

## Injuries in children and adolescents 2021–22

Web report | Last updated: 18 Apr 2024 | Topic: [Injury](#) | [Media release](#)

### About

Injuries in children and adolescents are a significant contributor to hospitalisations in Australia. This report presents 2021–22 hospitalisation and emergency department presentation data among children and adolescents aged 0–18 years. It describes the main types and causes of injury, variation among specific populations, and the severity of injuries. Differences by developmental stage and comparisons to adult injury patterns are included. Additionally, the report assesses trends over the last decade.

Cat. no: INJCAT 238

#### Findings from this report:

- [1 in 3 injury hospitalisations among children were caused by a fall \(33%\), most commonly involving playground equipment](#)
- [Hospitalisation rates have increased over time for girls in infancy and early adolescence](#)
- [Toddlers are more likely to have an ED presentation, while adolescents are more likely to be hospitalised for an injury](#)
- [Children are at greater risk of certain causes and types of injury according to developmental stage](#)

## Summary

Every year, thousands of children and adolescents across Australia present to an Emergency Department (ED) or are hospitalised for an injury or poisoning incident. As children grow and develop, they are at greater risk of different mechanisms of injury.

In 2020–21, there were 603,675 ED presentations and 88,766 injury hospitalisations that occurred amongst children and adolescents across Australia. This represented 28% of all ED presentations, and 8.3% of hospitalisations among children. Some age groups are predisposed to certain types and causes of injury compared to adults, such as head injuries, or drowning and submersion injuries. This report presents child and adolescent injury as a whole, as well as comparing individual stages of childhood development with adults to identify key areas of injury prevention for this population.

### Key findings

- Boys made up the majority of injury ED presentations (353,245 cases, 58%) and hospitalisations (54,020 cases, 61%).
- Children aged 1–4 are most likely to have an ED presentation, while adolescents aged 16–18 are more likely to be hospitalised for an injury.
- First Nations children, and children living in remote parts of Australia experience disproportionately higher rates of childhood injury.
- Falls and contact with objects were the top 2 causes of injury hospitalisation among children and adolescents.
- Where specified, fractures and open wounds were the most common type of injury across ED presentations and injury hospitalisations.
  - Over a third of injury hospitalisations were for fractures (36%).
- The ‘head and neck’ was the leading site of injury for injury ED presentations and hospitalisations (29%)
- Where specified, the most common place of occurrence was the home (45%) where:
  - 9 in 10 injuries were amongst infants aged under one (91%)
  - 3 in 4 were amongst children aged 1–4 (74%)
- Sports and active recreation contributed to around 1 in 5 injury hospitalisations (21%)
- Children are at greater risk of certain causes and types of injury according to developmental stage:
  - The same cause of injury can present differently across age groups – infants are most likely to experience near-drowning in bathtubs, toddlers and preschoolers are more at risk around swimming pools, while older adolescents experience the highest rates of injury in natural water (such as lakes, rivers, and the ocean).
  - Infants had the highest rate of injury hospitalisation caused by choking and suffocation amongst children, and were 7.5 times more likely than adults to be hospitalised.
  - Head and neck injuries made up 70% of infant injury hospitalisations, and 63% of injury ED presentations.
  - Children aged 1–4 were over 14 times more likely than adults to be hospitalised for injuries caused by drowning and submersion, while children aged 5–9 were 2.8 times more likely.
  - Children aged 10–12 have no causes where they experience significantly higher rates of injury compared to adults.
  - Adolescents aged 16–18 were 1.6 times more likely than adults to be hospitalised for injuries caused by transport, while adolescents aged 13–15 were 1.4 times more likely.
  - Adolescents aged 13–18 are 3.4 times more likely than adults to be hospitalised for injuries caused by intentional self-harm. Over 4 in 5 of these hospitalisations were for girls.

## Introduction

Injury hospitalisations are the third leading contributor to the burden of disease for children and adolescents aged 0–19 years and are estimated to cost Australia \$212 million each year (AIHW 2022a; Mitchell et al. 2018). Injuries sustained during childhood can have profound and lifelong effects on health and development, by causing permanent physical disabilities or long-term cognitive or psychological damage. These effects can include increased risks of:

- stunted growth (Makkawi et al. 2021)
- neuromuscular problems including osteoarthritis, spinal pathologies, and chronic pain (Maffulli et al. 2010)
- psychological impacts and mental health disorders (Jones et al. 2021)
- lowered academic outcomes and school dropout (Mitchell et al. 2021)

In 2021–22, injuries among children and adolescents resulted in:



**604,000** ED presentations

**10,100** presentations per 100,000 population



**88,800** hospitalisations

**1,500** hospitalisations per 100,000 population

## Scope

This report presents information on the 603,675 ED presentations and 88,766 injury hospitalisations that occurred amongst children aged 0–18 between 1 July 2021 to 30 June 2022 across Australia. Hospitalisations refer to hospitalised injury cases and are included according to separation date, while ED presentations are included by presentation date. ED presentations that end in an admission to hospital may be counted in both ED and hospitalisation data. Further details of injury scope inclusions can be found in the [technical notes](#) accompanying this report.

A time series analysis of injury hospitalisations between 1 July 2012 and 30 June 2022 is presented. Due to jurisdictional variation in diagnosis coding over time, ED presentations are only included for 2021–22.

This report does not include information on injuries among children that did not result in ED presentations or hospitalisations. There are many more cases that are treated by general practitioners, allied health professionals or outpatient clinics that are not reflected in this report. Methods for identifying and counting ED presentations and hospitalisations among children are detailed in the technical notes accompanying this report.

## References

AIHW (Australian Institute of Health and Welfare) (2022a) [Australian Burden of Disease Study 2022](#), AIHW, Australian Government, accessed 13 February 2024.

Jones S, Tyson S, Yorke J & Davis N (2021) [The impact of injury: The experiences of children and families after a child's traumatic injury - external site opens in new window](#), *Clinical Rehabilitation*, 35(4):614-25, doi: 10.1177/0269215520975127


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Makkawi KW, Hajjar MS, Hatabah DE, Abu-Sittah GS (2021) [The Epidemiology of Stunted Growth in Refugee Patients with Chronic Burn Injuries - external site opens in new window](#), *Journal of Burn Care & Research*, 42(4):716-720, doi: 10.1093/jbcr/iraa204

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Mitchell R, Cameron CM, McMaugh A, Lystad RP, Badgery-Parker T & Ryder T (2021) [The impact of childhood injury and injury severity on school performance and high school completion in Australia: a matched population-based retrospective cohort study - external site opens in new window](#), *BMC Pediatrics*, 21, doi: 10.1186/s12887-021-02891-x

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## Variation between population groups

All figures presented in this chapter are for children and adolescents aged 0–18 during 2021–22 only. Comparisons between child age groups and adults can be found in [Injuries by developmental stage](#).

We note that the 'sex' variable currently available for national hospitals reporting only comprises of 4 categories – male, female, intersex or indeterminate, and not stated/inadequately described – and is referring to the biological sex only. Work is underway to include more comprehensive coverage of sex and/or gender within future reporting.

For this report, the categories of intersex or indeterminate, and not stated/inadequately described have been grouped together to assist with confidentialising the data. In addition, 'boys' is used to refer to children and adolescents with a biological sex of male, and 'girls' for a biological sex of female. Rates, based on the Australian population data held by the AIHW (sourced from the ABS), are currently only available for male and female sex categories.

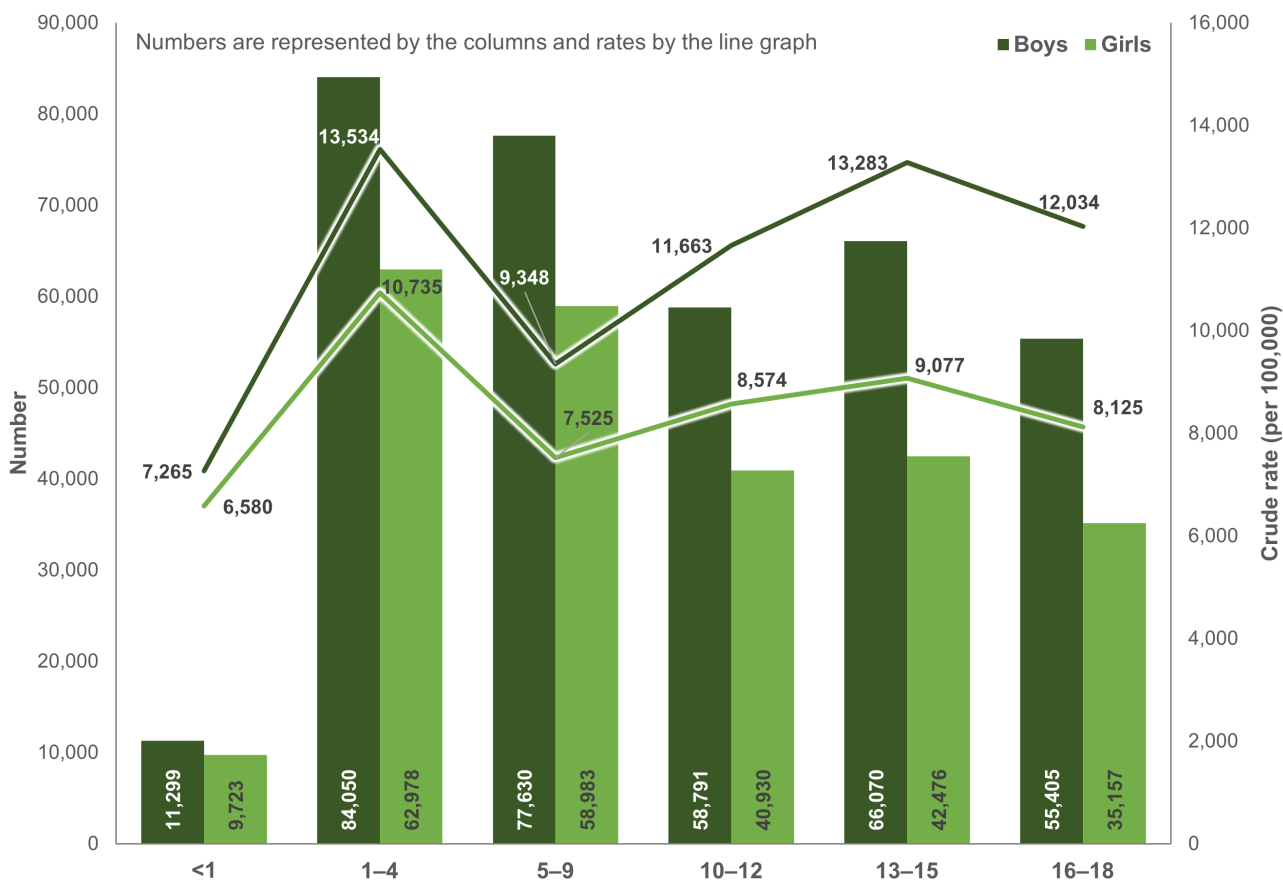
### Boys are injured more often than girls

In 2021–22, boys made up around 3 in 5 injury emergency department (ED) presentations (353,000, 58%) and hospitalisations (54,000, 61%) among children and adolescents. Boys had higher crude rates of injury across every age group for both hospitalisations and ED presentations, although infants (children aged under one) had comparable rates of hospitalisation between boys and girls (988 and 985 per 100,000 respectively). For more information, see [supplementary table A1](#).

### Toddlers and preschoolers present to emergency departments more often than older children

The risk of injury changes by developmental stage. Children aged 1–4 had the highest rate of ED presentation (12,200 per 100,000), with boys in this age group having the highest rate overall (13,500 per 100,000) (Figure 1).

**Figure 1: Numbers and crude rates (per 100,000) of emergency department presentations for injuries among children, by age group and sex, Australia, 2021–22**



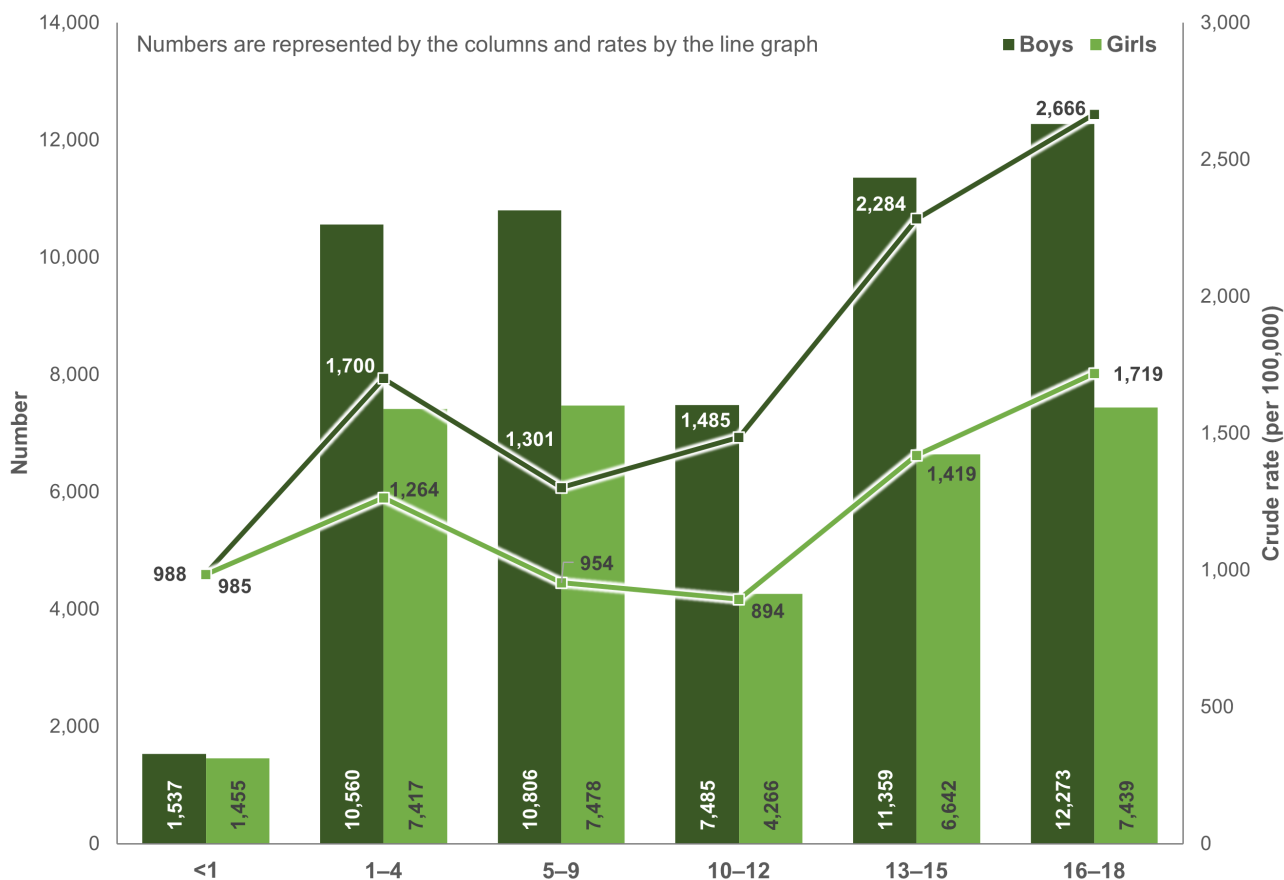
**Notes:**

1. Numbers are represented by the columns and rates by the line graph.
2. Rates are crude per 100,000 population.
3. Only includes ED presentations where the patient was between 0 and 18 years of age, and where sex was not intersex, indeterminate or missing.

Sources: AIHW National Non-Admitted Patient Emergency Department Care (NNAPEDC) Database and ABS National, state and territory population.

Comparatively, for injury hospitalisations the highest rate of injury (2,200 per 100,000) was among adolescents aged 16–18 (Figure 2).

**Figure 2: Number and crude rates (per 100,000) of hospitalisations among children and adolescents, by age and sex, Australia, 2021–22**



**Notes:**

1. Numbers are represented by the columns and rates by the line graph.
2. Rates are crude per 100,000 population.
3. Only includes hospitalisations where the patient was between 0 and 18 years of age, and where sex was not intersex, indeterminate or missing.

Sources: AIHW National Hospital Morbidity Database (NHMD) and ABS National, state and territory population.

For more information, see [supplementary tables A1 and D1](#).

## Priority populations

Some children disproportionately experience more instances of, and impacts from injuries. First Nations people, and those living in rural and remote parts of Australia have higher rates of injury hospitalisation and emergency department (ED) presentation.

Other groups of children and adolescents may also have higher rates of injury, however they cannot be identified using available hospitals data and/or corresponding population data. These groups may include and are not limited to children and adolescents:

- with siblings (Piotrowski & Warda 2021)
- with special needs such as disabilities or mental health issues (CDC 2022)
- who are culturally and linguistically diverse (CALD) (AIHW 2022c)
- that are refugees and humanitarian entrants (AIHW 2023b)
- in areas of greater socioeconomic disadvantage (AIHW 2023c)
- in the youth justice and state and territory child protection systems (Shepherd et al. 2018).

For more information about CALD populations and refugee and humanitarian entrants provided by the Australian Institute of Health and Welfare (AIHW), refer to:

- [\*Reporting on the health of culturally and linguistically diverse populations in Australia: An exploratory paper\*](#)
- [\*Health of refugees and humanitarian entrants in Australia\*](#).

### First Nations children

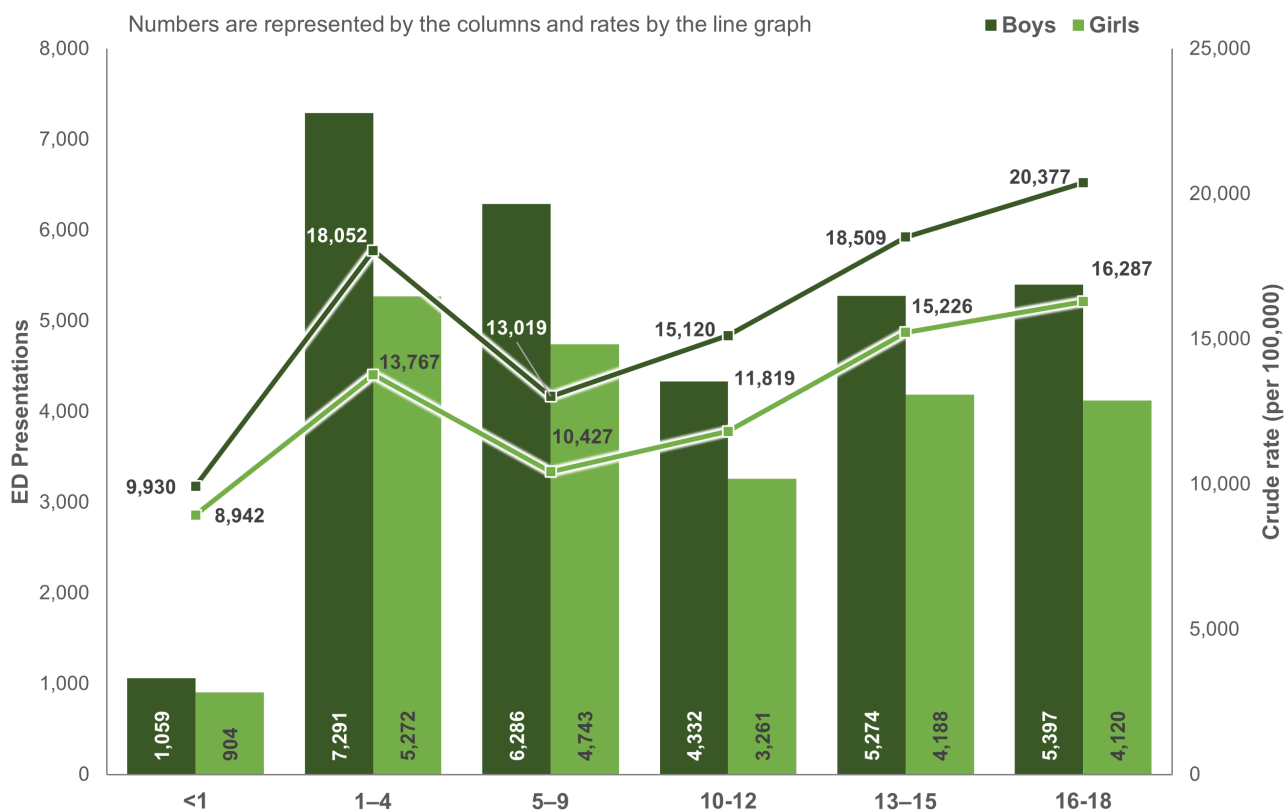
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The AIHW uses 'First Nations children' to refer to Aboriginal and Torres Strait Islander children in this report. Injuries are the second leading contributor to the burden of disease for First Nations people of all ages (AIHW 2022b). In 2021–22, among First Nations children:

- there were 52,100 ED presentations (14,600 per 100,000)
- there were 8,100 injury hospitalisations (2,300 per 100,000)
- boys made up the majority of ED presentations (57%) and hospitalisations (59%)
- 16–18-year-olds had the highest rate of injury ED presentations (Figure 3) and hospitalisations (Figure 4) among both boys and girls
- falls were the leading cause of injury hospitalisation (crude rate of 600 per 100,000 population).



