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Hospitalised injury in children and young people 2011–12



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INJURY RESEARCH AND STATISTICS SERIES NO. 91



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**Australian Institute of
Health and Welfare**

*Authoritative information and statistics
to promote better health and wellbeing*

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Hospitalised injury in children and young people

2011–12

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Abbreviations

| | |
|-----------|--|
| ABS | Australian Bureau of Statistics |
| ACHI | Australian Classification of Health Interventions |
| ACT | Australian Capital Territory |
| AIHW | Australian Institute of Health and Welfare |
| ARIA | Accessibility/Remoteness Index of Australia |
| ASGC | Australian Standard Geographical Classification |
| ERP | estimated resident population |
| HTTL | high threat to life |
| ICD-10-AM | International statistical classification of diseases and related health problems, 10th revision, Australian modification |
| LOS | length of stay |
| METeOR | Metadata Online Registry (AIHW) |
| MLOS | mean length of stay |
| NCCH | National Centre for Classification in Health |
| NHMD | National Hospital Morbidity Database |
| NISU | National Injury Surveillance Unit |
| NMDS | National Minimum Data Set |
| NSW | New South Wales |
| NT | Northern Territory |
| UNICEF | United Nations Children’s Fund |
| WHO | World Health Organization |

Symbols

| | |
|------|---|
| – | nil or rounded to zero |
| n.a. | not available |
| n.p. | not publishable because of small numbers, confidentiality or other concerns about the quality of the data |

Summary

This report provides information on hospitalised injury in Australian children and young people aged 0 to 24 years in 2011–12. Just over 130,000 children and young people were hospitalised as a result of an injury in 2011–12, boys outnumbering girls by 2 to 1. Generally, rates of injury were higher for the older age groups. The overall rate was 1,785 per 100,000, and the highest overall rate was among males aged 18–24 years, at 3,298 cases per 100,000 population. Rates of injury were also higher in rural and remote areas and for Aboriginal and Torres Strait Islander children and young people.

Infants

In infants (<12 months) rates of drowning (10 per 100,000) and injury due to thermal causes (67 per 100,000) were among the highest of all age groups for children and young people. About 75% of infant drowning cases were in bathtubs.

Children aged 1–4 years

Rates of drowning and injury due to thermal causes were relatively high for children aged 1–4 years, and rates of unintentional poisoning by pharmaceuticals and other substances were the highest in this age group (85 and 28 per 100,000 respectively). Falls were commonly from playground equipment (20% of the falls in this age group) and 40% of playground equipment falls were from trampolines. About 60% of the drownings were in swimming pools.

Children aged 5–9 years

Rates of injury due to falls were highest for children aged 5–9 years (701 per 100,000). The falls were commonly from playground equipment (38% of the falls in this age group) and 42% of the falls from playground equipment were from climbing apparatus.

Children aged 10–14 years

For children aged 10–14 years, unintentional transport injury, intentional self-harm and assault were more common than for younger age groups. Falls was one of the leading causes of hospitalisation (8,703 hospitalisations) and 1,329 (15%) involved skateboards.

Adolescents aged 15–17 years

Adolescents aged 15–17 years have the highest rate of intentional self-harm (320 cases per 100,000 population) among children and young people. The rate of intentional self-harm among female adolescents (534) was over four times that of males (119). The most common means for both females (86%) and males (76%) was intentional self-poisoning.

Young adults aged 18–24 years

Young adults (18–24) have the highest rates of unintentional transport injury (442 cases per 100,000 population) and assault (251). Most transport injuries in young women involved cars (63%) and just 8% involved a motor cycle. In contrast, transport injuries in young men more often involved a motorcycle (41%) than a car (33%). The rate of assault for young men (377 per 100,000) was three times that for young women (120). Young women were much more likely to report being assaulted by their spouse or domestic partner (44%) than young men (2%).

1 Introduction

The aim of this report is to provide information about hospitalised injury in Australian children and young people aged 0 to 24 years. The report takes a developmental stage approach to examining injury, acknowledging that age and injury are closely linked at some periods of life—for example, early childhood and young adulthood (AIHW 2012a).

Age groups and developmental stage

Progression from birth to adulthood is a complex process of growth and development. Physical aspects of this are most obvious, but developments in mental capabilities, emotions, relationships with other people, and social roles and expectations, are also important.

While individual children vary in the age at which they achieve certain capabilities, there is enough commonality for growth charts and tables of developmental ‘milestones’, organised by age, to be widely used as guides to progression, the basis for screening for developmental delay (Centers for Disease Control and Prevention 2014) and for requirements concerning things such as school entry and driver licensing to be framed in terms of age. Age is an easily measured proxy for growth and development.

Patterns and rates of injury in childhood vary greatly with age in ways that have often been considered to reflect development (see, for example, Flavin et al. 2006 and MacInnes & Stone 2008).

Growth and development are continuous processes. It is useful to divide ages into ranges for purposes such as screening and statistical description, but it should be recognised that the choice of age groups is rather arbitrary and no single set of age groups predominates in the literature on child development. Certain terms are common, such as infant, toddler, child and adolescent, and some subdivisions are also common, such as early, middle and late childhood. However, there is variation concerning exactly which ages are attached to such terms. An exception is ‘infant’, which commonly refers to the first year of life, or from 1 month to 1 year after birth.

The age groups used in this report are based on relevant bands given in the National Injury Prevention and Safety Promotion Plan: Children (0–4 and 5–14 years) and Youth and young adults (15–24 years) (NPHP 2005), with additional subdivisions made as follows:

- less than 12 months (Infancy)
- 1–4 years (Early childhood)
- 5–9 years (Middle childhood)
- 10–14 years (Late childhood)
- 15–17 years (Adolescence)
- 18–24 years (Young adulthood).

The first year of life was distinguished because development and injury patterns differ greatly between infants and older children (Siskind & Scott 2013). As indicated above, children older than 1 year were divided into three age groups: 1–4 years (early childhood); 5–9 years (middle childhood); and 10–14 years (late childhood).

For most children, the age range 1–4 years extends from when they begin to walk (that is, become toddlers) to when they commence pre-school or kindergarten. Mobility comes earlier than understanding of hazards such as bodies of water, traffic and hot objects, reflected in the prominence of scalds and drowning among serious injuries at this stage of life (Agran et al. 2003).

Ages 5–9 include much of the child’s time at primary school. Developing capabilities allow activities such as bicycling and climbing, and injuries associated with these activities are prominent.

Most children experience puberty in the period from 10–14 years, typically earlier for girls than boys. Emotional turmoil is common, sometimes leading to self-injurious behaviour, as is an increase in risk-taking behaviours, particularly among boys (Martin et al. 2010, Spear 2000).

The wide age band 15–24 years was split into two parts: ages 15–17 and 18–24. For most young people, the first of these is the period in which formal schooling is coming to an end, with transition to higher education or job-seeking, and in which driver training and licensing most often occur. Legal adulthood commences at 18 years, bringing rights such as the right to purchase alcohol.

Although relatively narrow age groups have been used in this report, risks and patterns of injury can vary even within these age groups. For example, in a recent study, Siskind and Scott (2013) analysed data from Queensland hospital emergency departments and found that the pattern of injuries varied over the first year of life and was clearly linked to the child’s increasing mobility. While falls were the leading cause of injury for all children less than 1 year, falls as a proportion of all injuries, were highest in children aged between 3 and 5 months – the age at which many infants start to roll.

Methods and data sources

This report uses data from the National Hospital Morbidity Database (NHMD) covering the period 1 July 2011 to 30 June 2012 to provide information on hospitalised injury in children and young people in Australia.

Diagnosis and external cause information for the hospital separations reported here were coded according to the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM) (NCCH 2010). It comprises classifications of diseases and external causes of injuries and poisoning, based on the World Health Organization’s version of ICD-10. The ICD-10-AM classification is hierarchical, with 20 summary disease chapters that are divided into a large number of more specific disease groupings.

What data were reported?

In addition to counts and other basic descriptive statistics this report presents crude (age-specific) and age-standardised rates. Information about the calculation and use of rates can be found in Appendix A.

Records that met all of the following criteria were included in this report:

- Hospital separations occurring in Australia from 1 July 2011 to 30 June 2012
- Age at the time of admission 0 to 24 years

- Principal diagnosis in the ICD-10-AM range S00–T75 or T79 from Chapter XIX Injury, poisoning and certain other consequences of external causes
- Mode of admission was not a transfer from another acute hospital (see Appendix A for details).

In tables and charts, unless stated otherwise, separations for which age and sex were not reported were included in totals.

Important terms regarding the data used in this report are summarised in Boxes 1.1 to 1.5 and further information on data and methods is provided in Appendix A. Other information boxes are found in relevant areas in the report.

Box 1.1: Summary of terms relating to hospitalised injury

Statistics on admitted patients are compiled when an **admitted patient** (a patient who undergoes a hospital's formal admission process) completes an episode of admitted patient care and 'separates' from the hospital. This is because most of the data on the use of hospitals by admitted patients are based on information provided at the end of the patients' episodes of care, rather than at the beginning. The length of stay and the procedures carried out are then known and the diagnostic information is more accurate.

Separation is the term used to refer to the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute care to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

The **principal diagnosis** is the diagnosis established after study to be chiefly responsible for occasioning the patient's episode of admitted patient care.

An **external cause** is defined as the environmental event, circumstance or condition that was the cause of injury or poisoning. Whenever a patient has a principal or additional diagnosis of an injury or poisoning, an external cause code should be recorded.

The **injury separation** records included in this report are those that have a principal diagnosis code in the ICD-10-AM range S00–T75 or T79. Whenever a patient has a principal or additional diagnosis of an injury or poisoning, an external cause code should be recorded. This includes records where the main reason for the episode in hospital was a recent injury, such as a fracture, laceration or burn to any part of the body, or poisoning. It also includes a small number of episodes mainly due to complications of surgical and medical care or due to sequelae present a year or more after injury, or other late effects. Records are included whether caused unintentionally ('accidents') or intentionally (intentional self-harm, or assault). Records where intent was not determined are also included. Throughout this report, records with a principal diagnosis of S00–T75, T79 were included in the totals of tables unless otherwise indicated, even if they lack an external cause or have a first reported external cause code of complications of surgical and medical care or codes describing the sequelae of external causes. These records meet the principal diagnosis definition of community injury but lack a meaningful external cause.

Injury cases are estimated as the number of injury separations, less those records where the mode of admission was 'inward transfer'. Inward transfers are omitted to reduce over-counting.

(continued)

Box 1.1 (continued): Summary of terms relating to hospitalised injury

The **mean length of stay** is the average number of days each patient stayed in hospital. This is calculated by dividing the total number of patient days for **injury separations** by the number of **injury cases**, estimated as above. Patients who were admitted and discharged from hospital on the same day are counted as staying for one day.

Injuries can be classified according to the likelihood that a patient with that injury will die in hospital. The method used refers to cases with predicted mortality risk of about 6% or higher as having a **high threat to life** (Stephenson et al. 2003). Injuries of this severity are likely to have a large impact on the patient, often with persisting problems and ongoing need for health care services. This report contains information on the proportion of cases of hospitalised injury that were classified as high threat to life.

Box 1.2: Aboriginal and Torres Strait Islander reporting

In this report, the terms 'Aboriginal and Torres Strait Islander people' and 'Indigenous people' were used to refer to children and young people identified as such in Australian hospital separations data and population data collections.

Hospitalisations for which the Indigenous status of the patient was not reported have been included with hospitalisations data for non-Indigenous people under the 'Other Australians' category. The latest report on the quality of Indigenous identification in hospital separations data, released in May 2013 (AIHW 2013), found that an estimated 88% of Indigenous patients were correctly identified in Australian public hospital admission records in 2011–12. The report recommends that data for all jurisdictions are used in national analyses of Indigenous admitted patient care from 2010–11 onwards. For additional information see Appendix A.

Box 1.3: Ascertainment of intentional self-harm

According to inclusion notes in ICD-10-AM, cases should be assigned codes in the range X60–X84 if they are purposely self-inflicted poisoning or injury, suicide, or attempted suicide (NCCH 2006). Determining whether an injury was due to intentional self-harm is not always straightforward. Cases may appear to be intentional self-harm, but inconclusiveness of available information may preclude them being coded as such. In this situation, the case can be coded to an 'undetermined intent' category (for example, Y30 *Falling, jumping or pushed from a high place, undetermined intent* or Y32 *Crashing of motor vehicle, undetermined intent*). It is possible that through the coding process, some types of injury may be more readily attributed to intentional self-harm than others, for example, 'intentional self-harm by hanging' as opposed to 'falling from a building structure' (for example, W13, *out of a window, bridge or roof*).

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

(continued)

Box 1.3 (continued): Ascertainment of intentional self-harm

In very young children, ascertaining whether 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 maturation 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 an unknown proportion of cases of intentional self-harm in late childhood and at older ages are self-injurious in nature rather than suicidal in intent. The age at which self-inflicted acts can be interpreted as intentional self-harm is not well-defined and is the subject of debate. Such sources of uncertainty about the assignment of intent limit the certainty of any estimates of intentional self-harm based on routine hospital data. For these reasons, in this report, cases of intentional self-harm are suppressed in age groups younger than 10 years.

Box 1.4: Understanding 'drowning'

Increasingly, the term 'drowning' is used to refer to 'the process of experiencing respiratory impairment from submersion/immersion in liquid' (van Beek et al. 2005). Framed this way, drowning can have various outcomes: death, survival with lasting consequences of greater or lesser severity, survival with transient morbidity or survival with no detectable consequences. 'Near-drowning' is less well defined. It can refer to survived episodes of respiratory impairment from submersion/immersion in liquid. It can also refer to episodes in which a person nearly, but not quite, experiences respiratory impairment from submersion/immersion in liquid (for example, a person who becomes exhausted while swimming, but manages to reach a shore, perhaps with assistance).

Box 1.5: Perpetrator of assault

Perpetrator codes are used in ICD-10-AM when a code from the ICD-10-AM category *Assault (X85-Y09)* is present (see 'Appendix A: Data issues'). A coding standard (NCCH 2002b) 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 are:

- 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

Structure of this report

Chapter 2 provides an overview of hospitalised injury among children and young people in Australia. The information provided includes number of hospitalised injury cases, length of stay, hospitalised injury cases classified as high threat to life, nature of injury, external cause of injury, remoteness of the patient's area of usual residence, and Indigenous status by sex and age group.

Chapters 3 to 8 provide similar information to Chapter 2, but for specific age groups, as follows:

- Chapter 3: Less than 12 months (Infancy)
- Chapter 4: 1–4 years (Early childhood)
- Chapter 5: 5–9 years (Middle childhood)
- Chapter 6: 10–14 years (Late childhood)
- Chapter 7: 15–17 years (Adolescence)
- Chapter 8: 18–24 years (Young adulthood).

Appendix A: Data issues provides summary information on the NHMD, notes on the presentation of data, the population estimates used to calculate population rates, analysis methods, and information on data quality.

Appendix B: Additional tables consists of tables underpinning selected figures presented in Chapter 2.

2 Overview

There were 488,737 hospital separations due to injury and poisoning for public and private hospitals in Australia during 2011–12 (Table 2.1) representing an estimated 454,031 cases. Of these cases, 29% were aged 0–24 at the time of admission. A higher proportion of boys and young men than girls and young women (2:1) were hospitalised as a result of an injury. The rate of injury in children and young people was less than the rate of injury in all Australians; however the rate of injury in boys and young men was similar to the all-ages rate for males.

Table 2.1: Key indicators for hospitalised injury cases in children and young people, 2011–12

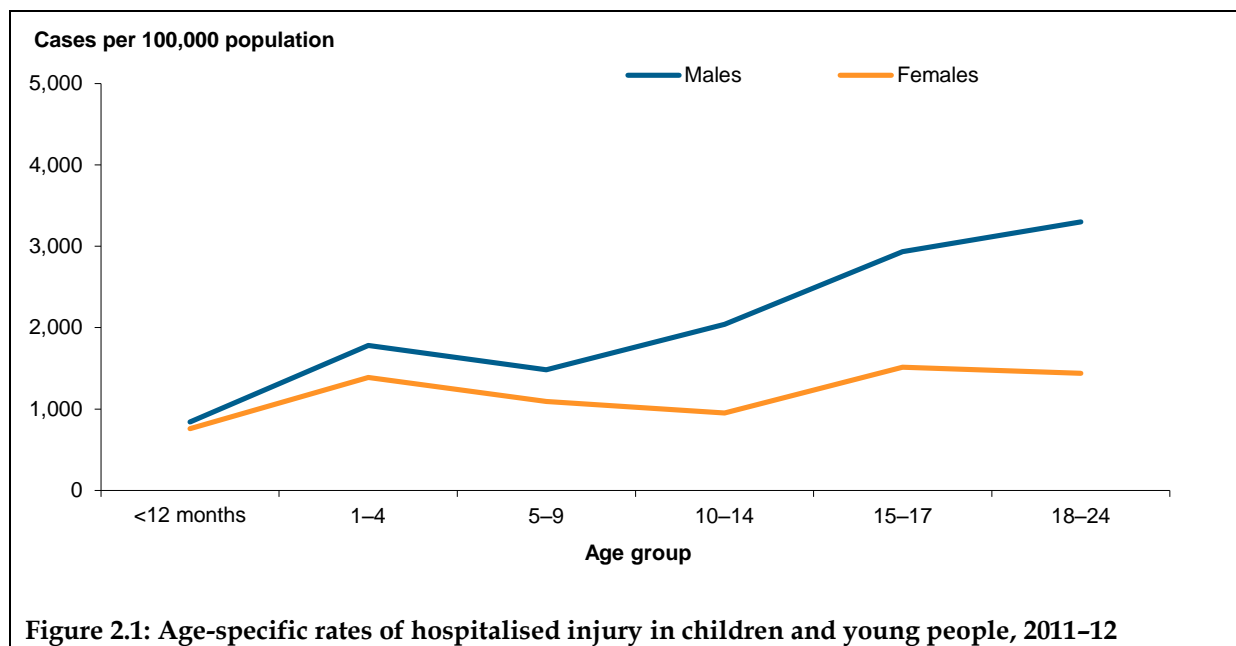
| Indicators | Children and young people | | | All ages | | |
|--|---------------------------|---------|---------|----------|---------|---------|
| | Males | Females | Persons | Males | Females | Persons |
| Separations from hospital due to injury | 93,555 | 47,673 | 141,230 | 276,071 | 212,661 | 488,737 |
| Estimated injury cases | 87,426 | 44,770 | 132,198 | 256,816 | 197,210 | 454,031 |
| Age-standardised rate/100,000 population | 2,299.7 | 1,244.2 | 1,784.9 | 2,304.4 | 1,585.4 | 1,959.8 |

More males than females were hospitalised as a result of an injury in every age group from 0 to 24 (Table 2.2). But there were differences in the relative contributions of each age group to the total number of hospitalised injury cases for each sex. For example, for males, the 18–24 age group contributed 43% of all 0–24 male injury hospitalisation cases whereas for females the 18–24 group contributed 35% of female cases. In contrast, the female infancy (less than 12 months), 1–4 and 5–9 groups contributed greater proportions of total 0–24 female injury hospitalisations than did the corresponding male groups to total male injury hospitalisations.

Table 2.2: Hospitalised injury cases in children and young people, by age, 2011–12

| Age group | Males | | Females | | Persons | |
|--------------|---------------|------------|---------------|------------|----------------|------------|
| | Number | % | Number | % | Number | % |
| <12 months | 1,257 | 1.4 | 1,072 | 2.4 | 2,329 | 1.8 |
| 1–4 | 10,742 | 12.3 | 7,948 | 17.8 | 18,690 | 14.1 |
| 5–9 | 10,677 | 12.2 | 7,449 | 16.6 | 18,126 | 13.7 |
| 10–14 | 14,544 | 16.6 | 6,440 | 14.4 | 20,984 | 15.9 |
| 15–17 | 13,019 | 14.9 | 6,332 | 14.1 | 19,351 | 14.6 |
| 18–24 | 37,187 | 42.5 | 15,529 | 34.7 | 52,718 | 39.9 |
| Total | 87,426 | 100 | 44,770 | 100 | 132,198 | 100 |

Figure 2.1 presents the age-specific rates of injury for males and females by age group. The rate of injury for males was higher than the rate for females in all age groups. The difference was widest in the older groups, with male rates increasing with age more strongly than was the case for females. The highest rate of injury occurred among males in young adulthood (18–24) at 3,298 cases per 100,000 population. In the same age group the rate of injury for females was 1,440.



Length of stay

In 2011-12, the overall mean length of stay (MLOS) for hospitalised injury was 1.9 days (251,458 patient days for 132,198 cases) (Table 2.3 and Figure 2.2). MLOS was similar for males and females at most developmental stages. The longest lengths of stay occurred in infancy and young adulthood.

Table 2.3: Length of stay for hospitalised injury: case counts, total patient days, and mean length of stay in children and young people, 2011-12

| Age group | Males | | | Females | | | Persons | | |
|--------------|---------------|--------------------|------------|---------------|--------------------|------------|----------------|--------------------|------------|
| | Cases | Total patient days | MLOS | Cases | Total patient days | MLOS | Cases | Total patient days | MLOS |
| <12 months | 1,257 | 2,854 | 2.3 | 1,072 | 2,049 | 1.9 | 2,329 | 4,903 | 2.1 |
| 1-4 | 10,742 | 17,683 | 1.6 | 7,948 | 12,797 | 1.6 | 18,690 | 30,480 | 1.6 |
| 5-9 | 10,677 | 17,102 | 1.6 | 7,449 | 11,534 | 1.5 | 18,126 | 28,636 | 1.6 |
| 10-14 | 14,544 | 25,046 | 1.7 | 6,440 | 11,276 | 1.8 | 20,984 | 36,322 | 1.7 |
| 15-17 | 13,019 | 25,174 | 1.9 | 6,332 | 13,317 | 2.1 | 19,351 | 38,491 | 2.0 |
| 18-24 | 37,187 | 80,446 | 2.2 | 15,529 | 32,178 | 2.1 | 52,718 | 112,626 | 2.1 |
| Total | 87,426 | 168,305 | 1.9 | 44,770 | 83,151 | 1.9 | 132,198 | 251,458 | 1.9 |

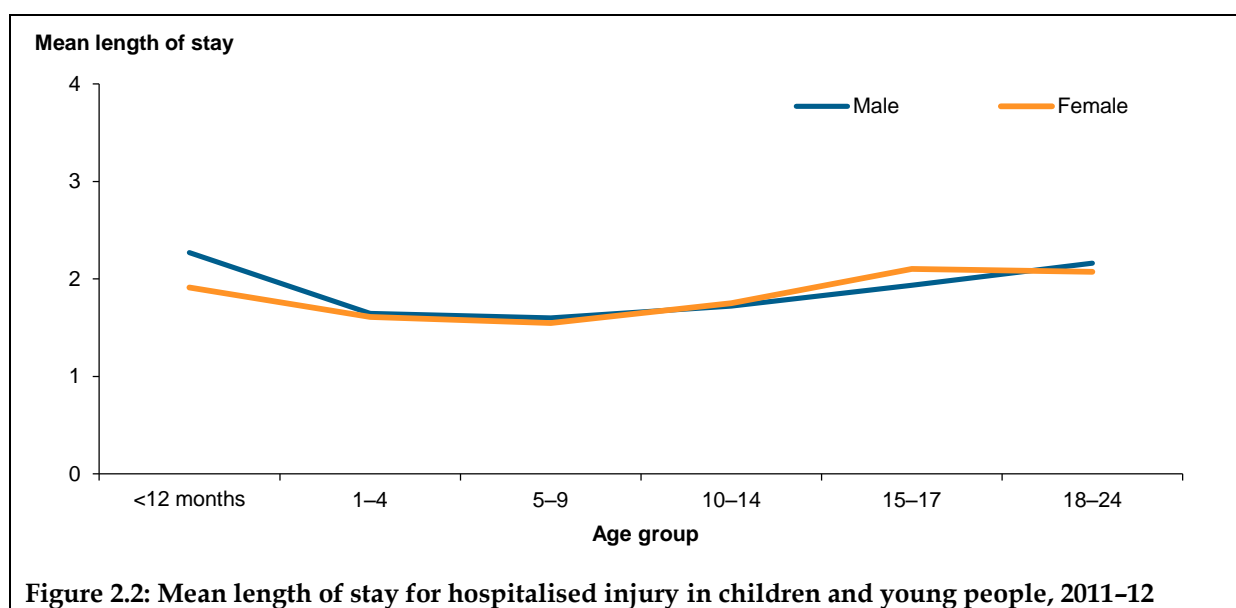


Figure 2.2: Mean length of stay for hospitalised injury in children and young people, 2011-12

Discharge occurred on the same day as admission for almost half of all injury cases (46%) and there was little variation by sex or age group other than in early childhood. Children in early childhood (56%) were discharged from hospital on the same day more frequently than children in other age groups.

Threat to life

About 7% of cases of hospitalised injury in children and young people, or 8,913 cases, were classified as high threat to life (HTTL) in 2011-12 (Table 2.4). There were 6,374 HTTL cases reported for males (7%) and 2,539 for females (6%). The largest proportion of HTTL cases (20%) occurred among infants. Fewer than 1% of all children and young people hospitalised as a result of an injury died in hospital.

Table 2.4: High threat to life^(a) hospitalised injury cases in children and young people, 2011-12

| Age group | Males | | | Females | | | Persons | | |
|--------------|---------------|------------|-----------|---------------|------------|-----------|----------------|------------|------------|
| | Number | % HTTL | Died | Number | % HTTL | Died | Number | % HTTL | Died |
| <12 months | 1,257 | 21.8 | 4 | 1,072 | 17.4 | 2 | 2,329 | 19.8 | 6 |
| 1-4 | 10,742 | 4.6 | 12 | 7,948 | 4.4 | 7 | 18,690 | 4.5 | 19 |
| 5-9 | 10,677 | 3.8 | 7 | 7,449 | 3.2 | 2 | 18,126 | 3.6 | 9 |
| 10-14 | 14,544 | 5.2 | 6 | 6,440 | 4.2 | 3 | 20,984 | 4.9 | 9 |
| 15-17 | 13,019 | 8.0 | 13 | 6,332 | 6.0 | 13 | 19,351 | 7.3 | 26 |
| 18-24 | 37,187 | 9.1 | 43 | 15,529 | 7.1 | 24 | 52,718 | 8.6 | 67 |
| Total | 87,426 | 7.3 | 85 | 44,770 | 5.7 | 51 | 132,198 | 6.7 | 136 |

(a) High threat to life cases defined as ICISS < 0.941 (Stephenson et al. 2003).

Nature of injury

Table 2.5 presents information on the more common injuries sustained by children and young people. Fractures were common, with 37% of all children and young people sustaining a fracture as a result of their injury. In males, fractures accounted for 40% of all cases, followed by open wounds (17%) and intracranial injuries (including concussion) (5%). In females, fractures accounted for 29% of all cases, followed by poisonings (17%) and open wounds (16%). As will be seen in subsequent chapters the types of injuries children sustain differ according to age, reflecting different developmental stages.

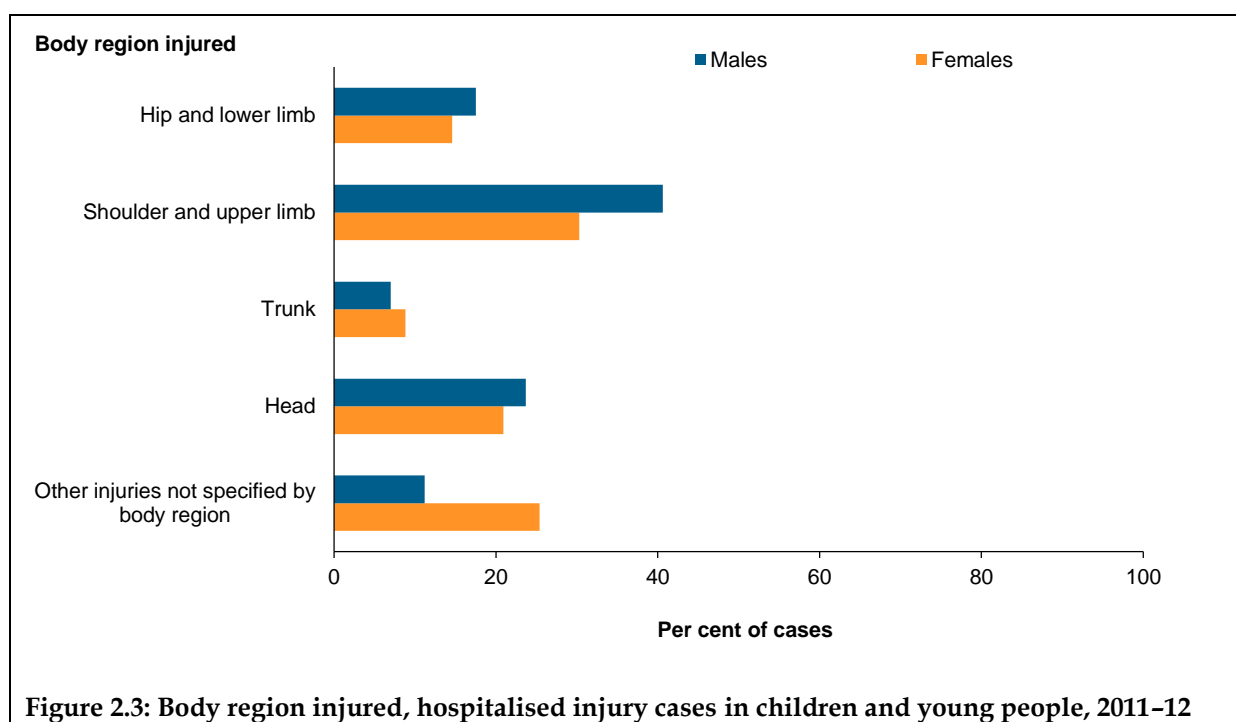
Table 2.5: Cases of hospitalised injury in children and young people, by selected nature of injury, 2011–12

| Nature of injury | Males | | Females | | Persons | |
|--|---------------|------------|---------------|------------|----------------|------------|
| | Number | % | Number | % | Number | % |
| Superficial (excluding eye) | 3,839 | 4.4 | 2,573 | 5.7 | 6,412 | 4.9 |
| Open wound (excluding eye) | 14,529 | 16.6 | 7,166 | 16.0 | 21,695 | 16.4 |
| Fracture (excluding tooth) | 35,143 | 40.2 | 13,176 | 29.4 | 48,319 | 36.6 |
| Dislocation | 2,897 | 3.3 | 869 | 1.9 | 3,766 | 2.8 |
| Sprain/strain | 3,027 | 3.5 | 1,473 | 3.3 | 4,500 | 3.4 |
| Muscle/tendon | 3,543 | 4.1 | 1,071 | 2.4 | 4,614 | 3.5 |
| Burn/corrosion (excluding eye) | 2,186 | 2.5 | 1,198 | 2.7 | 3,384 | 2.6 |
| Foreign body: all locations ^(a) | 1,952 | 2.3 | 1,516 | 3.4 | 3,468 | 2.6 |
| Intracranial (including concussion) | 4,274 | 4.9 | 1,559 | 3.5 | 5,833 | 4.4 |
| Poison/toxic effect (excluding bite) | 3,824 | 4.4 | 7,547 | 16.9 | 11,373 | 8.6 |
| Other specified nature of injury | 7,293 | 8.4 | 3,095 | 6.9 | 10,388 | 7.7 |
| Unspecified nature of injury | 4,919 | 5.6 | 3,527 | 7.9 | 8,446 | 6.4 |
| Total | 87,426 | 100 | 44,770 | 100 | 132,198 | 100 |

(a) Includes foreign body in the external eye, ear canal, nose, respiratory tract, alimentary tract, or genito-urinary tract.

