hospitalisations by cause, Indigenous Australians, 2021-22

Cause	Number	%	Crude rate (per 100,000)
Falls	7,476	24	851
Assault	6,636	20	724
Contact with objects	5,040	16	573
Transport	3,429	11	390
Intentional self harm	2,829	9	322
Contact with living things	2,221	7	253
Other intentional causes	1,758	6	200
Accidental poisoning	794	3	90
Overexertion	605	1.9	69
Thermal causes	598	1.9	69
Undetermined intent	365	1.2	42
Choking and suffocation	59	0.2	6.7
Drowning and submersion	29	0.1	3.3
Forces of nature	52	0.2	5.9
Electricity and air pressure	30	0.1	3.4
All causes	31,649	100	3,601

Note: All-causes total includes hospitalisations where the cause has undetermined intent or is missing, or where the cause is not elsewhere classified.

Source: AIHW National Hospital Morbidity Database.

Table 2: Injury deaths by cause, Indigenous Australians, 2020-21

Cause	Number	%	Crude rate (per 100,00)
Suicide	179	36	24
Transport	101	20	13
Accidental poisoning	77	15	10
Falls	54	11	7.1
Choking and suffocation	30	6	4
Homicide	17	3	2.2
Undetermined intent	16	3	2.1
Thermal causes	5	1	0.7
All causes	498	100	66

Notes

1. Deaths data only includes data for New South Wales, Queensland, Western Australia, South Australia, and the Northern Territory.
2. The sum of the counts by cause may be greater than the total number of injury deaths because some deaths have multiple causes.

Source: AIHW National Mortality Database.

For more detail, see [Data tables A4-A6 and D4-D8](#).

Indigenous and non-Indigenous Australians

Indigenous Australians, compared with non-Indigenous Australians, using age-standardised rates, were:

- 2.1 times as likely to be hospitalised due to an injury in 2021-22 (Table 3)
- 1.8 times as likely to die from an injury in 2020-21 (Table 4).

The cause of injury hospitalisation with the largest difference in rates between Indigenous and non-Indigenous Australians was assault, which was 14 times as high in the Indigenous population. Rates of injury among Indigenous Australians for intentional self-harm, thermal causes, accidental poisoning, contact with living things, undetermined intent and exposure to forces of nature were all more than twice as high as those for non-Indigenous Australians (Table 3).

Table 3: Age-standardised rate of injury hospitalisations (per 100,000) by cause and Indigenous status, 2021-22

Cause	Indigenous Australians	Non-indigenous Australians
Falls	1,068	757
Assault	815	57
Contact with objects	560	302
Transport	386	234
Intentional self harm	319	100
Contact with living things	250	106
Other intentional causes	217	205
Accidental poisoning	96	31
Overexertion	77	49
Thermal causes	62	20
Undetermined intent	47	13
Choking and suffocation	7.5	5.2
Forces of nature	7.5	2.1
Electricity and air pressure	3.5	2.6
Drowning and submersion	2.6	2.1
All causes	3,919	1,887

Note:

1. Rates are age-standardised per 100,000 population.
2. 'Non-Indigenous Australians' excludes cases where Indigenous status is missing or not stated.

Source: AIHW National Hospital Mortality Database.

The cause of injury death with the largest difference in rates between Indigenous and non-Indigenous Australians was accidental poisoning, which was 3.0 times as high in the Indigenous population. Rates of death for transport accidents and suicide were also more than twice as high for Indigenous Australians (Table 4). Readers are advised to use caution when using the rates in categories with low numbers of deaths.

Table 4: Age-standardised rates of injury death (per 100,000) for selected causes, by Indigenous status, 2020-21

Cause	Indigenous Australians	Non-Indigenous Australians	Rate ratio
Suicide	25	12	2.1
Transport	14.6	5.3	2.8
Falls	14.3	16.4	0.9

Accidental poisoning	14.2	4.8	3.0
Choking and suffocation	6.3	3.9	1.6
All causes	84	46	1.8

Age standardised rates for other categories not publishable because of small numbers, confidentiality or other concerns about the quality of the data.

Notes:

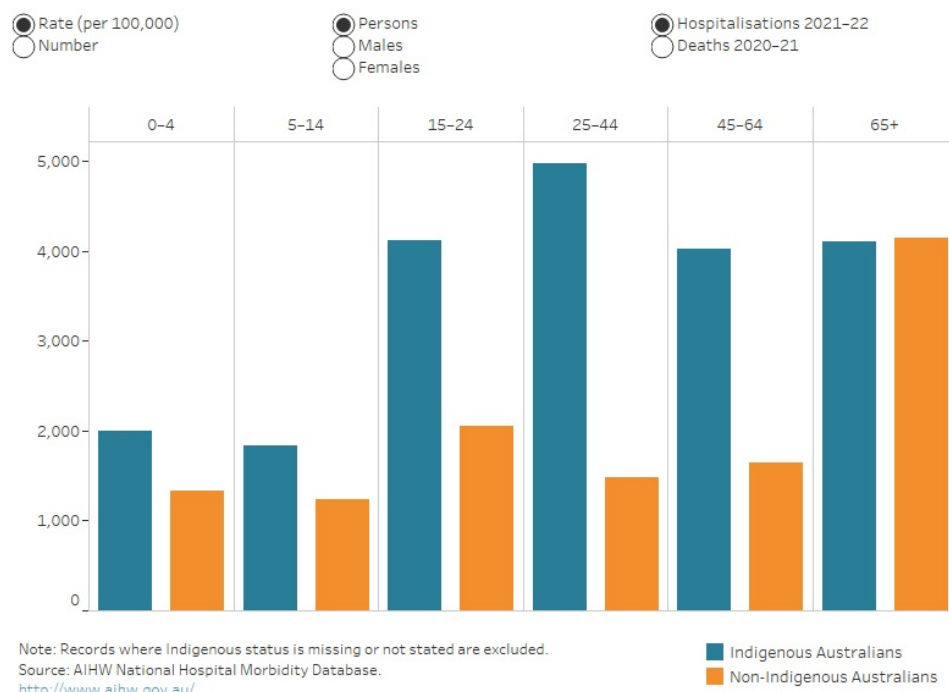
1. Rates are age-standardised per 100,000 population.
2. Deaths data only includes data for New South Wales, Queensland, Western Australia, South Australia, and the Northern Territory.
3. 'Non-Indigenous Australians' excludes cases where Indigenous status is missing or not stated.

Source: AIHW National Mortality Database.

The rate of injury hospitalisations was highest among the 25-44 life-stage age group for Indigenous Australians and among the 65-and-over age group for non-Indigenous Australians (Figure 13).

Figure 13: Injury hospitalisations and deaths, by Indigenous status, sex and age group

Column graph, representing data for Indigenous and non-Indigenous Australians by 6 life-stage age groups. The reader can choose to display rate per 100,000 population or number. The reader can also choose to display data for persons, males, or females. The reader can choose to display hospitalisations or deaths. The default displays rate of hospitalisations for persons.



For more detail, see [Data tables A4-6 and D4-6](#).

The [Aboriginal and Torres Strait Islander Health Performance Framework](#) includes a measure discussing [Injury and Poisoning](#).

Remoteness

Areas of Australia which are more remote tend to have higher rates of hospitalisation and death from injury than less remote areas. People living in *Very remote* areas, compared with people living in *Major cities*, were:

- 2.2 times as likely to be hospitalised due to an injury in 2021-22 (Table 5)
- 2.2 times as likely to die from an injury in 2020-21 (Table 6).

Table 5: Age-standardised rates of hospitalisation (per 100,000) for injury by remoteness and sex, 2021-22

	Males	Females	Persons
<i>Major cities</i>	2,089	1,584	1,844
<i>Inner regional</i>	2,434	1,706	2,074
<i>Outer regional</i>	2,767	1,948	2,368

<i>Remote</i>	3,579	2,831	3,221
<i>Very remote</i>	4,199	4,075	4,134

Note: Rates are age-standardised per 100,000 population.

Source: AIHW National Hospital Morbidity Database.

Table 6: Age-standardised rates of injury death by remoteness, 2020-21

	Deaths (per 100,000)
<i>Major cities</i>	38
<i>Inner regional</i>	53
<i>Outer regional</i>	61
<i>Remote</i>	70
<i>Very remote</i>	82

Note: Rates are age-standardised per 100,000 population.

Source: AIHW National Mortality Database.

Cause of injury by remoteness

The cause of injury with the largest difference in hospitalisation rates between remoteness areas was assault, with the rate for *Very remote* areas 19 times that of *Major cities* (Table 7).