**Figure 3: Number and crude rates (per 100,000) of injury emergency department presentations among First Nations children, by age and sex, Australia, 2021-22**

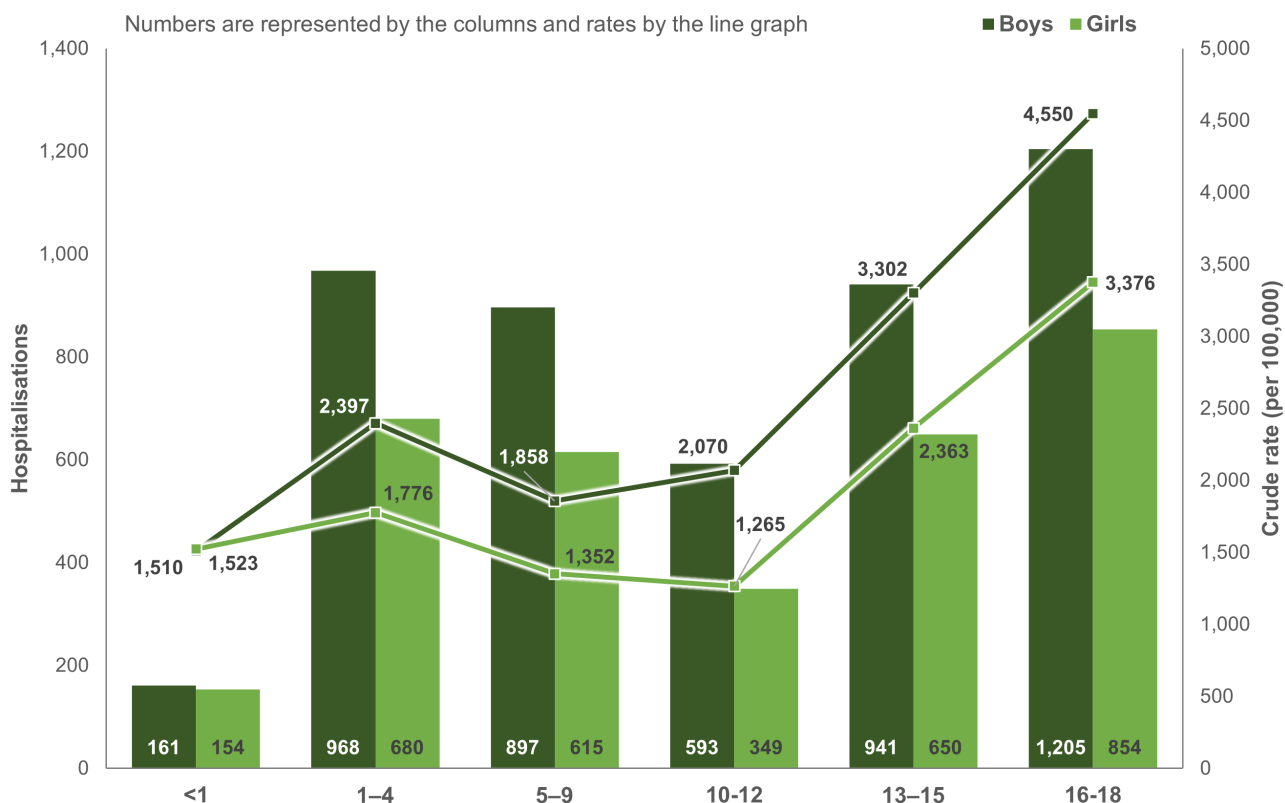


Notes:

1. Numbers are represented by the columns and rates by the line graph.
2. Rates are crude per 100,000 population.
3. Only includes ED presentations where the patient was between 0 and 18 years of age, and where sex was not intersex, indeterminate or missing.
4. Records where Indigenous status is missing or not stated are excluded.

Sources: AIHW National Non-Admitted Patient Emergency Department Care (NAAPEDC) Database and ABS Estimates and Projections, Aboriginal and Torres Strait Islander Australians.

**Figure 4: Number and crude rates (per 100,000) of injury hospitalisations among First Nations children, by age and sex, Australia, 2021–22**



**Notes:**

1. Numbers are represented by the columns and rates by the line graph.
2. Rates are crude per 100,000 population.
3. Only includes hospitalisations where the patient was between 0 and 18 years of age, and where sex was not intersex, indeterminate or missing.
4. Records where Indigenous status is missing or not stated are excluded.

Sources: AIHW National Hospital Morbidity Database (NHMD) and ABS Estimates and Projections, Aboriginal and Torres Strait Islander Australians.

**First Nations and non-Indigenous children**

Using age-standardised rates, First Nations children are 1.5 times as likely to present to an ED and 1.6 times as likely to be hospitalised for an injury compared to non-Indigenous children (Table 1).

Table 1: Age-standardised rate (per 100,000) of injuries among children, by Indigenous status and age, Australia, 2021–22

Sex	First Nations ED	Non-Indigenous ED	First Nations hospitalisations	Non-Indigenous hospitalisations
Males	16,277	11,142	2,645	1,697
Females	12,957	8,300	1,918	1,147
Persons	14,661	9,766	2,291	1,431

**Notes:**

1. Rates are age-standardised per 100,000
2. Only includes records where the patient was between 0 and 18 years of age
3. Records where Indigenous status was missing or not stated were excluded

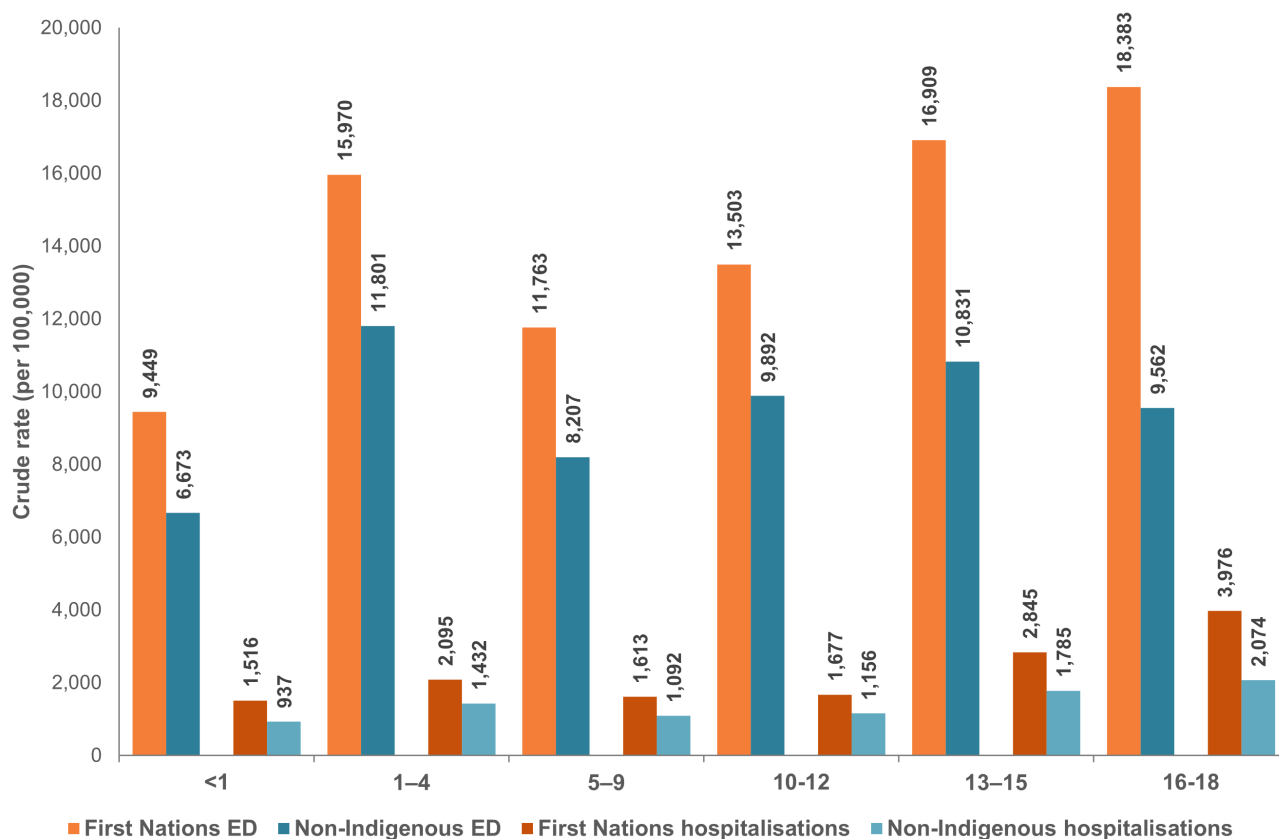
Sources: AIHW National Non-Admitted Patient Emergency Department Care (NNAPEDC) Database, National Hospital Morbidity Database (NHMD), ABS Estimates and Projections, Aboriginal and Torres Strait Islander Australians and ABS National, state and territory population.

Boys have the highest crude rates of injury across each age group regardless of Indigenous status, aside from infants aged under one, where rates between boys and girls are comparable.

Both population groups follow similar patterns of injury hospitalisation by age group, with the highest rates in adolescents aged 16–18 years. Figure 5 shows that First Nations adolescents aged 16–18 are hospitalised for injuries nearly twice as much as their non-Indigenous counterparts (4,000 and 2,100 per 100,000 respectively).

Among First Nations people, ED presentations mirror injury hospitalisation patterns, with the highest rates among adolescents aged 16–18, while for non-Indigenous children the highest rates are among 1–4-year-olds.

**Figure 5: Crude rates (per 100,000) of injury emergency department and hospitalisation presentations among children, by age group and Indigenous status, Australia, 2021–22**



Notes:

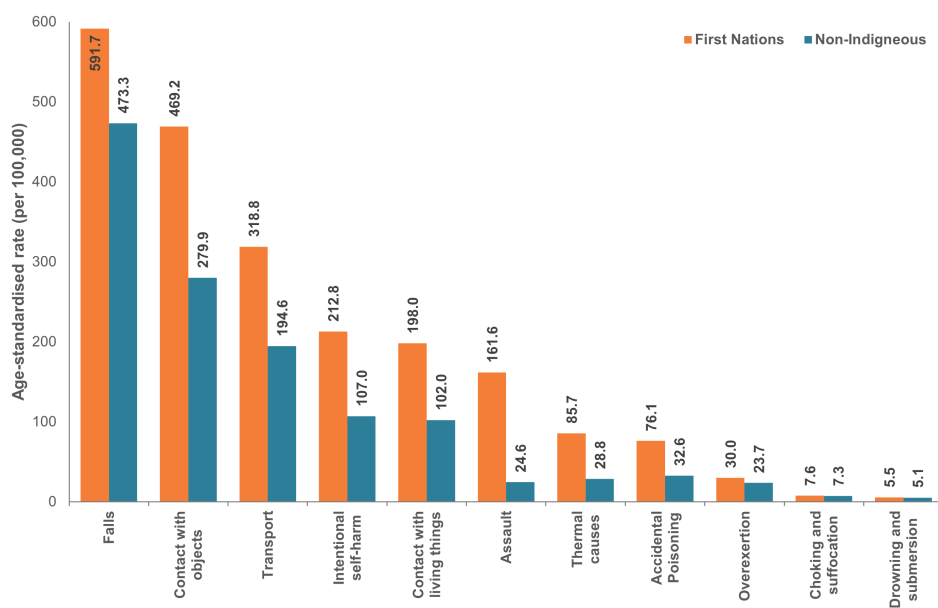
1. Rates are crude per 100,000.
2. Only includes records where the patient was between 0 and 18 years of age.
3. Records where Indigenous status was missing or not stated were excluded.

Sources: AIHW National Non-Admitted Patient Emergency Department Care (NNAPEDC) Database, National Hospital Morbidity Database (NHMD), ABS Estimates and Projections, Aboriginal and Torres Strait Islander Australians and ABS National, state and territory population.

The top 5 leading causes of injury hospitalisations for First Nations children include falls, contact with objects (which includes a falling or moving object, or hard or sharp object), transport, intentional self-harm, contact with living things (Figure 6).

First Nations children have higher rates of injury hospitalisation across most causes with the rate ratio of First Nations people hospitalisation compared with non-Indigenous children ranging between 1.2 and 7.

**Figure 6: Age-standardised rates (per 100,000) of injury hospitalisations among children, by cause group and Indigenous status, Australia, 2021–22**



Notes:

1. Rates are age-standardised per 100,000 population.
2. Only includes records where the patient was between 0 and 18 years of age.
3. Records where Indigenous status was missing or not stated were excluded.
4. Excludes causes where rates could not be calculated due to data volatility and small numbers.

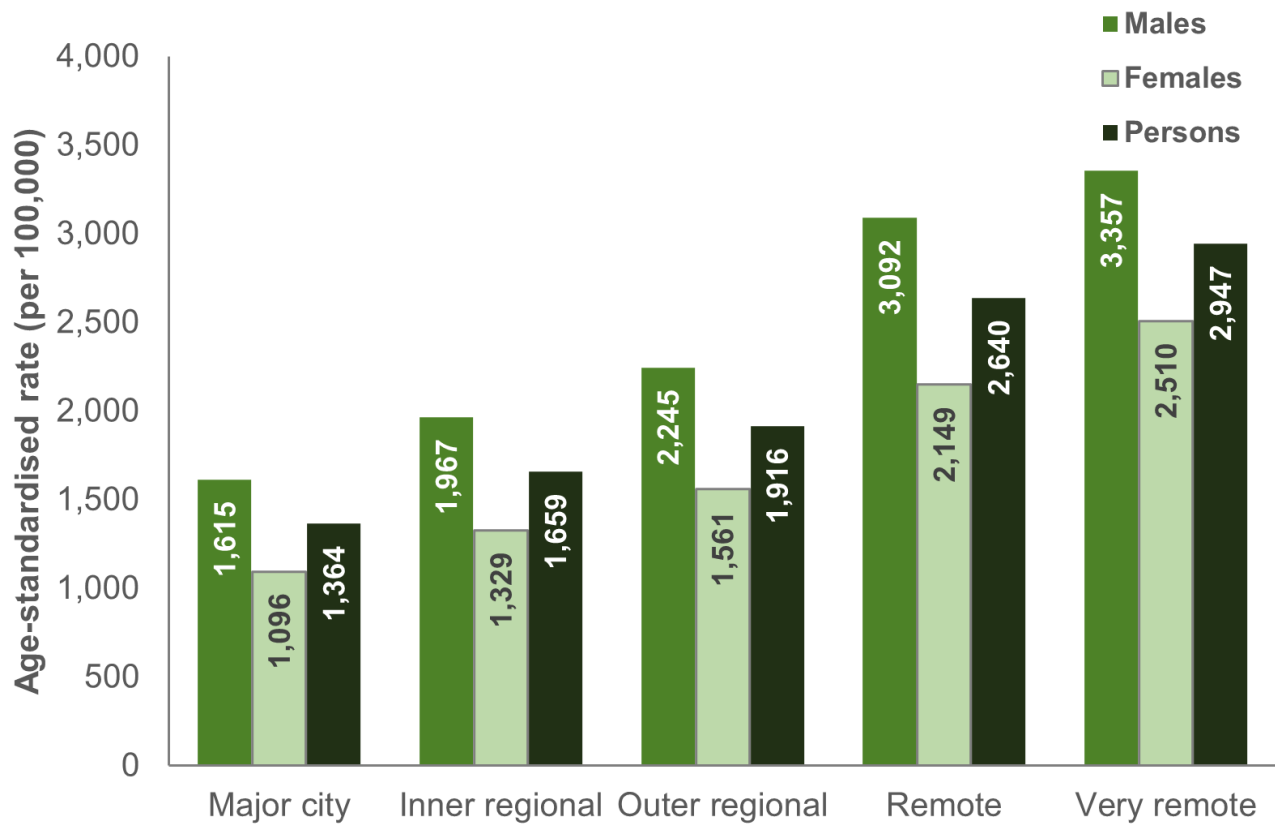
Sources: AIHW National Hospital Morbidity Database (NHMD), ABS Estimates and Projections, Aboriginal and Torres Strait Islander Australians and ABS National, state and territory population.

## Remoteness

Similar to the pattern of all injuries in the general population, rates of injury hospitalisation among children increase with remoteness. Children and adolescents living in *Very remote* regions of Australia are over twice as likely to be hospitalised for an injury than their counterparts living in a *Major city*. For both boys and girls, children in *Very remote* regions of Australia have the highest age-standardised rates of injury hospitalisation (3,400 and 2,500 per 100,000 respectively) (Figure 7).

Most age groups follow the same pattern, excepting males aged less than 1 or 13–15, where the highest rates were in *Remote* regions of Australia.

Figure 7: Age-standardised rate of injury hospitalisations among children, by sex and remoteness, 2021–22



Notes:

1. Rates are age-standardised per 100,000 population.
2. Only includes records where the patient was between 0 and 18 years of age.
3. Records where Remoteness status was missing or not stated were excluded.

Sources: AIHW National Hospital Morbidity Database (NHMD), ABS Remoteness populations.

However, ED presentations do not follow this same pattern; the highest age-standardised rates were found in *Remote* regions of Australia, followed by *Inner regional* (Figure 8). The data collection only includes public hospital EDs that meet specific criteria. This may exclude smaller EDs, and underrepresent certain regional areas. For more information, see [Technical notes](#).

**Figure 8: Age-standardised rate of emergency department presentation among children, by sex and remoteness, 2021–22**



Notes:

1. Rates are age-standardised per 100,000 population.
2. Only includes records where the patient was between 0 and 18 years of age.
3. Records where Remoteness status was missing or not stated were excluded.

Sources: AIHW National Non-Admitted Patient Emergency Department Care (NNAPEDC) Database, ABS Remoteness populations.

References

AIHW (2022b) *Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2018*, AIHW, Australian Government, accessed 19 February 2024.

AIHW (2022c) *Reporting on the health of culturally and linguistically diverse populations in Australia: An exploratory paper*, AIHW, Australian Government, accessed 4 March 2024.

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AIHW (2023c) *Injury in Australia*, AIHW, Australian Government, accessed 23 January 2024.

Piotrowski C & Warda L (2021) *An investigation of risk & protective factors for school-aged child injuries: the influence of siblings - external site opens in new window*, *Injury Prevention*, 27, doi: 10.1136/injuryprev-2021-SAVIR.71.

Shepherd S, Spivak B, Borschmann R, Kinner S & Hachtel H (2018) *Correlates of self-harm and suicide attempts in justice-involved young people - external site opens in new window*, *PLOS ONE*, 13(2), doi: 10.1371/journal.pone.0193172.

## Causes of injury

External cause is the circumstance in which an injury has occurred, such as a fall or transport crash. In 2021–22, almost all injury hospitalisations among children had an external cause recorded (99.98%), however no nationally comparable external cause data is available for emergency department (ED) presentations due to differences in state/territory data collection methods.

All figures presented in this chapter are for children and adolescents aged 0–18 years for hospitalisations only. Rate comparisons between child age groups and adults can be found in [Injuries by developmental stage](#).

For external cause group inclusions, see [Technical notes](#).