Body region injured

An analysis of body region injured revealed some differences between males and females (Figure 2.3). Males (41%) had a higher proportion of injuries to their shoulder and upper limbs compared with females (30%). The higher proportion of *Other injuries not specified by body region* for females was largely due to higher numbers of females with a poisoning diagnosis.



Causes of injury

During 2011–12, the most common of the ICD-10-AM external cause groups for hospitalised injury among children and young people was ‘other unintentional causes’ (38%) (Table 2.6). This was true of both males (42%) and females (31%). ‘Other unintentional causes’ covers a broad range of external cause categories from Chapter XX *External causes of morbidity and mortality* and *Other external causes of accidental injury* (W00 to X59) and includes:

- *Exposure to inanimate mechanical forces* (W20–W49)
- *Exposure to animate mechanical forces* (W50–W64)
- *Other accidental threats to breathing* (W75–W84)
- *Exposure to electric current, radiation and extreme ambient air temperature and pressure* (W85–W99)
- *Contact with venomous animals and plants* (X20–X29)
- *Exposure to forces of nature* (X30–X39)
- *Overexertion, travel and privation* (X50–X57)
- *Accidental exposure to other and unspecified factors* (X58–X59).

After ‘Other unintentional causes’, ‘Falls’ were the next most common external cause for both males (28%) and females (30%). The third most common cause of hospitalised injuries among males was ‘Unintentional transport injury’ while for females it was ‘Intentional self-harm’.

The ratio of males to females was highest for hospitalisations due to ‘Assault’, where males outnumbered females by 3 to 1. ‘Thermal causes’ include cases of injury due to *Exposure to smoke, fire and flames* (X00–X09) and cases of injury due to *Contact with heat and hot substances* (X10–X19). Burns are the injury that usually (although not always) results from thermal causes.

Table 2.6: Major external cause groups for hospitalised injury cases in children and young people, 2011–12

| External cause | Males | | Females | | Persons | | M:F ratio |
|-------------------------------|---------------|------------|---------------|------------|----------------|------------|------------|
| | Number | % | Number | % | Number | % | |
| Unintentional injuries | | | | | | | |
| Transport | 13,303 | 15.2 | 5,836 | 13.0 | 19,139 | 14.5 | 2.3 |
| Drowning and submersion | 193 | 0.2 | 100 | 0.2 | 293 | 0.2 | 1.9 |
| Poisoning, pharmaceuticals | 1,143 | 1.3 | 1,142 | 2.6 | 2,285 | 1.7 | 1.0 |
| Poisoning, other substances | 489 | 0.6 | 321 | 0.7 | 810 | 0.6 | 1.5 |
| Falls | 24,684 | 28.2 | 13,463 | 30.1 | 38,147 | 28.9 | 1.8 |
| Thermal causes | 1,806 | 2.1 | 1,037 | 2.3 | 2,843 | 2.2 | 1.7 |
| Other unintentional causes | 36,863 | 42.2 | 13,693 | 30.6 | 50,556 | 38.2 | 2.7 |
| Intentional injuries | | | | | | | |
| Intentional self-harm | 2,450 | 2.8 | 6,426 | 14.4 | 8,878 | 6.7 | 0.4 |
| Assault | 5,485 | 6.3 | 1,825 | 4.1 | 7,310 | 5.5 | 3.0 |
| Undetermined intent | 906 | 1.0 | 864 | 1.9 | 1,770 | 1.3 | 1.0 |
| Total^(a) | 87,426 | 100 | 44,770 | 100 | 132,198 | 100 | 2.0 |

(a) Includes other external causes of injury and not reported (167 cases).

The causes of injury vary enormously by developmental age. A brief overview of these changes is provided in Figures 2.4 to 2.12, which show age-specific rates by age group for each major external cause group. (Chapters 3 to 8 examine these variances by each age group in more detail, and age-specific rates by age, sex and external cause are available in Appendix B.) Generally, higher rates of drowning and submersion, poisoning and thermal causes are found in younger children while unintentional transport injury, intentional self-harm, assault and other unintentional causes are found in older children and young people. Falls are prevalent across a wider range of age groups but the types of falls differ according to developmental stage.

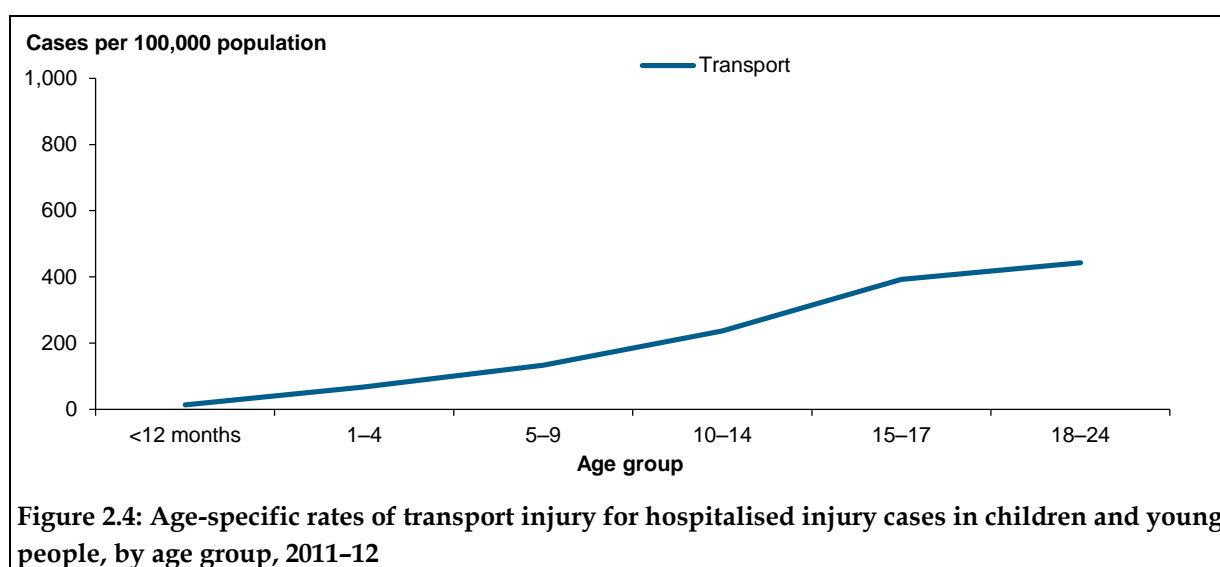
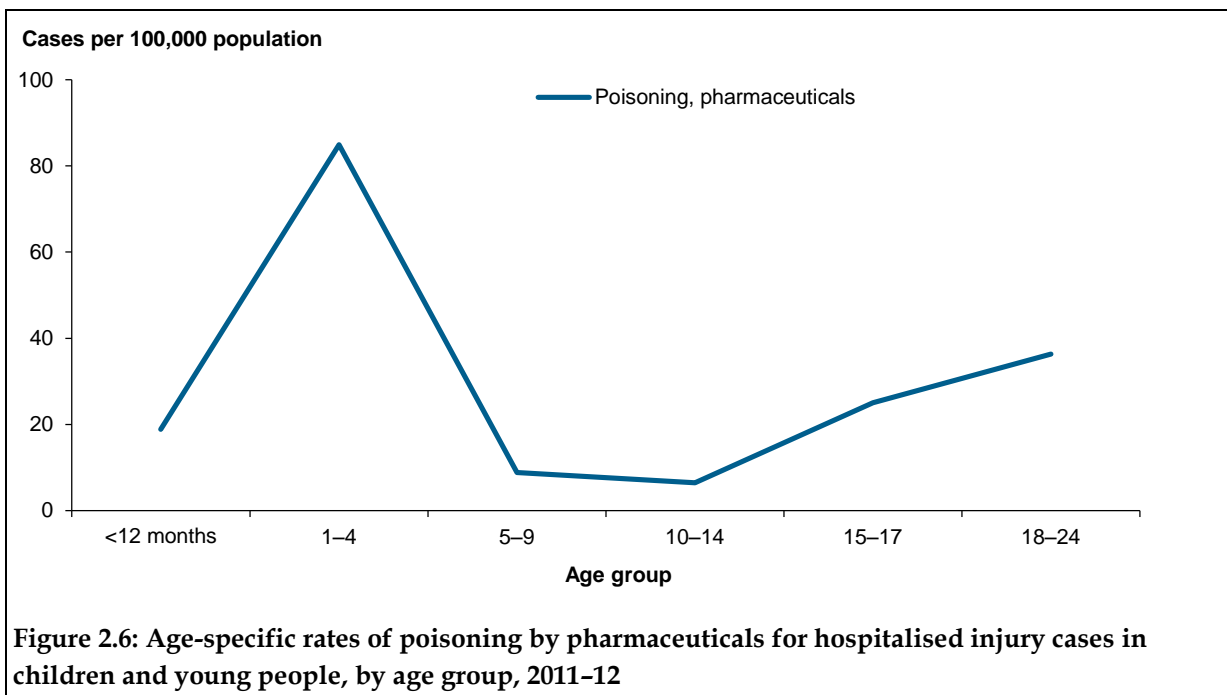
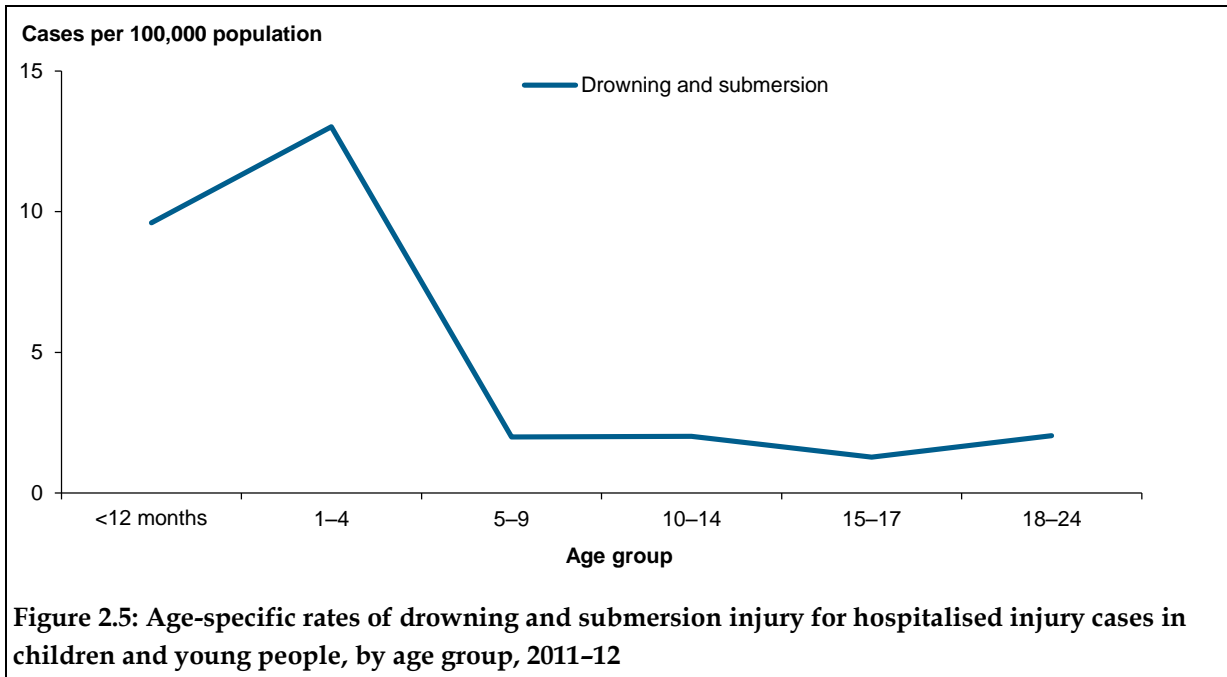
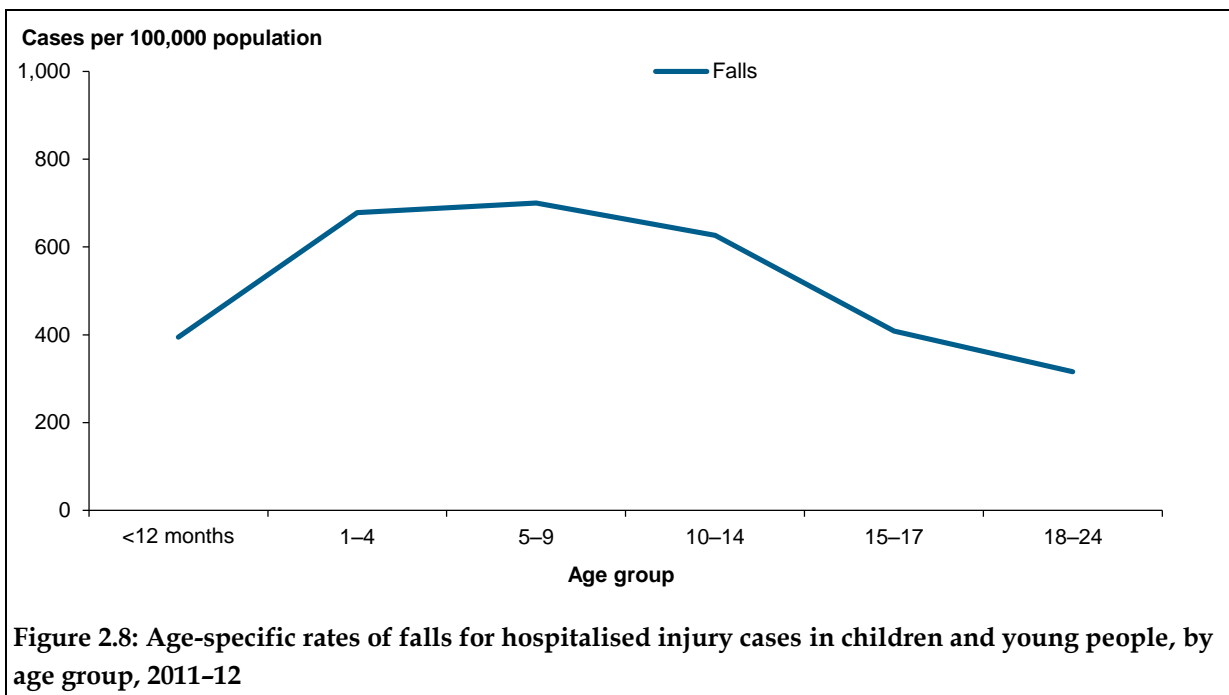
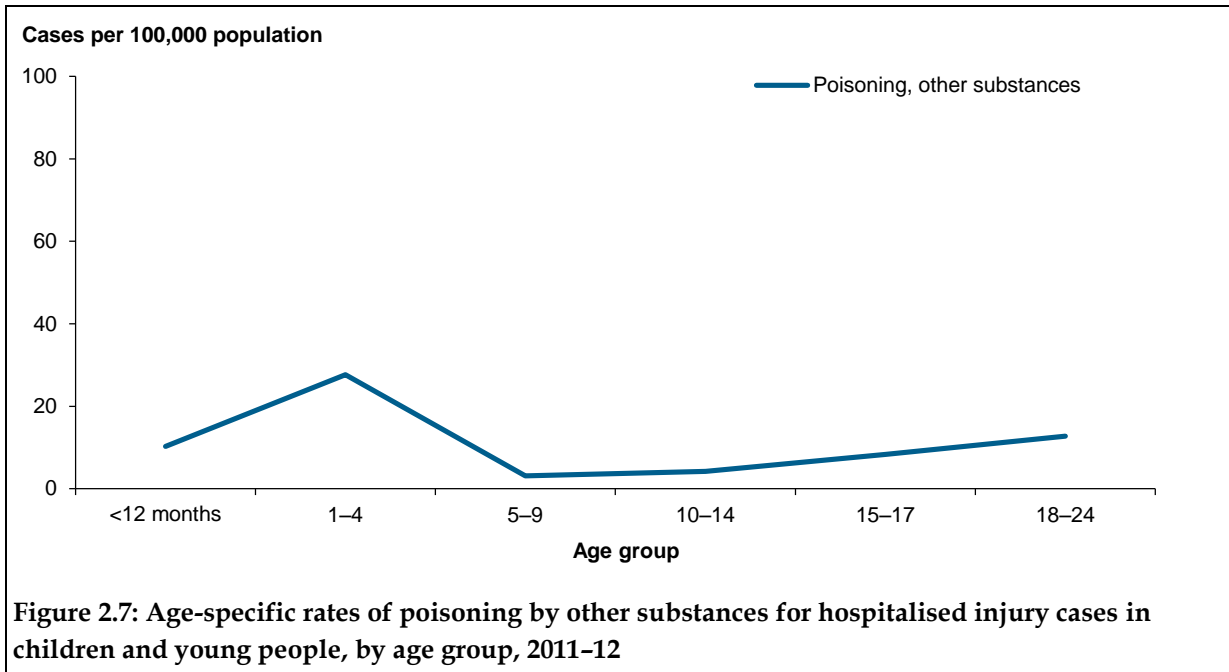
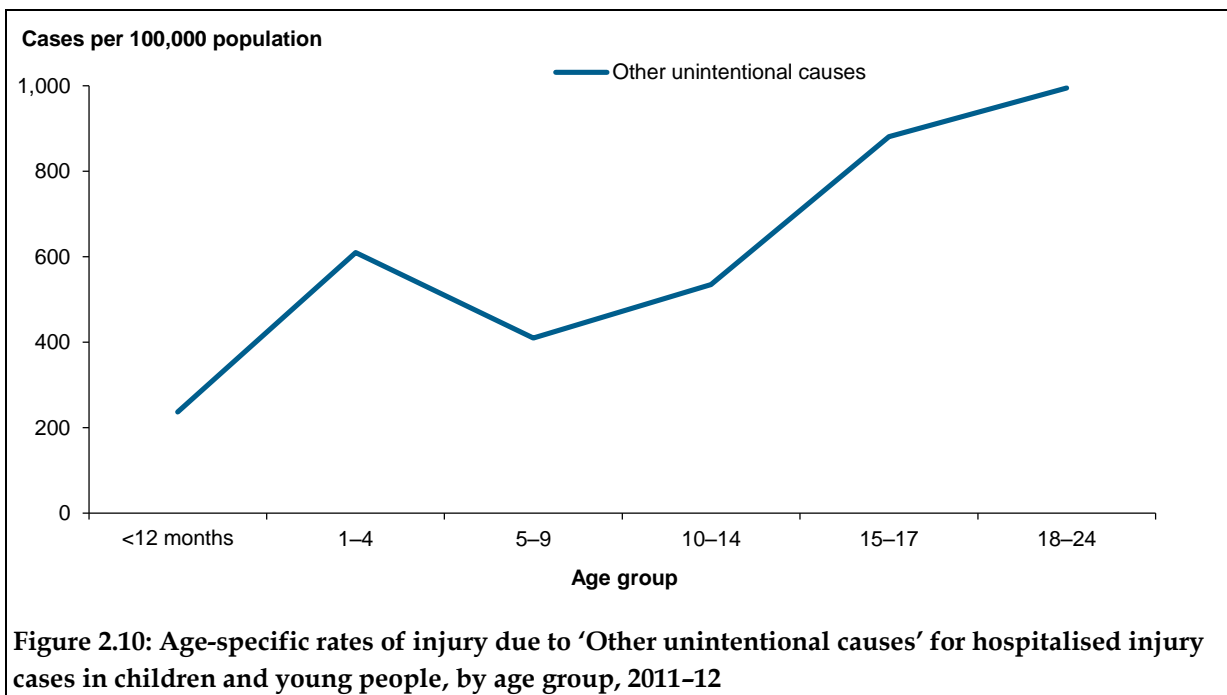
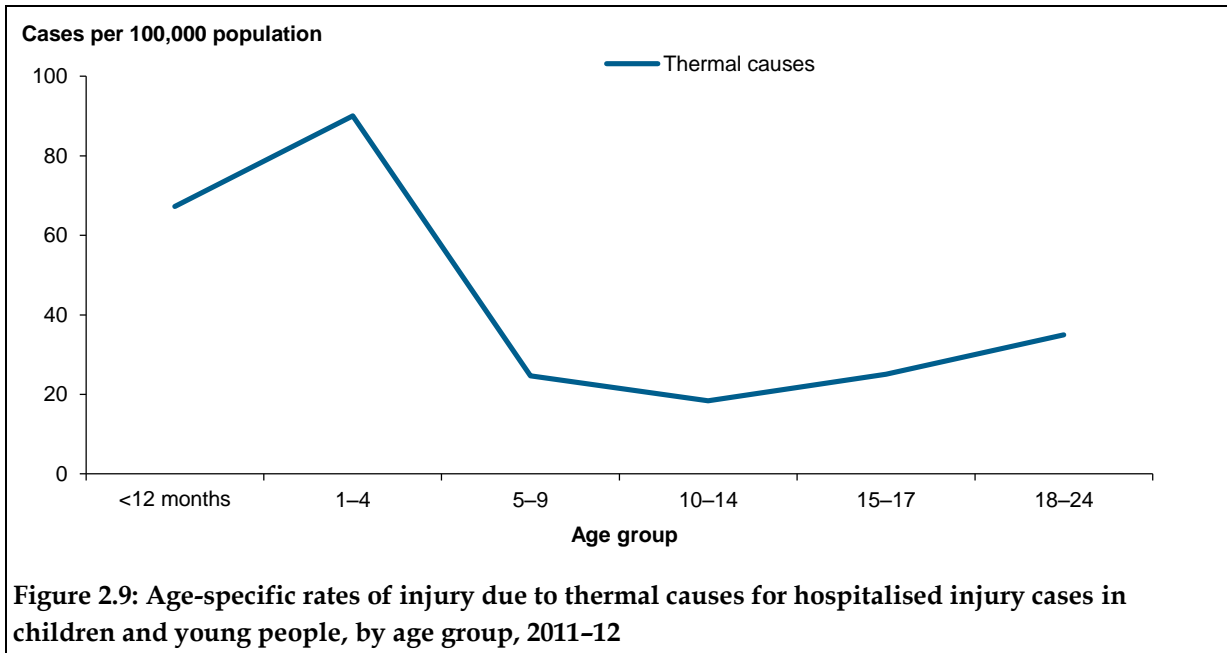
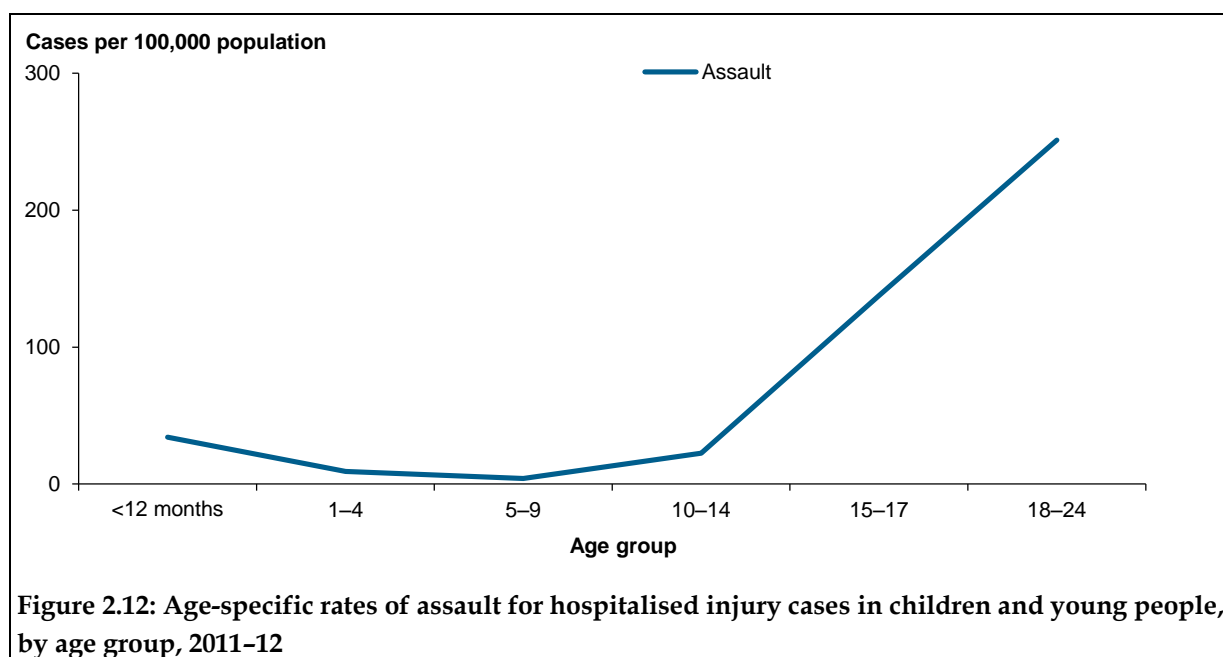
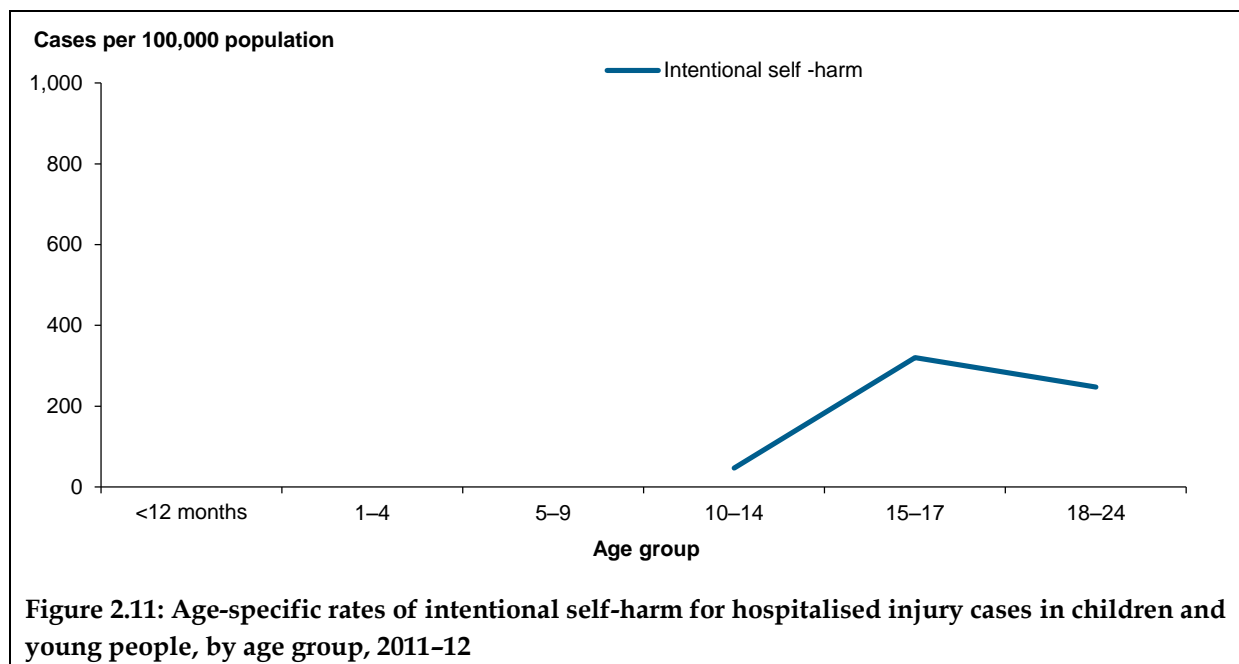


Figure 2.4: Age-specific rates of transport injury for hospitalised injury cases in children and young people, by age group, 2011–12









The proportions of cases that were classified as high threat to life in each age group, by external cause, can be seen in Table 2.7. For drowning and submersion the proportion of high threat to life cases is very high, although overall rates are low in comparison to the majority of other external causes of injury. For infants, all cases of hospitalised drowning and submersion were classified as high threat to life. In contrast, rates of hospitalised fall injury are high but the proportion of high threat to life cases was low in all age groups other than infants.