Table 7: Age-standardised rates of injury hospitalisation (per 100,000) by cause and remoteness, 2021-22

Cause	<i>Major cities</i>	<i>Inner regional</i>	<i>Outer regional</i>	<i>Remote</i>	<i>Very remote</i>
Falls	770	726	782	920	995
Contact with objects	289	355	377	456	547
Transport	205	313	354	465	482
Intentional self-harm	99	115	149	175	191
Contact with living things	93	144	176	251	316
Assault	59	68	134	470	1,119
Overexertion	47	57	61	68	66
Accidental poisoning	32	32	45	47	49
Thermal causes	17	27	40	67	101
Undetermined intent	13	12	15	22	20
All other causes	220	225	235	279	250
All causes	1,844	2,074	2,368	3,221	4,134

Note: Rates are age-standardised per 100,000 population.

Source: AIHW National Hospital Mortality Database.

Age-standardised rates of death by cause of injury in *Remote* and *Very remote* areas need to be interpreted with caution because of low numbers of deaths in some categories.

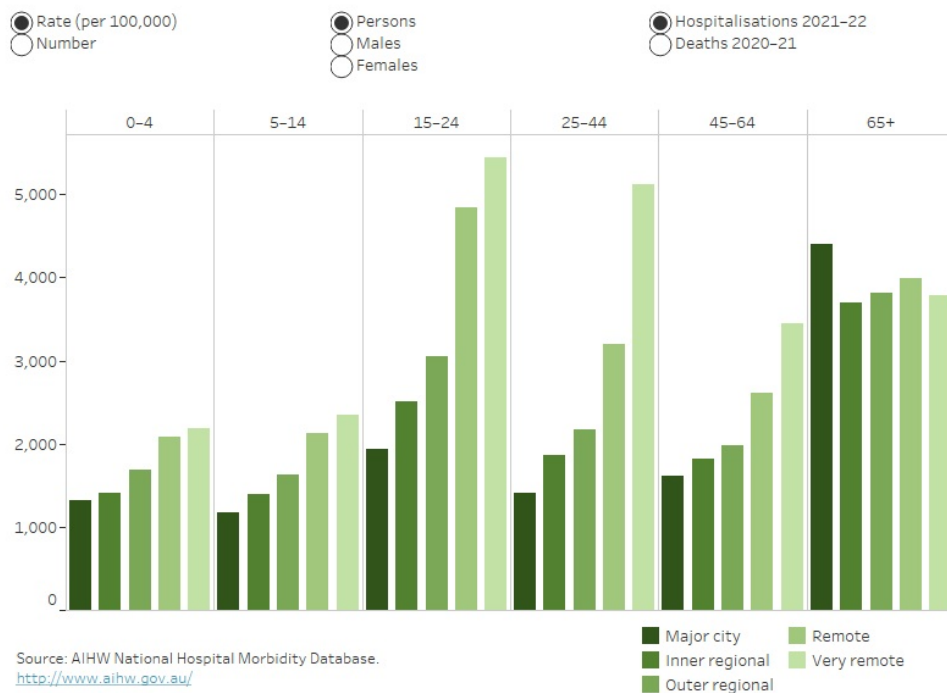
For further detail see [Data tables A7-9 and D7-9](#).

Remoteness by age

The highest rate of injury hospitalisations was among the 15-24 life-stage age group living in *Very remote* areas of Australia (Figure 14).

Figure 14: Injury hospitalisations and deaths, by remoteness, by age group and sex

Column graph representing data for each of the 5 remoteness categories by 6 life-stage age groups. The reader can choose to display rate per 100,000 or number. The reader can also choose to display persons, males or females, and hospitalisations or deaths. The default shows rate of hospitalisations for persons.



For more detail, see [Data tables A7-9 and D9-10](#).

For information on how the statistics were calculated by remoteness, see the [technical notes](#).

Data details

[Technical notes](#): how the data were calculated

[Data tables](#): download full data tables

[Glossary](#)

Related AIHW publications

[Sports injury \(topic\)](#)

[The first year of COVID-19 in Australia: direct and indirect health effects](#)

[MyHospitals](#)

[Life expectancy & deaths \(topic\)](#)

[Disease expenditure in Australia 2019-20](#)

Preventative health resources

[Preventative Health resources from the Australian Government](#)

[Trusted Health Advice | healthdirect](#)



Causes

The following articles each focus on a major cause of injury resulting in hospitalisation or death in Australia.

Injuries can be classified by cause once hospital staff or coroners discover how the person was injured. In some cases they are not sure if it was accidental or deliberate, in which case the record will show *undetermined intent*.

Unintentional causes

- [Accidental poisoning](#)
- [Choking and suffocation](#)
- [Contact with living things](#)
- [Contact with objects](#)
- [Drowning and submersion](#)
- [Electricity and air pressure](#)
- [Falls](#)
- [Forces of nature](#)
- [Other unintentional causes](#)
- [Overexertion](#)
- [Thermal causes](#)
- [Transport accidents](#)

Intentional causes

- [Assault and homicide](#)
- [Intentional self-harm and suicide](#)

Undetermined intent

- [Undetermined intent](#)
-

Seasonal differences

The following interactive shows how hospitalisations for injuries changed over the year for the most recent three years. It illustrates:

- a seasonal pattern for some categories of injury, and
- the impact of COVID-19 restrictions on injury hospitalisations

Figure 1: The effect of seasons on injury hospitalisations, 2019-20 to 2021-22

Multi-layer interactive displaying injury hospitalisations by bimonthly admission periods over three years. The user can display graphs for each injury cause, type, or place.



After COVID-19 restrictions were introduced, there was a decrease in total hospitalisations for injuries, with 14% fewer admissions between March and May of 2020 compared with the previous year. The decrease was larger for some injury causes, types, and places than others (as illustrated above). A few categories, such as injuries happening at home, saw an increase in hospitalisations. The displacement effect of COVID-19 on hospitalisations appears to be resolving, with case counts reverting to expected patterns during the 2021-22 financial year after a dip in 2019-20 and rise in 2020-21.

References

AIHW (Australian Institute of Health and Welfare) 2021. *The first year of COVID-19 in Australia: direct and indirect health effects*. Canberra: AIHW. Viewed 12 April 2022.



Common stories

This content contains information some readers may find distressing.

If you, or someone you know needs help, contact [Lifeline](#) on 13 11 14. Go to the [crisis and support services page](#) for a list of support services.

Click through for the most common injuries that led to hospitalisation for different groups in 2021-22

Interactive 'choose your own adventure' showing common injuries for peer groups by sex, age and remoteness level.

Visualisation not available for printing

* 'Other...' includes categories that do not fall neatly within set classifications*

Notes

1. The 4 result variables are independant of each other.
2. Data on sex is that recorded at time of data collection.
3. 'Most common' results exclude 'other' and 'unspecified'.

Source: AIHW NHMD.



Geography

Injury hospitalisations vary by location.

The image below links to a dashboard of injury hospitalisations across Australia by state and territory. Statistics are also presented at the SA3 geographic level, aggregated across 3 years so that information for smaller regions can be reliably displayed.

The dashboard allows you to select from external causes of injury to see how each one affects areas around Australia. There are two tabs to view:

- a 'Current trend' tab displaying aggregate hospitalisations for 2019-20 to 2021-21
- a '10 year trend' tab displaying how hospitalisations have decreased and increased

See the dashboard below:

Geography



(Map will open in new window)

For technical details about the data, see the Geography section of the [technical notes](#).

Geographic influences are also reflected in the remoteness data sections discussed in the other sections of this report.

Technical notes

Introduction

This report counts and describes injury incidents that result in hospital admission and/or death.

Our counting method is different to some other AIHW reporting (such as MyHospitals), where each use of a service may be counted rather than each incident. A single incident can lead to more than one use of a service. Our exclusion method minimises the associated double counting but does not eliminate it.

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

Injury hospitalisations

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

Exclusions

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

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

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

Date of admission versus separation

The seasonal differences figures and tables in this report were based on date of admission data, to approximate the dates of the injuries causing the hospitalisations. All other annual totals were based on year of separation. Separation does not necessarily occur in the same month (or year) as admission. Partly because of this, summing the counts in the seasonal differences tables would produce slightly different numbers than the annual totals. Also, the admission counts were adjusted to suit comparison between months of different length.

Australia’s Health Performance Framework indicators

[Australia’s health performance framework](#) allows for the monitoring of a broad range of population health indicators over time, and includes indicators related to rates of injury and poisoning hospitalisation. These are calculated using a scope similar to Injury in Australia, however data have not been backcast with each update. This means that the scope for injury indicator data in a given year may be slightly different to the scope of previous years. See the relevant section below for details.

Australia’s Health Performance framework details

[Australia’s health performance framework](#) includes indicators related to rates of injury and poisoning hospitalisation. They are reported for each financial year by remoteness, Indigenous status, age and sex. Current indicator specifications are outlined in [METEOR](#). The following key changes to indicator specifications have occurred and affect information presented from the given year going forward.