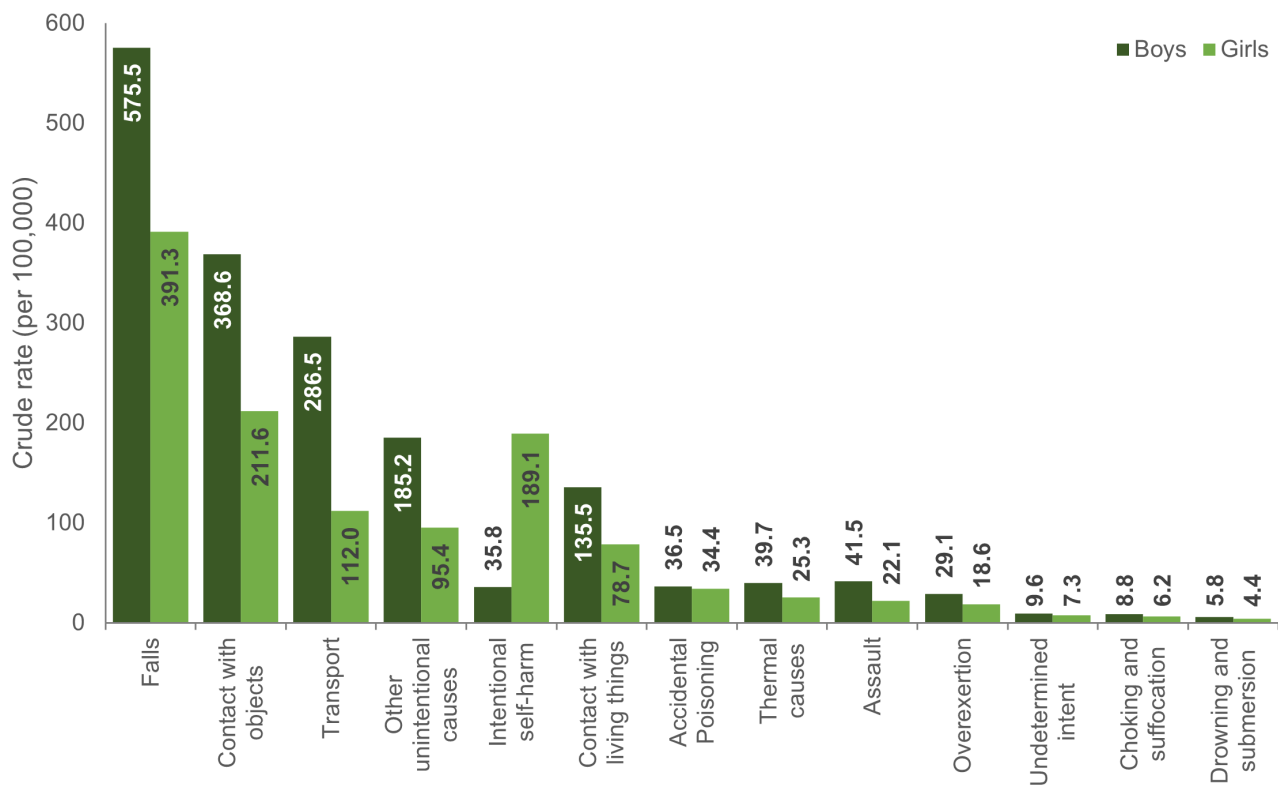
The top 3 leading causes of injury hospitalisation in 2021–22 were:

- *falls* (33%, 29,000 cases), which can include falling from playground equipment, rolling off furniture, or tripping on a flat surface
- *contact with objects* (20%, 17,400 cases), which can include being hit by a flying ball, or having fingers jammed in a door
- *transport* (14%, 12,000 cases), which can include being injured while on a pedal cycle, on a motorbike or in a car.

Boys had higher rates of injury hospitalisation across all causes apart from:

- *intentional self-harm*, where girls were 5 times more likely to be hospitalised than boys (190 and 36 per 100,000 respectively)
- *forces of nature*, where rates are comparable
- *accidental poisoning*, where rates are comparable (Figure 9).

**Figure 9: Number and crude rates (per 100,000) of injury hospitalisations among children, by external cause and sex, Australia, 2021–22**



Notes:

1. Rates are crude per 100,000 population.
2. Only includes records where the patient was between 0 and 18 years of age.
3. Excludes causes where rates could not be calculated due to data volatility and small numbers.

Sources: AIHW National Hospital Morbidity Database (NHMD) and ABS National, state and territory population.

For more information, refer to [supplementary data tables A4 and A5](#).

## 1 in 3 hospitalisations were caused by a fall

*Falls* caused the highest number and rate of injury hospitalisations across all child age groups, except for 16–18 year-olds, where *transport* was the leading cause ([supplementary data tables A4 and A5](#)).

*Falls involving playground equipment* was the most common type of fall amongst children (87 per 100,000 population), with rates being highest among children aged 5–9 years (192 per 100,000).

Infants are particularly vulnerable to specific types of falls; nearly 1 in 4 falls involved a bed (24%), and over 1 in 5 were while being carried or supported by other persons (21%). In contrast, the most common type of fall for 13–15 and 16–18 year-olds was due to a collision with, or pushing by another person. Overall, adults are over twice as likely as children to be hospitalised for a fall (1,000 and 490 per 100,000 respectively).

## Older children are overrepresented across most cause types

The 16–18 years age group had the highest rates of injury hospitalisation overall (2,200 per 100,000), and across most cause groups. Children aged 1–4 years also had high rates of injury across multiple cause groups as compared to children of other ages.



### Infants aged under one

have the highest rate of hospitalisations among children caused by choking and suffocation. They made up 3.4% of all injury hospitalisations among children and adolescents.



### Choking and suffocation

- 114 hospitalisations
- 25% of all choking and suffocation hospitalisations among children
- 37.6 per 100,000 population
- 57% girls



### Children aged 1–4

have the highest rate of hospitalisations among children for the causes listed below. They made up 20% of all injury hospitalisations among children and adolescents.





### Falls

- 7,393 hospitalisations
- 25% of all fall hospitalisations among children
- 612 per 100,000 population
- 58% girls



### Contact with objects

- 4,863 hospitalisations
- 28% of all contact with objects hospitalisations among children
- 403 per 100,000 population
- 59% boys



### Accidental poisoning

- 1,185 hospitalisations
- 56% of all accidental poisoning hospitalisations among children
- 98 per 100,000 population
- 54% boys



### Thermal causes

- 979 hospitalisations
- 50% of all thermal hospitalisations among children
- 81 per 100,000 population
- 65% boys



### Drowning and submersion

- 179 hospitalisations
- 58% of all drowning and submersion hospitalisations among children
- 15 per 100,000 population
- 55% girls



### Adolescents aged 16–18

have the highest rate of hospitalisations among children for the causes listed below. They made up 22% of all injury hospitalisations among children and adolescents.



### Transport

- 3,605 hospitalisations
- 30% of all transport hospitalisations among children
- 404 per 100,000 population
- 69% boys



### Contact with living things

- 1,461 hospitalisations
- 23% of all contact with living things hospitalisations among children
- 164 per 100,000 population
- 69% boys



### Assault

- 1,065 hospitalisations
- 56% of all assault hospitalisations among children
- 119 per 100,000 population
- 70% boys



### Overexertion

- 503 hospitalisations
- 35% of all overexertion hospitalisations among children
- 56 per 100,000 population
- 66% boys



### Electricity and air pressure

- 24 hospitalisations
- 39% of all electricity and air pressure hospitalisations among children
- 2.7 per 100,000 population
- 71% boys



### Other unintentional causes

- 2,993 hospitalisations
- 35% of all other unintentional causes hospitalisations among children
- 335 per 100,000 population
- 74% boys



### Undetermined intent

- 206 hospitalisations
- 41% of all undetermined intent hospitalisations among children
- 23 per 100,000 population
- 58% boys

For more information, refer to [supplementary data tables A4 and A5](#).

## Nature of injuries sustained

This chapter summarises:

- the main types of injury recorded during emergency department (ED) presentations and hospitalisations
- the body site of injury.

All figures presented in this chapter are for children aged 0–18 years only. Rate comparisons between child age groups and adults can be found in [Injuries by developmental stage](#).

Boys had higher rates of injury hospitalisation across all types of injury with the notable exception of *poisoning or toxic effect* injuries, where girls were 2.8 times more likely to be hospitalised (74 and 205 per 100,000 respectively).

### Fractures are the most common type of injury among children

Where specified, fractures and open wounds were the top 2 leading types of injury for both ED presentations and hospitalisations among children. Over a third of injury hospitalisations among children and adolescents were for *fractures* (36%) (Table 2a and 2b).

Children aged 10–12 have the highest rate of ED presentations for fractures (3,300 per 100,000), while for hospitalisations it is adolescents aged 13–15 (770 per 100,000). Over half of injuries caused by falls resulted in fractures (16,200, 51%).

Table 2a: Number and proportion of the top 3 injury types in emergency department presentations among children, Australia, 2021–22

Injury ED presentations	n	%
Fractures	132,237	22
Open wounds	103,156	17
Soft-tissue injuries	84,449	14

Notes: Denominators are the total number of injury emergency department presentations among children.

Source: AIHW National Non-admitted Patient Emergency Department Care (NNAPEDC) Database.

Table 2b: Number and proportion of the top 3 injury types in hospitalisations among children, Australia, 2021–22

Injury hospitalisations	n	%
Fractures	32,066	36
Open wounds	18,060	20
Poisoning or toxic effect	8,288	9

Notes: Denominators are the total number of injury hospitalisations among children.

Source: AIHW National Hospital Morbidity Database.

### The type of injury varies by age group and whether a child is hospitalised or presents to emergency department

For injury ED presentations, children aged 1–4 had the highest rate for 7 out of 16 injury types. In contrast, for injury hospitalisations, 16–18-year-olds had the highest rates of injury hospitalisation across the most injury types.

Figure 10 shows the age groups with the highest rates of injury across the top 5 most common injury types, for both ED presentations and hospitalisations.

**Figure 10: Age groups with the highest rates of injury emergency department presentation and hospitalisation, for the top 5 most common injury types, Australia, 2021–22**

Emergency Department Presentations	<1	1–4	5–9	10–12	13–15	16–18
Fracture				3,331 per 100,000 32,694 cases		
Open wound		3,138 per 100,000 37,895 cases				
Soft-tissue injury					2,361 per 100,000 22,792 cases	
Superficial injury		1,343 per 100,000 16,214 cases				
Foreign object (through orifice)		1,006 per 100,000 12,150 cases				

Hospitalisations	<1	1–4	5–9	10–12	13–15	16–18
Fracture					775 per 100,000 7,478 cases	
Open wound		496 per 100,000 5,990 cases				
Poisoning or toxic effect						377 per 100,000 3,371 cases
Soft-tissue injury						297 per 100,000 2,654 cases
Superficial injury	144 per 100,000 438 cases					

Notes:

1. Rates are crude per 100,000 population.
2. Only includes records where the patient was between 0 and 18 years of age.

Sources: AIHW National Hospital Morbidity Database (NHMD), National Non-Admitted Patient Emergency Department Care (NNAPEDC) Database, and ABS National, state and territory population.

For more information please refer to [supplementary data tables A7, A8 and A9](#).

### Head and neck injuries are common in children

The 'head and neck' was the leading site of injury for injury ED presentations and hospitalisations (29%) (Tables 3a and 3b).

Table 3a: Number and proportion of the top 3 sites of injury in emergency department presentations among children, Australia, 2021–

<b>Injury ED presentations</b>	<b>n</b>	<b>%</b>
Head and neck	175,421	29
Wrist and hand	108,568	18
Shoulder and upper limb	102,384	17

Notes: Denominators are the total number of injury ED presentations among children.

Source: AIHW National Non-admitted Patient Emergency Department Care (NNAPEDC) Database.

Table 3b: Number and proportion of the top 3 sites of injury in hospitalisations among children, Australia, 2021–22

<b>Injury hospitalisations</b>	<b>n</b>	<b>%</b>
Head and neck	25,569	29
Shoulder and upper limb	19,259	22
Wrist and hand	13,511	15

Notes: Denominators are the total number of injury hospitalisations among children.

Source: AIHW National Hospital Morbidity.

Children aged 1–4 had the highest rate of head and neck injury ED presentations (6,100 per 100,000), with boys in this age group having the highest rate overall (7,100 per 100,000). Additionally, this age group had the highest rates of head and neck injury hospitalisations (750 per 100,000).

*Open wounds* were the most common type of injury to the head and neck across both ED presentations (33%) and hospitalisations (30%).

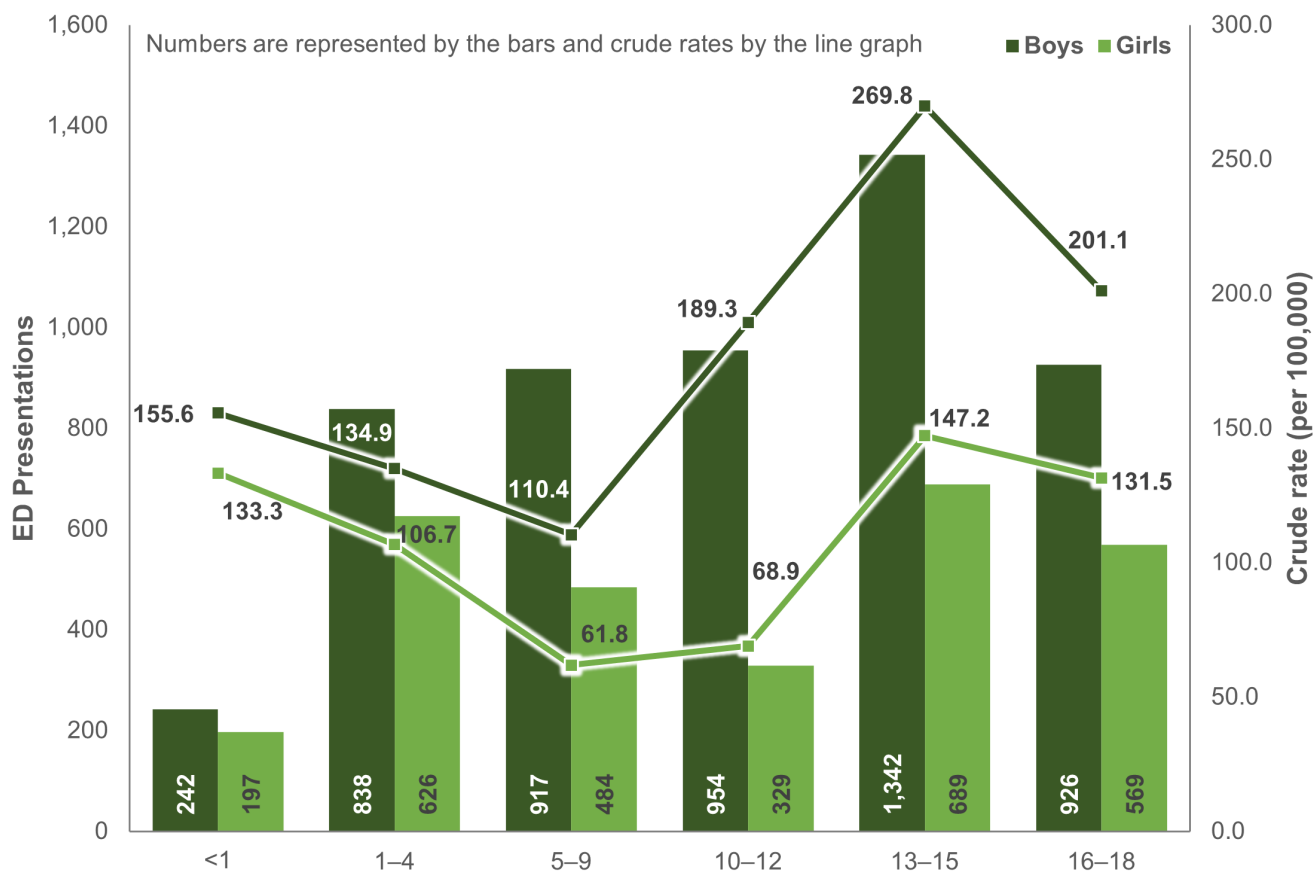
Boys had higher rates of injury hospitalisation across all sites of injury apart from *injuries not described in terms of body location* (85 and 220 per 100,000 respectively). Examples of injuries that cannot be assigned to a body region include injuries from poisoning or toxic effect, sunstroke, hypothermia and asphyxiation. For more information, see [supplementary data table A10](#).

## Concussions

Concussions in children is an issue of growing global awareness. Research has indicated that the brains of children and adolescents are more vulnerable to concussion impacts as they are still developing (Parker et al. 2021). Recovery time for concussions in younger age groups also appear to be longer than for adults (Manzanero et al. 2017). Physiological differences in children, such as thinner skulls, less developed neck muscles and a larger head-to-body ratio may contribute to this increased risk (van Ierssel et al. 2021).

There were 8,100 ED presentations and 3,500 hospitalisations for concussion among children. Boys made up the majority of both ED presentations and hospitalisations (64% each). Adolescents aged 13–15 had the highest rate of ED presentation (211 per 100,000) and hospitalisation (90 per 100,000) (Figure 11 and Figure 12).

**Figure 11: Number and crude rate (per 100,000) of concussion injury emergency department presentations, by age and sex, Australia, 2021–22**

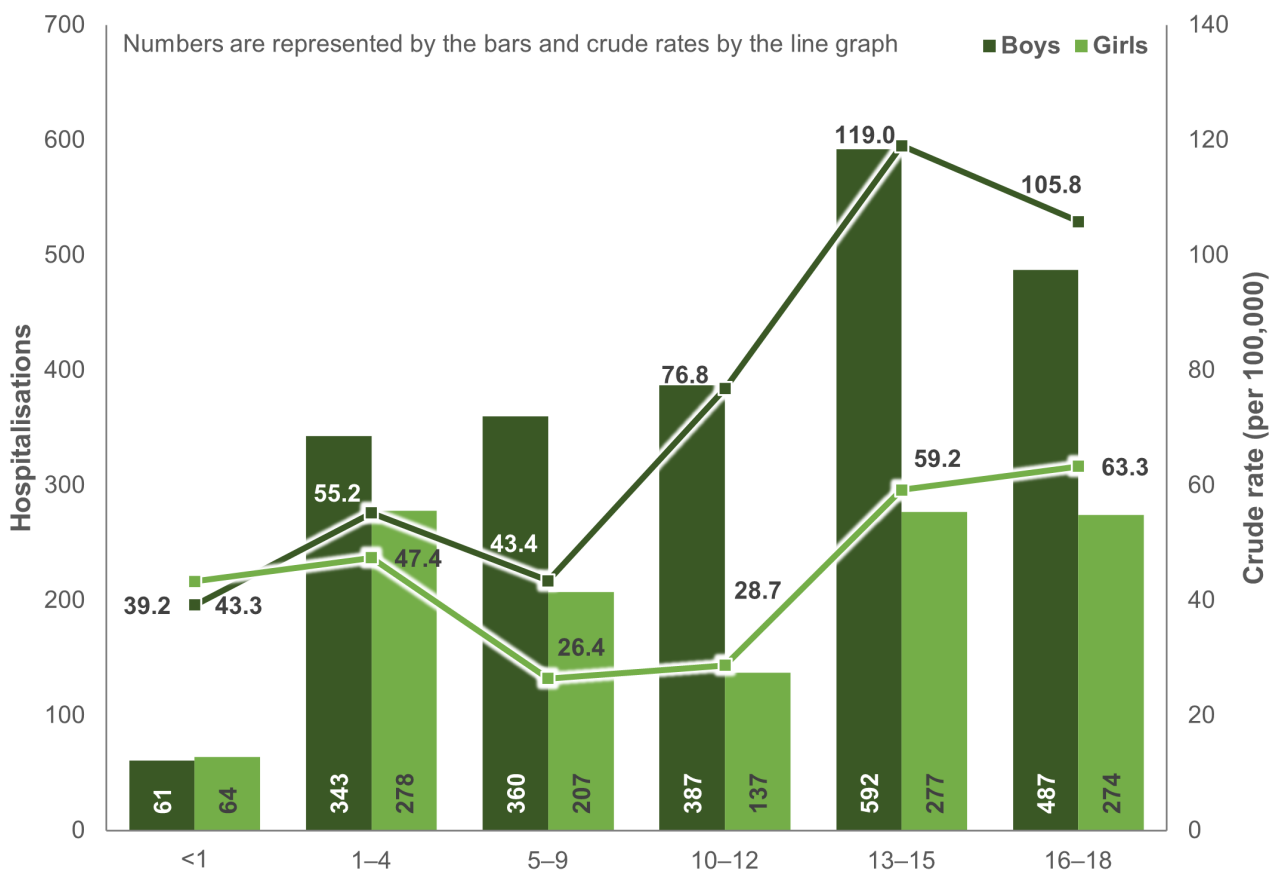


**Notes:**

1. Numbers are represented by the columns and rates by the line graph.
2. Rates are crude per 100,000 population.
3. Only includes records where the patient was between 0 and 18 years of age.
4. Concussions are identified using the ICD-10-AM range S06.0 to S06.05

Sources: AIHW National Non-Admitted Patient Emergency Department Care (NNAPEDC) Database and ABS National, state and territory population.

**Figure 12: Number and crude rate (per 100,000) of concussion injury hospitalisations, by age and sex, Australia, 2021-22**



**Notes:**

1. Numbers are represented by the columns and rates by the line graph.
2. Rates are crude per 100,000 population.
3. Only includes records where the patient was between 0 and 18 years of age.
4. Concussions are identified using the ICD-10-AM range S06.0 to S06.05

Sources: AIHW National Hospital Morbidity Database (NHMD) and ABS National, state and territory population.