Table 2.7: Proportion of high threat to life^(a) cases by major external cause groups, by age group, 2011–12 (per cent)

| | <12 months | 1–4 | 5–9 | 10–14 | 15–17 | 18–24 | Total |
|--------------------------------------|------------|------|------|-------|-------|-------|-------|
| Unintentional injuries | | | | | | | |
| Transport | 22.5 | 13.3 | 12.0 | 11.7 | 20.5 | 22.2 | 18.7 |
| Drowning and submersion | 100.0 | 98.7 | 96.4 | 60.7 | 63.6 | 71.1 | 89.4 |
| Poisoning, pharmaceuticals | 0.0 | 0.2 | 1.6 | 0.0 | 0.5 | 0.9 | 0.5 |
| Poisoning, other substances | 0.0 | 3.4 | 2.3 | 5.2 | 6.9 | 3.6 | 3.7 |
| Falls | 18.8 | 3.1 | 2.4 | 4.2 | 6.7 | 7.8 | 4.8 |
| Thermal causes | 6.1 | 8.6 | 9.5 | 7.4 | 17.6 | 14.3 | 10.7 |
| Other unintentional causes | 22.5 | 2.9 | 2.1 | 2.1 | 2.4 | 2.1 | 2.6 |
| Intentional injuries | | | | | | | |
| Intentional self-harm ^(b) | n.p. | n.p. | n.p. | 5.2 | 3.4 | 4.5 | 4.2 |
| Assault | 31.0 | 21.1 | 6.9 | 9.6 | 12.7 | 16.0 | 15.4 |

(a) High threat to life cases defined as ICISS < 0.941 (Stephenson et al. 2003).

(b) High threat to life cases for children under 10 years of age not reported (see Box 1.3).

Place of injury

Nearly half (48%) of all injury cases had an unspecified place of occurrence. For those cases with a specified place, the majority of injuries occurred in the home (18%) (Table 2.8). This was true of males (15%) and females (26%). Apart from this difference, the most striking comparison between males and females was for injuries that occurred at industrial and construction areas. The ratio of males to females injured at industrial and construction areas was 25:1.

Table 2.8: Place of occurrence of injury in children and young people, 2011–12

| Place of occurrence | Males | | Females | | Persons | | M:F ratio |
|--|---------------|------------|---------------|------------|----------------|------------|------------|
| | Number | % | Number | % | Number | % | |
| Home | 12,738 | 14.6 | 11,650 | 26.0 | 24,388 | 18.4 | 1.1 |
| Residential institution | 278 | 0.3 | 129 | 0.3 | 407 | 0.3 | 2.2 |
| School, other institution & public administration area | 5,000 | 5.7 | 3,000 | 6.7 | 8,000 | 6.1 | 1.7 |
| Sports and athletics area | 11,046 | 12.6 | 2,334 | 5.2 | 13,380 | 10.1 | 4.7 |
| Street and highway | 7,568 | 8.7 | 3,776 | 8.4 | 11,344 | 8.6 | 2.0 |
| Trade and service area | 2,256 | 2.6 | 943 | 2.1 | 3,199 | 2.4 | 2.4 |
| Industrial and construction area | 1,212 | 1.4 | 49 | 0.1 | 1,261 | 1.0 | 24.7 |
| Farm | 909 | 1.0 | 346 | 0.8 | 1,255 | 0.9 | 2.6 |
| Other specified place of occurrence | 4,327 | 4.9 | 1,866 | 4.2 | 6,193 | 4.7 | 2.3 |
| Unspecified | 42,092 | 48.1 | 20,677 | 46.2 | 62,771 | 47.5 | 2.0 |
| Total | 87,426 | 100 | 44,770 | 100 | 132,198 | 100 | 2.0 |

Activity at time of injury

Overall, the proportion of cases with an unspecified activity at time of injury was 55% (72,924) (Table 2.9). Among cases with a specified activity at time of injury, most occurred while the child or young adult was engaged in sport (19%). Males and females had a different profile of activity at time of injury. Higher proportions of males were injured playing sport and working for income, while higher proportions of females were injured while engaged in leisure or resting.

Table 2.9: Activity at time of injury for children and young people, 2011–12

| Activity | Males | | Females | | Persons | | M:F ratio |
|---------------------------------------|---------------|------------|---------------|------------|----------------|------------|------------|
| | Number | % | Number | % | Number | % | |
| While engaged in sports | 20,047 | 22.9 | 5,108 | 11.4 | 25,155 | 19.0 | 3.9 |
| While engaged in leisure | 7,136 | 8.2 | 4,311 | 9.6 | 11,447 | 8.7 | 1.7 |
| While working for income | 4,748 | 5.4 | 733 | 1.6 | 5,481 | 4.1 | 6.5 |
| While engaged in other types of work | 1,412 | 1.6 | 574 | 1.3 | 1,986 | 1.5 | 2.5 |
| While resting, sleeping, eating, etc. | 1,404 | 1.6 | 1,119 | 2.5 | 2,523 | 1.9 | 1.3 |
| Other specified activity | 5,401 | 6.2 | 7,279 | 16.3 | 12,682 | 9.6 | 0.7 |
| Unspecified | 47,278 | 54.1 | 25,646 | 57.3 | 72,924 | 55.2 | 1.8 |
| Total | 87,426 | 100 | 44,770 | 100 | 132,198 | 100 | 2.0 |

Remoteness of usual residence

Past research has demonstrated that patterns and rates of injury change with increasing remoteness (AIHW 2008). Increasing remoteness is associated with a higher prevalence of areas of socioeconomic disadvantage, and people who are socially and economically disadvantaged generally have poorer health outcomes and increased exposure to health risk factors (AIHW 2010b). Other issues relevant to increasing rates of injury by remoteness include exposure to unsafe roads and lack of access to primary health care (AIHW 2011a, AIHW 2011c).

The age-standardised rate of injury in children and young people increased with increasing remoteness. The rate of injury for residents of *Very remote* regions (3,482 per 100,000 population) was more than double the rate for residents of *Major cities* (1,564 per 100,000 population) (Table 2.10).

Table 2.10: Hospitalised injury cases, by remoteness of usual residence for children and young people, 2011–12

| Indicators | Remoteness of usual residence | | | | | Total ^(a) |
|--|-------------------------------|----------------|----------------|--------|-------------|----------------------|
| | Major cities | Inner regional | Outer regional | Remote | Very remote | |
| Estimated injury cases | 81,923 | 28,468 | 14,124 | 3,402 | 2,608 | 132,198 |
| Proportion of estimated injury cases (%) | 62.0 | 21.5 | 10.7 | 2.6 | 2.0 | 100 |
| Age-standardised rate/100,000 population | 1,564 | 2,142 | 2,183 | 3,321 | 3,428 | 1,785 |

(a) Includes 1,673 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander children and young people

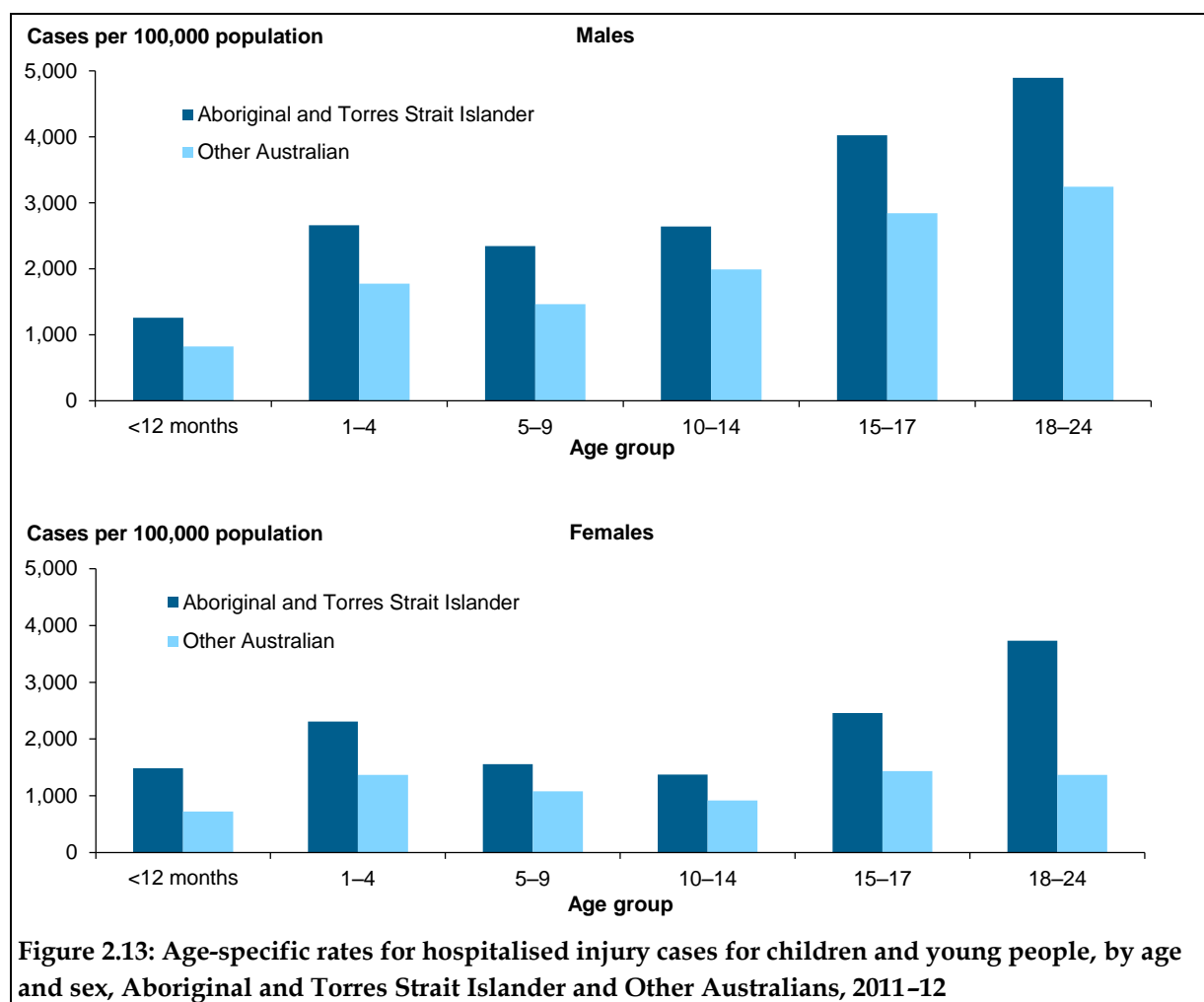
Many factors contribute to the relatively high rates of hospitalised injuries in Aboriginal and Torres Strait Islander children and young people. These include the ongoing effects of colonisation, social disadvantage, drug and alcohol misuse, violence, poor safety standards and unsafe roads and living environments (AIHW 2011a). In addition, a higher proportion of Aboriginal and Torres Strait Islander children and young people live in remote regions, and remoteness is significantly associated with rates of injury (Eades et al. 2010; Helps & Harrison 2006; Pointer 2013).

There were 9,931 hospital separations due to injury and poisoning for Indigenous children and young people during 2011–12 (Table 2.11) for an estimated 9,011 injury cases. More males than females were hospitalised (ratio of 1.5:1). For Indigenous children and young people, rates of injury were almost twice those of other Australians. Aboriginal and Torres Strait Islander females had rates of injury twice those of other Australian females. Rates of injury were also higher for Aboriginal and Torres Strait Islander males compared to other Australian males.

Table 2.11: Hospitalised injury cases for children and young people, Aboriginal and Torres Strait Islander and Other Australians, 2011–12

| Indicators | Aboriginal and Torres Strait Islander people | | | Other Australians | | |
|--|--|---------|---------|-------------------|---------|---------|
| | Males | Females | Persons | Males | Females | Persons |
| Separations from hospital due to injury | 5,980 | 3,951 | 9,931 | 87,575 | 43,722 | 131,299 |
| Estimated injury cases | 5,384 | 3,627 | 9,011 | 82,042 | 41,143 | 123,187 |
| Age-standardised rate/100,000 population | 3,326 | 2,347 | 2,849 | 2,257 | 1,202 | 1,743 |

Rates of injury in Aboriginal and Torres Strait Islander children and young people were higher than rates in other Australian children and young people at each age group for males and females (Figure 2.13). The greatest difference in rates of injury in males occurred at 5–9 where Aboriginal and Torres Strait Islander boys (2,347 cases per 100,000 population) had rates 1.6 times as high as their other Australian counterparts (1,462). For females the greatest difference occurred in 18–24 year olds where the ratio between Aboriginal and Torres Strait Islander females (3,734) and other Australian females (1,366) was 2.7. Rates in Aboriginal and Torres Strait Islander infant girls (1,484) were also twice (2.1) those of other Australian infant girls (722). In comparison the rate ratio between Aboriginal and Torres Strait Islander (1,257) and other Australian (825) infant boys was 1.5.



3 Less than 12 months (Infancy)

The age range covered by infancy – less than 12 months old – is characterised by rapid developmental changes to behaviour, and changes in the environmental hazards infants are exposed to as they become more mobile (Agran et al. 2003, Siskind & Scott 2013).

Together, these factors result in changing risks of injury as the infant gets older. For example:

- from 0 to 4 months, infants start to bring their hands to their mouths, and will soon start to reach and grasp for objects and put them into their mouths
- at 3–5 months infants begin to roll
- at 8–12 months infants start to crawl, pull up to furniture, ‘cruise’ around furniture, and stand briefly by themselves – some will even start to walk.

There were 2,329 cases of infants less than 12 months hospitalised as a result of an injury in 2011–12, representing 2% of all hospitalised injury cases in children and young people (Table 3.1). The age-specific rate of injury for infants was 799 per 100,000 population, and infant boys had a higher rate of injury than infant girls. In comparison, the overall rate of injury in children and young people aged 0 to 24 was 1,804 cases per 100,000 population.

Table 3.1: Key indicators for hospitalised injury cases in infants (<12 months), 2011–12

| Indicators | <12 months | | |
|---|------------|-------|----------|
| | Boys | Girls | Children |
| Separations from hospital due to injury | 1,394 | 1,159 | 2,553 |
| Estimated injury cases | 1,257 | 1,072 | 2,329 |
| Age-specific rate/100,000 population | 839 | 757 | 799 |

Nature of injury

Table 3.2 presents information on the more common injuries sustained in infants. Fractures were a common injury for both boys (15%) and girls (16%), closely followed by superficial injuries excluding the eye (14%). The higher proportion of infants hospitalised with a superficial injury (14.4% of cases) compared with all children and young people (4.9%, see Table 2.5) may be reflective of higher rates of general hospital admissions for infants compared with older children and adults.

Compared with other age groups, infants had the highest proportion of injuries occurring as a result of the effects of foreign bodies entering through natural orifices (9%, 216 cases). Injuries caused by foreign bodies were dominated by *Foreign body in respiratory tract* (T17) (129 cases), which includes asphyxia or choking, most likely on food, phlegm or as a result of inhalation of liquid or vomit (NCCH 2010).

Infants had the highest proportion (7%) of intracranial injuries compared to children at all other developmental stages. MacInnes and Stone (2008, p.6) suggest that the high proportion of head injuries may be due to two factors: ‘the minimal control that babies are able to exert over head position and movements, and their relatively inability to take avoiding or protective action during a fall or when confronted with an external hazard’.

Table 3.2: Cases of hospitalised injury in infants (<12 months), by selected nature of injury, 2011–12

| Nature of injury | Boys | | Girls | | Children | |
|--|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Superficial (excluding eye) | 168 | 13.4 | 167 | 15.6 | 335 | 14.4 |
| Open wound (excluding eye) | 109 | 8.7 | 84 | 7.8 | 193 | 8.3 |
| Fracture (excluding tooth) | 183 | 14.6 | 167 | 15.6 | 350 | 15.0 |
| Burn/corrosion (excluding eye) | 116 | 9.2 | 79 | 7.4 | 195 | 8.4 |
| Foreign body: all locations ^(a) | 119 | 9.5 | 97 | 9.1 | 216 | 9.2 |
| Intracranial (including concussion) | 105 | 8.4 | 60 | 5.6 | 165 | 7.1 |
| Drowning, immersion | 17 | 1.4 | 17 | 1.6 | 34 | 1.5 |
| Poison/toxic effect (excluding bite) | 40 | 3.2 | 54 | 5.0 | 94 | 4.0 |
| Other specified nature of injury | 104 | 8.1 | 73 | 6.8 | 177 | 7.6 |
| Unspecified nature of injury | 297 | 23.6 | 273 | 25.5 | 570 | 24.5 |
| Total | 1,257 | 100 | 1,072 | 100 | 2,329 | 100 |

(a) Includes foreign body in the external eye, ear canal, nose, respiratory tract, alimentary tract, or genito-urinary tract.

The large proportion of cases of unspecified injury (25%) in this age group, compared with other children, may reflect precautionary admissions to rule out the presence of serious injury. Most of the cases followed falls or unintentional transport events. (A similar pattern by age is present with principal diagnosis codes for *Examination and observation following transport accident (Z04.1)* – these cases are not included as injury in this report.)

Body region injured

The predominance of head injuries in infants (57%), particularly in comparison to all children and young people (23%), can be clearly seen in Figure 3.1. The relatively high proportion of injuries not specified by body region (27%) includes poisoning cases.

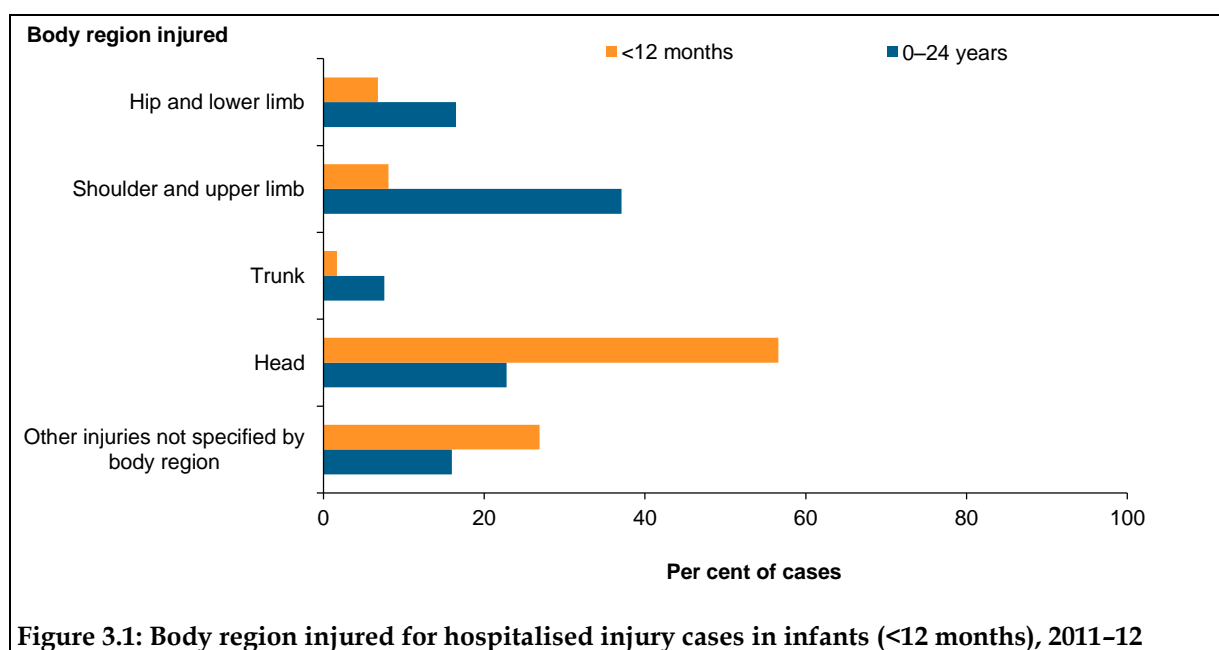


Figure 3.1: Body region injured for hospitalised injury cases in infants (<12 months), 2011–12

Causes of injury

During 2011–12, the most common cause of hospitalised injury among infants was a fall (49%) (Table 3.3). This was true of boys (48%) as well as girls (52%). The second most common cause of hospitalised injury among infants was ‘other unintentional causes’ (30%), followed by thermal causes (8%).

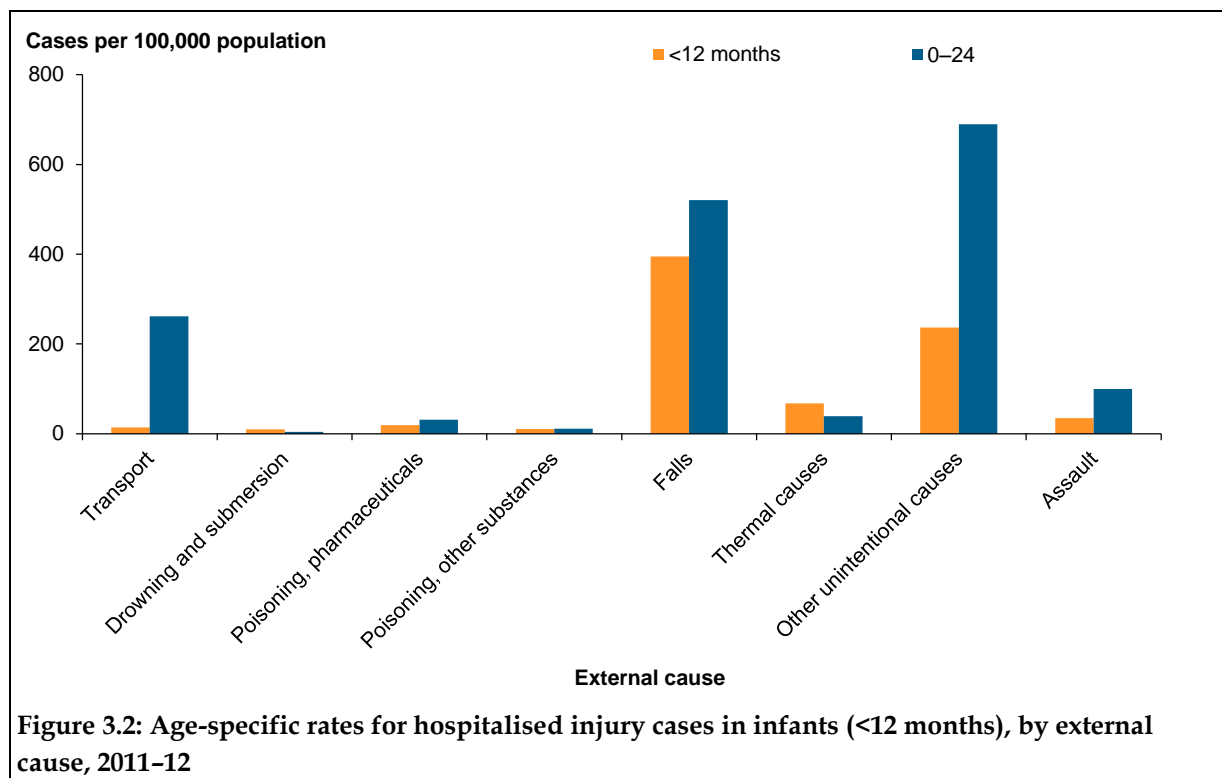
Table 3.3: Major external cause groups for hospitalised injury cases in infants (<12 months), 2011–12

| External cause | Boys | | Girls | | Children | |
|---|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Unintentional injuries | | | | | | |
| Transport | 24 | 1.9 | 16 | 1.5 | 40 | 1.7 |
| Drowning and submersion | 14 | 1.1 | 14 | 1.3 | 28 | 1.2 |
| Poisoning, pharmaceuticals | 19 | 1.5 | 36 | 3.4 | 55 | 2.4 |
| Poisoning, other substances | 16 | 1.3 | 14 | 1.3 | 30 | 1.3 |
| Falls | 599 | 47.7 | 552 | 51.5 | 1,151 | 49.4 |
| Thermal causes | 115 | 9.1 | 81 | 7.6 | 196 | 8.4 |
| Other unintentional causes | 389 | 30.9 | 301 | 28.1 | 690 | 29.6 |
| Intentional injuries^(a) | | | | | | |
| Assault | 54 | 4.3 | 46 | 4.3 | 100 | 4.3 |
| Undetermined intent | 16 | 1.3 | 11 | 1.0 | 27 | 1.2 |
| Total^(b) | 1,257 | 100 | 1,072 | 100 | 2,329 | 100 |

(a) Cases coded as intentional self-harm have been omitted, see Box 1.3.

(b) Includes other external causes of injury and not reported ($n = 12$).

In comparison to all children and young people, infants had higher age-specific rates of drowning and thermal causes (Figure 3.2). While the age-specific rate of fall injury hospitalisations (395 per 100,000 population) was lower in infants than in all children and young people (521 per 100,000 population) it was still very high compared to the rates for other causes of injury in infants.



Falls

Infants were hospitalised as a result of a *Fall while being carried or supported by other persons* in 23% of infant cases involving falls (Table 3.4). A similar proportion of infants had a fall involving a bed (21%) while falls involving chairs and other furniture accounted for 12% and 13% of hospitalised falls respectively. Falls in these latter 3 categories may occur as infants learn to roll over and are no longer safe when left unattended (Ibrahim et al. 2012; Schnitzer et al. 2013).

Table 3.4: Types of fall for hospitalised injury cases in infants (<12 months), 2011-12

| Type of fall | Boys | | Girls | | Children | |
|--|------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Fall while being carried or supported by other persons | 140 | 23.4 | 129 | 23.4 | 269 | 23.4 |
| Fall involving bed | 128 | 21.4 | 114 | 20.7 | 242 | 21.0 |
| Fall involving chair | 66 | 11.0 | 74 | 13.4 | 140 | 12.2 |
| Fall involving other furniture | 69 | 11.5 | 77 | 13.9 | 146 | 12.7 |
| Other fall from one level to another | 56 | 9.3 | 62 | 11.2 | 118 | 10.3 |
| Other types of fall | 140 | 23.4 | 96 | 17.4 | 236 | 20.5 |
| Total | 599 | 100 | 552 | 100 | 1,151 | 100 |

Drowning

Of the 28 cases of infants hospitalised as a result of drowning, 22 occurred in a bathtub. Leaving infants unattended is the most common factor associated with drowning (Peden et al. 2008). Leaving children in the care of another young child in the bath is also a cause of hospitalised drowning in infants (Brenner 2003; van Beelen et al. 2013). All 28 cases were classified as HTTL.

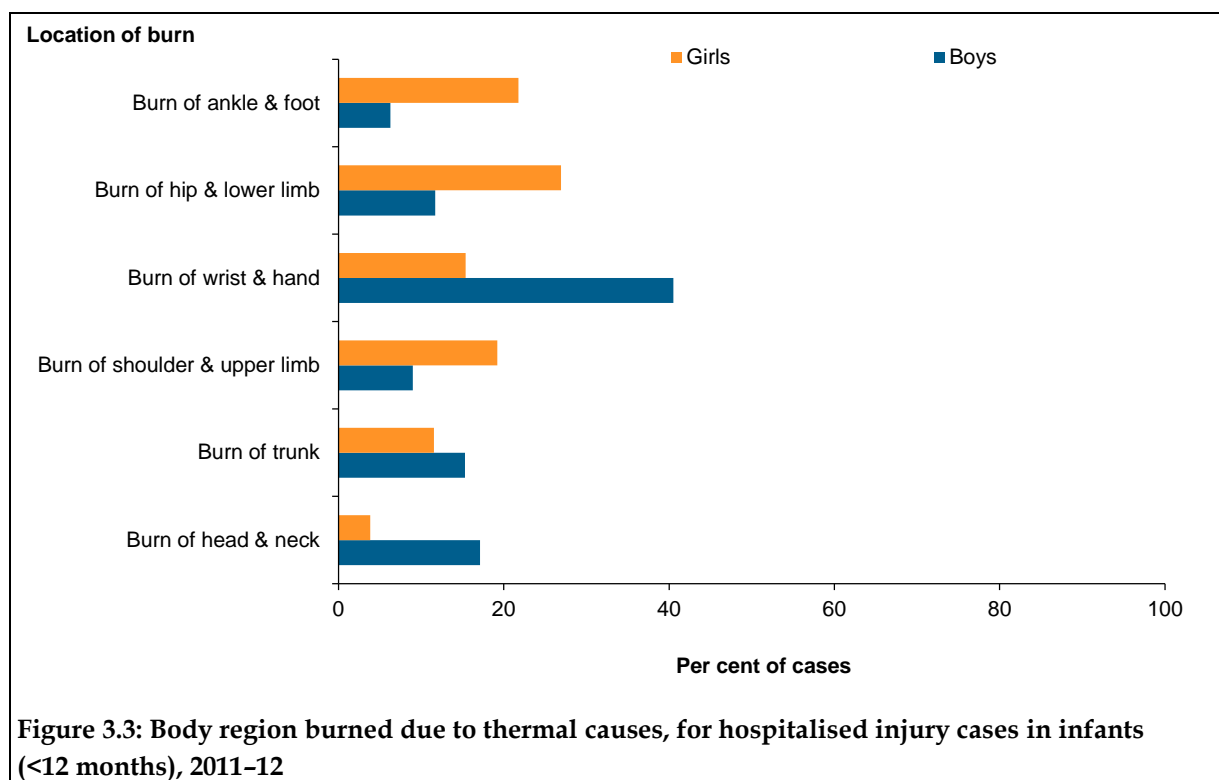
Thermal causes

The age-specific rate of thermal causes of injury in infants (67 per 100,000 population) was second to 1–4 year olds (90 per 100,000 population) and almost twice that of all children and young people (39 per 100,000 population). Infants were more frequently injured as a result of *Contact with hot drinks, food, fats and cooking oils* (30%) compared to other types of thermal causes (Table 3.5). Hot water burns from taps accounted for 14% of all thermal causes.

Table 3.5: Types of thermal causes of injury for hospitalised injury cases in infants (<12 months), 2011–12

| Type of thermal causes | Boys | | Girls | | Children | |
|--|------------|------------|-----------|------------|------------|------------|
| | Number | % | Number | % | Number | % |
| Contact with hot drinks, food, fats and cooking oils | 28 | 24.3 | 31 | 38.3 | 59 | 30.1 |
| Contact with hot tap water | 19 | 16.5 | 9 | 11.1 | 28 | 14.3 |
| Contact with other hot fluids | 25 | 21.7 | 20 | 24.7 | 45 | 23.0 |
| Contact with hot household appliances | 22 | 19.1 | 14 | 17.3 | 36 | 18.4 |
| Contact with hot heating appliances, radiators and pipes | 11 | 9.6 | 6 | 7.4 | 17 | 8.7 |
| All other types of thermal injury | 10 | 8.7 | 1 | 1.2 | 11 | 5.6 |
| Total | 115 | 100 | 81 | 100 | 196 | 100 |

Boys and girls exhibited different patterns of body region injured as a result of a burn (Figure 3.3). For example, a higher proportion of boys than girls were burnt on the wrist and hand (40% compared with 18%), while girls had a higher proportion of burns to the hip and lower limb (27% compared with 17%). (Caution should be exercised in interpreting these results because of low case numbers.)