First financial year affected	Detail
2019-20	Injury scope restricted to ‘standard’ separations (excluding care type 7.3,9,10). Previously these were included. The external cause code Y37 (contact with allergens) was introduced in ICD-10-AM v11. Apart from Y37.6, cases with Y37 as the nominal cause code are excluded. These cases may have previously fallen within the scope.
2020-21	Population denominators for rates switched from a calculated 31 December population to 30 June at the start of the reference period. The definition of acute care was expanded to care types 1, 7.1, and 7.2. Acute was previously restricted to care type 1. This change impacts scoping criteria that consider care type.

Injury hospitalisations in Australia, 2021-22: about the data

The Injury in Australia report counts and describes incidents of injury that lead to hospital admission and/or death, classified by cause. This technical document describes the hospital data.

For ease of reading, cases of hospitalisation for injury are referred to in the report as ‘injury hospitalisations’. However, throughout this technical note we have referred to a ‘case’ of hospitalisation for injury. This is to differentiate our count of injury hospitalisations from the more common counting unit for hospital patients which is a ‘separation’ (the end of an episode of care). A single incident of injury may result in multiple consecutive episodes of care, which we count as one ‘case’ of hospitalisation to represent the one incident of injury.

A person may have more than one incident of injury resulting in hospitalisation in a financial year and each case of hospitalisation will be counted separately in this report. This is because we are counting incidents of injury resulting in hospitalisation, rather than the number of people who were hospitalised, in a given financial year.

Scope

The data cover hospitalisations with a main or ‘primary’ diagnosis of injury—such as from car accidents, interpersonal violence, sporting and recreational incidents, and at work. These hospitalisations relate to acute injuries, we have excluded admissions that are transfers from another hospital and admissions with rehabilitation procedures (except for acute hospital admissions).

Only a small proportion of all incidents of injury result in admission to a hospital. For each admission, many more people with injuries are treated in an emergency department but not admitted, or visit a general practitioner, physiotherapist or Urgent Care/Walk-in Clinic rather than a hospital. A larger number of minor injuries do not receive any medical treatment. A smaller number of severe injuries that quickly result in death do not include a stay in hospital but are captured in mortality data. Where a hospitalisation for injury resulted in death, the case will be counted both in hospitalisations and injury deaths.

Although injury cases admitted to hospital account for only a small proportion of injury incidents, they account for a large proportion of the estimated cost of injuries. Injuries that require hospitalisation may also have longer term health impacts for the person affected by that injury.

This document covers:

- definitions and classifications used
- presentation of data in this report
- analysis methods.

Data sources

The data on injury hospitalisations are from the Australian Institute of Health and Welfare’s (AIHW) National Hospital Morbidity Database (NHMD). Comprehensive information on the quality of data is available on the AIHW [MyHospitals website](#). The NHMD is a compilation of episode-level records from admitted patient morbidity data collection systems (APC NMDS) in Australian public and private hospitals. The scope of the APC NMDS is 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 may also be included. Hospitals specialising in dental, ophthalmic aids and other specialised acute medical or surgical care are included. This report may therefore be viewed as a definitive description of all injury cases admitted to hospitals in Australia.

Admitted patient care data

In the NHMD, records are presented by hospital *separations* (discharges, transfers, deaths, or changes in care type) by time period. Records from any selected period will include data on patients who were admitted before that period if they separated during that period. A record is included for each separation, not each patient, so patients who separated more than once in the period have more than one record.

Patient days is the number of days between the separation date and date of admission, not including any hospital leave days. Patient day statistics can provide information on hospital activity that, unlike separation statistics, accounts for differences in length of stay.

It is expected that patient days for patients who separated in 2021-22, but who were admitted before 1 July 2021, will be counterbalanced overall by patient days for patients in hospital on 30 June 2022 who will separate in future reporting periods.

Injury classifications from ICD-10-AM/ACHI

Diagnosis, intervention and external cause data for 2021-22 was reported to the NHMD by all states and territories using classifications from the 11th edition of the *International statistical classification of diseases and related health problems, 10th revision, Australian modification* (ICD-10-AM) (ACCD 2019a).

In tables and figures, information on diagnoses, external causes, and interventions are presented using the codes and abbreviated descriptions of the ICD-10-AM and the 11th edition of the *Australian classification of health interventions* (ACHI). Full descriptions of the categories are available in ICD-10-AM/ACHI publications (ACCD 2019a, ACCD 2019b, ACCD 2019c).

Where data are presented in a time series incorporating previous reporting periods, these have been coded according to the following editions of ICD-10-AM:

- 7th edition for 2011-12 and 2012-13 hospital data
- 8th edition for 2013-14 and 2014-15 hospital data
- 9th edition for 2015-16 and 2016-17 hospital data

- 10th edition for 2017-18 and 2018-19 hospital data
- 11th edition for 2019-20, 2020-21 and 2021-22 hospital data.

Estimated resident populations

All populations are based on the estimated resident population (ERP) or Indigenous projected population as at 30 June immediately prior to the reporting period (that is, for the reporting period 2021-22, the population at 30 June 2021 is used). The population is used as the denominator for age-specific and age-standardised rates.

The ERP as at 30 June 2001 is used as the standardising population throughout the report (ABS 2003).

The COVID-19 pandemic and resulting Australian Government closure of the international border from 20 March 2020 disrupted the usual Australian population trends. The ERP for 30 June 2021 was used for this report.

All population data are sourced from the Australian Bureau of Statistics (ABS) as follows:

- General populations are from [National, state and territory population](#)
- Indigenous populations are from Estimates and Projections, Aboriginal and Torres Strait Islander Australians (ABS 2019)
- Remoteness populations (available on request from ABS)
- Socio-Economic Indexes For Areas (SEIFA) Index of Relative Socio-Economic Disadvantage (IRSD) quintile populations are from AIHW analysis of Census of Population and Housing: Socio-Economic Indexes for Areas (ABS 2018) and [Regional population](#).

Estimating cases of injury

This report estimates the number of incidents of injury that lead to hospitalisation. The number of incidents of injury that lead to hospitalisation are fewer than the number of injury-related records in the NHMD.

Each record in the NHMD refers to a [single episode of care](#) in a hospital. Some injury incidents result in more than one episode of care and, hence, more than one record.

This can occur in 2 main ways:

- a person is admitted to one hospital, then transferred to another or has a change in care type (for example, from acute to rehabilitation) within the same hospital
- a person has an episode of care in hospital, is discharged home (or to another place of residence) and is later [admitted](#) for further treatment for the same injury, to the same hospital or another.

The NHMD does not allow for the identification of multiple episodes of care belonging to the same instance of injury. This means there is the potential for overcounting injury events if we are simply counting the number of injury episodes of care. To minimise this, the mode of admission is taken into account. Episodes of care with a mode of admission of *transferred from another hospital* (1) are excluded from injury case counts. This is because transfers are likely to have been preceded by an episode of care that already met the case selection criteria. Similarly, episodes of care where the mode of admission is *statistical admission - episode type change* (2) and the care type is not listed as acute (1, 7.1, 7.2), are also excluded as they are likely to have been preceded by an acute episode of care that already met the case selection criteria.

When deriving average length of stay, patient days from all applicable episodes of care, regardless of admission mode, are included in the totals for the numerator. See the 'Length of stay' section for more information.

[This process largely corrects for overestimation of cases due to transfers \(both internal and external\) but does not correct for overestimation due to re-admissions.](#)

Selection criteria

The following criteria were used to estimate [numbers of cases of hospitalisation for injury](#) in Australia, by cause of injury.

Standard separations

Standard separations were included, that is records were excluded where the care type was *newborn with unqualified days only* (7.3), *organ procurement - posthumous* (9), or *hospital boarder* (10).

Period

Records of separations dated between from 1 July 2021 to 30 June 2022, inclusive, were included.

Injury

For the purposes of this report, injury cases are defined as NHMD records with a principal diagnosis (referred to as a 'main injury' in the report) in the ICD-10-AM range S00-T75 or T79, using 'Chapter 19 Injury, poisoning and certain other consequences of external causes'. This scope excludes injuries due to *Complications of surgical and medical care* (T80 - T88) and *Sequelae of injuries, of poisoning and of other consequences of external causes* (T90 - T98). Aside from *Allergy to animals* (Y37.6), cases where Y37 is the first reported external cause code are excluded from this report.

Excluding rehabilitation care principal diagnosis

Changes to the Australian Coding Standard for Rehabilitation (ACS 2104), introduced from 1 July 2015 in the 9th edition of ICD-10-AM, mean that Z50 *Care involving the use of rehabilitation interventions* (which was previously required to be coded as the principal diagnosis) is now an ‘Unacceptable principal diagnosis’. The change means that the ‘reason’ for rehabilitation will now be identified using the principal diagnosis (rather than as the first additional diagnosis).

As a result, from 2015-16, the numbers of separations with a principal diagnosis in the ICD-10-AM chapter Z00-Z99 *Factors influencing health status and contact with health services* decreased markedly. Over the same period, there were corresponding increases in principal diagnoses reported for other ICD-10-AM chapters-most notably for Chapter 19: S00-T98.