For information on sports-related concussions, see [Activity](#).

**Poisoning and toxic effect**

*Poisoning or toxic effect* injuries can be caused by ingesting, inhaling or injecting harmful substances (which fall under the cause groups accidental poisoning, intentional self-harm, or undetermined intent), or by coming into contact with a venomous animal or plant (contact with living things).

*Poisoning and toxic effect* injuries are the only type of injury where girls are more likely than boys to be hospitalised. Of these 8,300 injury hospitalisations, girls made up 72% (6,000). Adolescents aged 16-18 have the highest rates of hospitalisation (377 per 100,000), with girls in this age group having the highest rate overall (595 per 100,000). Boys aged 1-4 and 5-9 have higher rates than girls in the same age group, however from age 10 onwards, girls have higher rates.

The leading type of poisoning among girls was *Poisoning by nonopioid analgesics, antipyretics and antirheumatics* (2,700, 44%) while for boys, it was *Poisoning by psychotropic drugs, not elsewhere classified* (420, 19%). Girls made up the majority (76%) of cases where the poisoning substance was medicinal in nature (T36-T50), while boys made up the majority of cases (54%) with toxic effects of non-medicinal substances (T51-T65). For more information, see [supplementary data table A9](#).

## Foreign objects (through orifice)

An orifice is an opening in the body that provides access to internal cavities, such as the mouth, nose or ear. Children very commonly get foreign objects stuck in these orifices, requiring medical intervention. Across child age groups, different orifices are more likely to be affected:

- over half of these cases in infants were for the respiratory tract (114, 51%)
- children aged between 1 and 12 were more likely to have a foreign body in the ear (855, 37%)
- the oesophagus was involved in around 1 in 5 of these cases among adolescents aged between 13 and 18 (122, 22%).

## References

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van Ierssel J, Osmond M, Hamid J, Sampson M & Zemek R (2021) [What is the risk of recurrent concussion in children and adolescents aged 5 – 18 years? A systematic review and meta-analysis - external site opens in new window](#), *British Journal of Sports Medicine*, 55, doi: 10.1136/bjsports-2020-102967.

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## Place of occurrence

Only 58% of child injuries resulting in hospitalisation had a place of occurrence recorded so these findings should be interpreted with caution. Excluding cases where the place of occurrence was unspecified or unknown (37,000 cases, 42%):

- the most common place of occurrence was the home (45%) where there were
  - 9 in 10 injuries amongst infants aged under one (91%)
  - 3 in 4 amongst children aged 1–4 (74%)
- followed by sports or athletic areas (17%) where there were
  - 1 in 3 injuries amongst children aged 13–15 occurred in sports or athletic areas (32%)
  - 1 in 4 injuries among boys (21%) and 1 in 10 among girls (11%)
- nearly 1 in 4 injuries amongst children aged 5–9 occurred at school (23%).

## Injuries in the home

Where the place of occurrence was specified, over half of all injuries leading to hospitalisation for girls occurred in the home (56%), and over a third for boys (38%).

Within the home, children are most likely to be injured in:

- outdoor areas (15%, 3,500 cases)
- indoor living areas (11%, 2,600 cases)
- bedrooms (9%, 2,200).

Children tend to be injured in different parts of the home depending on their age.



Bedrooms were the most common specified place of occurrence in the home for children aged under one (20%) and 16–18 (7.4%).



Indoor living areas were the most common specified place of occurrence in the home for children aged 1–4 (15%).



Outdoor areas were the most common specified place of occurrence in the home for children aged 5–9 (26%), 10–12 (28%) and 13–15 (10%).

1 in 4 injuries in the home was an open wound (26%) and 1 in 5 was for poisoning or toxic effect (20%). For children aged 13–15 and 16–18, around half of all injuries in the home were for poisoning or toxic effect (48% and 53% respectively).

## Activity

Activity codes in hospital data describe what the person was doing at the time of injury, for example sport or employment. Incomplete activity data mean that these findings should be interpreted with caution. Just under half of all injury hospitalisations among children and adolescents had an activity specified, with the leading ones being:

- sport, exercise or recreational activities (18,700, 21%)
- leisure activity, not elsewhere classified (12,100, 14%).

Children aged between 0 – 4 made up over half of hospitalisations where the activity was While resting, sleeping, eating or engaging in other vital activities (56%), while 10–18-year-olds make up the majority of sports and leisure activities (61%).

The completeness of activity data generally increased with age. 22% of injury hospitalisations for children aged under one had a specified activity, while for 13–15-year-olds, this rose to 63%.

### Sports and recreation activity related to 1 in 5 injury hospitalisations

Adolescents tend to have the highest rates of sports injury hospitalisations (AIHW 2023e), however they also have the highest rates of sports participation (ASC 2023). In 2021–22, there were 18,700 injury hospitalisations among children and adolescents that involved sport, exercise or recreational activities (21%). Over 1 in 3 injury hospitalisations for children aged 10–12 and 13–15 involved sports. The sports and recreations activities with the highest number of hospitalisations were:



Cycling  
(16%, 3000 cases)



Roller sports  
(10%, 1,800 cases)



Australian rules football  
(9%, 1,750 cases)

The high number of hospitalisations for cycling (including both as a sport and means of transport/recreation) may be reflective of the high rates of participation. Cycling caused the highest number of hospitalisations for all age groups apart from adolescents aged 16–18, where Australian Rules Football (14%), Rugby codes (13%), and Soccer (9%) were the leading sports.

Fractures were the most common type of injury among sports and recreation injuries (57%). For the 3 sports and recreation activities above, fractures made up the majority of injuries, with roller sports notably having the highest proportion of any sport (71%). For more information, see [supplementary data tables A21-A23](#).

### Sport by participation

AusPlay™ collects annual survey data on sports participation across Australia. Data is collected for Australians aged 0–14, and 15 and over, with differing methodologies due to parent involvement in children surveys. AusPlay™ presents data for participants aged 15–17, and 18–24 with no further age disaggregation available; for this reason, only participation data for children aged 0–14, and 15–17 are presented in this report as rate denominators. Rates between these age groups should not be used for comparison purposes.

AusPlay™ participation rates are based on survey data so may be subject to sampling error. Consequently, rates of injury per participant should be treated as estimates. Injury rates likely reflect participation rates to some extent.

Children aged 0–14 had an overall rate of sports injury of 316 per 100,000 participants. The sport with the highest rate of injury for this age group was roller sports (3,700 per 100,000 participants).

For adolescents aged 15–17, the overall rate of sports injury was 653 per 100,000 participants. The sport with the highest rate of injury in this age group was wheeled motor sports (2,200 per 100,000). For more information, see [supplementary data table A24](#).

## Child concussions involving sport

37% of hospitalised concussions in children involved sport, compared to 14% for adults. Sport was involved in the majority of concussions hospitalisations for children aged between 10–15, with over 3 in 5 hospitalisations for 13–15 year-olds (62%).

Australian rules football contributed to 18% of sports concussion hospitalisations (235 cases), followed by cycling (17%, 224).


## References

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AIHW (2023f) [Sports injury in Australia](#), AIHW, Australian Government, accessed 17 January 2024.

ASC (2023) [Focus on Participation by Age - external site opens in new window](#), ASC, Australian Government, accessed 17 January 2024.

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## States and territories

Using the state of usual residence in 2021-22, the states and territories with the highest age-standardised rates of injury emergency department (ED) presentation among children are:

- the Northern Territory (13,500 per 100,000 population)
- Western Australia (12,500 per 100,000)
- Queensland (10,400 per 100,000) (Figure 13).

Risk of injury varies between states and territories by age group. In New South Wales, Victoria and the Australian Capital Territory, children aged 1–4 had the highest crude rates. Adolescents aged 13–15 had the highest rates of injury ED presentation in Western Australia, Queensland and Tasmania, while in the Northern Territory, it was 16–18-year-olds.

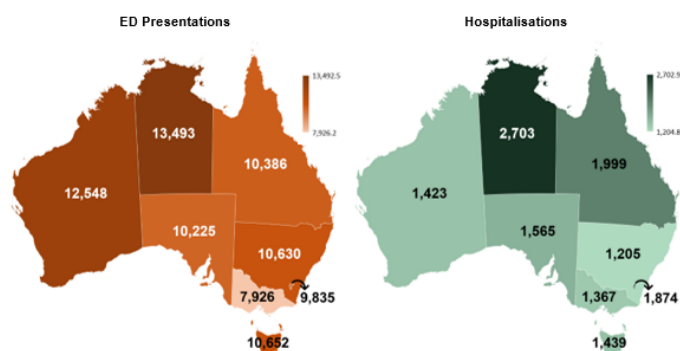
The states and territories with the highest age-standardised rates of injury hospitalisation among children during 2021-22 are:

- the Northern Territory (2,700 per 100,000 population)
- Queensland (2,000 per 100,000)
- the Australian Capital Territory (1,900 per 100,000).

Across every state and territory, adolescents aged 16–18 had the highest rates of injury hospitalisation. Children in the Northern Territory had the highest comparative rates of injury across states for all age groups. The exception to this was children aged under one, where the highest rates were in Queensland.

A significant proportion of the Northern Territory is classed as *Very remote* which is a known factor in increased rates of injury (AIHW 2021b). Additional aspects that may be contributing to the high rates in this territory include having the greatest proportion of First Nations people of any state and territory, an increased proportion of 'risky' alcohol consumption, and the largest proportion of 0–19 year-olds across the country (ABS 2022; AIHW 2023a). The unique climate of the Northern Territory has also been suggested to contribute to heightened risk of injury (McDermott et al. 2017).

**Figure 13: Age-standardised rates of injury emergency department presentation and hospitalisation, by state and territory, Australia, 2021–22**



Notes:

1. Rates are age-standardised per 100,000 population.
2. Only includes records where the patient was between 0 and 18 years of age.
3. 'State' is the state or territory of usual residence of the patient.
4. Excludes records from other Australian territories or where state is unknown.

Sources: AIHW National Hospital Morbidity Database (NHMD), National Non-Admitted Patient Emergency Department Care (NNAPEDC) Database, and ABS National, state and territory population.

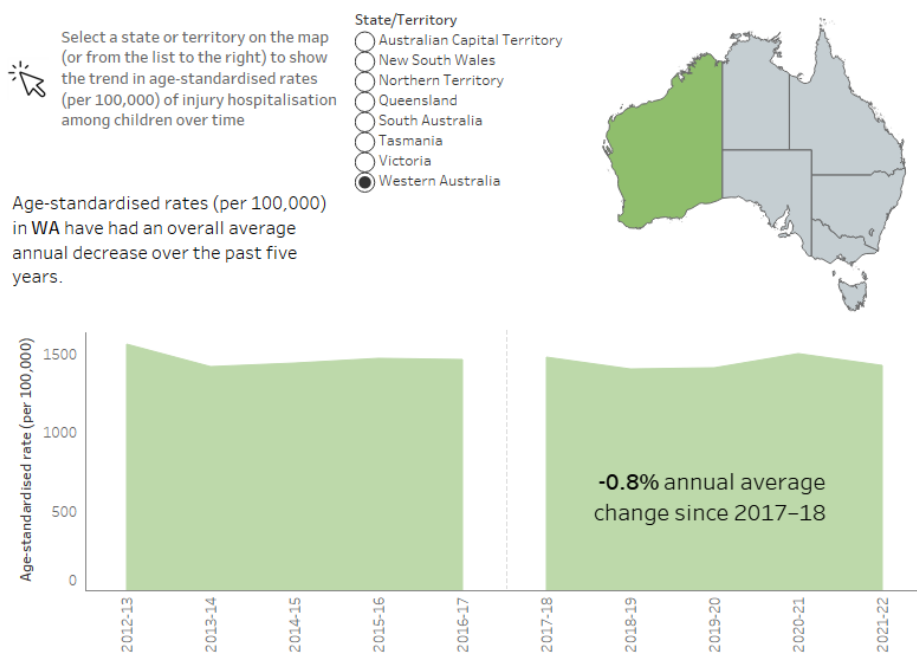
For more information, see [supplementary data tables E1 and E3](#).

## Trends over time

The age-standardised rate of injury hospitalisation decreased or remained stable in most states and territories between 2017–18 and 2021–22, with the exception of the Australian Capital Territory, where it has increased (from 1,700 in 2017–18 to 1,900 in 2021–22) (Figure 14).

The increase in Australian Capital Territory rates of hospitalisation reflect a similar pattern to that found by ACT Health among children and young people aged 0–24 (Draper et al. 2023). While the study has differing methodology and scoping, the parallel results indicate that this issue requires additional research to determine the underlying drivers of change.

An interactive Tableau for age-standardised rates over a period of ten financial years by state and territory.



Notes:

Hospitalisation data are divided into two distinct time periods: 2012–13 to 2016–17 and 2017–18 to 2021–22. Comparisons of hospitalisations data between these two time periods is not recommended due to a change in data collection methods between 2016–17 and 2017–18 (see technical notes for more details).

Source: AIHW National Hospital Morbidity Database (NHMD)

<https://www.aihw.gov.au/about-our-data/our-data-collections/national-hospitals-data-collection>

For more information, see [supplementary data table E2](#).

## References

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AIHW (2021b) *Geographical analysis of hospitalised injury and injury deaths data, 2017–18*, AIHW, Australian Government, accessed 19 February 2024.

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Draper G, Pollock Z & Freebairn L (2023) [Serious injuries among children and young people in the ACT, 2000–2020 - external site opens in new window](#), ACT Health, ACT Government, accessed 19 February 2024.

McDermott K, Brearley M, Hudson S, Ward L & Read D (2017) *Characteristics of trauma mortality in the Northern Territory, Australia - external site opens in new window*, Injury Epidemiology, 4, doi: 10.1186/s40621-017-0111-1

## ED presentation times



1 in 3 ED presentations were on a weekend with Sunday being the busiest day (16%).

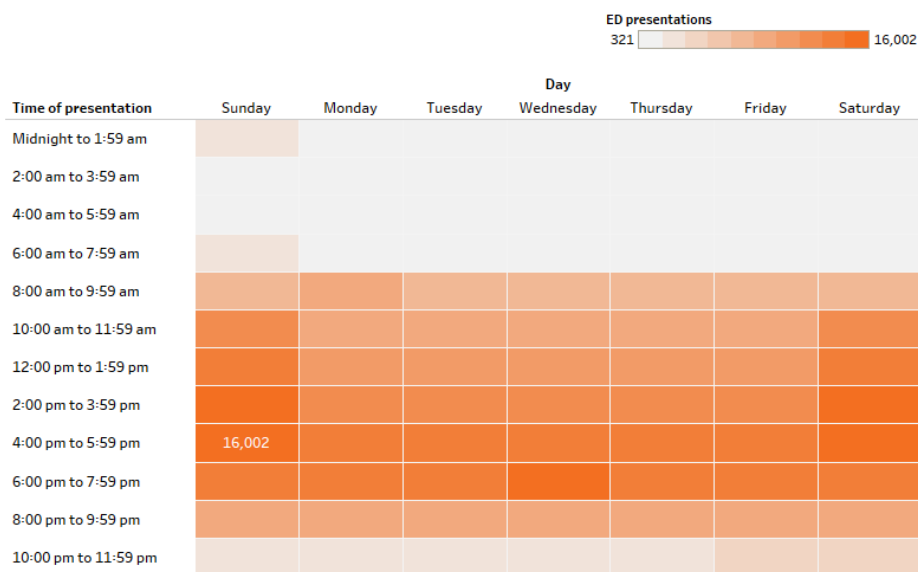


The busiest time for injury presentations to EDs was between 4:00pm – 5:59pm (17%) and the quietest time was 2:00am – 3:59am (0.8%).

In 2021–22, the highest number of presentations occurred between 4:00pm and 5:59pm on a Sunday (16,000). Figure 15 shows the most common presentation days and times for injury ED presentations.

**Figure 15: Number of injury emergency department presentations, by time and day of presentation, Australia, 2021–22**

An interactive Tableau for the number of ED presentations by time and day of presentation.



Notes: The time and day of patient presentation at the emergency department is the time of first recorded contact with an emergency department staff member. The first recorded contact can be the commencement of the clerical registration or triage process, whichever happens first.

Source: National Non-Admitted Patient Emergency Department Care Database  
<https://www.aihw.gov.au>

## Severity

There are many ways the severity, or seriousness, of an injury can be measured. Severity metrics in this report are used to compare child age groups to each other, and adults.

**Triage category:** Every ED presentation is assigned 1 of 5 triage categories based on the urgency with which the patient requires medical care.

**Seen on time:** Each triage category has a clinically appropriate waiting time cut-off between the patient being triaged and seen for medical assessment. A patient is seen on time if they receive care within this timeframe.

**End status:** A person can leave the ED in different ways. People admitted to hospital are likely to have more serious injuries.

**Emergency admission:** Urgency of admission reflects the severity of injury or health episode/event. Emergency admissions require admission within 24 hours.

**Same day discharge:** When a patient is discharged on the same day as they were admitted, this is flagged as a same day discharge.

**ICU:** Intensive Care Units (ICUs) provide care to patients who are critically unwell and require complex, multisystem life support.

**CVS:** Continuous Ventilatory Support (CVS) is when a patient breathes via an artificial airway with the aid of a machine.

**Length of stay:** The number of days a patient remains in hospital receiving treatment.

**In-hospital deaths:** When a person is admitted to hospital, and dies despite the treatment provided, that can be an indication of the severity of their injuries.

### A greater proportion of children are seen on time compared to adults

73% of injury ED presentations were seen on time for children and adolescents, compared to 69% for adults (Table 4). Children aged 5–9 and 10–12 had the highest proportion of cases seen on time (75%).

This could be explained by the differences in triage categories between children and adults. Triage categories have clinically appropriate waiting time cut-offs based on their severity. More serious ED presentations have a shorter window of time for a patient to be seen on time. Adults tend to have a greater proportion of cases that are assigned higher triage categories compared to children; 2 in 5 adults had a triage category of urgent or above (41%), compared to 1 in 3 children (32%).

Infants aged less than 1 had the highest proportion of emergency (15%) and urgent cases (41%) of any children's age group.

Table 4: Proportion of emergency department presentations seen on time, by triage category and population group, 2020–21

Triage category	Clinically appropriate waiting time cut-off	Percent of children assigned category (%)	Percent of children seen on time (%)	Percent of adults assigned category (%)	Percent of adults seen on time (%)
Resuscitation	Immediate (within seconds)	0.4	99	1.1	100
Emergency	Within 10 minutes	7.4	72	11	67
Urgent	Within 30 minutes	25	65	30	61
Semi-urgent	Within 60 minutes	57	74	48	71
Non-urgent	Within 120 minutes	11	85	11	83
<b>Total</b>	Total	100	73	100	69

### Children are less likely than adults to be admitted to hospital after presenting to an emergency department

Fewer than 1 in 10 children who present to an ED for an injury go on to be admitted to hospital (9%), compared to 1 in 5 adults (22%). Among children, infants aged under 1 had the highest proportion of cases admitted to hospital (13%).

### Injury hospitalisations for children are generally less severe than for adults

When comparing all children with adults, adult injury hospitalisations are more severe across all 6 severity metrics. The only exception is for children aged between 0–9, who experience a higher proportion of emergency admissions.