Place of injury

The majority of injuries in infants occurred in the home (60%). About 31% of injury events had no information reported on place of occurrence.

Remoteness of usual residence

The age-specific rate of injury in infants generally rose with increasing remoteness. The rate of injury for residents of *Remote* regions was almost twice the rate for residents of *Major cities* (1,379 and 733 cases per 100,000 population, respectively) (Table 3.6).

Table 3.6: Hospitalised injury cases, by remoteness of usual residence for infants (<12 months), 2011-12

| Indicators | Remoteness of usual residence | | | | | Total ^(a) |
|--|-------------------------------|----------------|----------------|--------|-------------|----------------------|
| | Major cities | Inner regional | Outer regional | Remote | Very remote | |
| Estimated injury cases | 1,542 | 420 | 241 | 66 | 35 | 2,329 |
| Proportion of estimated injury cases (%) | 66.2 | 18.0 | 10.3 | 2.8 | 1.5 | 100 |
| Age-specific rate/100,000 population | 733 | 844 | 928 | 1,379 | 1,161 | 799 |

(a) Includes 25 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander infants

There were 208 Indigenous infants hospitalised due to injury and poisoning during 2011–12 (Table 3.7). Indigenous infant rates of injury were almost twice (1.8) those of other Australian infants.

Aboriginal and Torres Strait Islander infant girls had a higher rate of injury than Aboriginal and Torres Strait Islander infant boys. Rates of injury for Aboriginal and Torres Strait Islander infant girls were also just over twice that of other Australian infant girls.

Table 3.7: Hospitalised injury cases for infants (<12 months), Aboriginal and Torres Strait Islander and Other Australians, 2011–12

| Indicators | Aboriginal and Torres Strait Islander infants | | | Other Australian infants | | |
|--|---|-------|----------|--------------------------|-------|----------|
| | Boys | Girls | Children | Boys | Girls | Children |
| Separations from hospital due to injury | 108 | 122 | 230 | 1,286 | 1,037 | 2,323 |
| Estimated injury cases | 98 | 110 | 208 | 1,159 | 962 | 2,121 |
| Age-standardised rate/100,000 population | 1,385 | 1,646 | 1,512 | 916 | 778 | 849 |

4 1–4 years (Early childhood)

The early childhood age range of 1–4 years is characterised by increasing mobility coupled with lots of energy, curiosity and a need to explore. Children in this age group are still too young to be aware of danger and may not be able to keep themselves safe (Bugeja & Franklin 2005; Scott 2003). Their ability to climb and access a range of areas where hazardous objects and substances are kept increases (Agran et al. 2003; Ibrahim et al. 2012; Schmertmann et al. 2013). In addition, their increased mobility outside the home increases their exposure to a range of environmental hazards (MacInnes & Stone 2008).

There were 18,690 cases of children 1–4 years hospitalised as a result of an injury in 2011–12 (Table 4.1), representing 14% of all hospitalised injury cases in children and young people. The age-specific rate of injury was 1,590 per 100,000 population, and boys had a higher rate of injury compared to girls. In comparison, the overall rate of injury in children and young people aged 0 to 24 was 1,804 cases per 100,000 population.

Table 4.1: Key indicators for hospitalised injury cases in children (1–4), 2011–12

| Indicators | 1–4 years | | |
|---|-----------|-------|----------|
| | Boys | Girls | Children |
| Separations from hospital due to injury | 11,601 | 8,616 | 20,217 |
| Estimated injury cases | 10,742 | 7,948 | 18,690 |
| Age-specific rate/100,000 population | 1,781 | 1,389 | 1,590 |

Nature of injury

The more common types of injuries sustained in early childhood are presented in Table 4.2. Fractures (22%) and open wounds (29%) were the most frequent. Children in this age group had the highest percentage of open wounds as a result of their injury compared to all the other groups. Foreign bodies in the ear canal (430 cases), nose (377) and alimentary tract (375) accounted for 81% of all foreign body cases in early childhood.

Table 4.2: Cases of hospitalised injury in early childhood (1–4), by selected nature of injury, 2011–12

| Nature of injury | Males | | Females | | Persons | |
|---|---------------|------------|--------------|------------|---------------|------------|
| | Number | % | Number | % | Number | % |
| Superficial (excluding eye) | 635 | 5.9 | 473 | 6 | 1,108 | 5.9 |
| Open wound (excluding eye) | 3,223 | 30 | 2,155 | 27.1 | 5,378 | 28.8 |
| Fracture (excluding tooth) | 2,296 | 21.4 | 1,781 | 22.4 | 4,077 | 21.8 |
| Burn/corrosion (excluding eye) | 647 | 6 | 522 | 6.6 | 1,169 | 6.3 |
| Eye injury (excluding foreign body in external eye) | 68 | 0.6 | 41 | 0.5 | 109 | 0.6 |
| Foreign body: all locations ^(a) | 746 | 6.9 | 708 | 8.9 | 1,454 | 7.7 |
| Intracranial (including concussion) | 357 | 3.3 | 249 | 3.1 | 606 | 3.2 |
| Dental (including fractured tooth) | 348 | 3.2 | 250 | 3.1 | 598 | 3.2 |
| Drowning, immersion | 99 | 0.9 | 66 | 0.8 | 165 | 0.9 |
| Poison/toxic effect (excluding bite) | 726 | 6.8 | 574 | 7.2 | 1,300 | 7.0 |
| Bite (including invenomation) | 84 | 0.8 | 41 | 0.5 | 125 | 0.7 |
| Other specified nature of injury | 567 | 5.4 | 397 | 5.1 | 964 | 5.1 |
| Unspecified nature of injury | 948 | 8.8 | 693 | 8.7 | 1,641 | 8.8 |
| Total | 10,742 | 100 | 7,948 | 100 | 18,690 | 100 |

(a) Includes foreign body in the external eye, ear canal, nose, respiratory tract, alimentary tract, or genito-urinary tract.

Body region injured

The prominence of head injuries in early childhood (39%), in comparison to all children and young people (23%), can be seen in Figure 4.1. The relatively high proportion of cases not specified by body region (24%) includes poisoning cases.

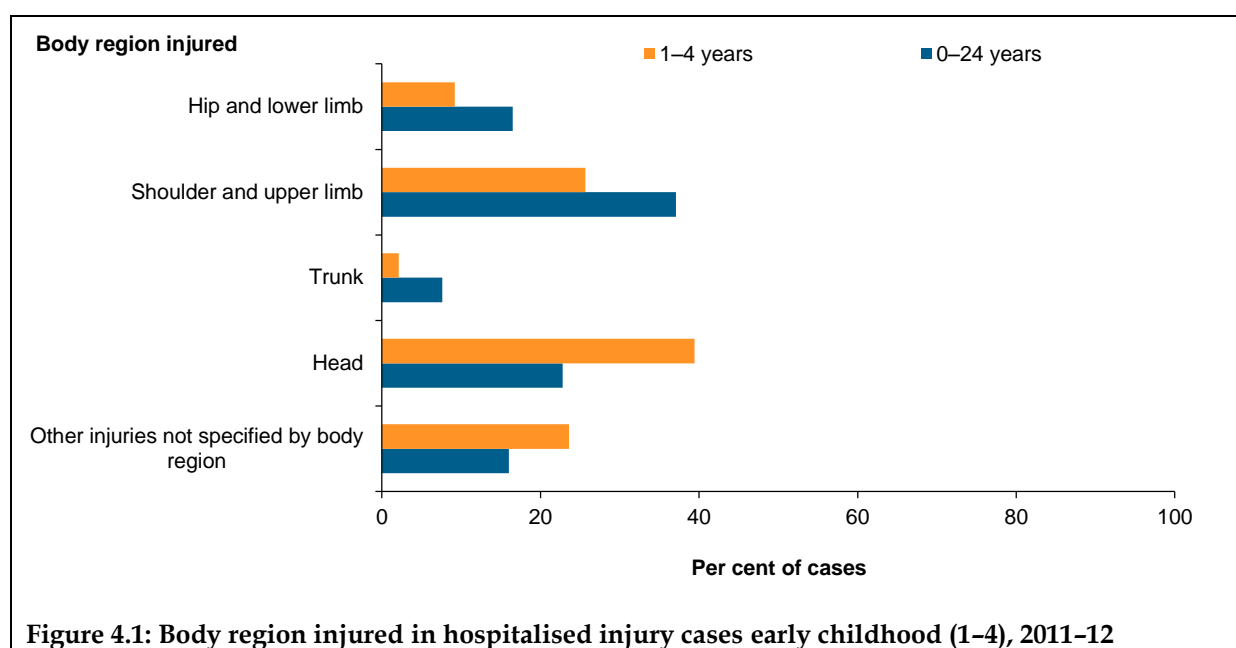


Figure 4.1: Body region injured in hospitalised injury cases early childhood (1–4), 2011–12

Causes of injury

The most common cause of hospitalised injury in early childhood was a fall (43%) (Table 4.3). Boys and girls were hospitalised as a result of a fall in the same proportions. The large 'Other unintentional causes' group (38%) includes 413 cases due to being *Bitten or struck by dog*.

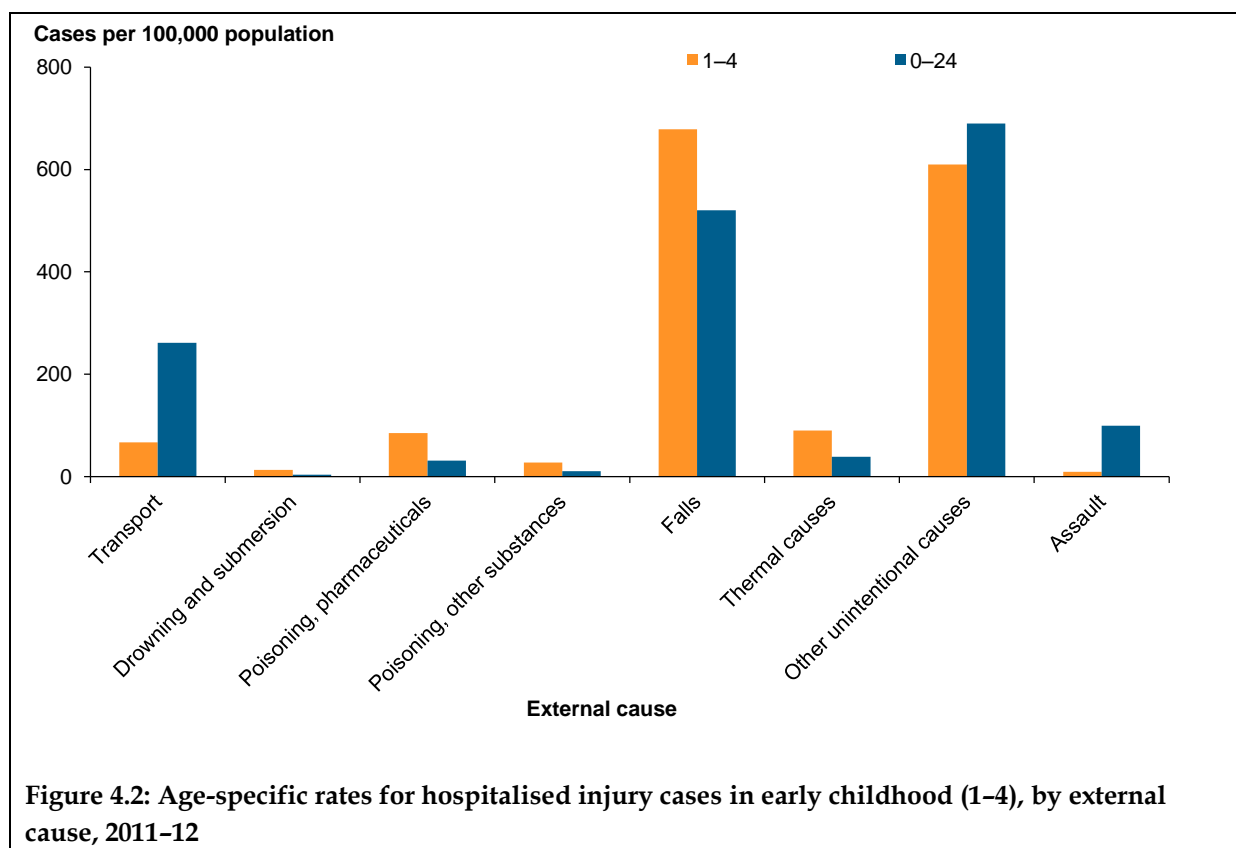
Table 4.3: Major external cause groups for hospitalised injury cases in early childhood (1–4), 2011–12

| External cause | Boys | | Girls | | Children | |
|---|---------------|------------|--------------|------------|---------------|------------|
| | Number | % | Number | % | Number | % |
| Unintentional injuries | | | | | | |
| Transport | 486 | 4.5 | 304 | 3.8 | 790 | 4.2 |
| Drowning and submersion | 93 | 0.9 | 60 | 0.8 | 153 | 0.8 |
| Poisoning, pharmaceuticals | 549 | 5.1 | 449 | 5.6 | 998 | 5.3 |
| Poisoning, other substances | 187 | 1.7 | 138 | 1.7 | 325 | 1.7 |
| Falls | 4,581 | 42.6 | 3,390 | 42.7 | 7,971 | 42.6 |
| Thermal causes | 584 | 5.4 | 474 | 6.0 | 1,058 | 5.7 |
| Other unintentional causes | 4,137 | 38.5 | 3,027 | 38.1 | 7,164 | 38.3 |
| Intentional injuries^(a) | | | | | | |
| Assault | 55 | 0.5 | 54 | 0.7 | 109 | 0.6 |
| Undetermined intent | 55 | 0.5 | 46 | 0.6 | 101 | 0.5 |
| Total^(b) | 10,741 | 100 | 7,947 | 100 | 18,688 | 100 |

(a) Cases coded as intentional self-harm have been omitted, see Box 1.3.

(b) Includes injury cases where external cause is out of scope (19 cases).

Compared to all children and young people, children in early childhood had higher age-specific rates of drowning, falls, thermal causes and poisoning (by pharmaceutical and other substances) (Figure 4.2). Age-specific rates were the highest of any age group covered in this report for cases due to drowning (13 per 100,000 population), thermal causes (90 per 100,000 population), and poisoning by pharmaceuticals (85 per 100,000 population). The age-specific rate for falls in early childhood was the second highest of all the age groups at 678 cases per 100,000 population.



Drowning

Children under the age of 5 have the highest drowning mortality rates worldwide (Peden et al. 2008). In Australia, domestic swimming pools are a drowning hazard for young children (Scott 2003). Of the 153 cases of children aged 1-4 hospitalised as a result of drowning and immersion, 90 occurred in a swimming pool and 13 cases occurred in a bathtub (Table 4.4). More boys than girls were hospitalised as a result of drowning in a swimming pool.

Table 4.4: Location of drowning for hospitalised injury cases in early childhood (1-4), 2011-12

| | Boys | | Girls | | Children | |
|----------------------|-----------|------------|-----------|------------|------------|------------|
| | Number | % | Number | % | Number | % |
| Swimming pool | 56 | 60.2 | 34 | 56.7 | 90 | 58.8 |
| Natural water | 5 | 5.4 | 5 | 8.3 | 10 | 6.5 |
| Bathtub | 8 | 8.6 | 5 | 8.3 | 13 | 8.5 |
| Other or unspecified | 24 | 25.8 | 16 | 26.7 | 40 | 26.1 |
| Total | 93 | 100 | 60 | 100 | 153 | 100 |

While the absolute number of cases of drowning is small compared to other causes of injury, the cases tend to be more serious in terms of threat to life and lengths of stay. Nearly all (151) cases of drowning in early childhood in 2011-12 were classified as HTTL. This was similar to the rate found among children and young people in NSW in 2009-10, where almost four-fifths (88%) of drowning cases were classified as high threat to life (Harris & Pointer 2012).

Falls

The increasing mobility of children in this age group is reflected in changes in types of falls resulting in hospitalisation compared to infants (Table 4.5) (Ibrahim et al. 2012). A *Fall involving playground equipment* was the most frequent specified reason for hospitalisation as a proportion of all types of falls (20%).

Table 4.5: Types of fall for hospitalised injury cases in early childhood (1–4), 2011–12

| Type of fall | Boys | | Girls | | Children | |
|--|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Fall involving playground equipment | 852 | 18.6 | 732 | 21.6 | 1,584 | 19.9 |
| Fall involving chair | 491 | 10.7 | 449 | 13.2 | 940 | 11.8 |
| Fall on same level from slipping, tripping and stumbling | 553 | 12.1 | 382 | 11.3 | 935 | 11.7 |
| Fall involving bed | 340 | 7.4 | 272 | 8.0 | 612 | 7.7 |
| Fall on and from stairs and steps | 243 | 5.3 | 179 | 5.3 | 422 | 5.3 |
| All other fall types | 2,102 | 45.9 | 1,376 | 40.6 | 3,478 | 43.6 |
| Total | 4,581 | 100 | 3,390 | 100 | 7,971 | 100 |

A closer look at the types of falls involving playground equipment is shown in Table 4.6. The most common cause (40%) was a fall involving a trampoline. There were 633 cases (330 boys and 303 girls) of a fall involving a trampoline in 2011–12. Falls involving trampolines have been increasing in this age group over the last several years (Pointer & Helps 2012). According to the Australian Standard for trampoline safety (AS 4989) trampolines are not recommended for children under 6 years of age.

Table 4.6: Types of fall involving playground equipment for hospitalised injury cases in early childhood (1–4), 2011–12

| Type of fall | Boys | | Girls | | Children | |
|---|------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Fall involving tree house | 16 | 1.9 | 9 | 1.2 | 25 | 1.6 |
| Fall involving flying fox | 12 | 1.4 | 5 | 0.7 | 17 | 1.1 |
| Fall involving playground climbing apparatus | 136 | 16.0 | 91 | 12.4 | 227 | 14.3 |
| Fall involving slide | 117 | 13.7 | 102 | 13.9 | 219 | 13.8 |
| Fall involving swing | 51 | 6.0 | 87 | 11.9 | 138 | 8.7 |
| Fall involving seesaw | 9 | 1.1 | 7 | 1.0 | 16 | 1.0 |
| Fall involving trampoline | 330 | 38.7 | 303 | 41.4 | 633 | 40.0 |
| Fall involving other specified playground equipment | 74 | 8.7 | 51 | 7.0 | 125 | 7.9 |
| Fall involving unspecified playground equipment | 107 | 12.6 | 77 | 10.5 | 184 | 11.6 |
| Total | 852 | 100 | 732 | 100 | 1,584 | 100 |

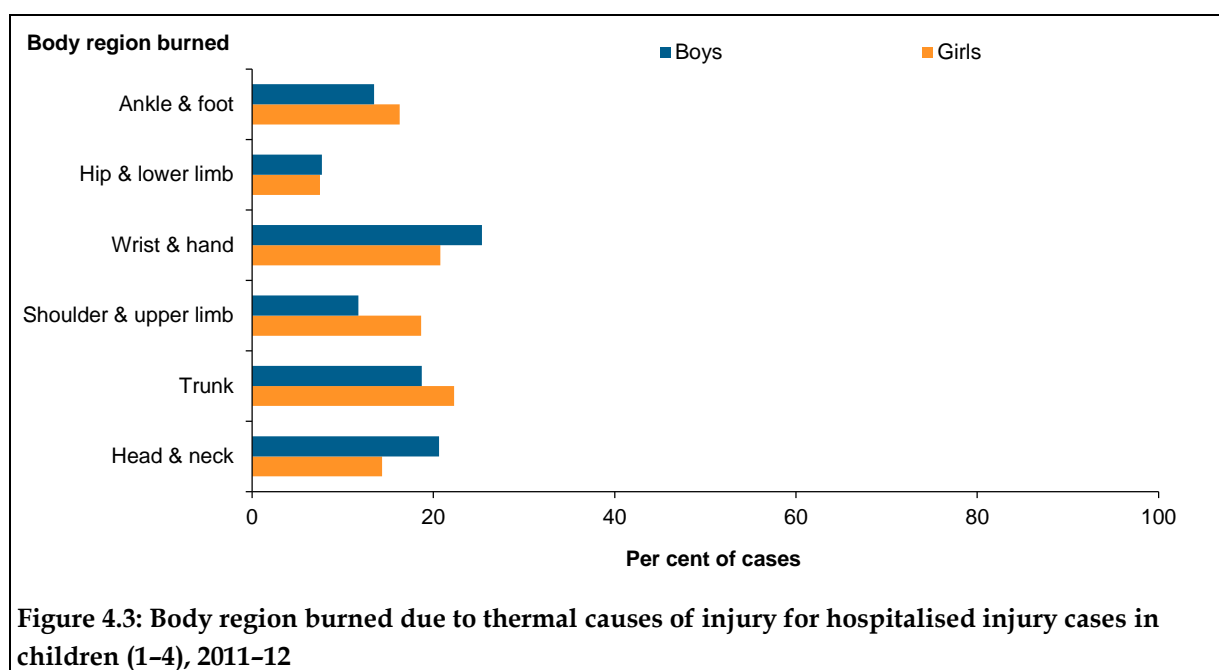
Thermal causes

Burns caused by thermal injury are a leading cause of emergency department visits and hospitalisations for young children in Australia (Duke et al. 2013). The age-specific rate of thermal causes of injury was highest in early childhood (90 cases per 100,000 population) and more than twice that of all children and young people (39 cases per 100,000 population). Children were more frequently injured as a result of *Contact with hot drinks, food, fats and cooking oils* (33%) than by other types of thermal causes (Table 4.7). *Contact with other hot fluids*, which includes contact with boiling water other than hot tap water and water heated on stove, accounted for 19% of all thermal causes of injuries, with similar proportions recorded for boys (20%) and girls (19%). Contact with hot tap water accounted for 75 cases.

Table 4.7: Types of thermal causes of injury for hospitalised injury cases in early childhood (1–4), 2011–12

| Type of thermal injury | Boys | | Girls | | Children | |
|---|------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Contact with hot drinks, food, fats and cooking oils | 169 | 28.9 | 179 | 37.8 | 348 | 32.9 |
| Contact with other hot fluids | 115 | 19.7 | 88 | 18.6 | 203 | 19.2 |
| Contact with hot household appliances | 65 | 11.1 | 53 | 11.2 | 118 | 11.2 |
| Exposure to controlled fire, not in building or structure | 45 | 7.7 | 36 | 7.6 | 81 | 7.7 |
| Contact with hot heating appliances, radiators and pipes | 22 | 3.8 | 19 | 4.0 | 41 | 3.9 |
| All other thermal causes | 168 | 28.8 | 99 | 20.9 | 267 | 25.2 |
| Total | 584 | 100 | 474 | 100 | 1,058 | 100 |

Boys and girls exhibited reasonably similar patterns of body regions injured as a result of thermal causes of injury (Figure 4.3).



Poisoning

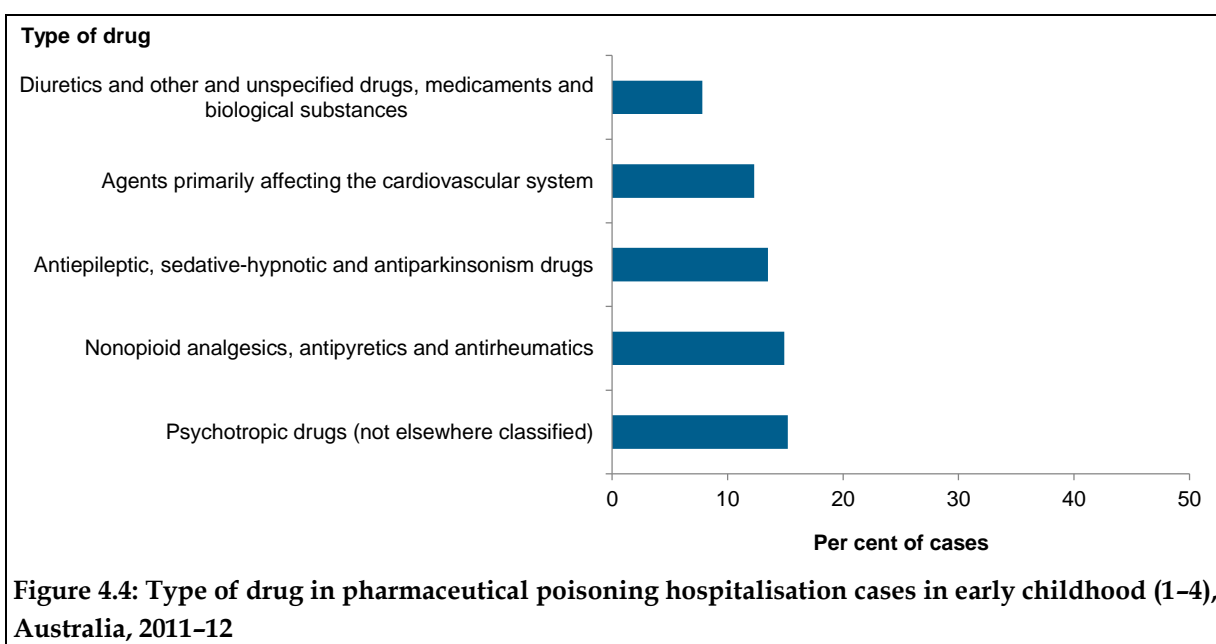
As children become more mobile their ability to explore their surroundings increases opportunities to access a range of substances which can be harmful if ingested (Beirens et al. 2006; Schmertmann, Williamson & Black 2014).

There were 998 cases of poisoning by pharmaceuticals in early childhood in 2011–12. Table 4.8 lists the types of drugs involved, by sex. The most frequent category (42%) was ‘Other and unspecified drugs, medicaments and biological substances’. The next most frequent category was poisoning by ‘Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs not elsewhere classified’.

Table 4.8: Types of pharmaceutical poisoning for hospitalised injury cases in early childhood (1–4), 2011–12

| Type of pharmaceutical poisoning | Boys | | Girls | | Children | |
|---|------------|------------|------------|------------|------------|------------|
| | Number | % | Number | % | Number | % |
| Nonopioid analgesics, antipyretics and antirheumatics | 74 | 13.5 | 76 | 16.9 | 150 | 15.0 |
| Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified | 158 | 28.8 | 130 | 29.0 | 288 | 28.9 |
| Narcotics and psychodysleptics [hallucinogens], not elsewhere classified | 48 | 8.7 | 26 | 5.8 | 74 | 7.4 |
| Other drugs acting on the autonomic nervous system | 32 | 5.8 | 40 | 8.9 | 72 | 7.2 |
| Other and unspecified drugs, medicaments and biological substances | 237 | 43.2 | 177 | 39.4 | 414 | 41.5 |
| Total | 549 | 100 | 449 | 100 | 998 | 100 |

More detail on the type of drug involved is available using the principal diagnosis codes in the hospital record. Figure 4.4 presents the top 5 drugs identified as the primary poisoning agent in hospitalisations of 1–4 year olds. Psychotropic drugs (including, for example, tricyclic and tetracyclic antidepressants and monoamine-oxidase-inhibitor antidepressants) were the most commonly identified drugs (152 cases), closely followed by ‘Nonopioid analgesics, antipyretics and antirheumatics’ (149 cases), of which 107 were attributed to 4-aminophenol derivatives (for example, paracetamol). In the category ‘Antiepileptic, sedative-hypnotic and antiparkinsonism drugs’, benzodiazepines accounted for 99 cases.



Place of injury

The majority of injuries in early childhood occurred in the home (42%) (Table 4.9). Just under half of all hospitalised injuries in children had an unspecified place of occurrence (44%). A small proportion of cases (5%, 914 children) were injured in a *School, other institution and public administration area*, probably reflecting attendance at childcare, preschool and kindergarten of children in this age group, especially the older ones.

Table 4.9: Place of occurrence for hospitalised injury cases in early childhood (1-4), 2011-12

| Place of occurrence | Boys | | Girls | | Children | | M:F ratio |
|--|---------------|------------|--------------|------------|---------------|------------|------------|
| | Number | % | Number | % | Number | % | |
| Home | 4,591 | 42.7 | 3,300 | 41.5 | 7,891 | 42.2 | 1.4 |
| Residential institution | 5 | 0.0 | 7 | 0.1 | 12 | 0.1 | 0.7 |
| School, other institution and public administration area | 545 | 5.1 | 369 | 4.6 | 914 | 4.9 | 1.5 |
| Sports and athletics area | 82 | 0.8 | 63 | 0.8 | 145 | 0.8 | 1.3 |
| Street and highway | 193 | 1.8 | 145 | 1.8 | 338 | 1.8 | 1.3 |
| Trade and service area | 189 | 1.8 | 153 | 1.9 | 342 | 1.8 | 1.2 |
| Industrial and construction area | 3 | 0 | 1 | 0 | 4 | 0 | 3.0 |
| Farm | 36 | 0.3 | 17 | 0.2 | 53 | 0.3 | 2.1 |
| Other specified place of occurrence | 436 | 4.1 | 287 | 3.6 | 723 | 3.9 | 1.5 |
| Unspecified | 4,662 | 43.4 | 3,606 | 45.4 | 8,268 | 44.2 | 3.0 |
| Total | 10,742 | 100 | 7,948 | 100 | 18,690 | 100 | 1.4 |

In over 70% of cases, activity at the time of injury was not recorded. Where an activity was recorded it was most often *While engaged in leisure* (2,966 cases, 16% of all cases). In a very small number of cases, *While engaged in sports* was the activity at time of injury (389, 2%).

Remoteness of usual residence

The age-specific rate of injury in children 1–4 increased with increasing remoteness. The rate of injury for children living in *Very remote* regions (2,597 per 100,000 population) was almost twice the rate for residents of *Major cities* (1,466 per 100,000 population) (Table 4.10). As children living in more remote areas start exploring environments outside the home, they are exposed to a wider range of hazards, many of which are unique to rural and remote areas (for example, unfenced dams and farm machinery) (Morrongiello, Zdzieborski & Stewart 2012).