Given this change to the coding hierarchy, records where *Care involving use of rehabilitation procedures* (Z50) has been coded in any additional diagnosis field are excluded from this analysis, except if the care type for the separation was acute. Nearly all injury separations are thought to be included in the data reported, representing minimal risk of counting error.

External causes

The external cause classification (Chapter 20 of ICD-10-AM) consists of 3-character category codes in the range of U50-Y98 (including place of occurrence and activity when injured).

The NHMD is structured so that the first listed external cause for a record relates to the first listed injury diagnosis.

While multiple external causes may be recorded for a separation, we report only one cause for each injury, referred to as ‘nominal external cause’ in these notes. The following steps are followed to determine the nominal external cause for each injury hospitalisation:

1. The first reported external cause is taken to be the nominal external cause
2. If the nominal external cause, as determined by step 1, is U90.0 (*Staphylococcus aureus*) or a *supplementary factor* (Y90-Y98), then the second reported code is taken to be the nominal external cause
3. If the nominal external cause, after steps 1 and 2, relates to *complications of medical and surgical care* (Y40-Y84), *sequelae of external causes of morbidity and mortality* (Y85-Y89), or a *supplementary factor code* (Y90-Y98), then the record is excluded.

A new cause code, *Exposure to or contact with allergens* (Y37) was introduced in the 11th edition of ICD-10-AM. Aside from *Allergy to animals* (Y37.6), cases where Y37 is the first reported external cause code are excluded from this report.

Historic data

Over time, minor changes have been made to the method for counting cases of injury, therefore data presented in previous AIHW reports may not match the data presented in this report.

Presentation of data

Due to rounding, percentages in tables may not add up to 100.0. Percentages and rates reported as 0.0 or 0 usually indicate a zero.

Body part and injury type are derived from the principal diagnosis of the case. The sum of injuries by body part may not equal the total number of injury hospitalisations cases because some injuries are not described in terms of body region.

The patient’s age is calculated at the date of admission. In tables by age group and sex, separations for which age and/or sex were not reported are included in the totals.

Suppression of data

The AIHW operates under a strict privacy policy based on Section 29 of the *Australian Institute of Health and Welfare Act 1987* (AIHW Act). Section 29 requires that confidentiality of data relating to persons (living and deceased) and organisations be maintained. The *Privacy Act 1988* (Privacy Act) governs confidentiality of information about living individuals.

The AIHW is committed to reporting that maximises the value of information released for users while being statistically reliable and meeting legislative requirements described in the AIHW Act and the Privacy Act.

Data (cells) in tables may be suppressed to maintain the privacy or confidentiality of a person or organisation, or because a proportion or other measure is related to a small number of events (and may therefore not be reliable). Data may also be suppressed to avoid attribute disclosure. The abbreviation ‘n.p.’ (not published) has been used in tables to denote these suppressions. In these tables, the suppressed information is included in the totals.

Analysis methods

Scale up factor for bimonthly admission data

The NHMD is structured by date of hospital separation (discharge, transfer, death or change in care type). This means, for example, that records are included in the 2021-22 NHMD if the date of hospital separation is in the period 1 July 2021 to 30 June 2022. Therefore, some records will be admitted in one financial year, but not reported until a future financial year, when the hospital separation is complete. This particularly affects records with an admission date in mid to late June. This is not considered an issue when reporting total injury cases for the year, as it is expected that admissions not yet separated at the end of the year are counterbalanced by separations at the start of the year that were admitted in the previous year. However, it presents an issue when comparing hospitalisation cases by month of admission.

Where data are presented in this report by month of admission, a scale-up factor is applied to the data for June to estimate cases that were admitted but not yet separated. The scale-up factor is determined by calculating the average percent completion (separated from hospital in the same financial year as admission) across the previous 9 years of data for cases admitted on each day of June, for each analysis variable. For each day in June, the average percent of incomplete cases (i.e. separated in the following financial year) is then added to the case numbers to create the scaled-up case numbers. For consistency, the scale-up factor is applied to each year, not just the 2021-22 data.

This method ensures that causes and types of injury which average varying lengths of stay (thereby impacting on how many records are still receiving care into the next reporting year) are accounted for in the calculation. Additionally, while the final presentation of data is at the bimonthly level, the scaling is calculated for each day in June, from 1 June to 30 June. This means that the degree of scaling applied reflects the decreasing completeness of the data approaching 30 June.

The efficacy of scaling up reported admissions by the above method has been tested on 2017-18 and 2018-19 years (where a complete record was available for June admissions) and has found the resulting estimate to closely match the true case numbers.

In addition to the scale up factor, the number of admissions for each bimonthly period has been standardised to a 30-day month to enable comparison of trends over months of unequal days. Each month is split into two periods: 1st-15th, and the 16th - end of month. The standardisation is applied to the latter period.

As a result, the numbers presented in monthly analysis tables cannot be directly summed to the annual totals reported elsewhere in the report.

Length of stay

Patient days reported during the separations that were omitted to reduce overestimation of incident cases are an integral part of the hospital care provided for these injuries. The patient days in these subsequent admissions are therefore included when calculating average length of stay for causes of injury.

Note that 'length of stay', as presented in this report, does not include some patient days potentially attributable to injury. It excludes days for most aspects of injury rehabilitation, which cannot be reliably assigned without information enabling identification of all admitted episodes associated with an injury case.

Rates

Age-standardised rates

Age-standardisation of rates enables valid comparison across years and/or jurisdictions without being affected by differences in age distributions. All populations are based on ABS ERP data. Unless noted otherwise, population rates were age-standardised using the direct standardisation method and 5-year age groups, with a highest age group of 85 and over. Cases of injury are reported as a rate per 100,000 population.

Population data for age specific and age-standardised rates by Indigenous status are produced using a slightly different method to other rates.

Injury hospitalisation rates by Indigenous status were directly age-standardised, using the projected Indigenous population (series B) (ABS 2019). The population for non-Indigenous Australians was derived by subtracting the Indigenous population from the general population. Importantly, this will include individuals where Indigenous status is unknown or not reported, and therefore does not represent a strictly non-Indigenous population. See Quality of Indigenous status data below for further detail.

Due to data quality issues, the ERP Indigenous population data are limited to a highest age group of 65 and over. Therefore, standardised rates calculated by Indigenous status are not directly comparable with other standardised rates, which used a highest age group of 85 and over.

Changes in rates due to changes in underlying population data

The age-standardised rates (per 100,000 population) presented in this report for the year 2011-12 of time-series tables have been calculated using 'rebased' ERPs following the 2016 Census. Therefore, rates reported for 2011-12 in this report should not be compared with earlier reports.

Estimated change in rates over time

Estimated trends in rates of injury hospitalisations were reported as annual percentage change. Due to a break in series between 2016-17 and 2017-18 reporting years (see 'changes in New South Wales admission practice' below), the average annual change has been calculated for the six years from 2011-12 to 2016-17, and for the four years from 2017-18 to 2021-22. The percent change to 2021-22 from 2020-21 is also presented.

Population-based rates of injury tend to have similar values from one year to the next. Exceptions to this can occur (for example, due to a mass-casualty disaster), but are unusual in Australian injury data. Some year-on-year variation and short-run fluctuations are to be expected, so small changes in a rate over a short period do not provide a firm basis for asserting that a trend is present.

For 2019-20 and 2020-21 data, the COVID-19 pandemic resulted in lockdowns and social distancing measures from March 2020, which resulted in changed behaviour, and thus the counts of injury hospitalisations may be different to previous years. Also, the pandemic and resulting Australian Government closure of the international border from 20 March 2020 caused significant disruption to the usual Australian

population trends. The injury hospitalisation rates for 2019-20 and 2020-21 reflect these disruptions and should be interpreted with this in mind.

Geographical classifications

The ABS's Australian Geography Standard (ASGS) Remoteness Structure 2016 (ABS 2016a) is a hierarchical classification system of geographical regions and consists of interrelated structures. The ASGS provides a common framework of statistical geography and enables the production of statistics that are comparable and can be spatially integrated.

The structure has seven hierarchical levels listed here from smallest to largest:

- Mesh Blocks
- Statistical Area Level 1 (SA1)
- Statistical Area Level 2 (SA2)
- Statistical Area Level 3 (SA3)
- Statistical Area Level 4 (SA4)
- Greater Capital City Statistical Areas
- State and Territory.

Each level directly aggregates to the level above. For example, SA1s are aggregates of Mesh Blocks, and themselves aggregate to SA2s. At each level, the units collectively cover all of Australia.