Table 5: Proportion of emergency department presentations seen on time, by triage category and population group, 2020–21

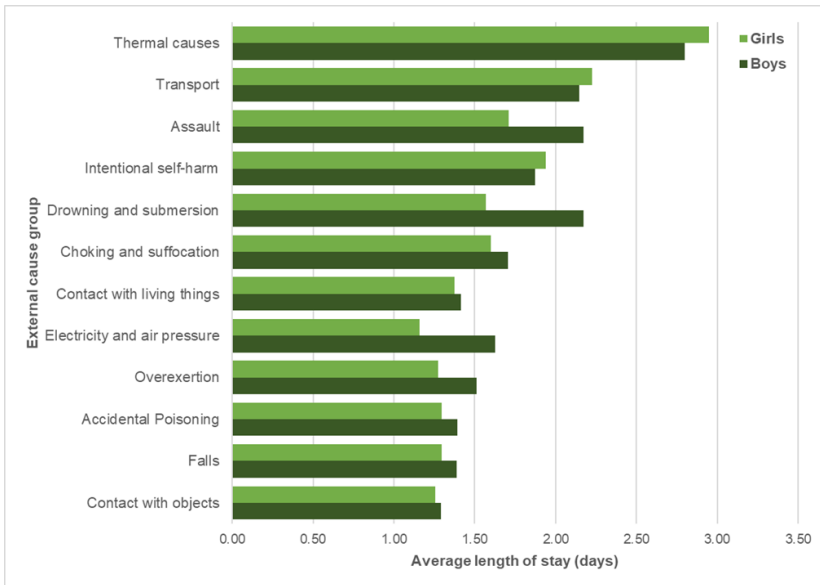
Severity metric	Under 1	1–4	5–9	10–12	13–15	16–18	All children	Adults
Percentage of emergency admissions (%)	94	82	81	79	76	72	78	79
Percentage of same day discharges (%)	53	63	55	52	47	49	54	38
Percentage in ICU (%)	0.9	0.6	0.5	0.6	1.1	2.0	1.0	2.2
Percentage on CVS (%)	0.5	0.4	0.2	0.4	0.5	1.4	0.6	1.2
Length of stay (days)	1.8	1.4	1.3	1.5	1.6	1.8	1.5	3.8
In-hospital deaths (per 1000 cases)	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	0.6	7.0

### Thermal causes require the greatest length of stay in hospital

Overall, children spend a shorter period of time in hospital compared to adults, with 1.5 days on average compared to nearly 4 for adults. Some causes of injury have higher average lengths of stays, with injuries caused by thermal causes such as burns spending the longest time in hospital (2.9 days) (Figure 16).

Figure 16: Average length of stay (days) for injury hospitalisations among children and adolescents, by sex, Australia, 2021–22





Notes:

1. Length of stay calculations include transfer hospitalisations.
2. Only includes records where the patient was between 0 and 18 years of age.
3. Excludes causes with low numbers of hospitalisation due to data volatility.

Source: AIHW National Hospital Morbidity Database (NHMD)

For more information, see [supplementary data table A18](#).

## Common diagnoses

Emergency department (ED) diagnoses are assigned using a shorter list of codes compared to hospitalisations, and have differences in quality and completeness. In 2021–22, around 7% of ED presentations for children had the principal diagnosis T14.9 *Injury, unspecified* (39,700). While additional diagnoses are present in ED data, they are seldom used; about 3% of injury ED records among children had additional diagnoses recorded.

This chapter reports on:

- principal diagnoses only in injury ED presentations
- principal and additional injury diagnoses in hospitalisations.

The most common diagnosis across both ED presentations and hospitalisations was S09.9 *Unspecified injury of head*. This was consistent across males and females for ED presentations. For hospitalisations, the most common diagnosis was:

- S52.51: *fracture of lower end of radius with dorsal angulation* (Colles Fracture) for males (2,400)
- T39.1: *poisoning by 4-Aminophenol derivatives* (for example, paracetamol) for females (2,600). This could be either intentional or accidental poisoning.

Child age groups display different patterns of injury diagnoses. The infographics below highlight the variations between them.



### Infants (<1 year)

The top diagnosis for emergency department injury presentations was a head injury (7,100 cases)

The top 4 diagnoses for injury hospitalisations were different types of head injuries (1,700 cases).



### 1-4

The top diagnosis for ED injury presentations was a head injury (18,900)

3 of the top 5 diagnoses for injury hospitalisations were types of open wounds (3,600).



### 5-9

The top diagnosis for ED injury presentations was a head injury (8,700)

The top 4 diagnoses for injury hospitalisations were fractures of the arm (4,700).



### 10-12

The top diagnosis for ED injury presentations was a fracture involving the radius in the arm (6,100).

The top 5 diagnoses for injury hospitalisations were fractures of the arm and hand (3,000).



### 13-15

The top diagnosis for ED injury presentations was a sprain involving the ankle (7,700)

2 of the top 5 diagnoses for injury hospitalisations were intracranial injuries (1,100).



### 16-18

The top diagnosis for emergency department injury presentations was unspecified (8,000)

2 of the top 5 diagnoses for injury hospitalisations were from poisoning or toxic effect (2,100).



## Procedures

2 in 3 injury hospitalisations among children and adolescents had a procedure carried out (67%). On average, each patient had 2 procedures per hospitalisation. Hospitalisations for blood vessel injuries had the highest average number of procedures, with 5.6 per hospitalisation.

General anaesthesia administrations made up the top 2 most common procedures performed during injury hospitalisations. General anaesthesia codes are accompanied by an American Society of Anesthesiologists (ASA) score to indicate the state of the patient, and conditions under which it is being administered. ASA 10 refers to a normal, healthy patient where the procedure is being performed as an emergency, while ASA 19 is a normal, healthy patient where the procedure is a nonemergency or not known.

The most common procedure performed was General anaesthesia, ASA 10 (18,700 cases), followed by General anaesthesia, ASA 19 (13,400 cases).

For more information, see [supplementary data tables A17](#).



### Fractures

were the most common injury type requiring anaesthesia (51%). Manipulating fractures to realign bones is commonly performed under anaesthesia.



### 2 in 3

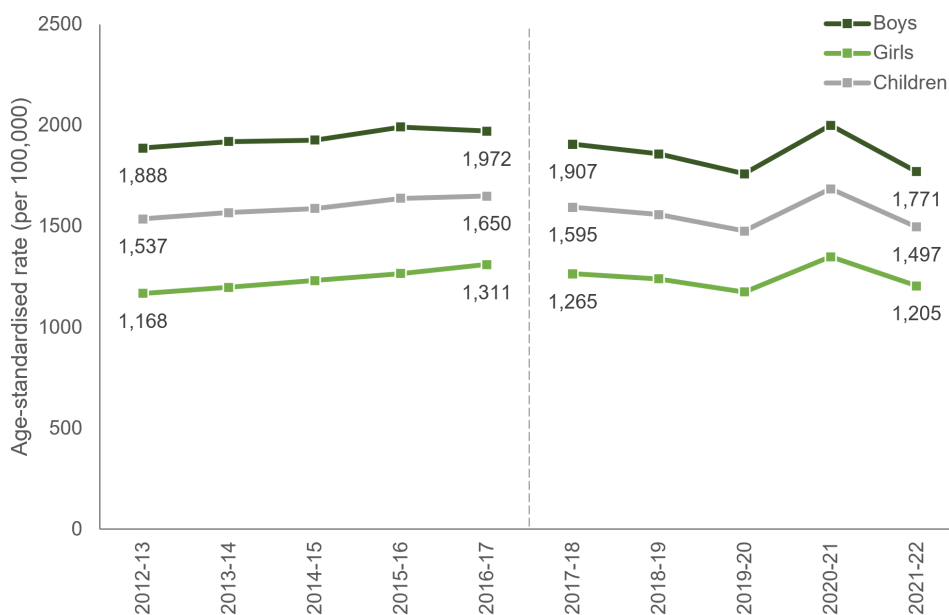
hospitalisations that had anaesthesia administered were for boys (66%).

## Hospitalisations over the past decade

In the 5 years between 2012–13 and 2016–17, both boys and girls experienced an overall increase in the age-standardised rate of injury hospitalisations.

The age-standardised rate of injury hospitalisation among children and adolescents over the past 5 years has generally decreased. The 5.3% drop in 2019–20 is likely due to the impacts of COVID-19 restrictions. Following a 14% spike in rates between 2019–20 and 2020–21 (from 1,477 to 1,686 per 100,000), rates returned to trend in 2021–22 (1,497 per 100,000) (Figure 17).

**Figure 17. Age-standardised rate (per 100,000) of injury hospitalisations among children and adolescents, by sex, Australia, 2012-13 to 2021-22**



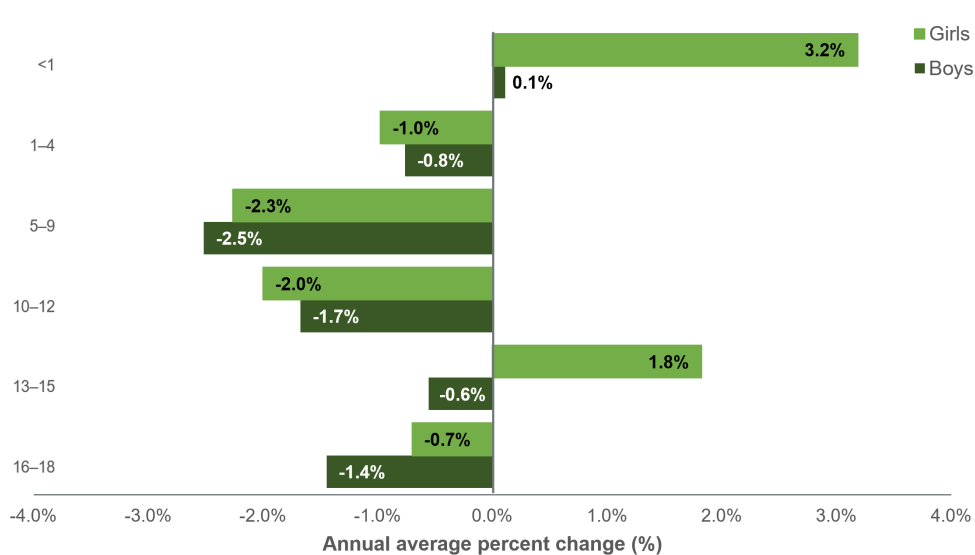
Notes:

1. Rates are age-standardised per 100,000 population
2. Only includes hospitalisations where the patient was between 0 and 18 years of age.
3. Persons includes records where the patient sex was intersex, indeterminate or missing.
4. Break in series between 2016–17 and 2017–18 – see technical notes for more information.

Sources: AIHW National Hospital Morbidity Database (NHMD) and ABS National, state and territory population.

Girls aged under 1 and girls aged 13–15 have seen an average annual increase over the past 5 years (3.2% and 1.8% respectively). All other groupings by age and sex have either experienced an average annual decrease or remained consistent (Figure 18). The 5–9 age group has seen the largest decrease over this time period – 2.5% decrease for boys, and 2.3% decrease for girls.

**Figure 18. Injury hospitalisation average annual change (%) between 2017–18 and 2021–22, by age and sex, Australia, 2021–22**



Notes:

1. Average percent change over time is calculated on age-standardised rates for the periods after the break in time series for 2017–18 to 2021–22.
2. Only includes hospitalisations where the patient was between 0 and 18 years of age, and where sex was not intersex, indeterminate or missing.

Sources: AIHW National Hospital Morbidity Database (NHMD) and ABS National, state and territory population.

## Injuries by developmental stage

### Introduction

Many causes of injury affect children at higher rates compared to adults, given their differences in maturity, anatomy and physiology. As children grow and their mobility increases, they are vulnerable to different injury mechanisms.

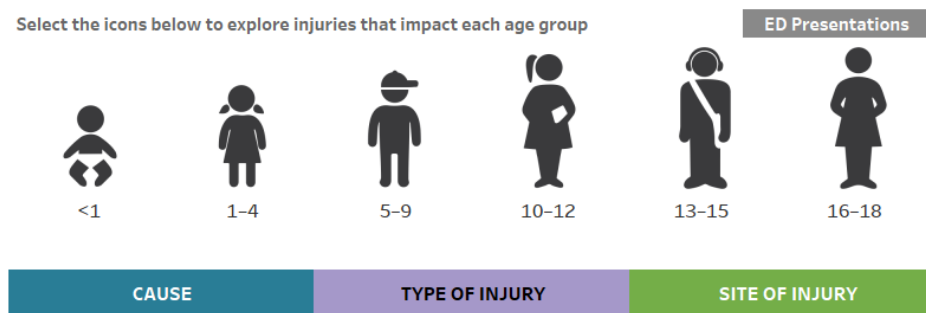
The following pages detail causes, types and sites of injury that disproportionately affect children by developmental stage compared to adults. Developmental stages used in this report are:

- infants (under one)
- early childhood (1–4)
- middle childhood (5–12)
- adolescence (13–18).

Figure 19 below summarises the key differences by developmental stage.

### Figure 19: Injury hospitalisation and emergency department presentation rate ratios of children compared to adults, by cause, type and site of injury, Australia, 2021–22

An interactive Tableau with causes, injury types and sites where rates are higher in child age groups compared to adults.



Notes:

1. Rate ratios use crude rates per 100,000 population
  2. 'Adults' include records where the patient age was specified in the range 19 and above.
- Source: AIHW National Hospital Morbidity Database.  
<https://www.aihw.gov.au/>

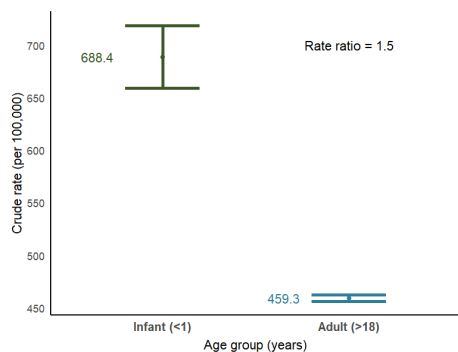
### How were injuries that affect children differently to adults identified?

Crude rates (per 100,000 population) of injury hospitalisations and ED presentations across each developmental stage were compared with the respective rate for the adult population. A 95% confidence interval was estimated for each rate using an exact Poisson method. A rate ratio was used to assess the difference between child and adult rates. A cause, type or site of injury was determined to be 'disproportionately' affecting an age group of children if it fulfilled the following criteria:

- **Rate ratio  $\geq 1.3$ :** the rate of injury hospitalisation or ED presentation for children is at least 1.3 times the rate for adults
- **Independence of confidence intervals:** the lower bound of the rate confidence interval for children did not overlap with the upper bound for adults.

An example of an injury type fulfilling these criteria is shown in Figure 20. For head and neck injuries, infants have a rate of hospitalisation of 688.4 per 100,000 and adults have a rate of 459.3 per 100,000. Comparing the groups, the rate of injury hospitalisation for infants is 1.5 times the rate for adults. The rate is above the cutoff of 1.3, and visually, we can confirm that there is no overlap of rate confidence intervals.

**Figure 20: Crude rates and confidence intervals of injury hospitalisations involving an injury to the head and neck, among infants aged under one, and adults aged over 18, Australia, 2021–22**



Notes:

1. Rates are crude per 100,000.
2. Confidence intervals are calculated using exact statistical Poisson method.

Sources: AIHW National Hospital Morbidity Database (NHMD) and ABS National, state and territory population.



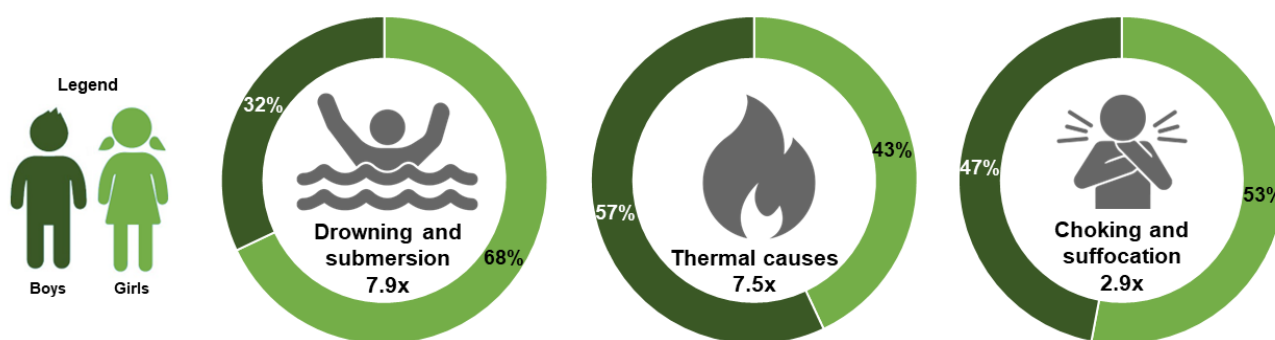
## Infants (less than one)

Infants under the age of one are more prone to certain types of injuries due to their developmental stage. At this age, infants are still developing their motor skills, coordination, and strength, which can make them more vulnerable to accidents and injuries. Additionally, infants are still learning about their environment and may not understand the dangers around them or how to avoid hazards (Kidsafe Tasmania 2014; Morrongiello & Matheis 2007).

### Causes

Infants are more likely than adults to be hospitalised for injuries caused by drowning and submersion, choking and suffocation, and thermal causes. Girls make up the majority of cases caused by drowning and submersion, and thermal causes (Figure 21).

**Figure 21. Injury hospitalisation rate ratios of infants aged under one compared to adults, and sex demographic proportions, by selected external cause, Australia, 2021–22**



### Drowning and submersion

The nature of drowning risks changes quite rapidly throughout childhood:

- infants are most likely to drown or have a near-drowning experience in the bathtub (Healthy children 2019)
- toddlers and pre-schoolers are more at risk around swimming pools (Heathdirect 2023)
- older children are more at risk in natural water, such as the ocean, rivers, or lakes (Royal Life Saving Australia 2023).

Injuries from water-based activities are most common in very young children (AIHW 2023c). Infants were 7.9 times more likely than adults to be hospitalised for an injury caused by drowning and submersion (8.2 and 1.0 per 100,000 respectively). For girls, this increased to 19 times (12 and 0.6 per 100,000 respectively). Over half of injury cases caused by drowning and submersion occurred in bathtubs (52%).

### Choking and suffocation

Infants and young children are most at risk of injury due to choking and suffocation. Common choking hazards include food, coins and button batteries, and small toys or parts of toys. Factors that may increase risk in this population include:

- a tendency for children this age to explore their environment using their mouth (The Royal Children's Hospital Melbourne 2018a)
- smaller airways which may get blocked easier (Denny et al. 2014)
- undeveloped teeth which hinders proper chewing (Better Health Channel 2014).

Infants had the highest rate of injury hospitalisation caused by choking and suffocation amongst children. They were 7.5 times more likely than adults to be hospitalised (38 and 5.0 per 100,000 respectively). Inhaled food was the most common threat to breathing that obstructed the respiratory tract (37%) followed by other objects (35%).

### Thermal causes

Younger children were most at risk of injuries due to thermal causes, which include burns and scalds caused by food and drink, contact with hot household appliances, and exposure to smoke, fire and flames (AIHW 2023g). Many injuries from thermal causes occur in the home, particularly in the kitchen (The Royal Children’s Hospital Melbourne 2021). Burn and scald injuries in young children can be more severe than adults due to their delicate skin (The Sydney Children’s Hospitals Network 2024).

The early years of childhood consist of rapid development of mobility and independence; As such, infants, and toddlers and preschoolers are more prone to different risks of thermal causes:

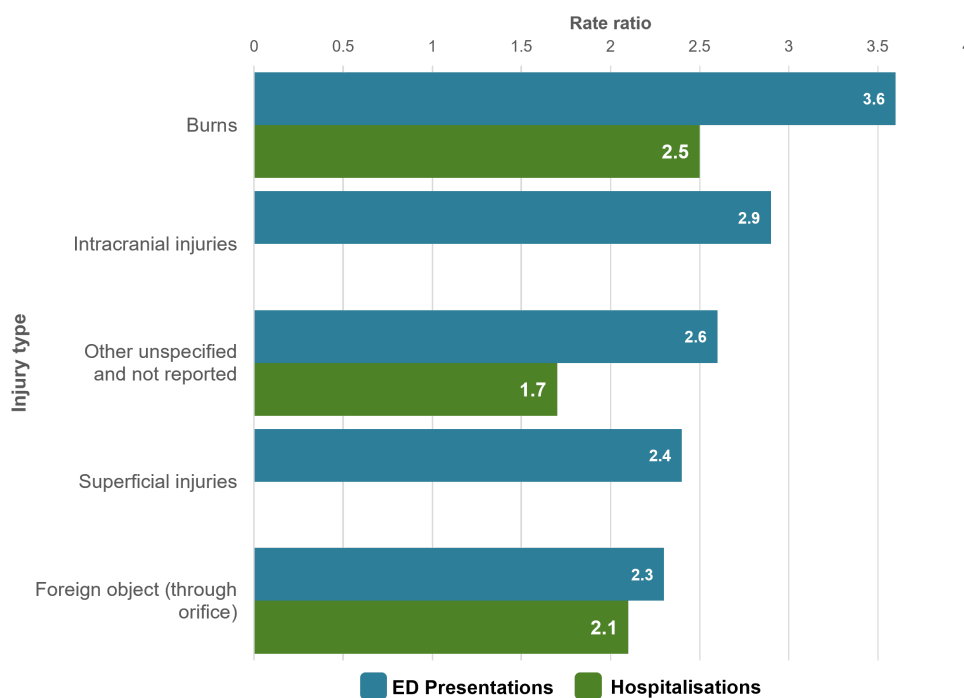
- infants are more reliant on their caregiver, and many burns and scalds occur while being held alongside the hot item, food or drink (Laitakari et al. 2012)
- toddlers and preschoolers are able to explore their environment, and are likely to touch or knock over objects containing hot substances (Better Health Channel 2019; John Hopkins Medicine 2024).