Table 4.10: Hospitalised injury cases, by remoteness of usual residence for children (1–4), 2011–12

| Indicators | Remoteness of usual residence | | | | | Total ^(a) |
|--|-------------------------------|----------------|----------------|--------|-------------|----------------------|
| | Major cities | Inner regional | Outer regional | Remote | Very remote | |
| Estimated injury cases | 12,035 | 3,884 | 1,878 | 456 | 356 | 18,690 |
| Proportion of estimated injury cases (%) | 64.4 | 20.8 | 10.0 | 2.4 | 1.9 | 100 |
| Age-specific rate/100,000 population | 1,466 | 1,830 | 1,718 | 2,374 | 2,597 | 1,590 |

(a) Includes 81 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander children

There were an estimated 1,410 hospitalised injury cases for Indigenous children aged 1–4 in 2011–12 (Table 4.11). Rates of injury were 1.6 times those of other Australian children.

Rates of injury for Aboriginal and Torres Strait Islander boys aged 1–4 were higher than for Aboriginal and Torres Strait Islander girls aged 1–4, and the rates for both boys and girls respectively were much higher than for their other Australian counterparts, and compared to the less than 12 months, 5–9 and 10–14 age groups for Indigenous children.

Table 4.11: Hospitalised injury cases for early childhood (1–4), Aboriginal and Torres Strait Islander and Other Australians, 2011–12

| Indicators | Aboriginal and Torres Strait Islander children | | | Other Australian children | | |
|---|--|-------|----------|---------------------------|-------|----------|
| | Boys | Girls | Children | Boys | Girls | Children |
| Separations from hospital due to injury | 875 | 702 | 1,577 | 10,726 | 7,914 | 18,640 |
| Estimated injury cases | 772 | 638 | 1,410 | 9,970 | 7,310 | 17,280 |
| Age-specific rate/100,000 population | 3,015 | 2,542 | 2,784 | 1,910 | 1,484 | 1,702 |

5 5–9 years (Middle childhood)

The age range covered by middle childhood (5–9 years) is characterised by increasing independence from parents as children transition to school. Children in this age group in general learn to ride bicycles, spend more time in playgrounds, and start participating in organised sports – and the causes of injury reflect these activities (Flavin et al. 2006). Some of the environmental hazards that younger children are exposed to remain hazardous at this developmental stage, particularly in the area of drowning – for example, a child may have had swimming lessons but is still not considered a confident swimmer (Brenner 2003).

There were 18,126 cases of children aged 5–9 hospitalised as a result of an injury in 2011–12 (Table 5.1), representing 14% of all hospitalised injury cases in children and young people. The age-specific rate of injury was 1,292 per 100,000 population, and boys had a higher rate of injury compared to girls. In comparison, the overall rate of injury in children and young people aged 0 to 24 was 1,804 cases per 100,000 population.

Table 5.1: Key indicators for hospitalised injury cases in middle childhood (5–9), 2011–12

| Indicators | 5–9 years | | |
|---|-----------|-------|----------|
| | Boys | Girls | Children |
| Separations from hospital due to injury | 11,568 | 8,078 | 19,646 |
| Estimated injury cases | 10,677 | 7,449 | 18,126 |
| Age-specific rate/100,000 population | 1,482 | 1,091 | 1,292 |

Nature of injury

Fractures (52%) were the most common type of injury in middle childhood, with open wounds the second most common (19%)(Table 5.2). For boys, fractures (51%) were the most common outcome of an injury followed by an open wound (19%). A similar pattern of injuries was seen for girls where fractures accounted for 55% of injury outcomes followed by open wounds (19%). Foreign bodies in various body regions was a less common occurrence, although a sizeable number of children in this age group (485 cases) had foreign bodies in their ear canal.

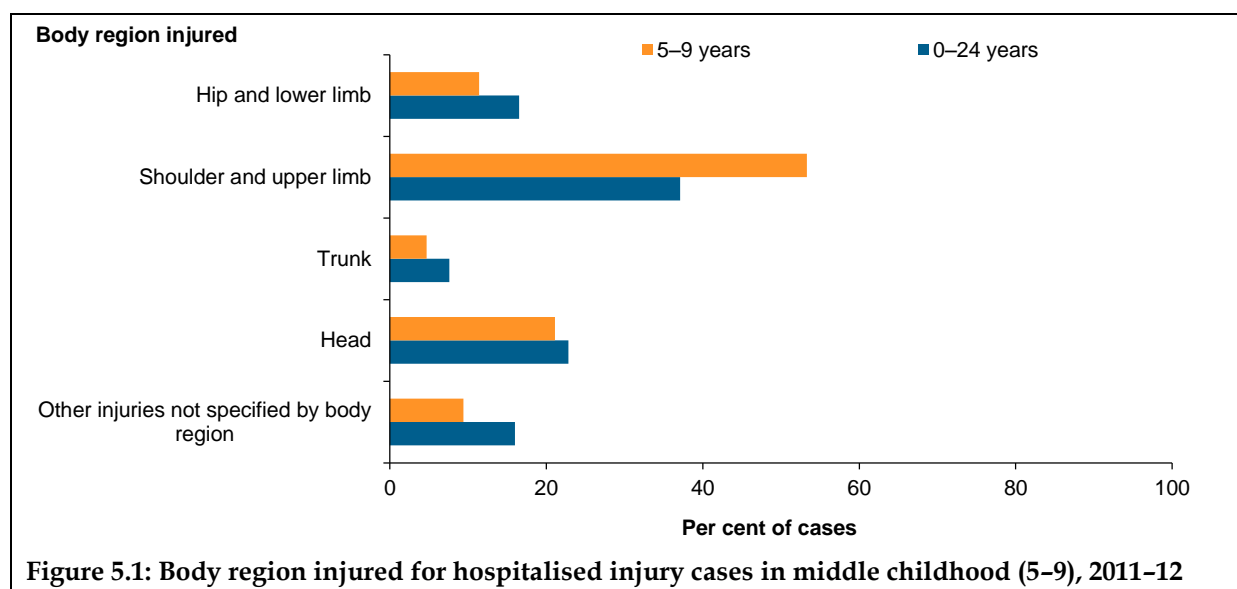
Table 5.2: Cases of hospitalised injury in middle childhood (5–9), by selected nature of injury, 2011–12

| Nature of injury | Males | | Females | | Persons | |
|--|---------------|------------|--------------|------------|---------------|------------|
| | Number | % | Number | % | Number | % |
| Superficial (excluding eye) | 466 | 4.4 | 290 | 3.9 | 756 | 4.2 |
| Open wound (excluding eye) | 2,036 | 19.1 | 1,388 | 18.6 | 3,424 | 18.9 |
| Fracture (excluding tooth) | 5,411 | 50.7 | 4,077 | 54.7 | 9,488 | 52.4 |
| Burn/corrosion (excluding eye) | 232 | 2.2 | 142 | 1.9 | 374 | 2.1 |
| Foreign body: all locations ^(a) | 487 | 4.4 | 344 | 4.6 | 831 | 4.6 |
| Intracranial (including concussion) | 366 | 3.4 | 191 | 2.6 | 557 | 3.1 |
| Poison/toxic effect (excluding bite) | 113 | 1.1 | 71 | 1 | 184 | 1.0 |
| Other specified nature of injury | 958 | 9.0 | 570 | 7.6 | 1,528 | 8.2 |
| Unspecified nature of injury | 611 | 5.7 | 377 | 5.1 | 988 | 5.5 |
| Total | 10,677 | 100 | 7,449 | 100 | 18,126 | 100 |

(a) Includes foreign body in the external eye, ear canal, nose, respiratory tract, alimentary tract, or genito-urinary tract.

Body region injured

Injuries to the shoulder and upper limbs (53%) were more frequent in middle childhood than for all children and young people overall (37%) (Figure 5.1). Injuries to the head accounted for 21% of all injuries in middle childhood, similar to the proportion for all children and young people.



Causes of injury

During 2011–12, the most common cause of hospitalised injury in this age group was a fall (54%) (Table 5.3). The proportions were similar for both boys and girls (52% and 57% respectively). Unintentional transport injury caused 11% and 9% of cases for boys and girls respectively. Being *Bitten or struck by dog* accounted for 295 cases within the ‘Other unintentional causes’ category.

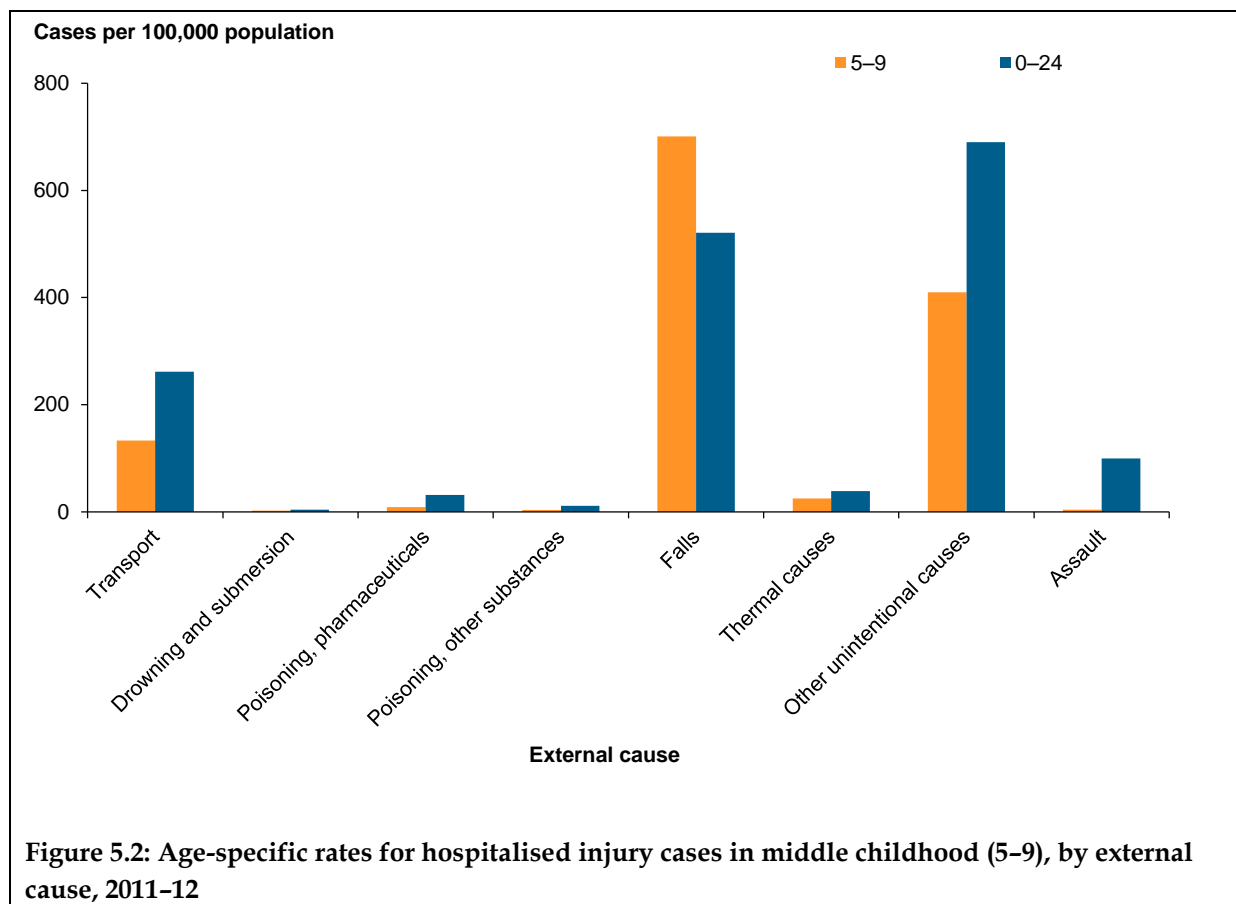
Table 5.3: Major external cause groups for hospitalised injury cases in middle childhood (5–9), 2011–12

| External cause | Boys | | Girls | | Children | |
|---|---------------|------------|--------------|------------|---------------|------------|
| | Number | % | Number | % | Number | % |
| Unintentional injuries | | | | | | |
| Transport | 1,204 | 11.3 | 664 | 8.9 | 1,868 | 10.3 |
| Drowning and submersion | 21 | 0.2 | 7 | 0.1 | 28 | 0.2 |
| Poisoning, pharmaceuticals | 76 | 0.7 | 48 | 0.6 | 124 | 0.7 |
| Poisoning, other substances | 27 | 0.3 | 17 | 0.2 | 44 | 0.2 |
| Falls | 5,551 | 52.0 | 4,277 | 57.4 | 9,828 | 54.2 |
| Thermal causes | 213 | 2.0 | 133 | 1.8 | 346 | 1.9 |
| Other unintentional causes | 3,501 | 32.8 | 2,244 | 30.1 | 5,745 | 31.7 |
| Intentional injuries^(a) | | | | | | |
| Assault | 33 | 0.3 | 25 | 0.3 | 58 | 0.3 |
| Undetermined intent | 42 | 0.4 | 26 | 0.3 | 68 | 0.4 |
| Total^(b) | 10,673 | 100 | 7,449 | 100 | 18,122 | 100 |

(a) Cases coded as intentional self-harm have been omitted, see Box 1.3.

(b) Includes other external causes of injury and cases where cause was not reported (13 cases).

Rates of injury for children aged 5–9 by external cause, compared to rates for all children and young people, are shown in Figure 5.2. Children aged 5–9 had a higher rate for falls than all children and young people. The 5–9 age group also had the highest age-specific rate for falls compared to each of the other age groups examined (701 cases per 100,000 population).



Falls

Fall involving playground equipment was the most frequent specified reason for hospitalisation for falls for 5-9 year olds (38%) (Table 5.4).

Table 5.4: Types of fall for hospitalised injury cases in middle childhood (5-9), 2011-12

| Type of fall | Boys | | Girls | | Children | |
|--|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Fall involving playground equipment | 1,983 | 35.7 | 1,756 | 41.1 | 3,739 | 38.0 |
| Fall on same level from slipping, tripping and stumbling | 544 | 9.8 | 396 | 9.3 | 940 | 9.6 |
| Fall involving pedestrian conveyances | 533 | 9.6 | 343 | 8.0 | 876 | 8.9 |
| Other fall on same level | 492 | 8.9 | 357 | 8.3 | 849 | 8.6 |
| Other fall from one level to another | 371 | 6.7 | 275 | 6.4 | 646 | 6.6 |
| All other fall types | 1,628 | 29.3 | 1,150 | 26.9 | 2,778 | 28.3 |
| Total | 5,551 | 100 | 4,277 | 100 | 9,828 | 100 |

A closer examination of the types of falls involving playground equipment is set out in Table 5.5. The most common cause of a fall involving playground equipment was climbing apparatus (1,580 cases, 42%) – for example, falls from monkey bars. Falls involving trampolines was the next most common cause of injury (875 cases, 23%).

Table 5.5: Types of fall involving playground equipment for hospitalised injury cases in middle childhood (5–9), 2011–12

| Type of fall | Boys | | Girls | | Children | |
|---|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Fall involving tree house | 21 | 1.1 | 6 | 0.3 | 27 | 0.7 |
| Fall involving flying fox | 134 | 6.8 | 103 | 5.9 | 237 | 6.3 |
| Fall involving playground climbing apparatus | 751 | 37.9 | 829 | 47.2 | 1,580 | 42.3 |
| Fall involving slide | 173 | 8.7 | 86 | 4.9 | 259 | 6.9 |
| Fall involving swing | 133 | 6.7 | 131 | 7.5 | 264 | 7.1 |
| Fall involving seesaw | 14 | 0.7 | 5 | 0.3 | 19 | 0.5 |
| Fall involving trampoline | 442 | 22.3 | 433 | 24.7 | 875 | 23.4 |
| Fall involving other specified playground equipment | 100 | 5.0 | 59 | 3.4 | 159 | 4.3 |
| Fall involving unspecified playground equipment | 215 | 10.8 | 104 | 5.9 | 319 | 8.5 |
| Total | 1,983 | 100 | 1,756 | 100 | 3,739 | 100 |

Unintentional transport injury

Events involving pedal cycles were the most common reason (43%) for children aged 5–9 being hospitalised as a result of unintentional transport injury (Table 5.6). Boys (46%) were more frequently hospitalised as a result of a pedal cycle transport injury than girls (37%). Events involving motorcycles were the second most common cause of hospitalised injury (17%), accounting for a higher proportion of transport injury with boys (22%) than girls (9%). In contrast, girls were far more likely to be injured as a result of being an animal-rider or the occupant of an animal-drawn vehicle compared with boys (17% and 3%, respectively). For girls, 107 out of 112 of these cases were associated with riding a horse. There were also 63 cases of children hospitalised as a result of an incident involving a special all-terrain or other motor vehicle designed primarily for off-road use.

Table 5.6: Types of vehicle involved for hospitalised injury cases in children (5–9) who sustained unintentional transport injuries, 2011–12

| Type of vehicle | Boys | | Girls | | Children | |
|--------------------------------|--------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Pedestrian | 135 | 11.2 | 68 | 10.2 | 203 | 10.9 |
| Pedal cycle | 554 | 46.0 | 248 | 37.3 | 802 | 42.9 |
| Motorcycle | 262 | 21.8 | 60 | 9.0 | 322 | 17.2 |
| Car | 122 | 10.1 | 122 | 18.4 | 244 | 13.1 |
| Animal or animal-drawn vehicle | 40 | 3.3 | 112 | 16.9 | 152 | 8.1 |
| All other vehicle types | 91 | 7.6 | 54 | 8.1 | 145 | 7.8 |
| Total | 1,204 | 100 | 664 | 100 | 1,868 | 100 |

The main types of collision events for pedal cyclists and pedestrians aged 5–9 were non-collision events for pedal cyclists, and collisions with cars, pick-up truck or vans for pedestrians (Tables 5.7 and 5.8). A higher proportion of girls (73% of pedal cyclist collisions) were injured in non-collision incidents on their bikes compared with boys (66%). Girl pedestrians (90%) were also more likely to have been injured in a collision with a car, pick-up truck or van compared to boy pedestrians (77%).

Table 5.7: Types of collision for pedal cyclists, hospitalised injury cases in middle childhood (5–9), 2011–12

| Pedal cyclist injured in collision with | Males | | Females | | Persons | |
|---|------------|------------|------------|------------|------------|------------|
| | Number | % | Number | % | Number | % |
| Pedestrian or animal | 1 | 0.2 | 0 | 0.0 | 1 | 0.1 |
| Other pedal cycle | 21 | 3.8 | 7 | 2.8 | 28 | 3.5 |
| Car, pick-up truck or van | 28 | 5.1 | 0 | 0.0 | 28 | 3.5 |
| Heavy transport vehicle or bus | 1 | 0.2 | 1 | 0.4 | 2 | 0.2 |
| Fixed or stationary object | 36 | 6.5 | 12 | 4.8 | 48 | 6.0 |
| Non-collision transport event | 368 | 66.4 | 180 | 72.6 | 548 | 68.3 |
| Other and unspecified transport event | 99 | 17.9 | 48 | 19.4 | 147 | 18.3 |
| Total | 554 | 100 | 248 | 100 | 802 | 100 |

Table 5.8: Types of collision for pedestrians, hospitalised injury cases in middle childhood (5–9), 2011–12

| Pedestrian injured in collision with | Males | | Females | | Persons | |
|---------------------------------------|------------|------------|-----------|------------|------------|------------|
| | Number | % | Number | % | Number | % |
| Pedestrian conveyance | 6 | 4.4 | 0 | 0.0 | 6 | 3.0 |
| Pedal cycle | 6 | 4.4 | 4 | 5.9 | 10 | 4.9 |
| Two- or three-wheeled motor vehicle | 6 | 4.4 | 2 | 2.9 | 8 | 3.9 |
| Car, pick-up truck or van | 104 | 77.0 | 61 | 89.7 | 165 | 81.3 |
| Heavy transport vehicle or bus | 3 | 2.2 | 0 | 0.0 | 3 | 1.5 |
| Other non-motor vehicle | 1 | 0.7 | 0 | 0.0 | 1 | 0.5 |
| Other and unspecified transport event | 9 | 6.7 | 1 | 1.5 | 10 | 4.9 |
| Total | 135 | 100 | 68 | 100 | 203 | 100 |

Place of injury

Place of occurrence at the time of injury was not specified for almost half of all cases involving children aged 5 to 9 (49%) (Table 5.9). For injuries with a specified location, most occurred in the home (20%) followed by a school (16%). Twice as many boys as girls were injured at sports and athletic areas.

Table 5.9: Place of occurrence for hospitalised injury cases in middle childhood (5–9), 2011–12

| Place of occurrence | Boys | | Girls | | Children | | M:F ratio |
|--|---------------|------------|--------------|------------|---------------|------------|------------|
| | Number | % | Number | % | Number | % | |
| Home | 2,072 | 19.4 | 1,535 | 20.6 | 3,607 | 19.9 | 1.3 |
| School, other institution & public administration area | 1,642 | 15.4 | 1,235 | 16.6 | 2,877 | 15.9 | 1.3 |
| Sports and athletics area | 529 | 5 | 229 | 3.1 | 758 | 4.2 | 2.3 |
| Street and highway | 419 | 3.9 | 274 | 3.7 | 693 | 3.8 | 1.5 |
| Trade and service area | 82 | 0.8 | 70 | 0.9 | 152 | 0.8 | 1.2 |
| Farm | 77 | 0.7 | 42 | 0.6 | 119 | 0.7 | 1.8 |
| Other specified place of occurrence | 721 | 6.8 | 398 | 5.3 | 1,119 | 6.2 | 1.8 |
| Unspecified place of occurrence | 5,130 | 48 | 3,662 | 49.2 | 8,792 | 48.5 | 1.4 |
| Total^(a) | 10,677 | 100 | 7,449 | 100 | 18,126 | 100 | 1.4 |

(a) Includes 9 cases of injury in residential institutions and industrial and construction areas.

Activity at time of injury

Activity at the time of injury was not reported for over half of middle childhood cases (55%) (Table 5.10). For those cases with a specified activity code, the majority were either *While engaged in leisure* (24%) or *While engaged in sports* (13%). Boys were injured while playing sports almost twice as often as girls.

Table 5.10: Activity at time of injury for hospitalised injury cases in middle childhood (5–9), 2011–12

| Activity | Boys | | Girls | | Children | | M:F ratio |
|---------------------------------------|---------------|------------|--------------|------------|---------------|------------|------------|
| | Number | % | Number | % | Number | % | |
| While engaged in sports | 1,507 | 14.1 | 777 | 10.4 | 2,284 | 12.6 | 1.9 |
| While engaged in leisure | 2,467 | 23.1 | 1,852 | 24.9 | 4,319 | 23.8 | 1.3 |
| While engaged in other types of work | 138 | 1.3 | 96 | 1.3 | 234 | 1.3 | 1.4 |
| While resting, sleeping, eating, etc. | 186 | 1.7 | 156 | 2.1 | 342 | 1.9 | 1.2 |
| Other specified activity | 562 | 5.3 | 400 | 5.4 | 962 | 5.3 | 1.4 |
| Unspecified activity | 5,814 | 54.4 | 4,168 | 55.9 | 9,982 | 55.0 | 1.4 |
| Total | 10,677 | 100 | 7,449 | 100 | 18,126 | 100 | 1.4 |

High proportions of both boys (13%, 194 cases) and girls (12%, 96 cases) were injured while cycling. The next most frequent activity reported for boys resulting in injury hospitalisation was soccer (10%, 150 cases); for girls it was *Other and unspecified non-motored scooter* activities (7%, 53 cases).

The higher numbers of boys injured in connection with sports compared with girls may reflect higher rates of participation in sport by boys compared with girls. Results from the Australian Bureau of Statistics Children's Participation in Cultural and Leisure Activities Survey (ABS 2012a) indicate that between the ages of 5 and 8, 56% of children are engaged in some form of organised sports. Participation by boys (61%, an estimated 354,700 boys) is higher than for girls (50%, an estimated 273,800 girls). Participation was defined as children who participated in organised sport (excluding dancing) outside of school hours during the 12 months prior to interview in April 2012.

Remoteness of usual residence

The rate of injury in middle childhood increased with increasing remoteness. The rate of injury for residents of *Very remote* regions (2,319 per 100,000 population) was twice the rate for residents of *Major cities* (1,172 per 100,000 population) (Table 5.11).

Table 5.11: Hospitalised injury cases, by remoteness of usual residence for children (5-9), 2011-12

| Indicators | Remoteness of usual residence | | | | | Total ^(a) |
|--|-------------------------------|----------------|----------------|--------|-------------|----------------------|
| | Major cities | Inner regional | Outer regional | Remote | Very remote | |
| Estimated injury cases | 11,262 | 3,984 | 1,955 | 453 | 391 | 18,126 |
| Proportion of estimated injury cases (%) | 62.1 | 22.0 | 10.8 | 2.5 | 2.2 | 100 |
| Age-standardised rate/100,000 population | 1,172 | 1,489 | 1,443 | 1,992 | 2,319 | 1,292 |

(a) Includes 81 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander children

There were an estimated 1,263 cases of Indigenous children aged 5 to 9 being hospitalised due to injury and poisoning in 2011-12 (Table 5.12). For Indigenous children, rates of injury were almost twice those of other Australian children in middle childhood. Rates among Aboriginal and Torres Strait Islander boys were much higher than for Aboriginal and Torres Strait Islander girls, and rates for both sexes were much higher than those of their other Australian counterparts.

Table 5.12: Hospitalised injury cases for middle childhood (5-9), Aboriginal and Torres Strait Islander and Other Australians, 2011-12

| Indicators | Aboriginal and Torres Strait Islander children | | | Other Australian children | | |
|--|---|--------------|-----------------|----------------------------------|--------------|-----------------|
| | Boys | Girls | Children | Boys | Girls | Children |
| Separations from hospital due to injury | 851 | 558 | 1,409 | 10,717 | 7,520 | 18,237 |
| Estimated injury cases | 770 | 493 | 1,263 | 9,907 | 6,956 | 16,863 |
| Age-standardised rate/100,000 population | 2,593 | 1,760 | 2,184 | 1,582 | 1,169 | 1,381 |

6 10–14 years (Late childhood)

The period of late childhood/early adolescence (10–14 years) is characterised by an increase in risk-taking behaviours, particularly among boys (Spear 2000). In the late childhood years children typically have increasing, and often unsupervised, access to a broader range of settings, such as schools, sporting environments, streets and neighbourhoods. Exposure to roads, traffic and transport increases as does access to drugs and alcohol (White & Bariola 2012).

There were 22,555 cases of children 10–14 years hospitalised as a result of an injury in 2011–12 (Table 6.1), representing 16% of all hospitalised injury cases in children and young people. The age-specific rate of injury was 1,510 per 100,000 population, and boys had a rate of injury twice that of girls. In comparison, the overall age-specific rate of injury in children and young people aged 0 to 24 was 1,804 cases per 100,000 population.

Table 6.1: Key indicators for hospitalised injury cases in late childhood (10–14), 2011–12

| Indicators | 10–14 years | | |
|---|-------------|-------|----------|
| | Boys | Girls | Children |
| Separations from hospital due to injury | 15,640 | 6,915 | 22,555 |
| Estimated injury cases | 14,544 | 6,440 | 20,984 |
| Age-specific rate/100,000 population | 2,042 | 951 | 1,510 |

Nature of injury

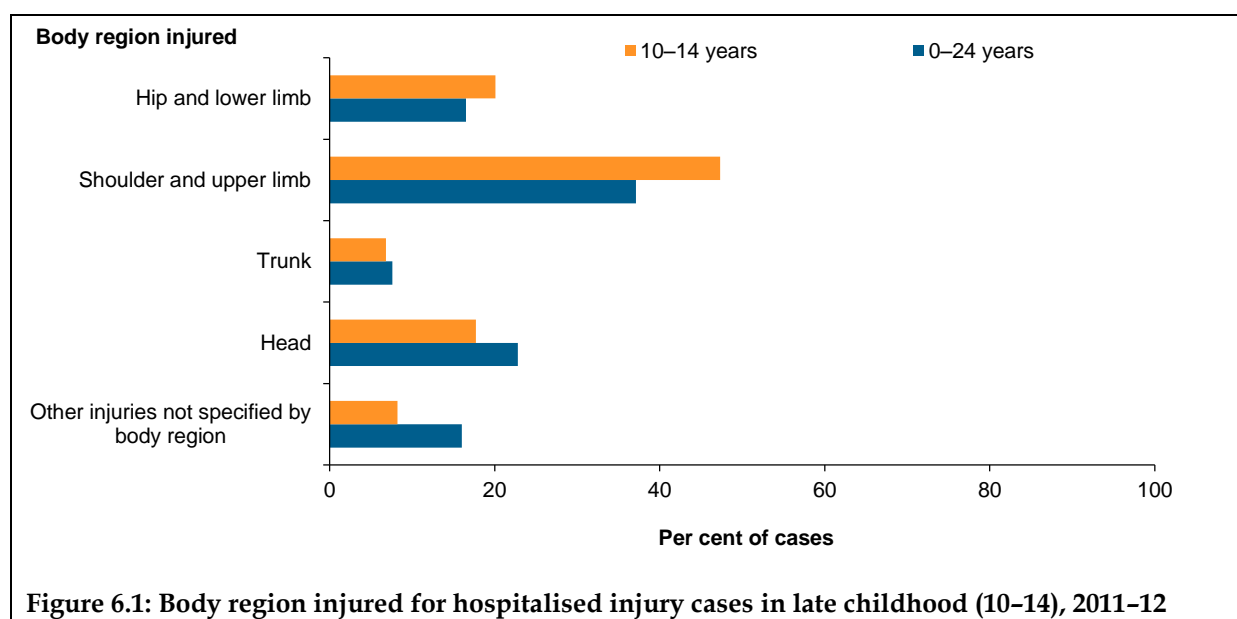
Fractures (53%) were the most common injury in this age group (boys 56%, girls 46%) (Table 6.2). The proportion of fractures in this age group was also the highest of any age group considered in this report. The next most common outcome of an injury was an open wound (12%, same proportion for both boys and girls). The toxic effects of poisoning was the outcome of 9% of injuries in girls which was far higher than the proportion recorded in boys (1%).