Remoteness area of usual residence of the patient

Australia can be divided into several regions, based on their distance from urban centres. This is considered to determine the range and types of services available. In this report, data on geographical location are collected on the area of usual residence of patients in the NHMD. These data are specified in the Admitted patient care National Minimum Data Set (NMDS) as state or territory of residence and SA2. For 2021-22, the area of usual residence was provided by some jurisdictions in the form of a Statistical Area level 1 (SA1). Where SA1 data were available, remoteness areas were allocated by the AIHW based on the SA1 information. If SA1 data were not available, the SA2 data were used to allocate remoteness areas.

Data on the remoteness area of usual residence are defined using the ABS's ASGS Remoteness Structure 2016 (ABS 2016b). The ASGS Remoteness Structure 2016 categorises geographical areas in Australia into remoteness areas.

Remoteness is an index applicable to any point in Australia, based on road distance from urban centres of 5 categories. The categories are:

- *Major cities* (for example, Sydney, Geelong, Gold Coast)
- *Inner regional* (for example, Hobart, Ballarat, Coffs Harbour)
- *Outer regional* (for example, Darwin, Cairns, Coonabarabran)
- *Remote* (for example, Alice Springs, Broome, Strahan)
- *Very remote* (for example, Coober Pedy, Longreach, Exmouth)

Socioeconomic area

Data on socioeconomic groups are defined using the ABS's Socio-Economic Indexes for Areas (SEIFA) 2016 (ABS 2018).

The ABS generated the SEIFA 2016 data using a combination of 2016 Census data such as income, education, health problems/disability, occupation/unemployment, wealth and living conditions, dwellings without motor vehicles, rent paid, mortgage repayments, and dwelling size. Composite scores are averaged across all people living in areas and defined for areas based on the Census collection districts, and are also compiled for higher levels of aggregation.

The SEIFA Index of Relative Socio-Economic Disadvantage (IRSD) indicates the collective socioeconomic status (SES) or situation of the people living in an area, with reference to the situation and standards applying in the wider community at a given point in time. It does not reflect individuals' socioeconomic status. A relatively disadvantaged area is likely to have a high proportion of relatively disadvantaged people. However, such an area is also likely to contain people who are not disadvantaged, as well as people who are relatively advantaged.

The AIHW generated separation rates by SES using the IRSD scores for the statistical area level 2 (SA2) of usual residence of the patient reported for each separation. The '1-lowest' group represents the areas containing the 20% (quintile) of the national population with the most disadvantage, and the '5-highest' group represents the areas containing the 20% of the national population with the least disadvantage. These SES groups do not necessarily represent 20% of the population in each state or territory. Disaggregation by SES group is based on the area of usual residence of the patient, not the location of the hospital.

The following labels for each socioeconomic group have been used throughout this report:

Label	Socioeconomic area
1-lowest	Most disadvantaged
2	Second-most disadvantaged
3	Middle
4	Second-least disadvantaged

Indigenous status

The term 'Indigenous Australians' is used to refer to persons identified as such in Australian hospital separations data and population data collections. The term 'non-Indigenous Australians' is used where NHMD records the status is explicitly stated as non-Indigenous.

When calculating Indigenous and non-Indigenous rates, records where Indigenous status is missing or not stated are not included in the analysis.

Quality of Indigenous status data

The AIHW report *Indigenous identification in hospital separations data: quality report* (AIHW 2013) presents the latest findings on the quality of Indigenous identification in hospital separations data in Australia, based on studies conducted in public hospitals during 2011. Private hospitals were not included in the assessment. The findings indicate that, overall, the quality of Indigenous identification in hospital separations data was similar to that achieved in a previous study (AIHW 2010). However, the survey for the 2013 report was performed on larger samples for each jurisdiction/region and is therefore considered more robust than the previous study. An estimated 88% of Indigenous patients were correctly identified in Australian public hospital admission records in 2011-12 (AIHW 2013). This under counting of Indigenous patients is a known issue across states and territories with proportions ranging from 58% (confidence interval, 46-69%) in the Australian Capital Territory and 98% (96-99%) in the Northern Territory over the same time period.

Definitions and classifications

If not otherwise indicated, data elements were defined according to [the AIHW's Metadata Online Registry \(METEOR\)](#) and summarised in the Glossary.

In particular, data element definitions for the Admitted patient care National Minimum Data Set (NMDS) are available online at [METEOR](#).

External cause categories

Table 1 in the appendix tables at the bottom of this page describes the inclusions for each major external cause category and the relevant ICD-10-AM codes. The following notes also apply:

Drowning and submersion

The cases included are those involving unintentional drowning and submersion. Note that this does not include unintentional drowning and submersion injuries due to water transportation, other transportation crashes, or acts of nature such as storms and floods-unless the first-mentioned external-cause code is one of those listed above. Cases of 'the bends' due to deep diving and rapid ascents are covered in the Electricity and air pressure cause category. A discussion of terms such as 'drowning' and 'submersion' can be found in the WHO's global report on drowning (2014).

Submersion: Brief submersion (or immersion) in water or other non-toxic liquid is usually harmless. However, injuries can occur while a person is submerged, particularly following a fall or dive into water. A submerged person may experience respiratory impairment (see 'drowning', below).

Drowning: Prolonged submersion (or brief submersion in some circumstances-for example, if a person is unconscious when entering the water), puts a person at immediate risk of death by drowning. The drowning process typically involves breath-holding; attempted inhalation triggering spasm of the larynx; depletion of oxygen and build-up of carbon dioxide; loss of consciousness; and, eventually, inhalation of water into the lungs.

Sometimes the process is interrupted before death (for example, by rescue), in which case the person may survive with harm, such as brain damage due to lack of oxygen. That situation was previously referred to as 'near-drowning' and is now called 'drowning with a non-fatal outcome', the term currently recommended by the WHO.

Choking and suffocation

This category covers the ICD-10-AM code group 'Other accidental threats to breathing (W75-W84)', as well as W44 (*Foreign body entering into or through eye or natural orifice*) where a principal diagnosis indicates a likelihood that the hospital separation was principally due to a threat to breathing.

The external cause classification of foreign bodies with and without obstruction (or 'choking') is determined by the documentation within the clinical record and the hierarchy and essential modifiers of the ICD-10-AM classification.

If the documentation within the clinical record does not explicitly state 'asphyxia', 'obstruction' or 'suffocation' in relation to the foreign body, W44 must be assigned as the default code as indicated by the Alphabetic Index structure. A code from W80, W79 or W78 may only be assigned where there is clear documentation of the terms 'asphyxia, obstruction, suffocation' with a causal link to the foreign body.

For the purposes of this report, any case where the principal diagnosis is a foreign body in the mid-lower respiratory tract is considered a threat to breathing. Cases with a principal diagnosis of T17.2 - T17.8 (foreign body in pharynx, larynx, trachea, bronchus, or other and multiple parts of the respiratory tract), and an external cause of W44 are reported under the 'Choking and suffocation' category. In

previous AIHW reports, these cases were reported under the 'Contact with objects' external cause category.

It is likely that some cases with a foreign body in the mouth or oesophagus (T18.0 & T18.1) and a code of W44 may also pose an accidental threat to breathing, however the majority will not. Therefore, these have been excluded from re-categorisation and remain in the 'Contact with objects' external cause group.

Contact with objects

The technical description of this category is 'Exposure to inanimate mechanical forces'.

A change in coding of *Contact with knife, sword or dagger* (W26) occurred between the 8th and 9th editions of ICD-10-AM and it was renamed *Contact with other sharp object(s)* (W26) and *Contact with knife, sword or dagger* became a subcategory (W26.0). The subcategories in W26 now include:

- *Contact with knife, sword or dagger* (W26.0)
- *Contact with other sharp object(s), not elsewhere classified* (W26.8) (including *Edge of stiff paper* and *Tin can lid*)
- *Contact with unspecified sharp object(s)* (W26.9).

In addition, the specific exclusion of 'Knife, sword or dagger' in *Foreign body or object entering through skin* (W45) is removed.

Ascertainment of 'Intentional self-harm'

According to inclusion notes in ICD-10-AM, hospitalisations for injury should be assigned codes in the range X60-X84 if they were purposely self-inflicted poisoning or injury, suicide, or attempted suicide (ACCD 2019c). Determining whether an injury is due to intentional self-harm is not always straightforward. Cases may appear to result from intentional self-harm, but the available information may be inconclusive and therefore preclude them being coded as intentional. In this situation, the case can be coded to an 'undetermined intent' category-for example, *Falling, jumping or pushed from a high place, undetermined intent* (Y30) or *Crashing of motor vehicle, undetermined intent* (Y32).

Some patients may choose not to disclose that their injuries resulted from intentional self-harm. Some may be unable to do so due to the nature of the injuries. For others, their motives may be ambiguous.

In very young children, confirming that an injury was due to intentional self-harm can be difficult and may involve a parent or caregiver's perception of the intent. Ability to form an intention to inflict self-harm, and to understand the implications of doing so, requires a degree of maturity that is absent in infancy and early childhood.