Infants were 2.9 times more likely than adults to be hospitalised for an injury from thermal causes (52 and 18 per 100,000 respectively). For girls, this increased to 4.4 times (56 and 13 per 100,000 respectively). Contact with hot drinks, food, fats and cooking oils was the most common thermal cause (36%), followed by hot household appliances (18%).

### Nature of injuries sustained

Infants experience higher rates of injury hospitalisation and ED presentation than adults for certain types and sites of injuries (Figure 22). Infants are at higher risk of burns than adults, being 3.6 times more likely to have an ED presentation, and 2.5 times more likely to have an injury hospitalisation.

**Figure 22: Selected rate ratios of injury emergency department presentations and hospitalisations among infants aged under one, by type of injury, 2021–22**



Some types of injury vary further between children and adults by sex. When comparing girls with women, girls were:

- 1.6 times more likely than women to have an ED presentation for dislocations
- 1.3 times more likely than women to be hospitalised for intracranial injuries.

Head and neck injuries made up 70% of infant injury hospitalisations, and 63% of injury ED presentations. Infants are 3.9 times more likely than adults to have an ED presentation for an injury to the head and neck, and 1.5 times more likely to be hospitalised. Infants are also 2.4 times more likely to have an injury hospitalisation for other, multiple, and incompletely specified body regions.

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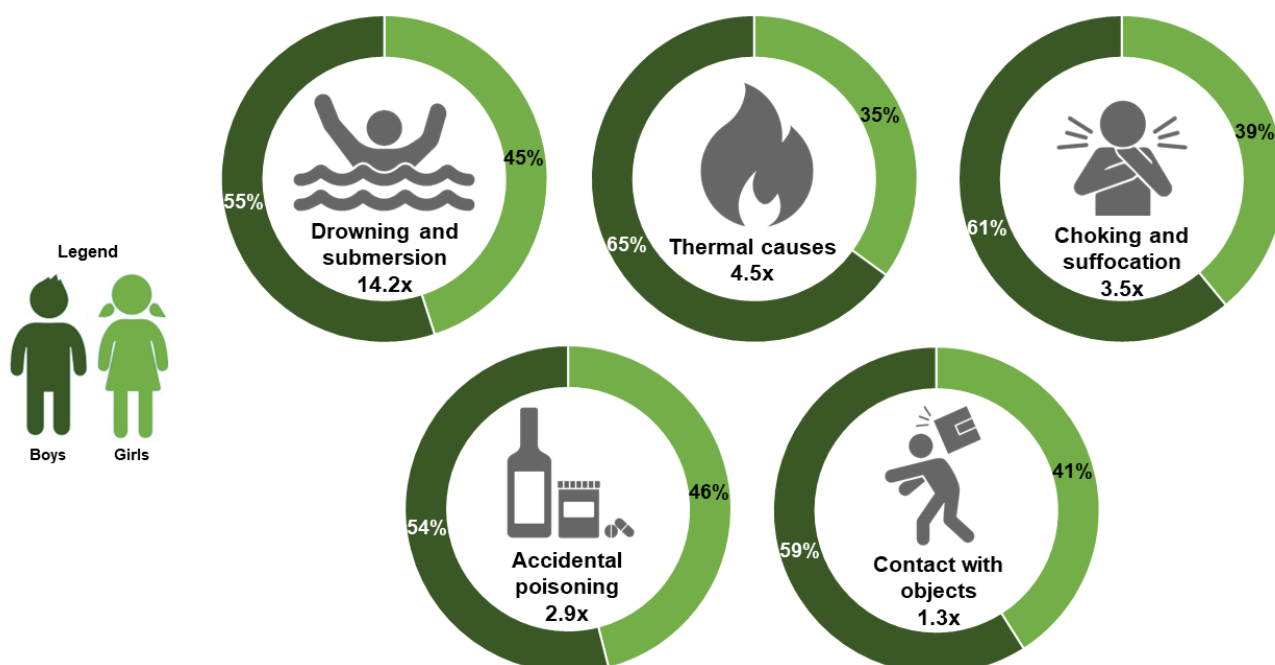
## Early childhood (1–4)

Toddlers and preschoolers aged 1–4 make up the early childhood developmental stage. As children progress beyond the infant stage, they begin to grow more independent and mobile, encountering new risks and mechanisms of injury. An increase in curiosity, and interest in their surroundings mean this age group is particularly prone to accidental injury and poisoning.

### Causes

Children aged 1–4 are more likely than adults to be hospitalised for injuries caused by drowning and submersion, thermal causes, choking and suffocation, accidental poisoning, and contact with objects. For each of these causes, boys make up the majority of cases (Figure 23).

**Figure 23: Injury hospitalisation rate ratios of children aged 1–4 compared to adults, and sex demographic proportions, by selected external cause, Australia, 2021–22**



### Drowning and submersion

Toddlers and preschoolers are most likely to drown or have a near-drowning experience in a swimming pool (Royal Life Saving Australia 2023).

Children aged 1–4 had the highest rate of injury hospitalisation caused by drowning and submersion amongst children. They were 14.2 times more likely than adults to be hospitalised (15 and 1.0 per 100,000 respectively). For girls, this increases to 23 times (14 and 0.6 per 100,000 respectively). Nearly 3 in 5 of these injury cases occurred in a swimming pool (59%).

### Thermal causes

Younger children were most at risk of injuries due to thermal causes, which include burns and scalds caused by food and drink, contact with hot household appliances, and exposure to smoke, fire and flames (AIHW 2023g). Many injuries from thermal causes occur in the home, particularly in the kitchen (The Royal Children's Hospital Melbourne 2021). Burn and scald injuries in young children can be more severe than adults due to their delicate skin (The Sydney Children's Hospitals Network 2024).

Toddlers and preschoolers rapidly gain mobility and independence in this stage of development. Through exploring their environment, they are likely to touch or knock over objects containing hot substances (Better Health Channel 2019).

Children aged 1–4 had the highest rate of injury hospitalisation due to thermal causes amongst children. They were 4.5 times more likely than adults to be hospitalised (81 and 18 per 100,000 respectively). The resulting type of injury from thermal causes for this age group was almost always a burn (968, 99%). Contact with hot drinks, food, fats and cooking oils was the most common thermal cause (32%), followed by other hot fluids (16%).

### Choking and suffocation

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Infants and young children are most at risk of injury due to choking and suffocation. Common choking hazards include food, coins and button batteries, and small toys or parts of toys. Factors that may increase risk in this population include:

- a tendency for children this age to explore their environment using their mouth (The Royal Children's Hospital Melbourne 2018a)
- smaller airways which may get blocked easier (Denny et al. 2014)
- undeveloped teeth which hinders proper chewing (Better Health Channel 2014).

Children aged 1–4 were 3.5 times more likely than adults to be hospitalised for an injury caused by choking and suffocation (18 and 5.0 per 100,000 respectively). Inhaled food was the most common threat to breathing that obstructed the respiratory tract (43%) followed by a foreign body in the respiratory tract (28%).

### Accidental poisoning

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Toddlers and preschoolers have a natural curiosity and desire to learn about the world around them. However, they often have not developed hazard perception skills, and so are vulnerable to accidental poisoning through ingestion of unattended or improperly stored cleaning products, medicines, cosmetics, and other harmful substances (Better Health Channel 2023; Grabska & Pilarska 2022).

Children aged 1–4 had the highest rate of injury hospitalisation due to accidental poisoning. They were 2.9 times more likely than adults to be hospitalised (98 and 34 per 100,000 respectively). This age group was most commonly poisoned by *other and unspecified drugs, medicaments and biological substances* (33%), which can include a wide range of substances such as vitamin tablets, cough syrups, hair dye and antibiotics.

### Contact with objects

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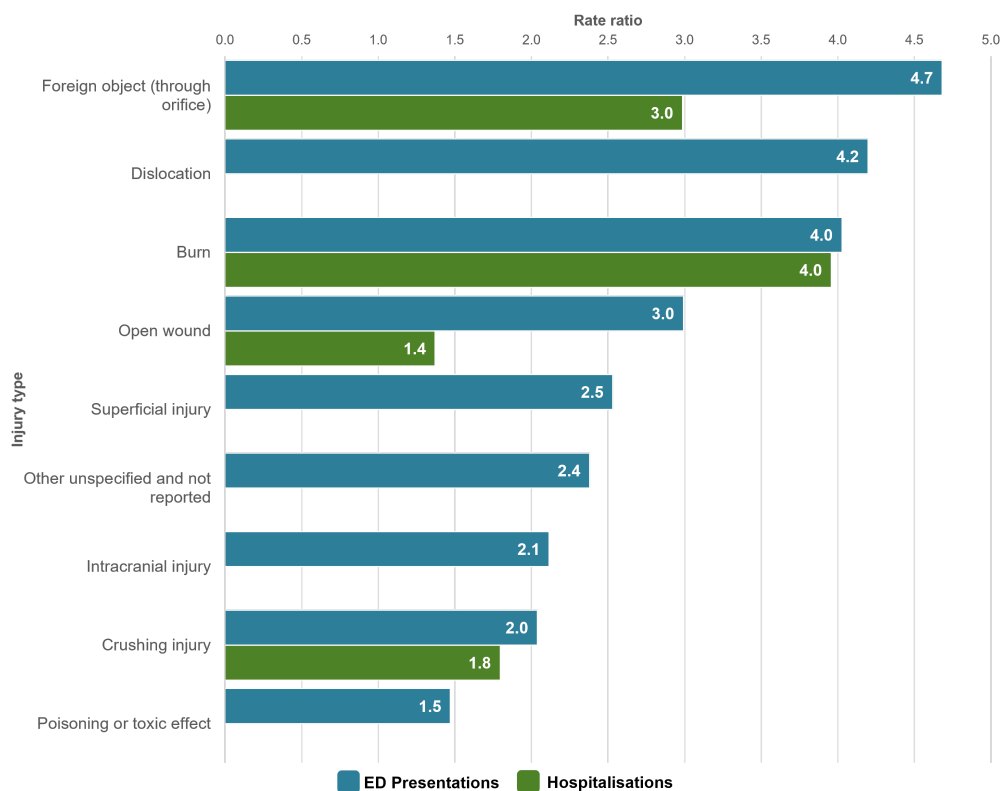
Many objects and pieces of furniture present an injury risk to young children. Injuries caused by contact with objects (known as *Exposure to inanimate mechanical forces* in ICD10 coding) can include being hit by a falling tree branch, having fingers caught in a door, or crushing from furniture tip-over. Toddlers and preschoolers often explore their environment through climbing. More than half of all injuries from furniture tip-over are for children aged less than 4 (The Royal Children's Hospital Melbourne 2018b).

Children aged 1–4 had the highest rate of injury hospitalisation due to contact with objects. They were 1.3 times more likely than adults to be hospitalised (403 and 314 per 100,000 respectively). For girls compared to women, this increases to 2.2 times (337 and 156 per 100,000 respectively). Around one-quarter of injuries caused by contact with objects for this age group was due to being *caught, crushed, jammed or pinched in or between objects* (24%), or by *striking against or struck by other objects* (23%).

### Nature of injuries sustained

Children aged 1–4 experience higher rates of injury ED presentations than adults for the majority of injury types. This age group is at higher risk of injuries involving a foreign object (through orifice) than adults, and was 4.7 times more likely to have an ED presentation, and 3.0 times more likely to have an injury hospitalisation (Figure 24). Over a quarter of these hospitalisations was for a foreign body in the ear (27%).

**Figure 24: Selected rate ratios of injury emergency department presentations and hospitalisations among children aged 1–4, by type of injury, 2021–22**

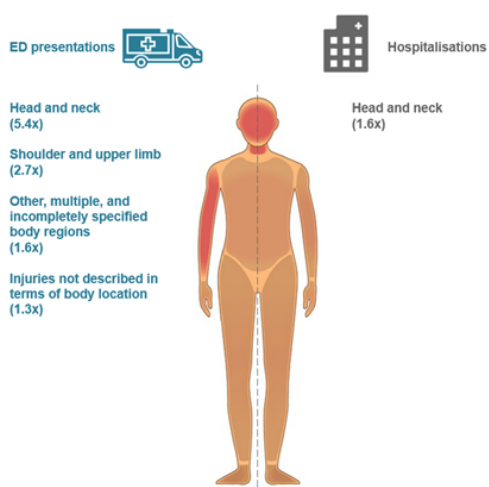


Some types of injury are more prevalent in children compared to adults only in one sex. When comparing girls aged 1–4 with women, girls were:

- 2.5 times more likely than women to have an ED presentation for amputation
- 3.0 times more likely than women to be hospitalised for amputation.

Head and neck injuries made up 53% of all injury ED presentations for 1–4 year-olds, and 50% of injury hospitalisations. The sites of injury that children aged 1–4 are more likely than adults to have an ED presentation or hospitalisation are shown in Figure 25.

**Figure 25: Selected rate ratios for emergency department presentations and hospitalisations among children aged 1–4, by site of injury, Australia, 2021–22**



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## Middle childhood (5–12)

### On this page

- [Introduction](#)
- [Children aged 5–9](#)
- [Children aged 10–12](#)

Children aged 5–12 make up the ‘middle childhood’ developmental stage. This age group tends to be in primary school, and typically spend more time engaging in physical activities such as organised sports or playing on playground equipment (ASC 2018). Socially, children at this age are often influenced by their peers and may engage in risky behaviours to fit in or impress their friends (Morrongiello & Sedore 2005).

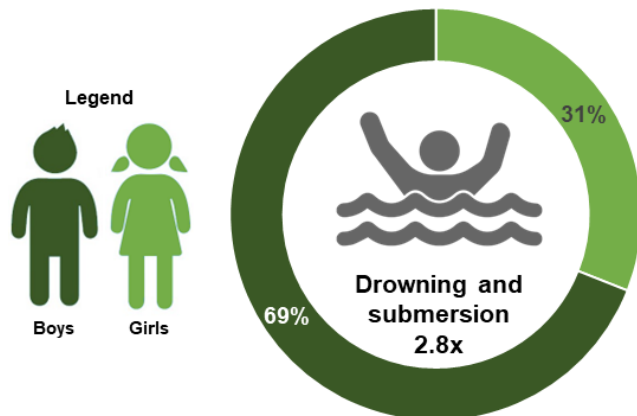
Within this developmental stage, children are split into age groups 5–9 and 10–12 for analysis due to differences in injury mechanisms.

### Children aged 5–9

#### Causes

Children aged 5–9 are more likely than adults to be hospitalised for injuries caused by drowning and submersion. For this cause, boys make up the majority of cases (Figure 26). This age group was 2.8 times more likely than adults to be hospitalised (3.0 and 1.0 per 100,000 respectively). For girls, this increases to 3.2 times (1.9 and 0.6 per 100,000 respectively). Nearly 3 in 5 of these injury cases occurred in a swimming pool (58%).

**Figure 26: Injury hospitalisation rate ratios of children aged 5–9 compared to adults, and sex demographic proportions, by selected external cause, Australia, 2021–22**



Some causes of injury are more prevalent in children compared to adults only in one sex. When comparing girls aged 5–9 with women, girls were:

- 1.4 times more likely to be hospitalised for an injury caused by contact with objects
- 1.3 times more likely to be hospitalised for an injury due to thermal causes.

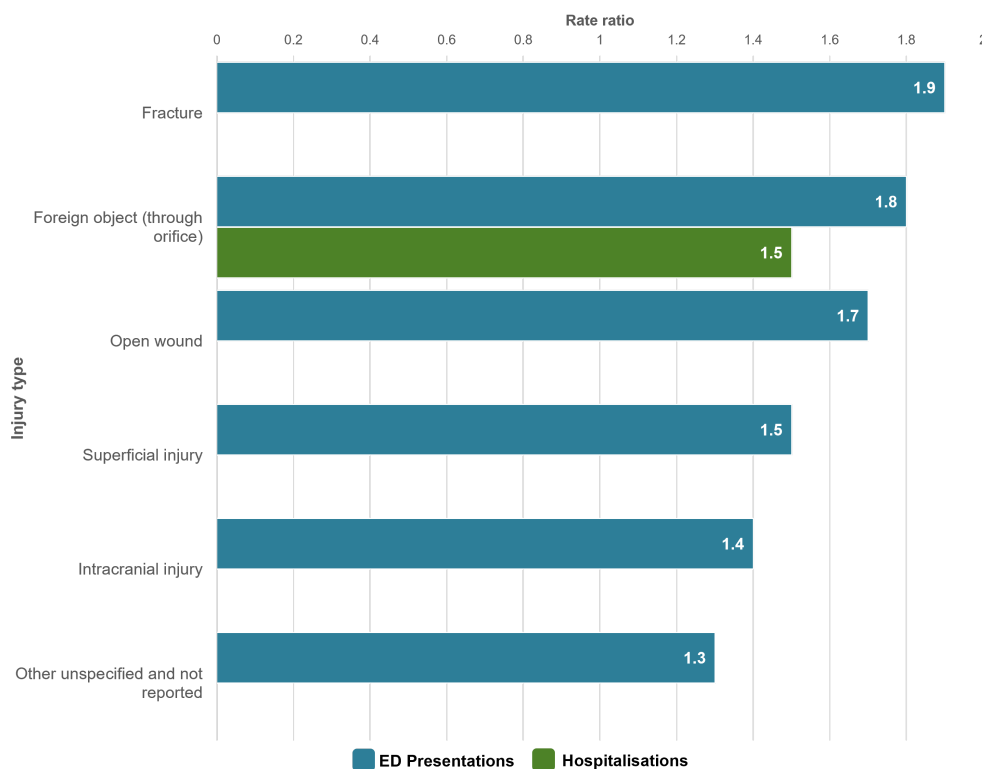
#### Nature of injuries sustained

Children aged 5–9 experience higher rates of injury ED presentation than adults for certain injury types. This age group was 1.9 times more likely to have an ED presentation for a fracture (Figure 27). Over 3 in 5 fractures presenting to the ED involved the shoulder and upper limb (62%).

Injuries involving a foreign object (through orifice) were also prevalent in this age group, and they were 1.8 times more likely to have an ED presentation and 1.5 times more likely to have an injury hospitalisation. Over half of these hospitalisations were for a foreign body in the ear (54%).



**Figure 27: Selected rate ratios of injury emergency department presentations and hospitalisations among children aged 5–9, by type of injury, 2021–22**



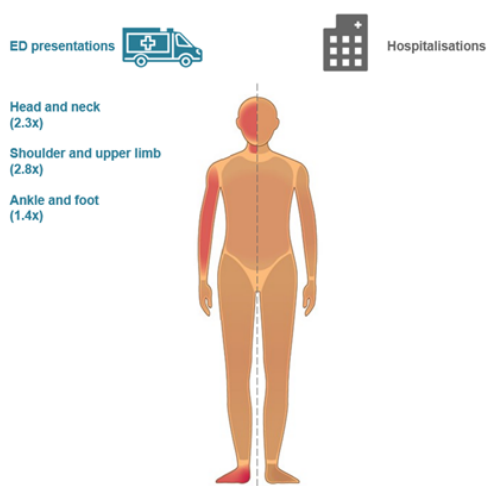
Some types of injury were more prevalent in children compared to adults only in one sex. When comparing girls aged 5–9 with women, girls were more likely to have an ED presentation for a:

- crushing injury (1.8 times)
- burn (1.3 times)
- soft-tissue injury (1.3 times).

For hospitalisations, girls were more likely than women to be admitted for a crushing injury (1.8 times) or a burn (1.4 times).

The sites of injury for which children aged 5–9 were more likely than adults to have an ED presentation or hospitalisation are shown in Figure 28.

**Figure 28: Selected rate ratios for emergency department presentations and hospitalisations among children aged 5–9, by site of injury, Australia, 2021–22**



Additionally, girls were 1.6 times more likely to have an ED presentation for an injury to the wrist and hand.