Table 6.2: Cases of hospitalised injury in late childhood (10–14), by selected nature of injury, 2011–12

| Nature of injury | Males | | Females | | Persons | |
|--------------------------------------|---------------|------------|--------------|------------|---------------|------------|
| | Number | % | Number | % | Number | % |
| Superficial (excluding eye) | 567 | 3.9 | 306 | 4.8 | 873 | 4.2 |
| Open wound (excluding eye) | 1,760 | 12.1 | 780 | 12.1 | 2,540 | 12.1 |
| Fracture (excluding tooth) | 8,134 | 55.9 | 2,984 | 46.3 | 11,118 | 53.0 |
| Dislocation | 298 | 2.0 | 183 | 2.8 | 481 | 2.3 |
| Sprain/strain | 252 | 1.7 | 184 | 2.9 | 436 | 2.1 |
| Muscle/tendon | 366 | 2.5 | 161 | 2.5 | 527 | 2.5 |
| Burn/corrosion (excluding eye) | 234 | 1.6 | 108 | 1.7 | 342 | 1.6 |
| Intracranial (including concussion) | 901 | 6.2 | 277 | 4.3 | 1,178 | 5.6 |
| Poison/toxic effect (excluding bite) | 155 | 1.1 | 582 | 9.0 | 737 | 3.5 |
| Other specified nature of injury | 1,007 | 6.8 | 490 | 7.3 | 1,497 | 7.2 |
| Unspecified nature of injury | 870 | 6.0 | 385 | 6.0 | 1,255 | 6.0 |
| Total | 14,544 | 100 | 6,440 | 100 | 20,984 | 100 |

Body region injured

Injuries to the shoulder and upper limb (47%) were more frequent in late childhood compared to all children and young people (37%) (Figure 6.1).



Causes of injury

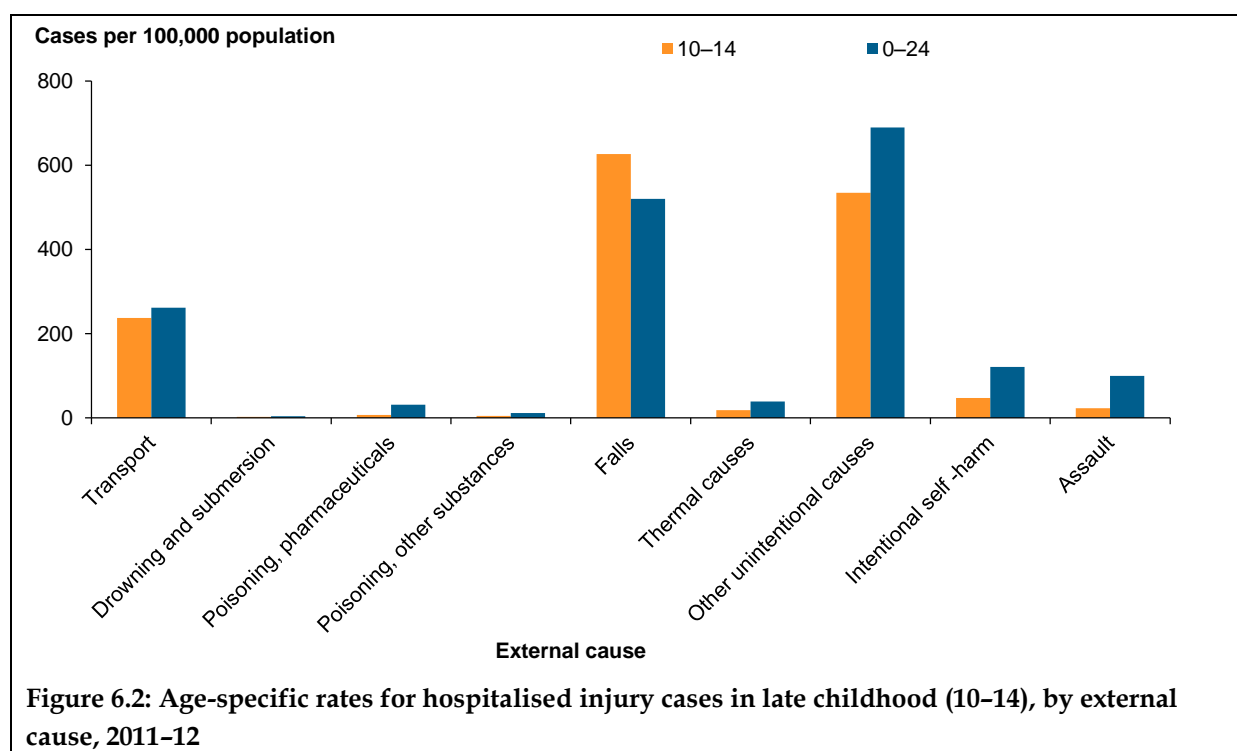
During 2011–12, the most common cause of hospitalised injury in late childhood was a fall (42%) (Table 6.3). Transport injuries accounted for 16% of hospitalisations. Intentional self-harm accounted for 3% of injury hospitalisations overall – 9% among hospitalised girls compared to 1% among hospitalised boys.

Table 6.3: Major external cause groups for hospitalised injury cases in late childhood (10–14), 2011–12

| External cause | Boys | | Girls | | Children | |
|-------------------------------|---------------|------------|--------------|------------|---------------|------------|
| | Number | % | Number | % | Number | % |
| Unintentional injuries | | | | | | |
| Transport | 2,366 | 16.3 | 930 | 14.4 | 3,296 | 15.7 |
| Drowning and submersion | 22 | 0.2 | 6 | 0.1 | 28 | 0.1 |
| Poisoning, pharmaceuticals | 32 | 0.2 | 58 | 0.9 | 90 | 0.4 |
| Poisoning, other substances | 31 | 0.2 | 27 | 0.4 | 58 | 0.3 |
| Falls | 6,216 | 42.7 | 2,487 | 38.6 | 8,703 | 41.5 |
| Thermal causes | 176 | 1.2 | 80 | 1.2 | 256 | 1.2 |
| Other unintentional causes | 5,307 | 36.5 | 2,120 | 32.9 | 7,427 | 35.4 |
| Intentional injuries | | | | | | |
| Intentional self -harm | 108 | 0.7 | 547 | 8.5 | 655 | 3.1 |
| Assault | 200 | 1.4 | 113 | 1.8 | 313 | 1.5 |
| Undetermined intent | 74 | 0.5 | 67 | 1.0 | 141 | 0.7 |
| Total^(a) | 14,544 | 100 | 6,440 | 100 | 20,984 | 100 |

(a) Includes other external causes of injury and cases where cause was not reported (17 cases).

Injury rates by external cause for children aged 10–14 compared to all children and young people (0–24) are shown in Figure 6.2. Rates for children aged 10–14 are highest for falls and ‘Other unintentional causes’. Children aged 10–14 had a higher age-specific rate of fall (626 per 100,000 population) than all children and young people.



Falls

A *Fall involving pedestrian conveyances* was the most frequent specified reason for hospitalisation for falls for 10–14 year olds (24%) (Table 6.4). For boys, of the 1,641 cases of *Fall involving pedestrian conveyances*, 1,076 (66%) involved a skateboard, compared to 54% (253 cases) for girls. *Fall involving playground equipment* was less frequent in this age group, but when falls did occur, 44% (441 cases) were as a result of a fall involving a trampoline and 21% (214 cases) as a result of a *Fall involving playground climbing apparatus*.

Table 6.4: Types of fall for hospitalised injury cases in late childhood (10–14), 2011–12

| Type of fall | Boys | | Girls | | Children | |
|---|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Fall involving pedestrian conveyances | 1,641 | 26.4 | 465 | 18.7 | 2,106 | 24.2 |
| Other fall on same level | 815 | 13.1 | 430 | 17.3 | 1,245 | 14.3 |
| Other fall on same level due to collision with, or pushing by, another person | 971 | 15.6 | 81 | 3.3 | 1,052 | 12.1 |
| Fall on same level from slipping, tripping and stumbling | 660 | 10.6 | 381 | 15.3 | 1,041 | 12.0 |
| Fall involving playground equipment | 582 | 9.4 | 412 | 16.6 | 994 | 11.4 |
| All other fall types | 1,547 | 24.9 | 718 | 28.9 | 2,265 | 26.0 |
| Total | 6,216 | 100 | 2,487 | 100 | 8,703 | 100 |

Other unintentional causes

During 2011–12, 35% of hospitalised injury cases in late childhood were due to ‘Other unintentional causes’. Within this broad group, injuries mainly occurred as a result of exposures to inanimate mechanical forces and animate mechanical forces (43% and 22% respectively) (Table 6.5). This was true for both boys and girls.

Exposure to other specified factors (X58) (161 cases) and *Exposure to unspecified factor (X59)* (1,847 cases) are the external cause codes applying to 2,008 unintentional injury cases in 2011–12. These codes are used when no information is available on the external cause of injury. These two groups are aggregated in Table 6.5 and have not been analysed further.

Table 6.5: Types of ‘Other unintentional causes’ cases in late childhood (10–14), by sex, 2011–12

| External cause | Boys | | Girls | | Children | |
|---|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Exposure to inanimate mechanical forces | 2,267 | 42.7 | 940 | 44.3 | 3,207 | 43.2 |
| Exposure to animate mechanical forces | 1,251 | 23.6 | 348 | 16.4 | 1,599 | 21.5 |
| Other unintentional threats to breathing | 15 | 0.3 | 8 | 0.4 | 23 | 0.3 |
| Exposure to electric current, radiation, extreme temperature and pressure | 8 | 0.2 | 8 | 0.4 | 16 | 0.2 |
| Contact with venomous animals and plants | 113 | 2.1 | 56 | 2.6 | 169 | 2.3 |
| Exposure to forces of nature | 5 | 0.1 | 9 | 0.4 | 14 | 0.2 |
| Overexertion, travel and privation | 229 | 4.3 | 162 | 7.6 | 391 | 5.3 |
| Exposure to other specified factors, and Exposure to unspecified factor | 1,419 | 26.7 | 589 | 27.8 | 2,008 | 27.0 |
| Total | 5,307 | 100 | 2,120 | 100 | 7,427 | 100 |

Tables 6.6 and 6.7 provide a closer examination of the types of exposure to inanimate and animate mechanical forces experienced by boys and girls. *Striking against or struck by other objects* was the most common cause of hospitalisation as a result of exposure to inanimate mechanical forces for both boys (18%) and girls (13%). The second most common cause among girls was *Foreign body entering into or through eye or natural orifice* (12%) while for boys it was *Striking against or struck by ball* (14%).

Table 6.6: Types of exposure to inanimate mechanical forces, 'Other unintentional causes', for hospitalised injury cases in late childhood (10–14), 2011–12

| Type of exposure to inanimate mechanical forces | Boys | | Girls | | Children | |
|---|--------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Striking against or struck by other objects | 398 | 17.6 | 122 | 13.0 | 520 | 16.2 |
| Striking against or struck by ball | 308 | 13.6 | 93 | 9.9 | 401 | 12.5 |
| Exposure to other and unspecified inanimate mechanical forces | 216 | 9.5 | 88 | 9.4 | 304 | 9.5 |
| Foreign body entering into or through eye or natural orifice | 178 | 7.9 | 113 | 12.0 | 291 | 9.1 |
| All other exposure to inanimate mechanical forces types | 1,167 | 51 | 524 | 56 | 1,691 | 53 |
| Total | 2,267 | 100 | 940 | 100 | 3,207 | 100 |

For injury due to exposure to animate mechanical forces, the most common cause in late childhood was being *Hit, struck, kicked, twisted, bitten or scratched by another person*, followed by *Striking against or bumped into by another person* (Table 6.7). For boys 53% of hospitalisations due to animate mechanical forces were caused by being *Hit, struck, kicked, twisted, bitten or scratched by another person*, and 25% as a result of *Striking against or bumped into by another person*. Twenty per cent of girls who were hospitalised as a result of exposure to animate mechanical forces had been bitten or struck by a dog.

Table 6.7: Types of exposure to animate mechanical forces, 'Other unintentional causes', for hospitalised injury cases in late childhood (10–14), 2011–12

| Type of exposure to animate mechanical forces | Boys | | Girls | | Children | |
|---|--------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Hit, struck, kicked, twisted, bitten or scratched by another person | 668 | 53.4 | 119 | 34.2 | 787 | 49.2 |
| Striking against or bumped into by another person | 313 | 25.0 | 71 | 20.4 | 384 | 24.0 |
| Bitten or struck by dog | 100 | 8.0 | 70 | 20.1 | 170 | 10.6 |
| Bitten or crushed by snake, unknown | 60 | 4.8 | 13 | 3.7 | 73 | 4.6 |
| All other exposure to animate mechanical forces types | 110 | 8.8 | 75 | 21.6 | 185 | 11.6 |
| Total | 1,251 | 100 | 348 | 100 | 1,599 | 100 |

Intentional self-harm

This section includes suicide, suicide attempts, and cases where people have intentionally hurt themselves, but not with the intention of dying (see Box 1.3).

There were 655 cases of *Intentional self-harm* among 10–14 year olds in 2011–12. More girls (547) than boys (108) were hospitalised as a result of an intentional self-harm injury. As can be seen in Table 6.8 *Intentional self-poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics* was the most common form of self-harm by girls (47%). In contrast, *Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs* was the most common cause of self-harm by boys (24%). Boys (14%) also had a much higher proportion of *Intentional self-harm by hanging, strangulation and suffocation* cases compared to girls (3%).

Table 6.8: Type of intentional self-harm for hospitalised injury cases in late childhood (10–14), 2011–12

| External cause | Boys | | Girls | | Children | |
|---|------------|------------|------------|------------|------------|------------|
| | Number | % | Number | % | Number | % |
| Intentional self-poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics | 20 | 18.5 | 255 | 46.6 | 275 | 42.0 |
| Intentional self-poisoning by and exposure to nonopioid antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs | 26 | 24.1 | 124 | 22.7 | 150 | 22.9 |
| Intentional self-poisoning by and exposure to other and unspecified drugs, medicaments and biological substances | 15 | 13.9 | 37 | 6.8 | 52 | 7.9 |
| Intentional self-harm by hanging, strangulation and suffocation | 15 | 13.9 | 17 | 3.1 | 32 | 4.9 |
| Intentional self-harm by sharp object | 16 | 14.8 | 69 | 12.6 | 85 | 13.0 |
| All other types of intentional self-harm | 16 | 14.8 | 45 | 8.2 | 61 | 9.3 |
| Total | 108 | 100 | 547 | 100 | 655 | 100 |

Unintentional transport injury

Events involving pedal cycles were the most common reason for children 10–14 being hospitalised due to unintentional transport injury (36%) (Table 6.9). A higher proportion of boys (42%) were hospitalised as a result of a pedal cycle event compared to girls (22%). Incidents involving motorcycles were the second most common cause of hospitalised transport injury (28%), with a much higher proportion of boys injured (34%) compared to girls (12%). In contrast, girls (32%) were far more likely than boys (3%) to be injured as a result of being an animal-rider or occupant of an animal-drawn vehicle—for girls, 281 cases out of 293 were associated with riding a horse. There were 142 cases of children being hospitalised as a result of an incident involving a special all-terrain or other motor vehicle designed primarily for off-road use (98 boys and 44 girls).

Table 6.9: Types of vehicle involved for hospitalised injury cases of children (10–14) who sustained unintentional transport injuries, 2011–12

| Type of vehicle | Boys | | Girls | | Children | |
|--------------------------------|--------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Pedestrian | 177 | 7.5 | 84 | 9.0 | 261 | 7.9 |
| Pedal cycle | 981 | 41.5 | 202 | 21.7 | 1,183 | 35.9 |
| Motorcycle | 800 | 33.8 | 111 | 11.9 | 911 | 27.6 |
| Car | 159 | 6.7 | 165 | 17.7 | 324 | 9.8 |
| Animal or animal-drawn vehicle | 62 | 2.6 | 293 | 31.5 | 355 | 10.8 |
| All other vehicle types | 187 | 7.9 | 75 | 8.1 | 262 | 7.9 |
| Total | 2,366 | 100 | 930 | 100 | 3,296 | 100 |

The main collision type resulting in injuries to pedal cyclists and motorcyclists were non-collision events in both cases (Tables 6.10 and 6.11). For pedal cyclist cases, a higher proportion of boys (66%) were injured in non-collision events compared with girls (59%). Similar results were seen with motorcycle riders.

Table 6.10: Types of collision for pedal cyclists, hospitalised injury cases in late childhood (10–14), 2011–12

| Pedal cyclist injured in collision with | Boys | | Girls | | Children | |
|---|------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Non-collision transport event | 650 | 66.3 | 120 | 59.4 | 770 | 65.1 |
| Other and unspecified transport event | 168 | 17.1 | 47 | 23.3 | 215 | 18.2 |
| Car, pick-up truck or van | 63 | 6.4 | 15 | 7.4 | 78 | 6.6 |
| Fixed or stationary object | 51 | 5.2 | 14 | 6.9 | 65 | 5.5 |
| Other pedal cycle | 35 | 3.6 | 5 | 2.5 | 40 | 3.4 |
| All other collision types | 14 | 1.4 | 1 | 0.5 | 15 | 1.3 |
| Total | 981 | 100 | 202 | 100 | 1,183 | 100 |

Table 6.11: Types of collision for motorcycle riders, hospitalised injury cases in late childhood (10–14), 2011–12

| Motorcycle rider injured in collision with | Boys | | Girls | | Children | |
|--|------------|------------|------------|------------|------------|------------|
| | Number | % | Number | % | Number | % |
| Non-collision transport event | 515 | 64.4 | 65 | 58.6 | 580 | 63.7 |
| Other and unspecified transport event | 153 | 19.1 | 16 | 14.4 | 169 | 18.6 |
| Collision with fixed or stationary object | 81 | 10.1 | 21 | 18.9 | 102 | 11.2 |
| Collision with two- or three-wheeled motor vehicle | 34 | 4.3 | 4 | 3.6 | 38 | 4.2 |
| Collision with car, pick-up truck or van | 15 | 1.9 | 4 | 3.6 | 19 | 2.1 |
| Collision with pedestrian or animal | 2 | 0.3 | 0 | 0.0 | 2 | 0.2 |
| Collision with heavy transport vehicle or bus | 0 | 0.0 | 1 | 0.9 | 1 | 0.1 |
| Total | 800 | 100 | 111 | 100 | 911 | 100 |

Place of injury

For just under half (45%) of all hospitalised injury cases in children aged 10 to 14, the place of occurrence of injury was unspecified (Table 6.12). For injuries with a specified location, the majority of injuries in late childhood occurred at sports and athletics areas (17%) followed by a school (12%). Boys were injured at four times the rate of girls at sports and athletic areas.

Table 6.12: Place of occurrence of injury, hospitalised injury cases in late childhood (10–14), 2011–12

| Place of occurrence | Boys | | Girls | | Children | | M:F ratio |
|--|---------------|------------|--------------|------------|---------------|------------|------------|
| | Number | % | Number | % | Number | % | |
| Home | 1,336 | 9.2 | 1,083 | 16.8 | 2,419 | 11.5 | 1.2 |
| Residential institution | 16 | 0.1 | 14 | 0.2 | 30 | 0.1 | 1.1 |
| School, other institution and public administration area | 1,852 | 12.7 | 751 | 11.7 | 2,603 | 12.4 | 2.5 |
| Sports and athletics area | 2,931 | 20.2 | 721 | 11.2 | 3,652 | 17.4 | 4.1 |
| Street and highway | 887 | 6.1 | 378 | 5.9 | 1,265 | 6 | 2.3 |
| Trade and service area | 77 | 0.5 | 44 | 0.7 | 121 | 0.6 | 1.8 |
| Farm | 175 | 1.2 | 67 | 1.0 | 242 | 1.2 | 2.6 |
| Other specified place of occurrence | 814 | 5.6 | 351 | 5.5 | 1,165 | 5.6 | 2.3 |
| Unspecified | 6,448 | 44.3 | 3,029 | 47.0 | 9,477 | 45.1 | 2.1 |
| Total | 14,544 | 100 | 6,440 | 100 | 20,984 | 100 | 2.3 |

Activity at time of injury

Activity at the time of injury was not present in the record for just under half of the cases (45%) (Table 6.13). For those cases with a specified activity code, the majority were either *While engaged in sports* (36%) or *While engaged in leisure* (10%). Three and a half times as many boys were injured while playing sports as girls.

Table 6.13: Activity at time of injury, hospitalised injury cases in late childhood (10–14), 2011–12

| Activity | Boys | | Girls | | Children | | M:F ratio |
|---------------------------------------|---------------|------------|--------------|------------|---------------|------------|------------|
| | Number | % | Number | % | Number | % | |
| While engaged in sports | 5,902 | 40.6 | 1,682 | 26.1 | 7,584 | 36.1 | 3.5 |
| While engaged in leisure | 1,415 | 9.7 | 703 | 10.9 | 2,118 | 10.1 | 2 |
| While engaged in other types of work | 268 | 1.8 | 110 | 1.7 | 378 | 1.8 | 2.4 |
| While resting, sleeping, eating, etc. | 156 | 1.1 | 115 | 1.8 | 271 | 1.3 | 1.4 |
| Other specified activity | 582 | 4.0 | 676 | 10.5 | 1,258 | 6.0 | 0.9 |
| Unspecified activity | 6,209 | 42.7 | 3,152 | 48.9 | 9,361 | 44.6 | 2 |
| Total | 14,544 | 100 | 6,440 | 100 | 20,984 | 100 | 2.3 |

Remoteness of usual residence

The age-specific rate of injury in late childhood increased with children's increasing remoteness of usual residence. The rate of injury in children living in *Very remote* regions (2,600 per 100,000 population) was almost twice the rate for residents of *Major cities* (1,358 per 100,000 population) (Table 6.14).

Table 6.14: Hospitalised injury cases, by remoteness of usual residence for children (10–14), 2011–12

| Indicators | Remoteness of usual residence | | | | | Total ^(a) |
|--|-------------------------------|----------------|----------------|--------|-------------|----------------------|
| | Major cities | Inner regional | Outer regional | Remote | Very remote | |
| Estimated injury cases | 12,677 | 4,970 | 2,433 | 482 | 363 | 20,984 |
| Proportion of estimated injury cases (%) | 60.4 | 23.7 | 11.6 | 2.3 | 1.7 | 100 |
| Age-standardised rate/100,000 population | 1,358 | 1,769 | 1,738 | 2,319 | 2,576 | 1,510 |

(a) Includes 59 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander children

There were an estimated 1,470 cases of Indigenous children aged 10 to 14 being hospitalised due to injury and poisoning in 2011–12 (Table 6.15). Indigenous rates of injury for this age group were higher than those of other Australians. Rates of injury among Aboriginal and Torres Strait Islander boys were almost twice those of Aboriginal and Torres Strait Islander girls, and both were much higher than for their other Australian counterparts.

Table 6.15: Hospitalised injury cases for late childhood (10–14), Aboriginal and Torres Strait Islander and Other Australians, 2011–12

| Indicators | Aboriginal and Torres Strait Islander children | | | Other Australian children | | |
|--|--|-------|----------|---------------------------|-------|----------|
| | Boys | Girls | Children | Boys | Girls | Children |
| Separations from hospital due to injury | 881 | 437 | 1,318 | 14,654 | 6,431 | 21,085 |
| Estimated injury cases | 986 | 484 | 1,470 | 13,663 | 6,003 | 19,666 |
| Age-standardised rate/100,000 population | 2,958 | 1,521 | 2,256 | 2,136 | 985 | 1,575 |

7 15–17 years (Adolescence)

Adolescent risk-taking behaviour continues to occur in 15–17 year olds. In addition, older children experience increased and often unsupervised exposure to adult activities such as driving, employment, and alcohol and drug use. Much of the injury among adolescents is associated with risk-taking behaviour associated with physical contact (either through violence or sport) and transport, both of which are influenced by alcohol and drug use (Chapman et al. 2011; Swahn et al. 2004).

There were 19,351 cases of children aged 15 to 17 years hospitalised as a result of an injury in 2011–12 (Table 7.1), representing 15% of all hospitalised injury cases in children and young people (0–24). The age-specific rate of injury was 2,244 cases per 100,000 population, with boys having a rate of injury almost twice that of girls. In comparison, the overall age-specific rate of injury in children and young people (0–24) was 1,804 cases per 100,000 population. The highest rate of age-specific injury for girls occurred in this age group.

Table 7.1: Key indicators for hospitalised injury cases in adolescents (15–17), 2011–12

| Indicators | 15–17 years | | |
|---|-------------|-------|----------|
| | Boys | Girls | Children |
| Separations from hospital due to injury | 13,824 | 6,628 | 20,452 |
| Estimated injury cases | 13,019 | 6,332 | 19,351 |
| Age-specific rate/100,000 population | 2,936 | 1,512 | 2,244 |

Nature of injury

Fractures (35%) were the most common injury in this age group (Table 7.2). For boys, fractures (44%) were the most common outcome of an injury followed by an open wound (12%). For girls, fractures (16%) were a less common injury than poisoning (36%). The greatest differences between boys and girls were seen in relation to poisoning/toxic effects (5% and 36% respectively).

Table 7.2: Cases of hospitalised injury in adolescents (15–17), by selected nature of injury, 2011–12

| Nature of injury | Boys | | Girls | | Children | |
|--------------------------------------|---------------|------------|--------------|------------|---------------|------------|
| | Number | % | Number | % | Number | % |
| Superficial (excluding eye) | 478 | 3.7 | 369 | 5.8 | 847 | 4.4 |
| Open wound (excluding eye) | 1,559 | 12 | 708 | 11.2 | 2,267 | 11.7 |
| Fracture (excluding tooth) | 5,748 | 44.2 | 1,001 | 15.8 | 6,749 | 34.9 |
| Dislocation | 600 | 4.6 | 189 | 3.0 | 789 | 4.1 |
| Sprain/strain | 670 | 5.1 | 385 | 6.1 | 1,055 | 5.5 |
| Muscle/tendon | 595 | 4.6 | 147 | 2.3 | 742 | 3.8 |
| Burn/corrosion (excluding eye) | 204 | 1.6 | 87 | 1.4 | 291 | 1.5 |
| Intracranial (including concussion) | 825 | 6.3 | 238 | 3.8 | 1,063 | 5.5 |
| Drowning, immersion | 5 | 0.0 | 6.0 | 0.1 | 11 | 0.1 |
| Poison/toxic effect (excluding bite) | 588 | 4.5 | 2,258 | 35.7 | 2,846 | 14.7 |
| Bite (including invenomation) | 58 | 0.4 | 37 | 0.6 | 95 | 0.5 |
| Other specified nature of injury | 1,090 | 8.4 | 437 | 6.8 | 1,527 | 7.8 |
| Unspecified nature of injury | 599 | 4.6 | 470 | 7.4 | 1,069 | 5.5 |
| Total | 13,019 | 100 | 6,332 | 100 | 19,351 | 100 |

Body region injured

Injuries to the shoulder and upper limb (33%) were less frequent in this age group than for children and young people overall (37%) (Figure 7.1). Injuries to the hip and lower limb accounted for 20% of all injuries, while injuries to the head accounted for 19%. The highest proportion of other injuries not specified by body region (19%) occurred in this age group and is heavily influenced by the relatively numerous cases of intentional self-harm by poisoning seen in female adolescents.