It is not possible to differentiate between acts of self-injury and acts of self-harm with suicidal intent within the NHMD, but it is likely that a proportion of cases of intentional self-harm are self-injurious in nature rather than suicidal in intent.

Due to the particular uncertainties around the intent of children, cases of intentional self-harm are presented in aggregate for ages up to and including 14, and suicide statistics are not presented for children aged under 10.

Ascertainment of injury due to assault

As with injury due to intentional self-harm, cases of injury due to intentional assault may be difficult to identify. Feelings of shame or embarrassment may underlie reticence to report either of these forms of intentional injury. In addition, most injuries due to interpersonal violence have potential legal implications. Pressures or incentives to not reveal assault may be particularly likely in circumstances such as injury of a child or other dependent person by a caregiver, or injury of one spouse by the other. Cases recognised as possibly being due to assault-but where doubt remains-may therefore be coded as *Undetermined intent*.

Perpetrator codes are used in ICD-10-AM when a code from the ICD-10-AM category *Assault* (X85-Y09) is present. A coding standard (ACCD 2019c) provides guidance to clinical coders in assigning codes identifying the perpetrator of assault, abuse, or neglect. The coding rules operate on a hierarchical basis, with coders required to code the closest relationship between the perpetrator and the victim. The 10 subcategories of perpetrator consist of the following:

- spouse or domestic partner
- parent
- other family member
- carer
- acquaintance or friend
- official authorities
- person unknown to the victim
- multiple persons unknown to the victim
- other specified person
- unspecified person.

Injuries inflicted through legal interventions and operations of war (Y35 - Y36) are included under the assault category but do not form part of the perpetrator analysis.

Missing or not reported causes

Some injury cases do not include an external cause, or the only cause code provided is invalid for the scope of this report (i.e., supplementary factor codes). These cases are included in this report as 'not reported' and are counted towards the total injury cases.

Variation in state and territory coding practices

Changes in New South Wales admission practice

The emergency department admission policy was changed for New South Wales (NSW) hospitals in 2017-18. Episodes of care delivered entirely within a designated emergency department or urgent care centre are no longer categorised as an admission regardless of the amount of time spent in the hospital. This narrowing of the categorisation has had the effect of reducing the number of admissions recorded in NSW from the 2017-18 financial year. For NSW, the effect was a significant decrease (3.7%) in all public hospital admissions in 2017-18 compared to 2016-17. The impact of the change was felt disproportionately among hospitalisations for injury and poisoning. According to NSW Health, the number of hospitalisations for injury and poisoning in NSW decreased by 7.6% between 2016-17 and 2017-18, compared to a usual yearly increase of 2.8% (Centre for Epidemiology and Evidence 2019).

The change in NSW's emergency department admission policy may have had different effects on case numbers within different external cause categories. This is because different types of injury have a different likelihood of requiring prolonged care in an emergency department, but without an admission to a hospital ward.

Due to the size of the contribution of NSW data to the national total, Australian data from 2017-18 should therefore not be compared with data from previous years.

Geography

For the Geography maps, only the 10 most common cause groups (nationally) are listed, with the remainder aggregated into the 'Other causes' group.

	Cause groups
V00-V99	Transport
X40-X49	Accidental poisoning
W00-W19	Falls
X00-X19	Thermal causes
W20-W49, except W44 with T17.2-T17.8	Contact with objects
W50-W64, X20-X29 & Y37.6	Contact with living things
X50-X57	Overexertion
X60-X84	Intentional self-harm
X85-Y09	Assault
X58-X59	Other unintentional causes
Other	Other causes

Mapping

Statistical Areas Level 3 (SA3's) are produced by the ABS and updated following the results of each census to account for population movement. This can result in slight shifts in boundaries (usually at the edges of cities as regions expand) which need to be accounted for when an analysis covers data years reported based on different versions of the Australian Statistical Geography Standard (ASGS) (from which SA's are built).

For the last 10 years admitted hospitals data has been mapped using:

From 2012-13 to 2016-17: ASGS 2011

From 2017-18 to 2021-22: ASGS 2016

Where data in the output incorporates multiple ASGS versions (either through aggregated years in the output or calculations drawing in years from multiple versions - see Z score calculation below), the data for previous versions has been mapped to the most current year's ASGS.

Calculations

The geography dashboard displays injury data using 4 measures: Hospitalisations, crude rate per 100,000 population, Age-standardised rate (ASR) per 100,000 population, and change over time (Z-score).

Hospitalisations, crude rate and ASR are aggregated 3 years of data, covering 2019-20 to 2021-22.

Z-score is the deviation in the ASR of the last year from the mean of the last 10 years.

Suppression

Counts (Hospitalisations)

Areas with less than 5 cases rule have been suppressed

Consequential suppression must be applied within states

Suppression applied to any areas where the population is less than 1,000 (over the 3 years combined).

Crude rates

Rates with cases less than 10 have been suppressed

If the corresponding cases measure is suppressed rates have been suppressed

Suppression applied to any areas where the population is less than 100 (over the 3 years).

ASR

Rates with cases less than 20 have been suppressed

If the corresponding cases measure is suppressed rates have been suppressed

Suppression applied to any areas where the population for any age group is less than 30 (over the 3 years).

Z-score

No suppression.

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[Reporting of hospitalisation-related indicators on HealthStats NSW 2019: Impact of changes to emergency department admissions \[PDF 637KB\]](#)

[Global report on drowning: preventing a leading killer](#). Geneva: World Health Organization. Viewed 18 January 2021.

Injury deaths

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

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

To understand the analysis in more detail, please find below:

- [Injury hospitalisations in Australia, 2021-22: about the data](#)
- [Injury deaths in Australia, 2020-21: about the data](#)
- [Appendix tables specifying the ICD-10 codes used for each cause category](#)

Injury deaths in Australia, 2020-21: about the data

Deaths data sources

The deaths data in this report come from the Australian Institute of Health and Welfare's (AIHW) National Mortality Database (NMD).

When a person is declared dead, information about their death is recorded on a death certificate by either a medical practitioner or a coroner. Registration of all deaths is compulsory in Australia and is the responsibility of the Registrar of Births, Deaths and Marriages of the relevant state or territory, under jurisdiction-specific legislation.

Deaths data are assembled, coded, and published on behalf of the Registrars by statistical agencies. These agencies have varied since 1900 and have included state-based offices and what is now the Australian Bureau of Statistics (ABS). Information is also provided to the ABS via the National Coronial Information System (NCIS) for those deaths certified by a coroner.

The ABS codes causes of death according to the *International statistical classification of diseases and related health problems, 10th revision* (ICD-10) ([WHO 2019](#)) and, after checks and de-identification, creates the Cause of Death Unit Record File (CODURF).

The CODURF contains characteristics of the person who died (for example, age, sex, and Indigenous status), and characteristics of their death (for example, causes of death, date, and place where the person usually lived). The AIHW maintains these data in the NMD.

The data quality statements underpinning the AIHW NMD can be found on the following ABS [internet pages](#):

- [Australian Bureau of Statistics \(2021\), Deaths, Australia methodology](#)
- [Australian Bureau of Statistics \(2021\), Causes of Death, Australia methodology](#)

For more information on mortality coding refer to [Causes of Death, Australia Methodology, 2021, Australian Bureau of Statistics, ABS 2022](#).

This document relates to data for 2010-11 to 2020-21, published in 2023.

Box 1: Key terms and concepts

An **external cause** is the environmental event or condition that caused the injury, for example a transport accident of a particular type.

The **underlying cause of death (UCoD)** code represents the disease or injury that initiated the train of morbid events leading to a person's death, according to information available to the coder. If a death was due to an injury, the ICD-10 requires that the external cause be entered as the UCoD.

Multiple causes of death (MCoD) codes represent all the morbid conditions, diseases and injuries which are listed on the death certificate. They include all the factors in the morbid train of events leading to death: the underlying cause, the immediate cause, any intervening causes, and any conditions that contributed. This is especially helpful for chronic conditions, which often involve more than one illness.

Coding is according to the ICD-10 (WHO 2019), which includes a chapter for injuries and another for external causes.

Injury deaths

Most injury deaths are certified by a coroner. For these deaths, the ABS seeks additional information required to code external causes from the NCIS.

Some injury deaths (and most other deaths) are certified by a doctor. For these, ABS coders rely on information about the causes of death that the doctor put on the certificate. In this report, the most common cause of injury in doctor-certified deaths is 'fall'.

Changes in death registrations over time

The ABS introduced several changes for deaths registered in 2007 and subsequent years (ABS 2009), with the potential to affect injury death statistics.

The most important change was to make 3 data releases for deaths registered in each calendar year:

- preliminary (released a little over one year after the end of the registration year)
- revised (1 year after the preliminary release) and

- final (2 years after the preliminary release).