## Children aged 10–12

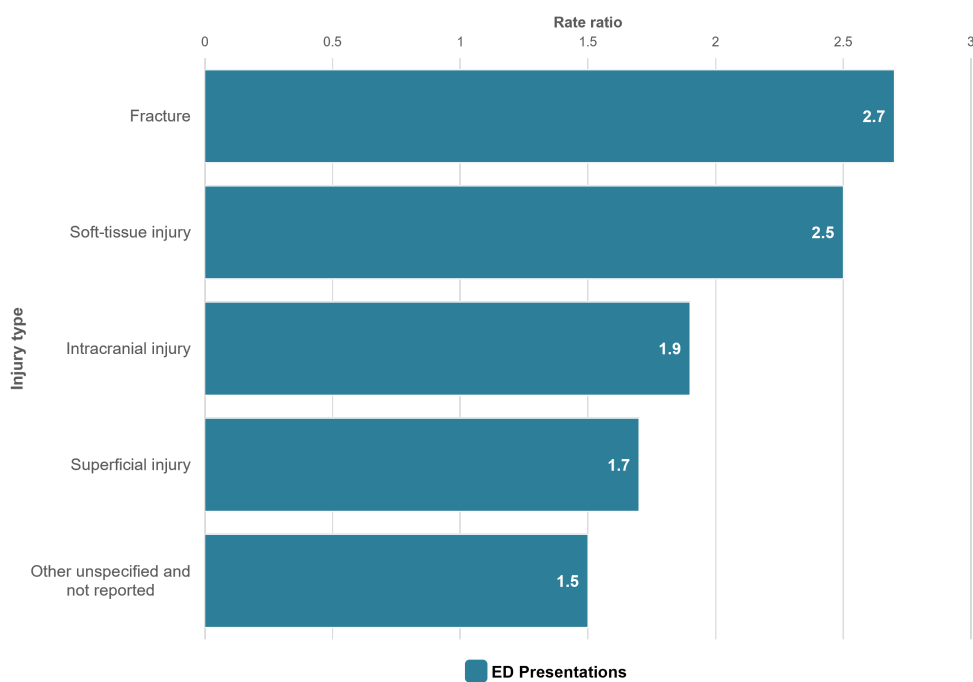
### Causes

Children aged 10–12 had no causes where they experienced significantly higher rates of injury compared to adults.

### Nature of injuries sustained

Children aged 10–12 experience higher rates of injury ED presentation than adults for certain injury types. This age group was 2.7 times more likely to have an ED presentation for a fracture (Figure 29). 45% of these fractures presenting to the ED involved the shoulder and upper limb.

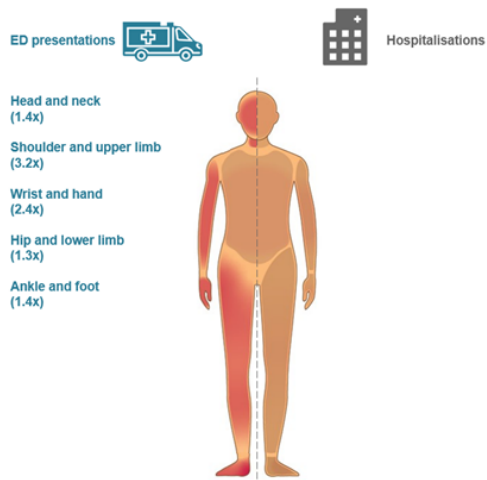
**Figure 29: Selected rate ratios of injury emergency department presentations among children 10–12, by type of injury, 2021–22**



Additionally, girls are 1.3 times more likely than women to be hospitalised for a burn.

The sites of injury that children aged 10–12 are more likely than adults to have an ED presentation or hospitalisation are shown in Figure 30.

**Figure 30: Selected rate ratios for emergency department presentations and hospitalisations among children aged 10–12, by site of injury, Australia, 2021–22**



Boys were also 1.3 times more likely than men to be hospitalised for an injury to the shoulder and upper limb.

## References

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## Adolescence (13–18)

### On this page

- [Introduction](#)
- [Adolescents aged 13–15](#)
- [Adolescents aged 16–18](#)
- [Intentional self-harm](#)

Adolescents aged 13–18 make up the oldest child developmental stage. This age group tends to be in high school or undertaking an apprenticeship, and while they are beginning to physically resemble adults, there are still significant differences in maturity and decision-making capabilities (Arain et al. 2013). Additionally, adolescents may be more likely to engage in risky behaviours, such as experimenting with drugs or alcohol, or driving recklessly, which can increase their risk of injury (CARRS 2021).

Peer pressure and the desire to fit in can also play a role in teenagers' decision-making and may lead them to take risks that they otherwise would not, in addition to increased prevalence of mental health disorders that may lead to intentional self-injury (AIHW 2021a; Tian et al. 2019).

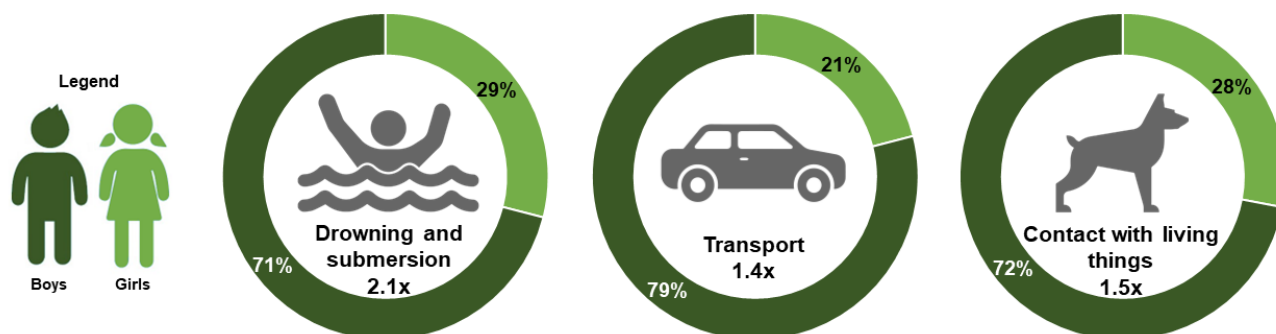
Within this developmental stage, children are split into ages 13–15 and 16–18 for analysis due to differences in injury mechanisms. The exception to this is intentional self-harm, where due to data sensitivities, the age groups are aggregated and presented as one.

### Adolescents aged 13–15

#### Causes

Adolescents aged 13–15 are more likely than adults to be hospitalised for injuries caused by drowning and submersion, transport, and contact with living things. For each of these causes, boys make up the majority of cases (Figure 31).

**Figure 31: Injury hospitalisation rate ratios of adolescents aged 13–15 compared to adults, and sex demographic proportions, by selected external cause, Australia, 2021–22**



#### Drowning and submersion

Older children are more at risk in natural water, such as the ocean, rivers, or lakes (Royal Life Saving Australia 2023).

Adolescents aged 13–15 are 2.1 times more likely than adults to be hospitalised for an injury caused by drowning and submersion (2.2 and 1.0 per 100,000 respectively). Around half of injury cases caused by drowning and submersion occurred while in natural water, such as the ocean or a lake (48%).

#### Transport

Adolescents aged 13–15 were 1.4 times more likely than adults to be hospitalised for an injury caused by transport (360 and 249 per 100,000 respectively). Boys in this age group had the highest rate of hospitalisation overall for transport collisions (554 per 100,000), and were 1.6 times more likely than men to be hospitalised.

The most common modes of transport for the injured child in this age group were:

- pedal cycle (46%)
- motorcycle (28%)
- car (9%).

### Contact with living things

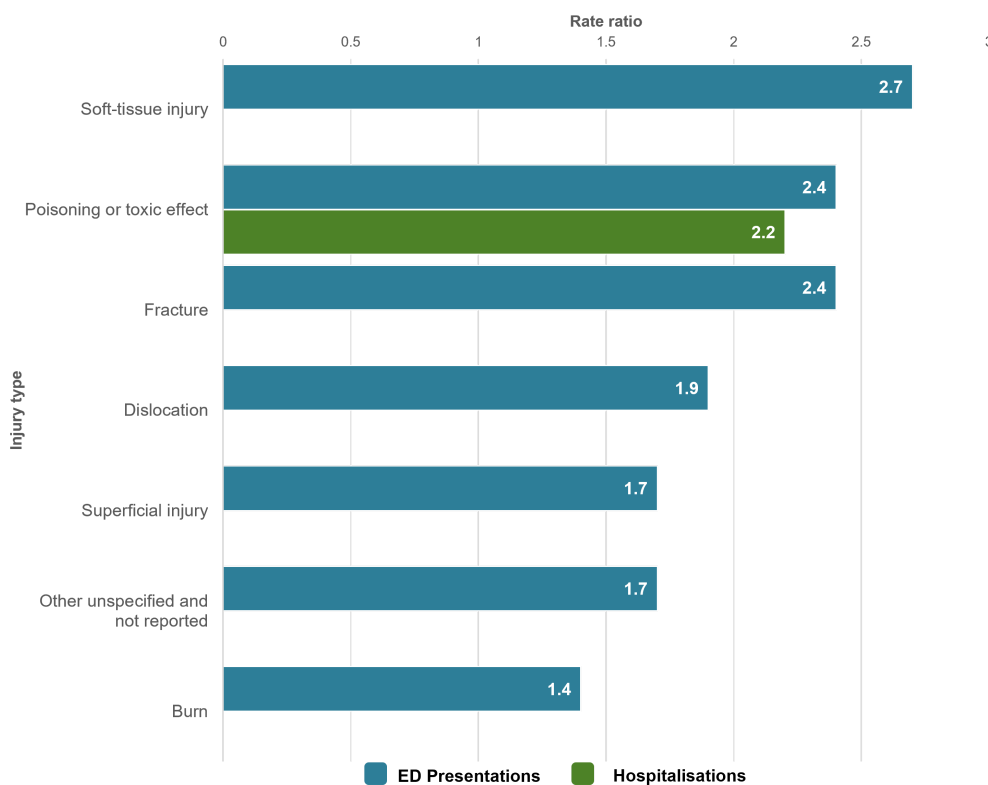
Adolescents aged 13–15 were 1.3 times more likely than adults to be hospitalised for an injury caused by contact with living things (145 and 111 per 100,000 respectively). For boys in this age group, this increases to 1.6 times (201 and 122 per 100,000 respectively).

Nearly 2 in 5 hospitalisations caused by contact with living things involved being hit, struck, kicked, twisted, bitten or scratched by another person (39%), while a further 1 in 5 involved striking against or being bumped into by another person (22%).

### Nature of injuries sustained

Adolescents aged 13–15 experience higher rates of injury than adults for certain injury types. This age group was 2.4 times more likely to have an ED presentation for poisoning or toxic effect, and 2.2 times more likely to be hospitalised (Figure 32).

**Figure 32: Selected rate ratios of injury emergency presentations and hospitalisations among adolescents aged 13–15, by type of injury, 2021–22**



Some types of injury are more prevalent in children compared to adults only in one sex. When comparing girls aged 13–15 with women, girls were more likely to have an ED presentation for a:

- foreign object (through orifice) (2.0 times)
- crushing injury (1.5 times).

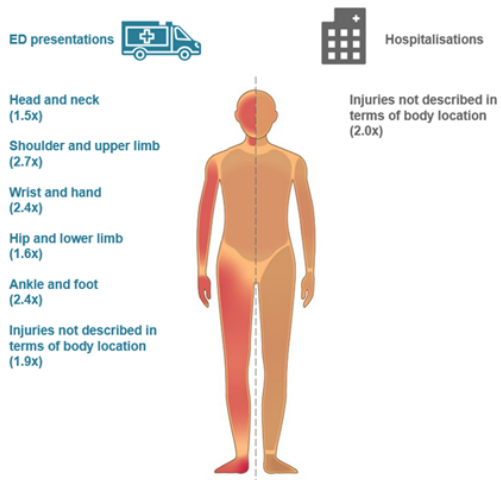
This age group was also 2.2 times more likely to be hospitalised for an injury involving poisoning or toxic effect. For girls, this increases to 3.5 times (515 and 147 per 100,000 respectively).

For hospitalisations there are also differences in injury mechanism by sex:

- girls are more likely than women to be hospitalised for a crushing injury (1.7 times) or foreign object (through orifice) (1.3 times)
- boys are more likely than men to be hospitalised for a fracture (1.4 times).

The sites of injury that adolescents aged 13–15 are more likely than adults to have an ED presentation or hospitalisation are shown in Figure 33.

**Figure 33: Selected rate ratios for emergency department presentations and hospitalisations among adolescents aged 13–15, by site of injury, Australia, 2021–22**



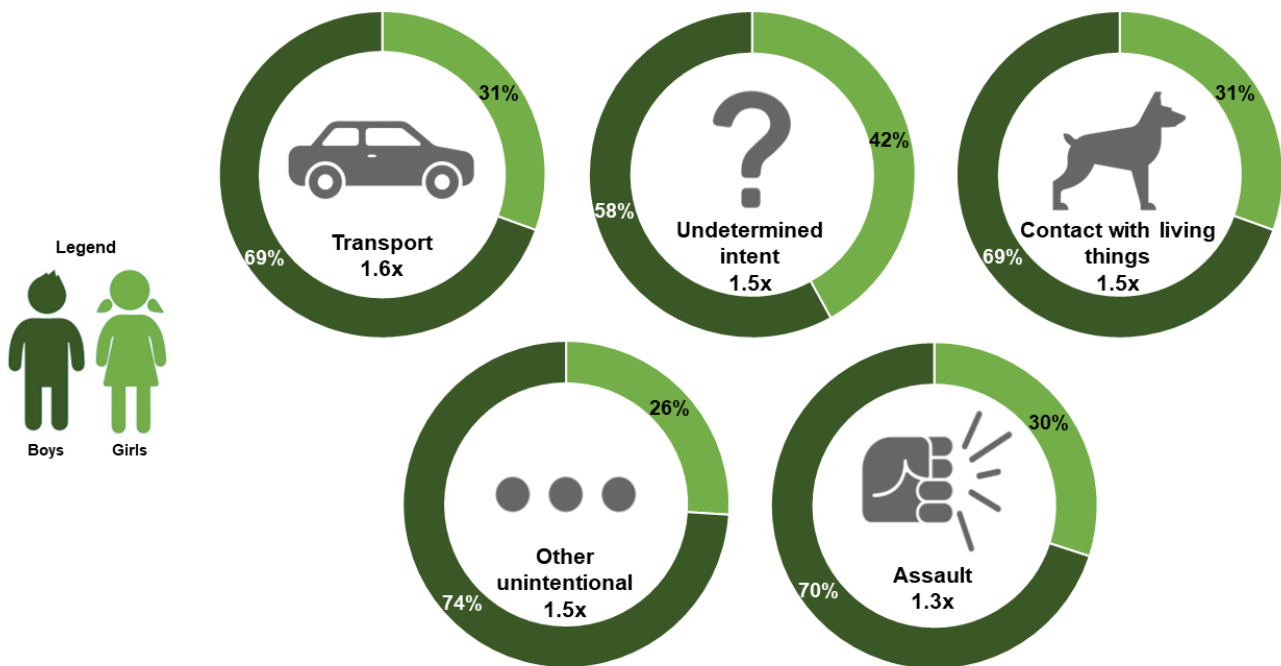
This age group was also more likely to be hospitalised for injuries not described in terms of body location (2.0 times). Boys were more likely than men to be hospitalised for injuries to the shoulder and upper limb (1.7 times).

### Adolescents aged 16–18

#### Causes

Adolescents aged 16–18 are more likely than adults to be hospitalised for injuries caused by transport, undetermined intent, contact with living things, other unintentional causes, and assault. For each of these causes, boys make up the majority of cases (Figure 34).

**Figure 34. Injury hospitalisation rate ratios of adolescents aged 16–18 compared to adults, and sex demographic proportions, by selected external cause, Australia, 2021–22**



Some causes of injury are more prevalent in children compared to adults only in one sex. When comparing boys aged 16–18 with men, boys were 2.1 times more likely to be hospitalised for an injury caused by drowning and submersion.

## Transport

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Adolescents aged 16–18 were 1.6 times more likely than adults to be hospitalised for an injury caused by transport (404 and 249 per 100,000 respectively). 69% of these hospitalisations were for boys.

The most common modes of transport for the injured child in this age group were:

- car (35%)
- motorcycle (31%)
- pedal cycle (16%)

## Contact with living things

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Adolescents aged 16–18 were 1.5 times more likely than adults to be hospitalised for an injury caused by contact with living things (164 and 111 per 100,000 respectively). For boys, this increases to 1.8 times (219 and 122 per 100,000).

2 in 5 hospitalisations caused by contact with living things involved being hit, struck, kicked, twisted, bitten or scratched by another person (40%), while a further 1 in 5 involved striking against or being bumped into by another person (21%).

## Assault

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Assault is intentional violence against another person resulting in injury. Adolescents and young adults aged 15–24 are the demographic in Australia most likely to experience physical assault (ABS 2023). This age group has a higher risk of experiencing workplace violence (Brown et al. 2020).

Adolescents aged 16–18 were 1.3 times more likely than adults to be hospitalised for an injury caused by assault (119 and 92 per 100,000 respectively). 70% of these hospitalisations were for boys.

3 in 5 assaults perpetrated against this age group were assault by bodily force (61%). 63% of these hospitalisations had a perpetrator specified; of these the most common were:

- multiple persons unknown to the victim (23%)
- person unknown to the victim (19%)
- spouse or domestic partner (17%).

Girls were more likely than boys to have an injury hospitalisation where the assault was perpetrated by a spouse or domestic partner (27 and 2.8 per 100,000 population respectively), while boys were more likely to report being assaulted by an unknown person (30 and 9.7 per 100,000 respectively).

## Undetermined intent

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In cases where the cause of injury is known but it is unclear if the act was accidental or intentional, hospital and death records can be coded to identify that the intent was undetermined. Adolescents aged 16–18 were 1.5 times more likely than adults to be hospitalised for an injury with undetermined intent (23 and 15 per 100,000 respectively). For girls, this increases to 1.7 times (20 and 11 per 100,000).

Poisoning was the most common external cause of injury (131, 64%), followed by contact with blunt object (33, 16%).

## Other unintentional causes

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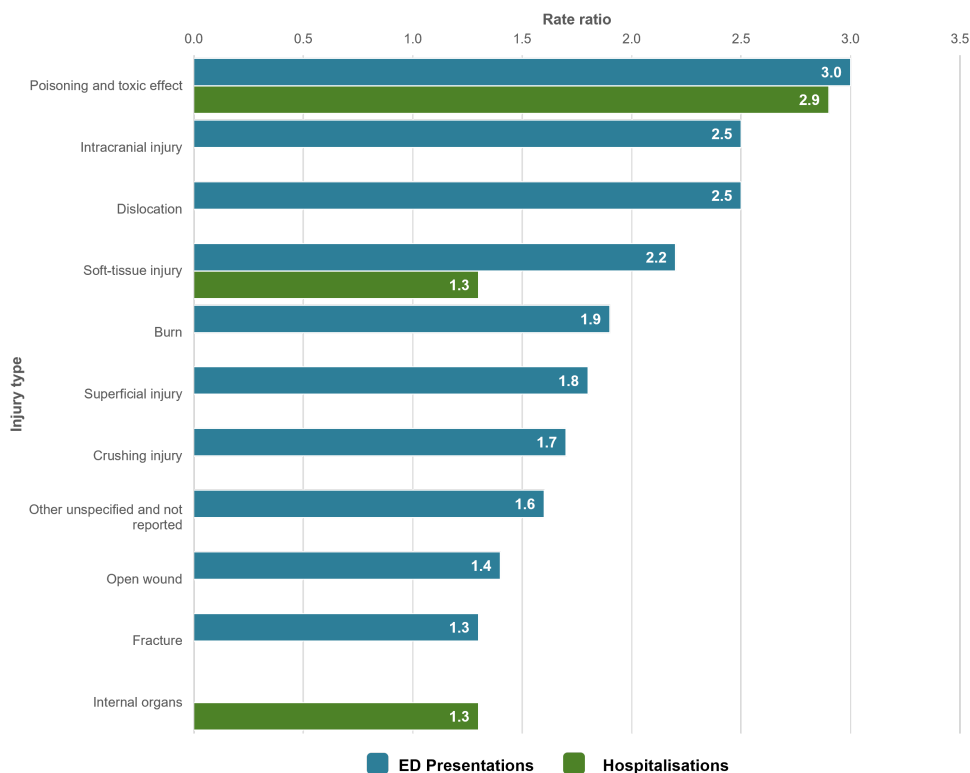
Other unintentional causes include unintentional injury hospitalisations not principally caused by any of the main causes described in the other cause groups, or where there may not have been enough information to specify the cause. Adolescents aged 16–18 were 1.5 times more likely than adults to be hospitalised for an injury caused by other unintentional causes (335 and 230 per 100,000 respectively).

## Nature of injuries sustained

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Adolescents aged 16–18 experience higher rates of injury than adults for certain injury types. This age group was 3.0 times more likely to have an ED presentation for poisoning or toxic effect, and 2.9 times more likely to be hospitalised (Figure 35).