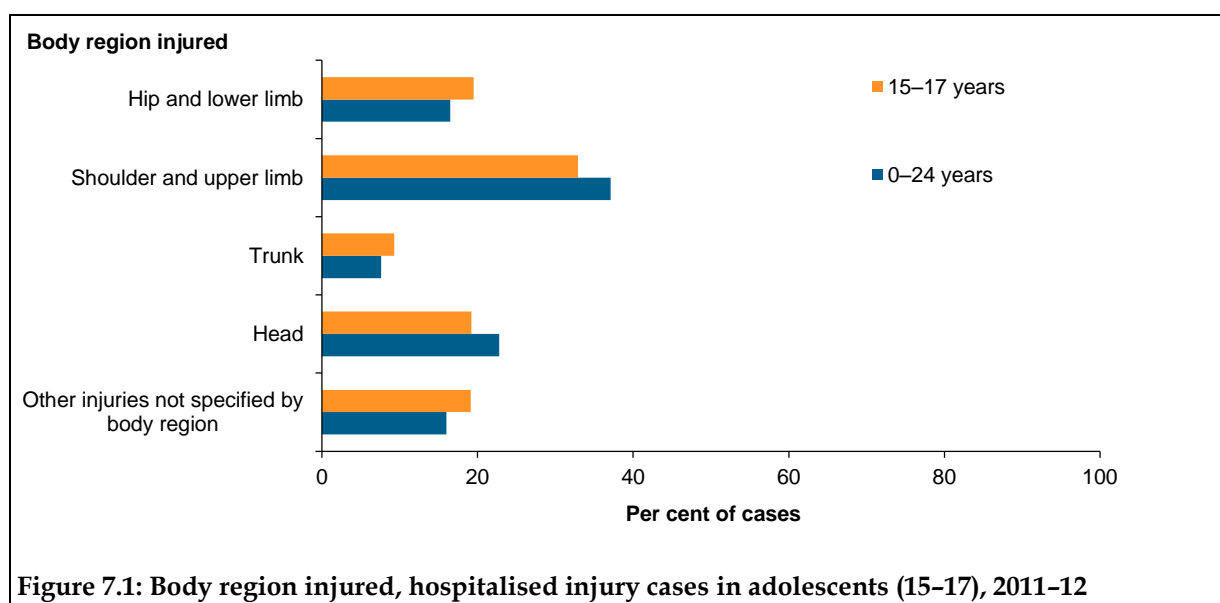


Figure 7.1: Body region injured, hospitalised injury cases in adolescents (15–17), 2011–12

Causes of injury

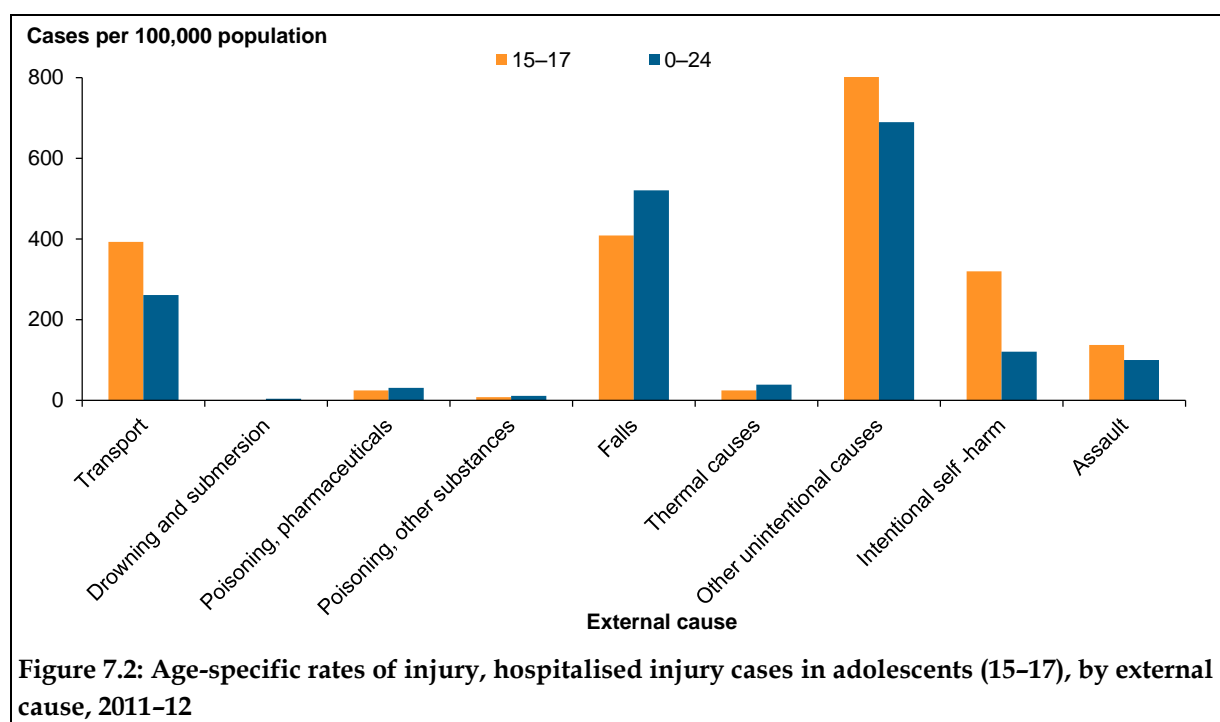
During 2011–12, the most common causes of hospitalised injury in this age group were those grouped as ‘Other unintentional causes’ (39%) (Table 7.3). The second most common cause of hospitalised injury was *Falls* (18%). Transport injuries also accounted for 18% of hospitalisations. While *Intentional self-harm* injuries accounted for 14% of hospitalisations overall, there was a large difference between boys and girls. Among girls the proportion hospitalised as a result of *Intentional self-harm* was 35% compared to 4% among boys.

Table 7.3: Major external cause groups for hospitalised injury cases in adolescents (15–17), 2011–12

| External cause | Boys | | Girls | | Children | |
|-------------------------------|---------------|------------|--------------|------------|---------------|------------|
| | Number | % | Number | % | Number | % |
| Unintentional injuries | | | | | | |
| Transport | 2,394 | 18.4 | 992 | 15.7 | 3,386 | 17.5 |
| Drowning and submersion | 7 | 0.1 | 4 | 0.1 | 11 | 0.1 |
| Poisoning, pharmaceuticals | 69 | 0.5 | 147 | 2.3 | 216 | 1.1 |
| Poisoning, other substances | 46 | 0.4 | 26 | 0.4 | 72 | 0.4 |
| Falls | 2,834 | 21.8 | 689 | 10.9 | 3,523 | 18.2 |
| Thermal causes | 149 | 1.1 | 67 | 1.1 | 216 | 1.1 |
| Other unintentional causes | 5,927 | 45.5 | 1,667 | 26.3 | 7,594 | 39.2 |
| Intentional injuries | | | | | | |
| Intentional self-harm | 527 | 4.0 | 2,235 | 35.3 | 2,762 | 14.3 |
| Assault | 890 | 6.8 | 297 | 4.7 | 1,187 | 6.1 |
| Undetermined intent | 158 | 1.2 | 197 | 3.1 | 355 | 1.8 |
| Total^(a) | 13,019 | 100 | 6,332 | 100 | 19,351 | 100 |

(a) Includes other external causes of injury and where cause was not reported (29 cases).

In comparison to all children and young people (0–24), adolescents had the highest age-specific rate of *Intentional self-harm* (320 cases per 100,000 population) (Figure 7.2). The rate for girls (534 per 100,000) was four and a half times the rate for boys (119). Rates of injury due to *Assault* (138 cases per 100,000 population), *Transport* (393) and *Other unintentional causes* (880) were also higher for this group compared to all children and young people. For hospitalised *Assault*, the rate of injury in boys (201) was almost three times that of girls (71). Among all types of external causes for children and young people, the rate of *Other unintentional causes* in adolescent boys was the highest at 1,337 cases per 100,000 population.



Unintentional transport injury

Cases involving motorcycles were the most common type of hospitalised transport injury in the 15-17 age group (33%) (Table 7.4). Of all boys in this age group who were hospitalised due to unintentional transport injury, 43% were injured while motorcycling (1,022 cases). This proportion is higher than for boys or girls in any other age group considered in this report. The equivalent proportion for girls was 10% (95 cases).

The second most common type of transport injury involved a car (27%). Girls (45%) had a higher proportion of transport injury cases involving a car than boys (20%), but case numbers were similar. Adolescent girls (23%, 229 cases) were far more commonly injured as an animal-rider or the occupant of an animal-drawn vehicle compared with boys (3%, 68 cases). For girls, 213 cases were associated with riding a horse.

Table 7.4: Types of vehicle involved, hospitalised injury cases in adolescents (15-17) who sustained unintentional transport injuries, 2011-12

| Type of vehicle | Boys | | Girls | | Children | |
|---|--------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Pedestrian | 108 | 4.5 | 78 | 7.9 | 186 | 5.5 |
| Pedal cycle | 570 | 23.8 | 57 | 5.7 | 627 | 18.5 |
| Motorcycle | 1,022 | 42.7 | 95 | 9.6 | 1,117 | 33.0 |
| Car | 476 | 19.9 | 445 | 44.9 | 921 | 27.2 |
| Animal or animal-drawn vehicle | 68 | 2.8 | 229 | 23.1 | 297 | 8.8 |
| Special all-terrain or off-road vehicle | 54 | 2.3 | 36 | 3.6 | 90 | 2.7 |
| All other vehicle types | 96 | 4.0 | 52 | 5.2 | 148 | 4.4 |
| Total | 2,394 | 100 | 992 | 100 | 3,386 | 100 |

The main causes of motorcycle related injuries for adolescents were non-collision events (60%) (Table 7.5). Non-collision events were also common among those injured while car occupants (29%) (Table 7.6). For adolescent girls, 42% of car occupant cases involved a collision with a car, pick-up truck or van.

Table 7.5: Types of collision for motorcycle riders, hospitalised injury cases in adolescents (15–17), 2011–12

| Motorcycle rider injured in collision with | Boys | | Girls | | Children | |
|--|--------------|------------|-----------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Non-collision event | 628 | 61.4 | 45 | 47.4 | 673 | 60.3 |
| Other and unspecified transport event | 174 | 17.0 | 22 | 23.2 | 196 | 17.5 |
| Fixed or stationary object | 81 | 7.9 | 15 | 15.8 | 96 | 8.6 |
| Car, pick-up truck or van | 83 | 8.1 | 10 | 10.5 | 93 | 8.3 |
| All other vehicle types or objects | 56 | 5.5 | 3 | 3.2 | 59 | 5.3 |
| Total | 1,022 | 100 | 95 | 100 | 1,117 | 100 |

Table 7.6: Types of collision for car occupants, hospitalised injury cases in adolescents (15–17), 2011–12

| Car occupant injured in collision with | Boys | | Girls | | Children | |
|--|------------|------------|------------|------------|------------|------------|
| | Number | % | Number | % | Number | % |
| Car, pick-up truck or van | 142 | 29.8 | 186 | 41.8 | 328 | 35.6 |
| Non-collision event | 153 | 32.1 | 116 | 26.1 | 269 | 29.2 |
| Fixed or stationary object | 154 | 32.4 | 112 | 25.2 | 266 | 28.9 |
| All other vehicle types or objects | 27 | 5.7 | 31 | 7.0 | 58 | 6.3 |
| Total | 476 | 100 | 445 | 100 | 921 | 100 |

Falls

Other fall on same level due to collision with, or pushing by, another person was the most frequent (24%) specified reason for hospitalisation as a proportion of all types of hospitalised fall injury cases in adolescents (Table 7.7). A large proportion of boys were hospitalised as a result of a *Fall involving pedestrian conveyances* (21%, 607 cases), with 454 of these cases involving a skateboard. In contrast girls had higher proportions of *Other fall on same level*, *Fall on same level from slipping, tripping and stumbling* and *Unspecified fall* compared to boys.

Table 7.7: Types of fall, hospitalised injury cases in adolescents (15–17), 2011–12

| Type of fall | Boys | | Girls | | Children | |
|---|--------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Other fall on same level due to collision with, or pushing by, another person | 764 | 27.0 | 72 | 10.4 | 836 | 23.7 |
| Fall involving pedestrian conveyances | 607 | 21.4 | 83 | 12.0 | 690 | 19.6 |
| Other fall on same level | 433 | 15.3 | 142 | 20.6 | 575 | 16.3 |
| Fall on same level from slipping, tripping and stumbling | 262 | 9.2 | 124 | 18.0 | 386 | 11.0 |
| Unspecified fall | 246 | 8.7 | 91 | 13.2 | 337 | 9.6 |
| All other fall types | 522 | 18.4 | 177 | 25.7 | 699 | 19.8 |
| Total | 2,834 | 100 | 689 | 100 | 3,523 | 100 |

Other unintentional causes

The causes grouped as ‘Other unintentional causes’ (see Figure 7.2) accounted for (39%) of cases in adolescents during 2011–12 (Table 7.8). *Exposure to inanimate mechanical forces* followed by *Exposure to animate mechanical forces* were the two most commonly reported ‘Other unintentional causes’ for both males and females.

Exposure to other specified factors (X58) (140 cases) and *Exposure to unspecified factor* (X59) (2,502 cases) are the external cause codes applying to 2,642 unintentional injury cases in 2011–12. These codes are used when no information is available on the external cause of injury. These two groups are aggregated in Table 7.8 and have not been analysed further.

Table 7.8: Types of ‘Other unintentional causes’, hospitalised injury cases in adolescents (15–17), 2011–12

| External cause | Boys | | Girls | | Children | |
|---|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Exposure to inanimate mechanical forces | 2,194 | 37.0 | 639 | 38.3 | 2,833 | 37.3 |
| Exposure to animate mechanical forces | 1,169 | 19.7 | 238 | 14.3 | 1,407 | 18.5 |
| Other unintentional threats to breathing | 5 | 0.1 | 5 | 0.3 | 10 | 0.1 |
| Exposure to electric current, radiation, extreme temperature & pressure | 16 | 0.3 | 7 | 0.4 | 23 | 0.3 |
| Contact with venomous animals and plants | 81 | 1.4 | 43 | 2.6 | 124 | 1.6 |
| Exposure to forces of nature | 12 | 0.2 | 5 | 0.3 | 17 | 0.2 |
| Overexertion, travel and privation | 368 | 6.2 | 170 | 10.2 | 538 | 7.1 |
| Exposure to other specified factors and Exposure to unspecified factor | 2,082 | 35.1 | 560 | 33.6 | 2,642 | 34.8 |
| Total | 5,927 | 100 | 1,667 | 100 | 7,594 | 100 |

Tables 7.9 and 7.10 provide a closer examination of the types of exposure to inanimate and animate mechanical forces experienced by boys and girls. *Striking against or struck by other objects* was the most common individual cause of hospitalised other unintentional injury by exposure to inanimate mechanical forces for both boys (19%) and girls (14%) (Table 7.9). The second most common cause among boys (9%) and girls (9%) was *Striking against or struck by*

ball. The third most common cause of hospitalisations was *Contact with knife, sword or dagger*, 8% respectively for boys and girls.

Table 7.9: Types of exposure to inanimate mechanical forces, 'Other unintentional causes', for hospitalised injury cases in adolescents (15–17), 2011–12

| Type of exposure to inanimate mechanical forces | Boys | | Girls | | Children | |
|---|--------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Striking against or struck by other objects | 412 | 18.8 | 87 | 13.6 | 499 | 17.6 |
| Striking against or struck by ball | 203 | 9.3 | 61 | 9.5 | 264 | 9.3 |
| Contact with knife, sword or dagger | 167 | 7.6 | 52 | 8.1 | 219 | 7.7 |
| Contact with glass window | 177 | 8.1 | 29 | 4.5 | 206 | 7.3 |
| Other types of exposure | 1,235 | 56.3 | 410 | 64.2 | 1,645 | 58.1 |
| Total | 2,194 | 100 | 639 | 100 | 2,833 | 100 |

With respect to types of injury due to exposure to animate mechanical forces, the most common cause in adolescents was being *Hit, struck, kicked, twisted, bitten or scratched by another person* followed by *Striking against or bumped into by another person* (Table 7.10). Eleven per cent of injuries in girls as a result of exposure to animate mechanical forces were due to being bitten or struck by a dog.

Table 7.10: Types of exposure to animate mechanical forces, 'Other unintentional causes', for hospitalised injury cases in adolescents (15–17), 2011–12

| Type of exposure to animate mechanical forces | Boys | | Girls | | Children | |
|---|--------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Hit, struck, kicked, twisted, bitten or scratched by another person | 684 | 58.5 | 71 | 29.8 | 755 | 53.7 |
| Striking against or bumped into by another person | 313 | 26.8 | 62 | 26.1 | 375 | 26.7 |
| Bitten or struck by dog | 38 | 3.3 | 25 | 10.5 | 63 | 4.5 |
| Bitten or crushed by snake, unknown | 37 | 3.2 | 19 | 8.0 | 56 | 4.0 |
| Other types of exposure | 97 | 8.3 | 61 | 25.6 | 158 | 11.2 |
| Total | 1,169 | 100 | 238 | 100 | 1,407 | 100 |

Intentional self-harm

This section includes suicide, suicide attempts, and cases where people have intentionally hurt themselves, but not with the intention of dying (see Box 1.3).

There were 2,762 cases of intentional self-harm among adolescents hospitalised in 2011–12, with many more cases of girls hospitalised (2,235) than boys (527). The age-specific rates were 534 and 119 cases per 100,000 population, respectively.

As can be seen in Table 7.11, intentional self-poisoning (all types) was the most common form of self-harm for girls (86%) and boys (76%). Intentional self-harm by sharp object was the next most common type of intentional self-harm for boys and girls.

Table 7.11: Types of intentional self-harm for hospitalised injury cases in adolescents (15–17), 2011–12

| External cause | Boys | | Girls | | Children | |
|---|------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Intentional self-poisoning (all types) | 399 | 75.7 | 1,925 | 86.1 | 2,324 | 84.1 |
| Intentional self-harm by sharp object | 74 | 14.0 | 242 | 10.8 | 316 | 11.4 |
| Intentional self-harm by hanging, strangulation and suffocation | 42 | 8.0 | 41 | 1.8 | 83 | 3.0 |
| All other types of intentional self-harm | 12 | 2.3 | 27 | 1.2 | 39 | 1.4 |
| Total | 527 | 100 | 2,235 | 100 | 2,762 | 100 |

A closer look at the type of substances involved in hospitalised cases of intentional self-harm by poisoning is presented in Table 7.12. As a proportion of all types of substances, nonopioid analgesics, antipyretics and antirheumatics (for example, paracetamol) were the most common substances involved for girls (53%). Among boys, antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs were more commonly used (40%).

Table 7.12: Types of intentional self-poisoning for hospitalised injury cases in adolescents (15–17), 2011–12

| Intentional self-poisoning by and exposure to | Boys | | Girls | | Children | |
|---|------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Nonopioid analgesics, antipyretics and antirheumatics | 148 | 37.1 | 1,023 | 53.1 | 1,171 | 50.4 |
| Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs | 158 | 39.6 | 634 | 32.9 | 792 | 34.1 |
| Narcotics and psychodysleptics (hallucinogens), not elsewhere classified | 15 | 3.8 | 34 | 1.8 | 49 | 2.1 |
| Other drugs acting on the autonomic nervous system | 9 | 2.3 | 17 | 0.9 | 26 | 1.1 |
| Other and unspecified drugs, medicaments and biological substances | 47 | 11.8 | 155 | 8.1 | 202 | 8.7 |
| Alcohol | 8 | 2.0 | 9 | 0.5 | 17 | 0.7 |
| Total | 399 | 100 | 1,925 | 100 | 2,324 | 100 |

Assault

Rates of hospitalised injury due to assault among adolescents (138 cases per 100,000 population) were only exceeded by assault rates in young adults (251). Rates in adolescent boys (201 cases per 100,000 population) were almost three times as high as the rates in adolescent girls (71).

Assault by bodily force was the most frequent cause of hospitalised injury for both boys (67%, 598 cases) and girls (62%, 184 cases) (Table 7.13). *Assault by blunt object* resulted in the hospitalisation of 102 boys and 41 girls in 2011–12.

Table 7.13: Types of assault injury for hospitalised injury cases in adolescents (15–17), 2011–12

| External cause | Boys | | Girls | | Children | |
|--|------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Assault by bodily force | 598 | 67.2 | 184 | 62.0 | 782 | 65.9 |
| Assault by blunt object | 102 | 11.5 | 41 | 13.8 | 143 | 12.0 |
| Assault by sharp object | 104 | 11.7 | 19 | 6.4 | 123 | 10.4 |
| Neglect and abandonment and Other maltreatment syndromes | 13 | 1.5 | 6 | 2.0 | 19 | 1.6 |
| All other assault types | 73 | 8.2 | 47 | 15.8 | 120 | 10.1 |
| Total | 890 | 100 | 297 | 100 | 1,187 | 100 |

Information about the recorded perpetrator of the assault is shown in Table 7.14 (see also Box 1.5). The high proportion of cases lacking specific information about the perpetrator may be partly the result of information not being reported by or on behalf of victims, or information not being recorded in the patient's hospital record.

Girls more often reported being victims of assault perpetrated by a *Spouse or domestic partner*, *Parent*, or *Other family member* (40% combined) compared to boys (8% combined) (Table 7.14). In contrast, the majority of boys hospitalised as a result of an assault (60%) had an unspecified perpetrator. A total of 620 cases had an unspecified perpetrator, 533 for males and 87 for females.

Table 7.14: Types of perpetrator of assault for hospitalised injury cases in adolescents (15–17), 2011–12

| Type of perpetrator | Boys | | Girls | | Children | |
|--|------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Spouse or domestic partner | 3 | 0.3 | 52 | 17.5 | 55 | 4.6 |
| Parent | 21 | 2.4 | 27 | 9.1 | 48 | 4.0 |
| Other family member | 43 | 4.8 | 41 | 13.8 | 84 | 7.1 |
| Carer | 1 | 0.1 | 0 | 0.0 | 1 | 0.1 |
| Acquaintance or friend | 77 | 8.7 | 33 | 11.1 | 110 | 9.3 |
| Official authorities | 2 | 0.2 | 0 | 0.0 | 2 | 0.2 |
| Person unknown to the victim | 57 | 6.4 | 22 | 7.4 | 79 | 6.7 |
| Multiple persons unknown to the victim | 108 | 12.1 | 23 | 7.7 | 131 | 11.0 |
| Other specified person | 43 | 4.8 | 11 | 3.7 | 54 | 4.5 |
| Unspecified person | 533 | 59.9 | 87 | 29.3 | 620 | 52.2 |
| Total^(a) | 890 | 100 | 297 | 100 | 1,187 | 100 |

(a) Includes cases where perpetrator was not coded.

Place of injury

Just under a half (46%) of all cases of injury among adolescents had an unspecified place of occurrence (Table 7.15). Sports and athletics areas (17%) followed by the home (14%) were the most common specified locations for injuries. Sex differences were particularly apparent for sports and athletics areas, with almost 6 times as many boys as girls injured in those locations. Very few girls reported being injured in an industrial and construction area compared to boys, possibly a reflection of the higher proportion of boys typically employed in that sector compared to girls.

Table 7.15: Place of occurrence of injury for hospitalised injury cases in adolescents (15–17), 2011–12

| Place of occurrence | Boys | | Girls | | Children | | M:F ratio |
|--|---------------|------------|--------------|------------|---------------|------------|------------|
| | Number | % | Number | % | Number | % | |
| Home | 1,028 | 7.9 | 1,716 | 27.1 | 2,744 | 14.2 | 0.6 |
| Residential institution | 50 | 0.4 | 35 | 0.6 | 85 | 0.4 | 1.4 |
| School, other institution and public administration area | 640 | 4.9 | 293 | 4.6 | 933 | 4.8 | 2.2 |
| Sports and athletics area | 2,851 | 21.9 | 490 | 7.7 | 3,341 | 17.3 | 5.8 |
| Street and highway | 1,197 | 9.2 | 594 | 9.4 | 1,791 | 9.3 | 2.0 |
| Trade and service area | 195 | 1.5 | 108 | 1.7 | 303 | 1.6 | 1.8 |
| Industrial and construction area | 130 | 1.0 | 3 | 0 | 133 | 0.7 | 43.3 |
| Farm | 135 | 1.0 | 56 | 0.9 | 191 | 1.0 | 2.4 |
| Other specified place of occurrence | 619 | 4.8 | 260 | 4.1 | 879 | 4.5 | 2.4 |
| Unspecified | 6,174 | 47.4 | 2,777 | 43.8 | 8,951 | 46.2 | 2.0 |
| Total | 13,019 | 100 | 6,332 | 100 | 19,351 | 100 | 2.1 |

Activity at time of injury

Activity at the time of injury was not present in the record for just under half of the cases for adolescents (47%) (Table 7.16). For those cases with a specified activity code, the majority were *While engaged in sports* (30%). Five times as many boys were injured while playing sports or working for income as girls.

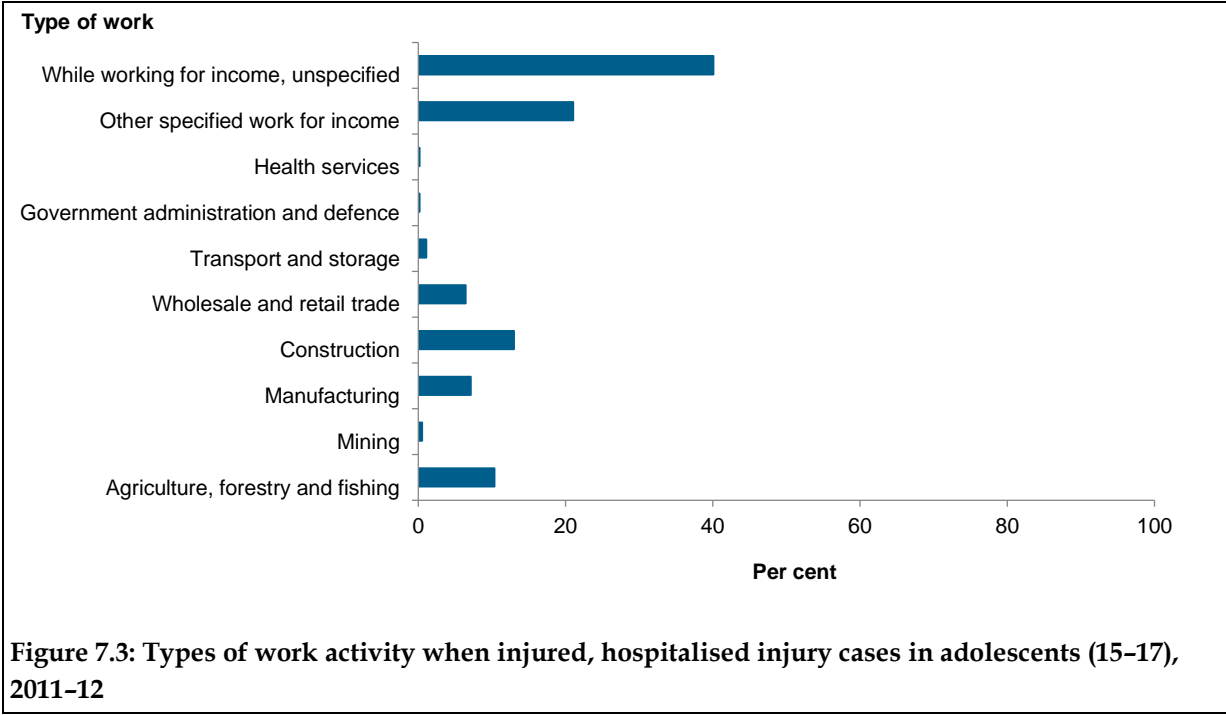
Table 7.16: Activity at time of injury for hospitalised injury cases in adolescents (15–17), 2011–12

| Activity | Boys | | Girls | | Children | | M:F ratio |
|---------------------------------------|---------------|------------|--------------|------------|---------------|------------|------------|
| | Number | % | Number | % | Number | % | |
| While engaged in sports | 4,796 | 36.8 | 965 | 15.2 | 5,761 | 29.8 | 5.0 |
| While engaged in leisure | 437 | 3.4 | 144 | 2.3 | 581 | 3 | 3.0 |
| While working for income | 474 | 3.6 | 87 | 1.4 | 561 | 2.9 | 5.4 |
| While engaged in other types of work | 225 | 1.7 | 84 | 1.3 | 309 | 1.6 | 2.7 |
| While resting, sleeping, eating, etc. | 116 | 0.9 | 109 | 1.7 | 225 | 1.2 | 1.1 |
| Other specified activity | 825 | 6.3 | 2,063 | 32.6 | 2,888 | 14.9 | 0.4 |
| Unspecified activity/not reported | 6,146 | 47.3 | 2,880 | 45.4 | 9,026 | 46.7 | 2.1 |
| Total | 13,019 | 100 | 6,332 | 100 | 19,351 | 100 | 2.1 |

For boys injured while playing sport, the most common sport recorded was Australian rules football (779 cases, 16%) followed by an unspecified type of football (622 cases, 13%). Unspecified types of rugby accounted for 433 cases (9%), while soccer accounted for 399 cases (8%). In contrast, 12% (116 cases) of hospitalised injuries of girls that occurred while playing sport occurred during netball, and injuries in soccer accounted for 10% (97 cases).

The ABS Participation in Sport and Physical Recreation, Australia, 2011–12 survey (ABS 2012b) includes children aged 15 to 17. Participation is defined as participation in sport and physical recreation at least once during the 12 months prior to interview. Results indicated that during adolescence, 58% of children participated in organised sport and physical recreation. The participation rate for boys (61%, an estimated 296,000 boys) was higher than for girls (55%, an estimated 245,300 girls). More detailed information about sports-related injuries among adolescents can be found in *Australian sports injury hospitalisations, 2011–12* (Kreisfeld, Harrison & Pointer, forthcoming).

Working for income was reported as the activity when injured for a total of 561 adolescents. As can be seen in Figure 7.3, the majority of *Working for income* injuries were ‘unspecified’ or ‘other specified’. For those cases with a named industry, the largest proportion (13%) occurred in construction industries followed by agriculture, forestry and fishing (10%).



Remoteness of usual residence

The age-specific rate of injury in adolescents increased with increasing remoteness. The rate of injury for residents of *Very remote* regions (4,420 per 100,000 population) was more than twice the rate for residents of *Major cities* (1,961 per 100,000 population) (Table 7.17).

Table 7.17: Hospitalised injury cases, by remoteness of usual residence for adolescents (15–17), 2011–12

| Indicators | Remoteness of usual residence | | | | | Total ^(a) |
|--|-------------------------------|----------------|----------------|--------|-------------|----------------------|
| | Major cities | Inner regional | Outer regional | Remote | Very remote | |
| Estimated injury cases | 11,468 | 4,702 | 2,295 | 479 | 316 | 19,351 |
| Proportion of estimated injury cases (%) | 59.3 | 24.3 | 11.9 | 2.5 | 1.6 | 100 |
| Age-standardised rate/100,000 population | 1,961 | 2,690 | 2,719 | 4,333 | 4,420 | 2,244 |

(a) Includes 91 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander children

There were 1,266 cases of Indigenous adolescents hospitalised due to injury and poisoning during 2011–12 (Table 7.18). Rates of hospitalised injury were higher than those of other Australians. Rates of injury for Aboriginal and Torres Strait Islander boys were higher than for Aboriginal and Torres Strait Islander girls. The rates of injury for both Aboriginal and Torres Strait Islander boys and girls were much higher than for their other Australian counterparts.

Table 7.18: Hospitalised injury cases for adolescents (15–17), Aboriginal and Torres Strait Islander and Other Australians, 2011–12

| Indicators | Aboriginal and Torres Strait Islander children | | | Other Australian children | | |
|--|--|-------|----------|---------------------------|-------|----------|
| | Boys | Girls | Children | Boys | Girls | Children |
| Separations from hospital due to injury | 870 | 496 | 1,366 | 12,954 | 6,132 | 19,086 |
| Estimated injury cases | 801 | 465 | 1,266 | 12,218 | 5,867 | 18,085 |
| Age-standardised rate/100,000 population | 4,024 | 2,457 | 3,260 | 2,843 | 1,438 | 2,158 |

8 18–24 years (Young adulthood)

As young adults, people aged 18–24 are exposed to a wide range of activities that carry a risk of injury, including driving, employment, socialising with alcohol, and participation in sport. Risk-taking behaviour in this age group, particularly among men, is common (AIHW 2011c). Hazard perception and decision-making skills are still developing in young people at this age and can contribute to injury risk (NIMH 2001; Spear 2000).