Further changes were implemented for deaths registered in 2008 and later:

- For both open and closed coroner cases, more time has been spent investigating Part II of the Medical Certificate of Death when information in Part I is not sufficient to allow assignment of a specific UCoD code.
- Increased resources and time have been spent investigating coroners' reports to identify specific causes of death. This involves making increased use of police reports, toxicology and autopsy reports, and coroners' findings, to minimise the use of non-specific causes and intents (ABS 2010, 2011b, 2012).
- In the 2019 reference year, there were an additional 2,812 death registrations for Victoria. This issue impacts both the Victorian and national mortality data when reporting by reference year, where 2017, 2018 and 2019 deaths are included. For more detail please refer to [Technical note: Victorian additional registrations and time series adjustments](#) in Causes of death, Australia, 2019 (ABS Cat. No. 3303.0).
- This issue does not impact on analyses based on year of occurrence of death, which this report is based. Data in this report have not been adjusted for Victorian additional death registrations in 2019.

Data releases used in this report

In this report, deaths registered in [2018 or earlier are based on the final ABS release of cause of death data; deaths registered in 2019 are based on the revised release; and deaths registered in 2020 and 2021 are based on the preliminary release](#). Since the preliminary and revised versions are subject to further revision, future reports based on later releases might show different results for the affected years.

Inclusion criteria

Deaths data are commonly recorded according to the calendar year in which the death was registered. However, in this report data are presented according to the financial year in which each death occurred, because:

- reporting by financial year aligns with AIHW reports on injury morbidity
- presenting data by year of occurrence is more meaningful than by year of registration, because some cases are registered much later than when the death occurred (sometimes years later)

The following inclusion criteria were used unless otherwise specified:

- the underlying cause of death (UCoD) was an external cause code in the range V01-Y36; or
- at least one multiple cause of death (MCoD) code was an external cause in the range [V01-X59 or Y10-Y34](#), and at least one other was a code for injury (S00-T75 or T79). MCoD is not considered where the UCoD indicates self-harm or assault.

The code range V01-Y36 includes all unintentional (accidental) deaths, intentional self-harm (suicide), homicides, and deaths where intent remained undetermined. These codes provide information around the circumstances of the death, such as details of a transport accident, drowning, asphyxiation, effects of radiation, heat, pressure, deprivation, and maltreatment.

The code range S00-T75 and T79 includes traumatic injuries (such as fractures and lacerations), burns, poisoning and toxic effects of substances. The codes also provide information about the single, multiple, or unspecified body regions affected: such as head, shoulder, knee and foot.

Box 2: Multiple causes of death (MCoD)

Box 1 provides standard definitions of the terms underlying cause of death (UCoD) code and multiple causes of death (MCoD) codes.

In this report, MCoD codes relate to causes that contributed to death and may or may not have been related to the underlying cause.

For example, an elderly person might fall and fracture a hip. Their advanced age, frailty, and perhaps other comorbid conditions might limit their capacity to tolerate the injury, and they might die. In this case, the record would most likely show an UCoD code for an external cause of fall (W00-W19) and include an MCoD code for hip injury (S72).

In another example, an elderly person might suffer a heart attack that results in a fall, and subsequently a hip fracture. As with the first example, a combination of factors might lead to death. In this case, the record would most likely show an UCoD code for acute myocardial infarction (I21), an MCoD code for an external cause of fall (W00-W19), and another MCoD code for hip injury (S72).

Both cases would be included in this report, because the first example meets the first criterion for inclusion, while the second example meets the second criterion.

External cause selection criteria

Table 2 in the appendix tables at the bottom of this page describes the inclusions for each major external cause category and the relevant ICD-10 codes. The following additional criteria are specific to the external cause categories used.

Transport

Records that included the following ICD-10 codes were included:

- the UCoD was *Transport accident* (V01-V99); or

- the MCoD included codes for *Transport accident* (V01-V99) and for *Injury* (S00-T75 or T79).

Suicide and homicide deaths (UCoD X60-Y09) were excluded.

Drowning

Records that included the following ICD-10 codes were included:

- the UCoD was *Accidental drowning and submersion* (W65-W74); or
- the MCoDs included codes for *Accidental drowning and submersion* (W65-W74) and for *Injury* (S00-T75 or T79); or
- the MCoDs included codes for *Drowning and non-fatal submersion* (T75.1) and for an *Unintentional external cause of injury* (V01-X59).

Suicide and homicide deaths (UCoD X60-Y09) were excluded.

Choking and suffocation

Records that included the following ICD-10 codes were included:

- the UCoD was *Other accidental threats to breathing* (W75-W84); or
- the MCoDs included codes for *Other accidental threats to breathing* (W75-W84) and for *Injury* (S00-T75 or T79).

Suicide and homicide deaths (UCoD X60-Y09) were excluded.

Accidental poisoning

Records that included the following ICD-10 codes were included:

- the UCoD was unintentional poisoning by pharmaceuticals (X40-X44) and unintentional poisoning by substances other than pharmaceuticals (X45-X49); or
- the MCoDs included codes for unintentional poisoning by pharmaceuticals (X40-X44) and unintentional poisoning by substances other than pharmaceuticals (X45-X49) and for *Injury* (S00-T75 or T79); or
- the MCoDs included codes for toxic effects of pharmaceuticals (T36-T50) and toxic effects of substances other than pharmaceuticals (T51-T65) and for unintentional external cause of injury (V01-X59).

Suicide and homicide deaths (UCoD X60-Y09) were excluded.

Falls

Records that included the following ICD-10 codes were included:

- the UCoD was *Unintentional fall* (W00-W19); or
- the MCoDs included codes for *Unintentional fall* (W00-W19) and for *Injury* (S00-T75 or T79); or
- the code for *Exposure to unspecified factor* (X59) appeared anywhere on the record (either as a UCoD or MCoD) and the MCoDs included a code for *Fracture*.

Suicide and homicide deaths (UCoD X60-Y09) were excluded.

The codes for fractures are S02, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, and T14.2.

These criteria are the same as in previous reports (AIHW: Henley & Harrison 2009, 2015, 2019). Deaths with UCoD X59 and a fracture code as MCoD have been included routinely when reporting fall injury mortality, because of indications that most involve falls (Kreisfeld & Harrison 2005).

It is possible that some of the deaths that were included using the X59 code and a fracture code might not be fall-related. But the inclusion of this criteria provides a more accurate estimate of fall injury deaths than if they were excluded. For further background, see the sections on falls in previous reports (AIHW: Harrison & Henley 2015; AIHW: Henley & Harrison 2015, 2019).

Thermal causes

Records that included the following ICD-10 codes were included:

- the UCoD was *Exposure to smoke, fire and flames* (X00-X09) or *Contact with heat and hot substances* (X10-X19); or
- the MCoDs included codes for exposure to smoke, fire and flames or contact with heat and hot substances (X00-X19) and for *Injury* (S00-T75 or T79); or
- the MCoDs included codes for burns (T20-T31) and for external causes of unintentional injury (V01-X59).

Suicide and homicide deaths (UCoD X60-Y09) were excluded.

Contact with objects

Records that included the following ICD-10 codes were included:

- the UCoD was *Exposure to inanimate mechanical forces* (W20-W49); or
- the MCoDs included codes for *Exposure to inanimate mechanical forces* (W20-W49) and for *Injury* (S00-T75 or T79).

Suicide and homicide deaths (UCoD X60-Y09) were excluded.

Electricity and air pressure

Records that included the following ICD-10 codes were included:

- the UCoD was *Exposure to electric current, radiation and extreme ambient air temperature and pressure* (W85-W99); or
- the MCoDs included codes for *Exposure to electric current, radiation and extreme ambient air temperature and pressure* (W85-W99) and for *Injury* (S00-T75 or T79).

Suicide and homicide deaths (UCoD X60-Y09) were excluded.

Contact with living things

Records that included the following ICD-10 codes were included:

- the UCoD was *Exposure to animate mechanical forces* (W50-W64) or *Contact with venomous animals and plants* (X20-X29); or
- the MCoDs included codes *Exposure to animate mechanical forces* (W50-W64) or *Contact with venomous animals and plants* (X20-X29), and a code for *Injury* (S00-T75 or T79).

Suicide and homicide deaths (UCoD X60-Y09) were excluded.

Exposure to forces of nature

Records that included the following ICD-10 codes were included:

- the UCoD was *Exposure to forces of nature* (X30-X39); or
- the MCoDs included codes for *Exposure to forces of nature* (X30-X39) and for *Injury* (S00-T75 or T79).

Suicide and homicide deaths (UCoD X60-Y09) were excluded.

Overexertion, travel and privation

Records that included the following ICD-10 codes were included:

- the UCoD was *Overexertion, travel and privation* (X50-X57); or
- the MCoDs included codes for *Overexertion, travel and privation* (X50-X57) and for *Injury* (S00-T75 or T79).

Suicide and homicide deaths (UCoD X60-Y09) were excluded.