**Figure 35: Selected rate ratios of injury emergency department presentations and hospitalisations among adolescents aged 16–18, by type of injury, 2021–22**

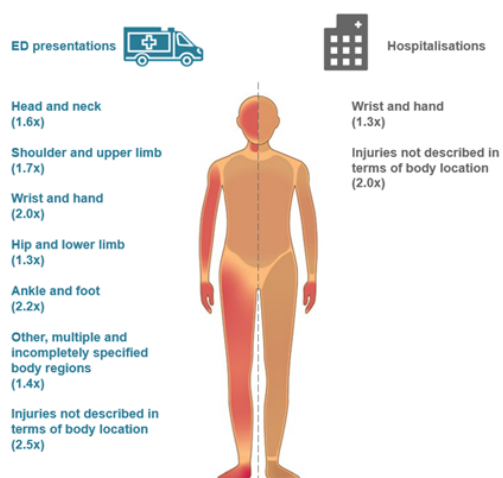


Boys aged 16–18 were 1.3 times more likely than men to have an ED presentation for internal organ injuries. They were also 1.3 times more likely to be hospitalised for intracranial injuries, dislocations, and nerve injuries.

Girls aged 16–18 were more likely than women to have an ED presentation for foreign object (through orifice) injuries (2.1 times), and other specified and/or multiple injuries (1.6 times). They were also 1.4 times more likely to be hospitalised for foreign object (through orifice) injuries.

Figure 36 shows the site of injury where adolescents aged 16–18 are more likely than adults to have an injury ED presentation or hospitalisation.

**Figure 36: Selected rate ratios for emergency department presentations and hospitalisations among adolescents aged 16–18, by site of injury, Australia, 2021–22**



Boys are more likely than men to be hospitalised for injuries to the ankle and foot (1.4 times).



## Intentional self-harm

Determining if an injury was intentional is not always straightforward, especially when children are involved. 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. For this reason, statistics about hospitalisations due to intentional self-harm are presented here only for adolescents aged 13 to 18 as aggregated groups.

Note that values for intentional self-harm used in the Causes of injury chapter are for children and adolescents aged 0 to 18 inclusive, to allow for comparison between other cause groups. Consequently, there are variations in the rates presented between chapters.

For more information, see the AIHW's reports on [suicide and self-harm monitoring](#).

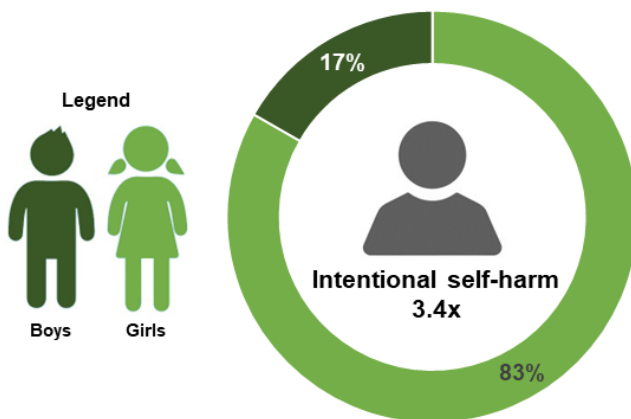
Research indicates that self-harm injuries are on the rise, and are contributing a greater proportion of injuries amongst adolescents and young adults aged 13–24 (Pollock et al. 2024). Adolescents are at a developmental stage where they are experiencing many physical, emotional, and social changes. These changes can be challenging and can contribute to feelings of stress, anxiety, and depression (Jiang et al. 2021). Adolescents may also struggle with issues related to identity, self-esteem, and relationships, which can increase their risk of engaging in self-harm or suicidal behaviours (McEvoy et al. 2023).

Additionally, adolescents may not have fully developed coping skills or support systems to help them deal with these challenges, which can make them more vulnerable to self-harm and suicide. Some population groups are at heightened risk of injury, including:

- adolescents in the youth justice and child welfare systems (Shepherd et al. 2018)
- First Nations adolescents (AIHW 2023e)
- the LGBTIQ+ community (Hill et al. 2023)
- adolescents living in rural and remote areas (Fitzpatrick et al. 2021).

Adolescents aged 13–18 were 3.4 times more likely than adults to be hospitalised for injuries caused by intentional self-harm. Over 4 in 5 of these hospitalisations were for girls (Figure 37).

**Figure 37: Injury hospitalisation rate ratios of children aged 13–18 compared to adults, and sex demographic proportions, for hospitalisations caused by intentional self-harm, Australia, 2021–22**



### Girls are more likely to be hospitalised for intentional self-harm than boys

Girls aged 13–18 were hospitalised for injuries caused by intentional self-harm at a rate of 582 per 100,000 population. Comparatively, boys were hospitalised at a rate of 110 per 100,000.

87% of these hospitalisations for girls involved intentional self-poisoning, compared to 76% for boys. The most common external causes of injury for each sex were:

- girls – *intentional self-poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics* (45%)
- boys – *intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified* (34%).

It is important to note that while females generally have higher rates of hospitalisations caused by intentional self-harm, males have higher rates of death by suicide (AIHW 2023c).

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## Technical notes

### Data sources

#### Hospitalisations

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Hospitalisations data on injury cases are sourced from the Australian Institute of Health and Welfare's (AIHW) [National Hospital Morbidity Database \(NHMD\)](#). The NHMD is a compilation of episode-level records from admitted patient morbidity data collection systems (APC NMDS) in Australian public and private hospitals. It includes episodes of care for admitted patients in all public and private acute and psychiatric hospitals, free standing day hospital facilities and alcohol and drug treatment centres in Australia. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's offshore territories may also be included. Hospitals specialising in dental, ophthalmic aids and other specialised acute medical or surgical care are included. Data quality statements for the NHMD are available on the AIHW [MyHospitals](#) website. For more information about data contained in the NHMD refer to the AIHW [MyHospitals](#) technical notes.

#### Emergency department presentations

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Emergency department (ED) data are sourced from the [National Non-admitted Patient Emergency Department Care Database \(NNAPEDCD\)](#). Data quality statements for this dataset are available on the AIHW [MyHospitals](#) website. For the 2021–22 NNAPEDC NMDS/NBEDS, diagnosis information was reported using the ED ICD-10-AM version 11 shortlist that can be found on the website of the Independent Hospital Pricing Authority.

For more information about data contained in the NNAPEDCD refer to the [MyHospitals technical notes for recent years](#).

#### Population data

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Population data are used for demographic analyses and as the denominator in calculating rates. All population level calculations are based on the estimated resident population (ERP) calculated as at the midpoint of each financial year. For example, for the reporting period 2021–22, the denominator population is the June 2021 ERP + the June 2022 ERP, divided by 2. This is used as the denominator for age specific/crude and age standardised rates.

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

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

- General populations are from [National, state and territory population - external site opens in new window](#)
- Remoteness populations (available on request from ABS)
- Indigenous populations are from Estimates and Projections, Aboriginal and Torres Strait Islander Australians (ABS 2019).

#### Sport and physical recreation participation data

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AusPlay data is collected by Engine on behalf of Sport Australia. Australian residents are randomly selected using their mobile phone number and interviewed via a computer assisted telephone interview (CATI). The target sample size is 20,000 people aged 15 years and over, who are asked about their own participation, as well as any child under the age of 15 that they are the parent/guardian of. Due to differences in collection methods, data from the child cohort (0–14) should not be compared against Australians aged 15 and over. The survey period for the 2021–22 data is 1 July 2021 to 30 June 2022.

The sample data is projected to population estimates using a common post-stratified weighting (scaling) method. As the survey estimates are based on a sample, rather than the full population, they will have sample error. One measure of the sample error is the relative margin of error (RMOE). Survey estimates with a RMOE between 50% and 100% should be used with caution. Survey estimates with a RMOE greater than 100% are considered too unreliable to use.

AusPlay survey respondents answer questions about their participation in sports and physical recreation in the 12 months prior to interview. A respondent needs only to have participated once in the previous 12 months to be counted as a participant. The survey does not distinguish between organised sports and recreational participation. Thus, for example, a participant in soccer may have

played consistently in an organised competition over a 6 month period, or may have played soccer recreationally at a park with friends: both are treated equally as soccer participants.

For full information on the AusPlay to ICD-10-AM code mapping used for this report, see the [Sports Injury in Australia technical notes](#).

## Glossary

[Injury topic glossary](#).

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## What is counted in this report?

Cases of injury are included in numerators or counts in this report where injury case identification criteria are fulfilled and a patient age between 0–18 inclusive can be ascertained.

### Timeframe

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The report focuses on the 2021–22 financial year except for trends over time, which are described by financial year between 2012–13 and 2021–22.

### Injury case identification

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A diagnosis of injury is defined as ICD-10-AM codes in the range S00–T75 or T79, using ‘Chapter 19 Injury, poisoning and certain other consequences of external causes’. A primary diagnosis of injury is when one of the specified codes is the first diagnosis code reported, while an additional diagnosis of injury is when one of the specified codes is reported but not as the first diagnosis.

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. If a single incident led to an admission in more than one hospital, the incident has only been counted once. Therefore, counts of injury cases will be lower than the count of hospital records indicating injuries.

### Inclusion criteria

- Records with the maximal snapshot id in any database where the date of separation falls within the timeframe defined in the report.
- NHMD or NNAPEDCD records with a principal diagnosis in the ICD 10 AM range S00–T75 or T79, using ‘Chapter 19 Injury, poisoning and certain other consequences of external causes’.
- NHMD records with a separation date between 1 July 2012 to 30 June 2022.
- NNAPEDCD records with a presentation date between 1 July 2021 to 30 June 2022.
- Patient age specified between 0–18 years inclusive for ‘children’, and specified age greater than or equal to 19 for ‘adults’.

### Exclusion criteria

- Records were excluded where the AIHW ‘standard analysis’ flag was absent, that is, care type was newborn with unqualified days only (7.3), organ procurement – posthumous (9), or hospital boarder (10).
- 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) are excluded.

### Estimating index cases, not counting separations

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, therefore, more than one record.

To minimise the impact of overcounting where a person experienced multiple episodes of care relating to the same condition, the following criteria are applied to estimate incidents:

- Excludes records where admission mode is transfer from another hospital (1)
- Excludes records where admission mode is statistical admission (2) and care type is not acute (1, 7.1, 7.2)
- Excluding records where care involving use of rehabilitation procedures (Z50) appears as an additional diagnosis and care type is not acute (1, 7.1, 7.2).

### Injury classifications from ICD-10-AM

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Diagnosis, intervention, and external cause data in the NHMD for 2021–22 was reported to 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.

### Categorising external causes of injury

The NHMD is structured so that the first listed external cause for a record relates to the first listed injury diagnosis (principal 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 U92.0 (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.

The categorisation of external causes using ICD-10-AM codes are detailed in [Appendix tables to technical notes for Injury in Australia](#).

Due to differences in state/territory data collection, no nationally comparable external cause data is available for NNAPEDCD records.

### Categorising type and site of injury

Type of injury includes, for example, fractures and poisoning. Site of injury includes, for example, head and neck or wrist and hand.

To categorise injuries by type and body part injured, Injury in Australia's principal diagnosis matrix has been applied (as outlined in the [Appendix tables to technical notes for Injury in Australia](#)). 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 hospitalised injury cases because some injuries are not described in terms of body region.

### Demographics

Common demographic categories are defined in Table 1.

Table 1: Defining common demographic categories

Characteristic	Notes
Sex	The NHMD and NNAPEDCD reports sex as male or female. Persons totals include records where sex is intersex, indeterminate or missing and may therefore not equal male + female counts.
Age and age-group	The patient's age is calculated at the date of admission. In tables by age group and sex, cases for which age and/or sex were not reported are included in the totals.  Age is categorised into child developmental stage age groups namely under one, 1–4, 5–9, 10–12, 13–15, 16–18. Patients with a specified age greater than or equal to 19 are grouped under 'adults'.
Remoteness	SA1 or SA2 area of usual residence as supplied in the NHMD is mapped to the ABS's ASGS Remoteness structure 2016 and categorised into the following remoteness regions; major cities, inner regional, outer regional, remote and very remote. Due to small counts, remote and very remote regions have been aggregated in this report to reduce the need for data suppression.



## Analysis

The Australian ERP as at 30 June 2001 is used as the standardising population throughout the report. Age-standardisation of rates enables valid comparison across years and/or jurisdictions without being affected by differences in age distributions.

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.

All rate calculations utilise a denominator based on the estimated resident population (ERP) calculated as at the midpoint of each financial year. For example, for the reporting period 2021–22, the denominator population is the June 2021 ERP + the June 2022 ERP, divided by 2. This is used as the denominator for age specific/crude and age standardised rates. Rates are calculated for each financial year unless otherwise noted.

Common measure calculations are outlined in Table 2.

Table 2: Common measure calculations

Measure	Numerator	Denominator	Calculation
Population (used for rates)	June 21 population + June 2022 population	2	Numerator ÷ Denominator
Crude or age-specific rate of hospitalisation	Number of cases of injury hospitalisation per defined category (for example, age group)	Estimated Australian population as at mid-point of financial year	(Numerator ÷ Denominator) x 100,000
Age-standardised rate (ASR). Age-standardised rates were derived using 5-year age groups up to 85+. Age-standardised rates for First Nation populations were derived using 5-year age groups up to 65+.	Expected events per age group in standard population = crude rate of hospitalisation x standard population (for each corresponding age group)		The direct method of standardisation is used.  (Sum of numerators across all age groups ÷ total standard population) x 100,000
Average length of stay	Number of patient bed days	Number of cases	Numerator ÷ Denominator, as days, rounded to 1 decimal place
Change in rates	Sum of rate changes	Number of years	Estimated trends in age-standardised rates were reported as average annual percentage changes.
Rate ratios	Crude rate of hospitalisations for a defined age group among children	Crude rate of hospitalisations among adults	Numerator ÷ Denominator
Crude rates of sports injuries	Number of cases of injury hospitalisation per defined category (e.g. age group)	AusPlay Participant estimate data for the given financial year	(Numerator ÷ Denominator) x 100,000



Note that 'average length of stay', as presented in this report, does not include some patient days potentially attributable to injury. It does not include 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.

Due to rounding, percentages in tables may not add up to 100.0.

## Remoteness

Remoteness is based off the patient's usual place of residence. Remoteness areas in Australia are comprised of 5 groups (Major cities, Inner regional, Outer regional, Remote, and Very remote) categorised by the Accessibility/Remoteness Index of Australia Plus (ARIA+). These ARIA+ values are derived using the Statistical Area Level 1 (SA1) from the Australian Statistical Geography Standard (ASGS) 2016.

Remoteness area	Average ARIA+ range for SA1
Major cities of Australia	0 to 0.2
Inner regional Australia	Greater than 0.2 and less than or equal to 2.4
Outer regional Australia	Greater than 2.4 and less than or equal to 5.9
Remote Australia	Greater than 5.92 and less than or equal to 10.53
Very remote Australia	Greater than 10.53

## Presentation of data

Counts are presented as whole numbers.

Crude/age-specific rates and age-standardised rates are calculated per 100,000 population and are rounded to 1 decimal place.

Proportions (%) that are less than 10% and ALOS are also rounded to 1 decimal place.

## Data suppression and confidentiality

Aggregated injury hospitalisations data are usually presented in tables, graphs, or maps. To maintain attribute disclosure and minimise risk of potentially re-identifying a person, data suppression rules have been applied.

Sometimes consequential suppression is also applied to prevent the primary suppressed cell from being calculated. This is often done by suppressing table cells in the same row or column or suppressing the table totals.

Counts (hospitalisations):

- Counts less than 5 are suppressed and consequential suppression is applied unless that count applies to a whole of population level, in which case it may be published unsuppressed if there is not further ability to disaggregate by population groups.
- When data is disaggregated by geography location, counts for areas where the population is less than 1,000 are suppressed.

Crude rates:

- Crude rates with counts (numerator for calculation) less than 10 are suppressed.
- If the corresponding counts measure is suppressed, the crude rate has been suppressed.
- When data is disaggregated by geography location, counts for areas where the population is less than 1,000 are suppressed.
- Age-standardised rates:
  - Age-standardised rates with counts (numerator for calculation) less than 20 are suppressed
  - If the corresponding counts measure is suppressed, the age-standardised rate has been suppressed.
  - When data is disaggregated by geography location, counts for areas where the population is less than 30 are suppressed.

## Indigenous status

The term 'First Nations people' is used by the AIHW to refer to persons identified as either Aboriginal or Torres Strait Islander in Australian hospital 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 First Nations 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 First Nations 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 First Nations patients were correctly identified in Australian public hospital admission records in 2011-12 (AIHW 2013). This under counting of First Nations 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.

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## External cause categories

Table 1 in the [appendix tables](#) describes the inclusions for each major external cause category and the relevant ICD-10-AM codes. The following notes also apply:

### Additional information about external cause categories

#### Drowning and submersion

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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

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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

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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'**

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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 18, and for aged 13–18.

### **Ascertainment of injury due to assault**

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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**

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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.

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## Notes on data

1. 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.
2. 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 (ED) 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.
3. This report only counts injuries that present to Australian hospitals or EDs. This report therefore underestimates the total burden of injuries among children as it does not count injuries where health care is not sought from a hospital or ED.
4. Minor injuries (for example, scratches and bruises) are likely underrepresented in this report as injury hospitalisations or ED presentations are likely biased towards injuries perceived as severe enough to require health care intervention. By the same logic, injuries that are perceived as more serious (for example, head injuries) are likely to be over-represented in this report.
5. The NHMD does not provide unique identifiers and this report is unable to present information about the number of people injured. We instead present information about the number of cases of injury.
6. The COVID-19 pandemic and the resulting Australian Government closure of the international border from 20 March 2020, caused significant disruptions to the usual Australian population trends. This report uses Australian Estimated Resident Population (ERP) estimates that reflect these disruptions. In the year July 2020 to June 2021, the overall population growth was much smaller than the years prior and in particular, there was a relatively large decline in the population of Victoria. ABS reporting indicates these were primarily due to net-negative international migration (National, state and territory population, June 2021 | Australian Bureau of Statistics ([abs.gov.au](https://abs.gov.au))). Please be aware that this change in the usual population trends may complicate your interpretation of statistics calculated from these ERPs. For example, rates and proportions may be greater than in previous years due to decreases in the denominator (population size) of some sub-populations.
7. Overall, the quality of the data in the NNAPEDCD is sufficient to be published in this report. However, limitations of the data as listed in the NNAPEDCD technical notes should be taken into consideration when ED data are interpreted.
8. The recording of external cause information is not as complete in the NNAPEDCD as the NHMD. A short list of ICD10 codes are used and the proportion of missing data is higher than the NHMD.
9. The ED admission policy was changed for New South Wales (NSW) hospitals in 2017–18 and detailed in the NHMD technical notes. 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. Due to the size of the contribution of NSW data to the national total, there is a break in series in Australian data from before and after 2017–18.



## Notes

### Amendments

#### 20 September 2024

On the [Data](#) page, Table B4 in the excel file *Data tables: Hospitalised injury cases among children by external cause, Australia, 2021–22* had the wrong title – this has been corrected.

#### 12 June 2024

The fact sheet accompanying the main report was uploaded.

### Data quality statement

- [AIHW National Hospital Morbidity Database \(NHMD\)](#)
  - [AIHW National Non-admitted Patient Emergency Department Care Database \(NNAPEDCD\)](#)
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## Data

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### Data tables: Injury hospitalisations among children and adolescents, Australia, 2021–22

#### Data

Table A1 to table A24  
XLSX 293Kb

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### Data tables: Hospitalised injury cases among children by external cause, Australia, 2021–22

#### Data

Table B1 to table B13  
XLSX 159Kb

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### Data tables: Injury cases presenting to emergency departments

#### Data

Table C1 to table C11  
XLSX 160Kb

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### Data tables: Injury hospitalisations and ED presentations among children

#### Data

By state and territory, Australia, 2021–22  
Tables D1 to D3  
XLSX 139Kb

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## Related material

The following list includes AIHW publications from recent years that include information on injury among children and adolescents. See [injury reports](#) for any older publications that may exist.

### Resources

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#### Injury in Australia

Resource

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#### Sports injury in Australia

Resource

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#### Australia's children

Resource

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#### Australia's youth: Unintentional injuries

Resource

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#### Hospitalised injury in children and young people, 2017–18

Resource

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#### Child injuries due to falls

Resource

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#### Fact sheet: Injuries in children and adolescents 2021–22

Resource

In 2021–22, there were 604,000 emergency department presentations among children and adolescents, 88,800 hospitalisations (1,500 per 100,000), and 1 in 3 injury hospitalisations caused by a fall (33%).

PDF 241Kb

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### Related topics

- [Children & youth](#)
  - [Hospitals](#)
  - [Injury](#)
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