Other unintentional causes

Records that included the following ICD-10 codes were included:

- the UCoD was *Accidental exposure to other and unspecified factors* (X58-X59); or
- the MCoDs included codes for *Accidental exposure to other and unspecified factors* (X58-X59), and at least one code for *Injury* (S00-T75 or T79).

Excludes deaths with MCoD of *Accidental exposure to unspecified factors* (X59) in conjunction with fracture codes, which are instead included in 'Falls'.

Suicide and homicide deaths (UCoD X60-Y09) were excluded.

Suicide

Records that included the following ICD-10 codes were included:

- the UCoD was *Intentional self-harm* ([X60-X84](#)).

Homicide

Records that included the following ICD 10 codes were included:

- the UCoD was *Assault* (X85-Y09) or *Legal intervention and operations of war* (Y35-Y36).

Event of undetermined intent

Records that included the following ICD-10 codes were included:

- the UCoD was *Event of undetermined intent* (Y10-Y34); or
- the MCoDs included codes for *Event of undetermined intent* (Y10-Y34) and for *Injury* (S00-T75 or T79).

Indigenous status

The term 'Indigenous Australians' is used to refer to persons identified as such in the NMD. The term 'non-Indigenous Australians' is used where the NMD explicitly records the persons Indigenous status as non-Indigenous.

Indigenous deaths data are reported for 5 jurisdictions - New South Wales, Queensland, Western Australia, South Australia, and the Northern Territory. Other jurisdictions have a small number of Indigenous deaths, and identification of Indigenous deaths in their registration system is relatively poor, making the data less reliable.

AIHW considers the quality of Indigenous identification in deaths data for the 5 jurisdictions to be adequate from 1998 onwards. Data by Indigenous status for this report are for these 5 jurisdictions combined. Deaths data for these 5 should not be assumed to represent the experience in other jurisdictions. Data for these 5 jurisdictions over-represent Indigenous populations in less urbanised (more remote) locations.

Since 2015, the Queensland Registry of Births, Deaths and Marriages used both medical certificate information and death registration form information to derive Indigenous status. This approach has been used in South Australia, Western Australia, Tasmania, the Northern Territory, and the Australian Capital Territory since 2007. If either source indicates that the deceased was an Aboriginal and/or Torres Strait Islander person, they are recorded as such. In New South Wales and Victoria, only information from the death registration form is used (ABS 2020).

Late and revised registration of Indigenous deaths

Issues on deaths in Western Australia that were incorrectly recorded as Aboriginal and/or Torres Strait Islander deaths between 2007 and 2009, and some Indigenous deaths that were late registrations in Queensland in 2010 are detailed in previous reports in the *Trends in injury deaths* series.

Population data and the calculation of rates

General population

Rates were calculated using, as the denominator, the estimated resident population as at 31 December in the relevant year (for example, 31 December 2020 for 2020-21 data). The final release was used where possible.

Directly age-standardised rates were calculated using the Australian population in 2001 as the standard (ABS 2011a). Age-standardised rates were derived by 5-year age group up to 85+. For counts under 20, age-standardised rates tend to be unstable and so are not presented.

The COVID-19 pandemic and resulting Australian Government closure of the international border from 20 March 2020 caused significant disruptions to the usual Australian population trends. The ERP for 30 June 2020, used in this report reflects these disruptions.

Indigenous population

Rates of injury death of Aboriginal and Torres Strait Islander people were calculated using data from 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia, and the Northern Territory). Data were selected based on place of usual residence.

The assessments of the quality of identification of Indigenous status are affected by restrictions that jurisdictions place on what is included in the data. The assessments are subject to review, and some recent AIHW reports include New South Wales data from 1999 onwards (AIHW 2014).

Rates were calculated using, as the denominator, an estimate of the Indigenous population as at December 31 in the relevant year (for example, 31 December 2020 for 2020-21 deaths) using the projected Indigenous population, series B (ABS 2020). Rates were not presented for counts under 5 due to unstable rates.

Since estimates of resident Indigenous populations are only provided for 30 June, estimates for 31 December are calculated by adding 2 consecutive 30 June estimates and dividing by 2 (for example, the estimate for 31 December 2020 is calculated by adding estimates for 30 June 2020 and 30 June 2021 and dividing by 2).

Directly age-standardised rates were calculated using the Australian population in 2001 as the standard (ABS 2011a). Age-standardised rates were derived by 5-year age group up to 65+. Age-standardised rates were not presented for counts under 20 due to unstable rates.

For non-Indigenous Australians, population denominators were derived by subtracting the estimated Aboriginal and Torres Strait Islander population from the total Australian estimated resident population (of the states and territories eligible for inclusion), as at 31 December of the relevant year.

Current standard practice in AIHW reports is to omit cases where Indigenous status was not stated or unknown.

Rates and change in rates

Estimated trends in age-standardised rates were reported as average annual percentage changes.

Errors in deaths data

The data presented in this report are subject to 2 types of statistical error—non-random and random (a third type of statistical error, sampling error, does not apply in this report, because none of the data sources used involved probability sampling).

Non-random error

Some level of non-random error is to be expected in administrative data collections, such as the NMD on which this report relies. For example, non-random error could occur if the approach to assigning cause codes to deaths were to differ systematically between jurisdictions, or over time. While systems are in place to encourage uniform data collection, and coding and scrutiny of data during analysis include checking for patterns that might reflect non-random error, some error remains.

Random error

The values presented in the report are subject to random error, or variation. Variation is relatively large when the case count is small (especially if less than about 10). Variation is small enough to be mostly unimportant when the case count is larger (that is, more than a few tens of cases).

Some of the topics for which results are reported compare groups that vary widely in case count, largely due to differences in population size (for example, the population of New South Wales is more than 30 times as large as the Northern Territory population, and the population of *Major cities* is nearly 90 times that of *Very remote* areas). In this situation, year-to-year changes in counts or rates for the smaller-population groups might be subject to large random variation. Such fluctuations could potentially be misinterpreted as meaningful rises or falls.

Geographical classifications

Australian Statistical Geography Standard

The ABS's Australian Geography Standard (ASGS) Remoteness Structure 2016 (ABS 2016a) is a hierarchical classification system of geographical regions and consists of interrelated structures. The ASGS provides a common framework of statistical geography, and enables the production of statistics that are comparable and can be spatially integrated.

The structure has seven hierarchical levels listed here from smallest to largest:

- Mesh Blocks
- Statistical Area Level 1 (SA1)
- Statistical Area Level 2 (SA2)
- Statistical Area Level 3 (SA3)
- Statistical Area Level 4 (SA4)
- Greater Capital City Statistical Areas
- State and Territory.

Each level directly aggregates to the level above. For example, SA1s are aggregates of Mesh Blocks, and themselves aggregate to SA2s. At each level, the units collectively cover all of Australia.

Remoteness

Australia can be divided into several regions, based on the distance from urban centres. This is considered to predict the range and types of services available. These regions are known as remoteness areas and are defined using the ABS's ASGS Remoteness Structure 2016 (ABS 2016b). The ASGS Remoteness Structure 2016 categorises geographical areas in Australia into remoteness areas.

Remoteness is an index applicable to any point in Australia, based on road distance from urban centres of 5 sizes. The reported areas are defined as follows:

- *Major cities* (for example, Sydney, Geelong, Gold Coast)
- *Inner regional* (for example, Hobart, Ballarat, Coffs Harbour)
- *Outer regional* (for example, Darwin, Cairns, Coonabarabran)
- *Remote* (for example, Alice Springs, Broome, Strahan)
- *Very remote* (for example, Coober Pedy, Longreach, Exmouth).

Data on geographical location of the place of usual residence of the person who died is recorded in the NMD. These data are the state or territory of residence and SA2. Each death is allocated to a remoteness area according to the SA2.

Presentation of data

The sum of the counts of death by cause may be greater than the total number of injury deaths because some deaths have multiple causes.

Crude/age-specific rates are calculated per 100,000 estimated resident population.

Age-standardised rates are calculated per 100,000 population.

Persons totals include deaths for which sex was not reported.

All age totals include deaths where age is not reported.

Data may be suppressed to maintain the privacy or confidentiality of a person, or because a proportion or other measure is related to a small number of events and may therefore not be reliable. Data may also be suppressed to avoid attribute disclosure. The abbreviation 'n.p.' (not published) has been used in tables to denote these suppressions. The suppressed information remains in the totals.

Further information on deaths data at AIHW

For more information on the NMD see [Deaths data at AIHW](#)

The data quality statements underpinning the NMD can be found in the following ABS publications:

- [Australian Bureau of Statistics \(2021\), Deaths, Australia methodology](#)
- [Australian Bureau of Statistics \(2021\), Causes of Death, Australia methodology](#)

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Notes

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Amendments

28 Nov 2023 - Figure 1 updated on the Seasonal difference page.

24 Oct 2023 - Geography page added and Technical notes updated.





Data





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- [Burden of disease](#)
 - [Health & welfare expenditure](#)
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