There were 52,718 cases of young adults aged 18 to 24 hospitalised as a result of an injury in 2011–12 (Table 8.1), representing 40% of all hospitalised injury cases in children and young people (0–24). The age-specific rate of injury was 2,390 per 100,000 population and men had a rate of injury twice that of women. In comparison, the overall age-specific rate of injury in children and young people (0–24) was 1,804 cases per 100,000 population. The highest rate of age-specific injury for males occurred in the 18–24 age-range.

Table 8.1: Key indicators for hospitalised injury cases in young adults (18–24), 2011–12

| Indicators | 18–24 | | |
|---|--------|---------|---------|
| | Males | Females | Persons |
| Separations from hospital due to injury | 39,528 | 16,277 | 55,807 |
| Estimated injury cases | 37,187 | 15,529 | 52,718 |
| Age-specific rate/100,000 population | 3,298 | 1,440 | 2,390 |

Nature of injury

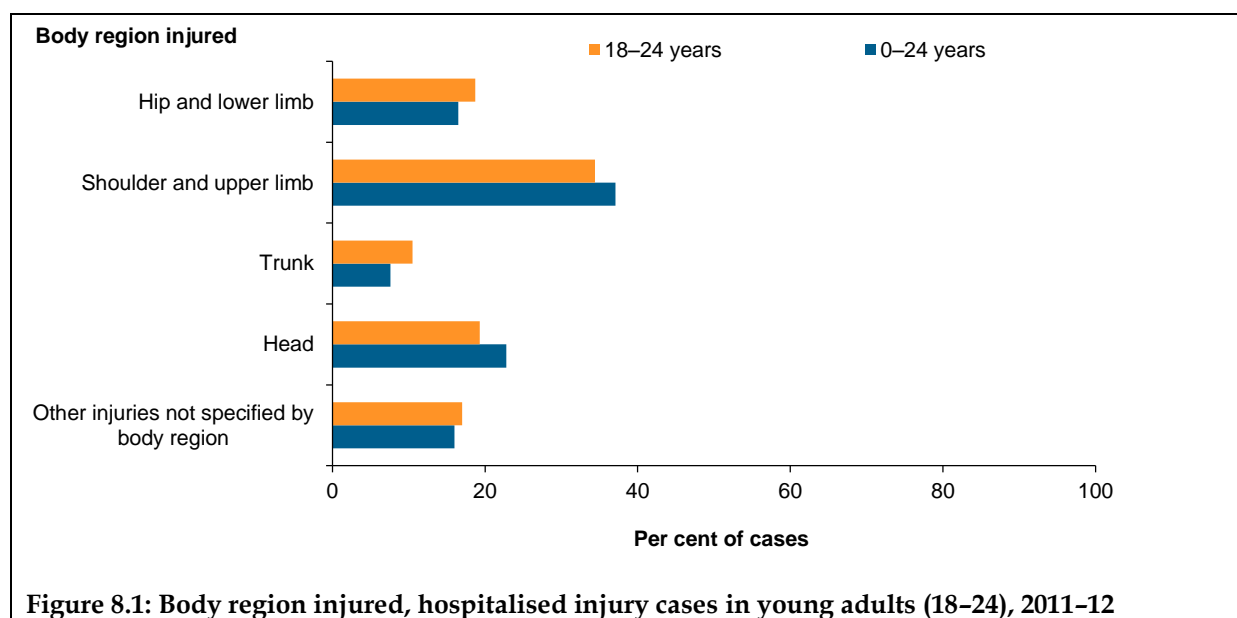
Fractures (31%) were the most common injury in young adults (Table 8.2). For males, fractures (36%) were the most common outcome of an injury followed by an open wound (16%). For females, fractures (20%) were a less common injury than the toxic effects of poisoning (26%). The greatest differences between males and females were seen in relation to toxic effects (6% to 26% respectively).

Table 8.2: Cases of hospitalised injury in young adults (18–24), by nature of injury, 2011–12

| Nature of injury | Males | | Females | | Persons | |
|--------------------------------------|---------------|------------|---------------|------------|---------------|------------|
| | Number | % | Number | % | Number | % |
| Superficial (excluding eye) | 1,525 | 4.1 | 968 | 6.2 | 2,493 | 4.7 |
| Open wound (excluding eye) | 5,842 | 15.7 | 2,051 | 13.2 | 7,893 | 15.0 |
| Fracture (excluding tooth) | 13,371 | 36 | 3,166 | 20.4 | 16,537 | 31.4 |
| Dislocation | 1,870 | 5.0 | 394 | 2.5 | 2,264 | 4.3 |
| Sprain/strain | 2,025 | 5.4 | 836 | 5.4 | 2,861 | 5.4 |
| Muscle/tendon | 2,325 | 6.3 | 623 | 4.0 | 2,948 | 5.6 |
| Burn/corrosion (excluding eye) | 753 | 2.0 | 260 | 1.7 | 1,013 | 1.9 |
| Intracranial (including concussion) | 1,720 | 4.6 | 544 | 3.5 | 2,264 | 4.3 |
| Drowning, immersion | 28 | 0.1 | 12 | 0.1 | 40 | 0.1 |
| Poison/toxic effect (excluding bite) | 2,202 | 5.9 | 4,008 | 25.8 | 6,212 | 11.8 |
| Bite (including invenomation) | 162 | 0.4 | 110 | 0.7 | 272 | 0.5 |
| Other specified nature of injury | 3,770 | 10.2 | 1,228 | 7.9 | 4,998 | 9.5 |
| Unspecified nature of injury | 1,594 | 4.3 | 1,329 | 8.6 | 2,923 | 5.5 |
| Total | 37,187 | 100 | 15,529 | 100 | 52,718 | 100 |

Body region injured

Injuries to the shoulder and upper limb (34%) were common among young adults, similar to all children and young people combined (37%) (Figure 8.1). Head injuries accounted for 19% of all injuries in this group. The proportion of other injuries not specified by body region is heavily influenced by the high numbers of intentional self-harm by poisoning and unintentional poisoning cases seen, primarily in young females.



Causes of injury

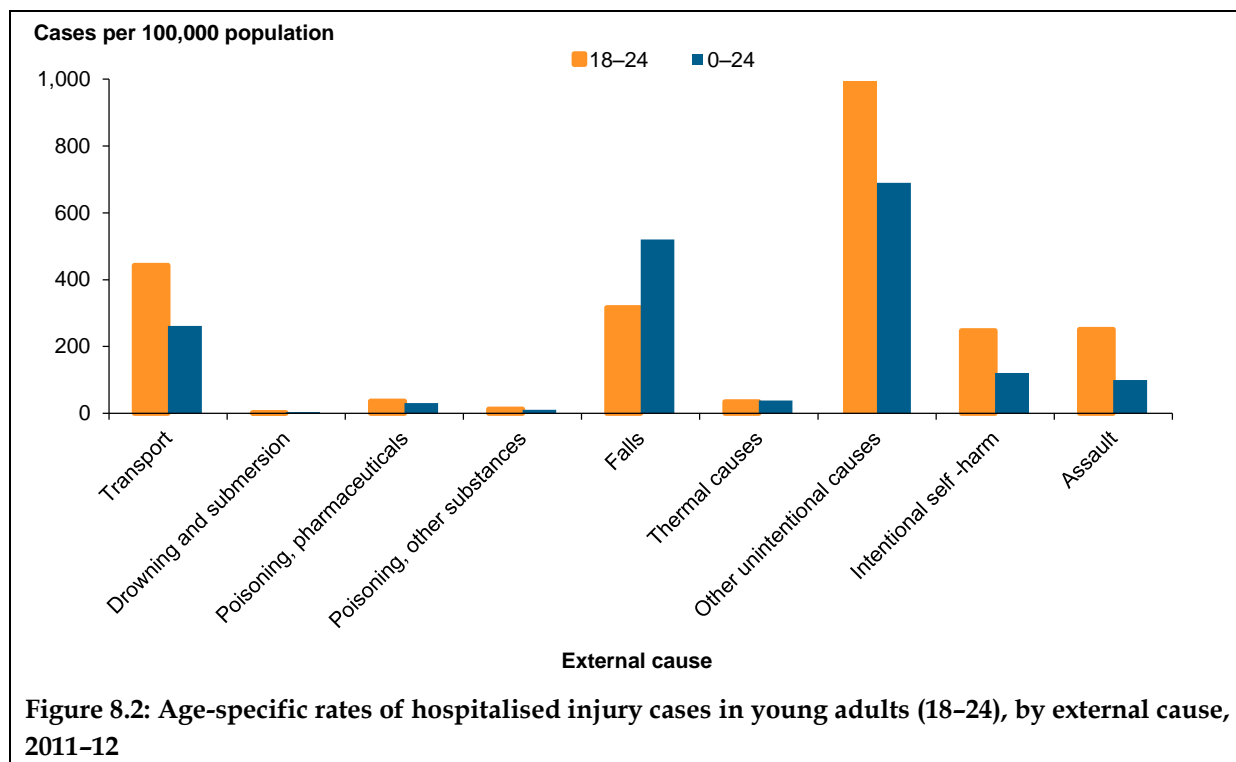
During 2011–12, the most common cause of hospitalised injury among young adults was ‘Other unintentional causes’ (42%) (Table 8.3). The second most common cause was unintentional transport injury (19%). Combined, *Intentional self-harm injuries* and *Assault* accounted for 21% of injuries. The proportion of intentional self-harm injuries among young females (24%) was much higher than for young males (5%).

Table 8.3: Major external cause groups for hospitalised injury cases in young adults (18–24), 2011–12

| External cause | Males | | Females | | Persons | |
|-------------------------------|---------------|------------|---------------|------------|---------------|------------|
| | Number | % | Number | % | Number | % |
| Unintentional injuries | | | | | | |
| Transport | 6,829 | 18.4 | 2,930 | 18.9 | 9,759 | 18.5 |
| Drowning and submersion | 36 | 0.1 | 9 | 0.1 | 45 | 0.1 |
| Poisoning, pharmaceuticals | 398 | 1.1 | 404 | 2.6 | 802 | 1.5 |
| Poisoning, other substances | 182 | 0.5 | 99 | 0.6 | 281 | 0.5 |
| Falls | 4,903 | 13.2 | 2,068 | 13.3 | 6,971 | 13.2 |
| Thermal causes | 569 | 1.5 | 202 | 1.3 | 771 | 1.5 |
| Other unintentional causes | 17,602 | 47.3 | 4,334 | 27.9 | 21,936 | 41.6 |
| Intentional injuries | | | | | | |
| Intentional self-harm | 1,810 | 4.9 | 3,643 | 23.5 | 5,455 | 10.3 |
| Assault | 4,253 | 11.4 | 1,290 | 8.3 | 5,543 | 10.5 |
| Undetermined intent | 561 | 1.5 | 517 | 3.3 | 1,078 | 2.0 |
| Total^(a) | 37,187 | 100 | 15,529 | 100 | 52,718 | 100 |

(a) Includes other external causes of injury and where cause was not reported (77 cases).

In comparison to all children and young people, young adults had higher age-specific rates of transport injuries (442 cases per 100,000 population), assault-related injuries (251) and poisoning by pharmaceuticals (36) (Figure 8.2). The rate of male cases due to other unintentional causes (1,561 per 100,000 population) was almost 4 times that of females (398). Similarly, the rate of assault injury in males (377) was three times that of females (120).



Unintentional transport injury

Collisions involving cars were the most common cause of hospitalised injury due to transport for this age group (42%) (Table 8.4). The second most common cause of transport injury involved a motorcycle (31%). Males (41%) were more likely than females (8%) to have sustained unintentional transport injury while riding a motorcycle. Young adult females (13%) were far more likely to have sustained unintentional transport injury as a result of being an animal-rider or an occupant of an animal-drawn vehicle, compared with males (13%, 373 cases, compared with 2%, 132 cases). For young women, 355 of these cases were associated with riding a horse.

Table 8.4: Types of vehicle involved, hospitalised injury cases in young adults (18-24) who sustained unintentional transport injuries, 2011-12

| Type of vehicle | Males | | Females | | Persons | |
|--------------------------------|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Pedestrian | 325 | 4.8 | 193 | 6.6 | 518 | 5.3 |
| Pedal cycle | 744 | 10.9 | 125 | 4.3 | 869 | 8.9 |
| Motorcycle rider | 2,813 | 41.2 | 225 | 7.7 | 3,038 | 31.1 |
| Car occupant | 2,270 | 33.2 | 1,837 | 62.7 | 4,107 | 42.1 |
| Animal or animal-drawn vehicle | 132 | 1.9 | 373 | 12.7 | 505 | 5.2 |
| All other vehicle types | 545 | 8.0 | 177 | 6.0 | 722 | 7.4 |
| Total | 6,829 | 100 | 2,930 | 100 | 9,759 | 100 |

A higher proportion of young men (36%) compared to young women (25%) were injured while being an occupant of a car that collided with a fixed or stationary object (Table 8.5). The main cause of motorcycle-related injuries in both men and women was non-collision events (Table 8.6).

Table 8.5: Type of collision for car occupant, hospitalised injury cases in young adults (18–24), 2011–12

| Car occupant injured in collision with | Males | | Females | | Persons | |
|---|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Car, pick-up truck or van | 686 | 30.2 | 839 | 45.7 | 1,525 | 37.1 |
| Fixed or stationary object | 805 | 35.5 | 460 | 25.0 | 1,265 | 30.8 |
| Non-collision event | 584 | 25.7 | 397 | 21.6 | 981 | 23.9 |
| Other and unspecified transport collision | 108 | 4.8 | 73 | 4.0 | 181 | 4.4 |
| Heavy transport vehicle or bus | 67 | 3.0 | 49 | 2.7 | 116 | 2.8 |
| All other vehicle types or objects | 20 | 0.9 | 19 | 1.0 | 39 | 0.9 |
| Total | 2,270 | 100 | 1,837 | 100 | 4,107 | 100 |

Table 8.6: Type of collision for motorcycle rider, hospitalised injury cases in young adults (18–24), 2011–12

| Motorcycle rider injured in collision with | Males | | Females | | Persons | |
|--|--------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Non-collision event | 1,537 | 54.6 | 122 | 54.2 | 1,659 | 54.6 |
| Other and unspecified transport collision | 465 | 16.5 | 32 | 14.2 | 497 | 16.4 |
| Car, pick-up truck or van | 362 | 12.9 | 37 | 16.4 | 399 | 13.1 |
| Fixed or stationary object | 312 | 11.1 | 22 | 9.8 | 334 | 11.0 |
| Two- or three-wheeled motor vehicle | 85 | 3.0 | 9 | 4.0 | 94 | 3.1 |
| All other vehicle types or objects | 52 | 1.8 | 3 | 1.3 | 55 | 1.8 |
| Total | 2,813 | 100 | 225 | 100 | 3,038 | 100 |

Other unintentional causes

The causes grouped as ‘Other unintentional causes’ (see Figure 8.2) were the most common cause (42%) of hospitalised injury cases among young adults during 2011–12 (Table 8.7). This was true for both males (47%) and females (42%). Almost 10,000 cases were due to *Exposure to inanimate mechanical forces*, and just over 3,000 cases were due to *Exposure to animate mechanical forces*.

Exposure to other specified factors (X58) (351 cases) and *Exposure to unspecified factor (X59)* (6,663 cases) are the external cause codes applying to 7,014 unintentional injury cases in 2011–12. These codes are used when no information is available on the external cause of injury. These two groups are aggregated in Table 8.7 and have not been analysed further.

Table 8.7: Types of 'Other unintentional causes', hospitalised injury cases in young adults (18–24), 2011–12

| External cause | Males | | Females | | Persons | |
|---|---------------|------------|--------------|------------|---------------|------------|
| | Number | % | Number | % | Number | % |
| Exposure to inanimate mechanical forces | 8,173 | 46.4 | 1,801 | 41.6 | 9,974 | 45.5 |
| Exposure to animate mechanical forces | 2,394 | 13.6 | 641 | 14.8 | 3,035 | 13.8 |
| Other unintentional threats to breathing | 32 | 0.2 | 8 | 0.2 | 40 | 0.2 |
| Exposure to electric current, radiation, extreme temperature and pressure | 117 | 0.7 | 42 | 1.0 | 159 | 0.7 |
| Contact with venomous animals and plants | 208 | 1.2 | 124 | 2.9 | 332 | 1.5 |
| Exposure to forces of nature | 40 | 0.2 | 13 | 0.3 | 53 | 0.2 |
| Overexertion, travel and privation | 965 | 5.5 | 364 | 8.4 | 1,329 | 6.1 |
| Exposure to other specified factors and Exposure to unspecified factor | 5,673 | 32.2 | 1,341 | 30.9 | 7,014 | 32.0 |
| Total | 17,602 | 100 | 4,334 | 100 | 21,936 | 100 |

Tables 8.8 and 8.9 provide a closer examination of the types of exposure to inanimate and animate mechanical forces experienced by young adults. *Striking against or struck by other objects* was the most common single cause of hospitalised other unintentional injury by exposure to inanimate mechanical forces in both young males (17%) and young females (15%). The second most common cause among males (10%) and females (11%) was *Contact with knife, sword or dagger*.

Table 8.8: Types of exposure to inanimate mechanical forces, 'Other unintentional causes', for hospitalised injury cases in young adults (18–24), 2011–12

| Type of exposure to inanimate mechanical forces | Males | | Females | | Persons | |
|---|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Striking against or struck by other objects | 1,355 | 16.6 | 264 | 14.7 | 1,619 | 16.2 |
| Exposure to other and unspecified inanimate mechanical forces | 694 | 8.5 | 126 | 7.0 | 820 | 8.2 |
| Contact with knife, sword or dagger | 783 | 9.6 | 192 | 10.7 | 975 | 9.8 |
| Contact with glass window | 516 | 6.3 | 110 | 6.1 | 626 | 6.3 |
| Other types of exposure | 4,825 | 59.0 | 1,109 | 61.6 | 5,934 | 59.5 |
| Total | 8,173 | 100 | 1,801 | 100 | 9,974 | 100 |

For injury due to exposure to animate mechanical forces, the most common cause of injury in young adults was being *Hit, struck, kicked, twisted, bitten or scratched by another person* followed by *Striking against or bumped into by another person* (Table 8.9). The largest proportion of injuries due to exposure to animate mechanical forces in young males came from these two causes (77%). In contrast, among young females, being bitten or struck by a horse and being bitten by a dog accounted for 32% of all injuries due to exposure to animate mechanical forces.

Table 8.9: Types of exposure to animate mechanical forces, 'Other unintentional causes', for hospitalised injury cases in young adults (18–24), 2011–12

| Type of exposure to animate mechanical forces | Males | | Females | | Persons | |
|---|--------------|------------|------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Hit, struck, kicked, twisted, bitten or scratched by another person | 1,205 | 50.3 | 139 | 21.7 | 1,344 | 44.3 |
| Striking against or bumped into by another person | 645 | 26.9 | 103 | 16.1 | 748 | 24.6 |
| Bitten by dog | 142 | 5.9 | 118 | 18.4 | 260 | 8.6 |
| Bitten or struck by horse | 40 | 1.7 | 88 | 13.7 | 128 | 4.2 |
| Other types of exposure | 362 | 15.1 | 193 | 30.1 | 555 | 18.3 |
| Total | 2,394 | 100 | 641 | 100 | 3,035 | 100 |

Intentional self-harm

This section includes suicide, suicide attempts, and cases where people have intentionally hurt themselves, but not with the intention of dying (see Box 1.3).

There were 5,455 cases of intentional self-harm among young adults in 2011–12. More females (3,058) than males (1,298) were hospitalised as a result of an intentional self-harm injury and the age-specific rates of injury were 338 and 161 cases per 100,000 population respectively.

As can be seen in Table 8.10 intentional self-poisoning by exposure to drugs, medicaments and biological substances of all types was the most common form of self-harm for females (84%) and males (72%). Intentional self-harm by sharp object was the next most common type of intentional self-harm.

Table 8.10: Types of intentional self-harm for hospitalised injury cases in young adults (18–24), 2011–12

| External cause | Males | | Females | | Persons | |
|---|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Intentional self-poisoning (all types) | 1,298 | 71.7 | 3,058 | 83.9 | 4,358 | 79.9 |
| Intentional self-harm by hanging, strangulation and suffocation | 109 | 6.0 | 68 | 1.9 | 177 | 3.2 |
| Intentional self-harm by sharp object | 330 | 18.2 | 429 | 11.8 | 759 | 13.9 |
| All other types of intentional self-harm | 73 | 4.0 | 88 | 2.4 | 161 | 3.0 |
| Total | 1,810 | 100 | 3,643 | 100 | 5,455 | 100 |

A closer look at the types of substances involved in hospitalised cases of intentional self-harm by poisoning is presented in Table 8.11. As a proportion of all types of substances, antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs were the most common substances involved for intentional self-harm in young females (49%) and young males (50%). Nonopioid analgesics, antipyretics and antirheumatics (for example, paracetamol) were the second most common substances for females (35%) and males (28%).

Table 8.11: Types of intentional self-poisoning for hospitalised injury cases in young adults (18–24), 2011–12

| Type of intentional self-poisoning by and exposure to | Males | | Females | | Persons | |
|---|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs | 651 | 50.2 | 1,505 | 49.2 | 2,157 | 49.5 |
| Nonopioid analgesics, antipyretics and antirheumatics | 366 | 28.2 | 1,063 | 34.8 | 1,430 | 32.8 |
| Other and unspecified drugs, medicaments and biological substances | 112 | 8.6 | 222 | 7.3 | 334 | 7.7 |
| Narcotics and psychodysleptics (hallucinogens), not elsewhere classified | 78 | 6.0 | 119 | 3.9 | 197 | 4.5 |
| Other and unspecified chemicals and noxious substances | 27 | 2.1 | 57 | 1.9 | 84 | 1.9 |
| All other substances | 64 | 4.9 | 92 | 3.0 | 156 | 3.6 |
| Total | 1,810 | 100 | 3,643 | 100 | 5,455 | 100 |

Assault

Assault by bodily force was the most frequent cause of hospitalised assault injury for both young males (67%) and young females (61%) (Table 8.12). In males, *Assault by sharp object* was the second most common cause of injury while in females it was *Assault by blunt object*.

Table 8.12: Types of assault for hospitalised injury cases in young adults (18–24), 2011–12

| External cause | Males | | Females | | Persons | |
|------------------------------|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Assault by bodily force | 2,842 | 66.8 | 784 | 60.8 | 3,626 | 65.4 |
| Assault by sharp object | 508 | 11.9 | 125 | 9.7 | 633 | 11.4 |
| Assault by blunt object | 399 | 9.4 | 161 | 12.5 | 560 | 10.1 |
| Assault by unspecified means | 353 | 8.3 | 101 | 7.8 | 454 | 8.2 |
| All other assault types | 151 | 3.6 | 119 | 9.2 | 270 | 4.9 |
| Total | 4,253 | 100 | 1,290 | 100 | 5,543 | 100 |

Information about the recorded perpetrator of the assault is shown in Table 8.13 (see also Box 1.5). The high proportion of cases lacking specific information about the perpetrator may be partly the result of information not being reported by or on behalf of victims, or information not being recorded in the patient's hospital record.

There are two standout differences between young men and young women with respect to the perpetrator of assault (Table 8.13). For females, 44% of injuries were perpetrated by a spouse or domestic partner. In contrast, the proportion of males reporting an assault by a spouse or domestic partner was just 2%.

For males, the majority of assault cases had an unspecified person recorded as the perpetrator (66%). In total, 85% of young male victims of assault either recorded an unspecified person, or multiple (10%) or single (8%) unknown persons as their perpetrator. In comparison 31% of young female assault victims had an unspecified person recorded as the perpetrator, with multiple or single unknown perpetrators accounting for 3% each.

Table 8.13: Types of perpetrator of assault for hospitalised injury cases in young adults (18–24), 2011–12

| Type of perpetrator | Males | | Females | | Persons | |
|--|--------------|------------|--------------|------------|--------------|------------|
| | Number | % | Number | % | Number | % |
| Spouse or domestic partner | 64 | 1.5 | 561 | 43.5 | 625 | 11.3 |
| Parent | 27 | 0.6 | 16 | 1.2 | 43 | 0.8 |
| Other family member | 150 | 3.5 | 108 | 8.4 | 258 | 4.7 |
| Carer | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Acquaintance or friend | 205 | 4.8 | 78 | 6.0 | 283 | 5.1 |
| Official authorities | 41 | 1.0 | 2 | 0.2 | 43 | 0.8 |
| Person unknown to the victim | 359 | 8.4 | 39 | 3.0 | 398 | 7.2 |
| Multiple persons unknown to the victim | 425 | 10.0 | 39 | 3.0 | 464 | 8.4 |
| Other specified person | 158 | 3.7 | 48 | 3.7 | 206 | 3.7 |
| Unspecified person | 2,816 | 66.2 | 398 | 30.9 | 3,214 | 58.0 |
| Total^(a) | 4,253 | 100 | 1,290 | 100 | 5,543 | 100 |

(a) Includes cases where perpetrator was not coded.

Place of injury

Half (50%) of all cases of injury in young adults had an unspecified place of occurrence in the record at the time of injury (Table 8.14). In cases where place of occurrence was specified, the largest proportion of injuries occurred on streets and highways (14%). While this was the most common location for young men (13%), followed by sports and athletic areas (12.5%), for young females the home (22%) was the most common place of occurrence, followed by streets and highways (15%).

Almost 6 times as many males as females were injured at a sport and athletic area. There was also a large difference between the number of males and females injured at an industrial and construction area, possibly reflecting the higher proportion of males typically employed in that sector compared to females.

Table 8.14: Place of occurrence of injury for hospitalised injury cases in young adults (18–24), 2011–12

| Place of occurrence | Males | | Females | | Persons | | M:F ratio |
|--|---------------|------------|---------------|------------|---------------|------------|------------|
| | Number | % | Number | % | Number | % | |
| Home | 2,968 | 8 | 3,365 | 21.7 | 6,333 | 12 | 0.9 |
| Residential institution | 204 | 0.5 | 70 | 0.5 | 274 | 0.5 | 2.9 |
| School, other institution and public administration area | 287 | 0.8 | 327 | 2.1 | 614 | 1.2 | 0.9 |
| Sports and athletics area | 4,651 | 12.5 | 828 | 5.3 | 5,479 | 10.4 | 5.6 |
| Street and highway | 4,848 | 13 | 2,367 | 15.2 | 7,215 | 13.7 | 2.0 |
| Trade and service area | 1,675 | 4.5 | 551 | 3.5 | 2,226 | 4.2 | 3.0 |
| Industrial and construction area | 1,067 | 2.9 | 41 | 0.3 | 1,108 | 2.1 | 26.0 |
| Farm | 486 | 1.3 | 163 | 1.0 | 649 | 1.2 | 3.0 |
| Other specified place of occurrence | 1,710 | 4.6 | 558 | 3.6 | 2,268 | 4.3 | 3.1 |
| Unspecified place of occurrence | 19,276 | 51.8 | 7,255 | 46.7 | 26,533 | 50.3 | 2.7 |
| Place not reported/not applicable | 15 | 0 | 4 | 0 | 19 | 0 | 3.8 |
| Total | 37,187 | 100 | 15,529 | 100 | 52,718 | 100 | 2.4 |

Activity at time of injury

Activity at the time of injury was not present in the record for over half of the cases (55%) of hospitalised injury in young adults (Table 8.15). For those cases with a specified activity code, the majority were playing sport (30%) followed by *While working for income* (9%). Five times as many males as females were injured while playing sports and almost 7 times as many males were injured working for income.

Table 8.15: Activity at time of injury for hospitalised injury cases in young adults (18–24), 2011–12

| Activity | Males | | Females | | Persons | | M:F ratio |
|---------------------------------------|---------------|------------|---------------|------------|---------------|------------|------------|
| | Number | % | Number | % | Number | % | |
| While engaged in sports | 7,601 | 20.4 | 1,533 | 9.9 | 9,134 | 17.3 | 5.0 |
| While engaged in leisure | 1,045 | 2.8 | 357 | 2.3 | 1,402 | 2.7 | 2.9 |
| While working for income | 4,258 | 11.5 | 641 | 4.1 | 4,899 | 9.3 | 6.6 |
| While engaged in other types of work | 742 | 2 | 261 | 1.7 | 1,003 | 1.9 | 2.8 |
| While resting, sleeping, eating, etc. | 370 | 1 | 254 | 1.6 | 624 | 1.2 | 1.5 |
| Other specified activity | 2,776 | 7.5 | 3,675 | 23.7 | 6,453 | 12.2 | 0.8 |
| Unspecified activity/not reported | 20,395 | 54.9 | 8,808 | 56.7 | 29,203 | 55.4 | 2.3 |
| Total | 37,187 | 100 | 15,529 | 100 | 52,718 | 100 | 2.4 |

For young men hospitalised for injuries sustained while playing sport, the most commonly reported sport was Australian rules football (1,203 cases, 16%), followed by an unspecified type of football (944 cases, 12%). Soccer accounted for 729 cases (10%) while unspecified types of rugby accounted for 617 cases (8%). In contrast, for young women the most commonly reported sport for hospitalised injury was netball (215 cases, 14%), followed by soccer (137 cases, 9%).

Results from the ABS Participation in Sport and Physical Recreation, Australia, 2011–12 survey (ABS 2012b) indicate that during young adulthood, 36% of young adults participated in organised sport and physical recreation in the 12 months prior to survey. Participation rates were similar for young men (37%, an estimated 392,100 men) and young women (35%, an estimated 361,700 women). More detailed information about sports-related injuries among young adults can be found in *Australian sports injury hospitalisations, 2011–12* (Kreisfeld, Harrison & Pointer 2014).

Working for income was reported as the activity when injured for a total of 4,899 young people. As can be seen in Figure 8.3, the majority of *Working for income* injury hospitalisations were ‘unspecified’ and ‘other specified’. For those cases with a named industry, the largest proportion (15%) occurred in construction industries followed by agriculture, forestry and fishing (9%).

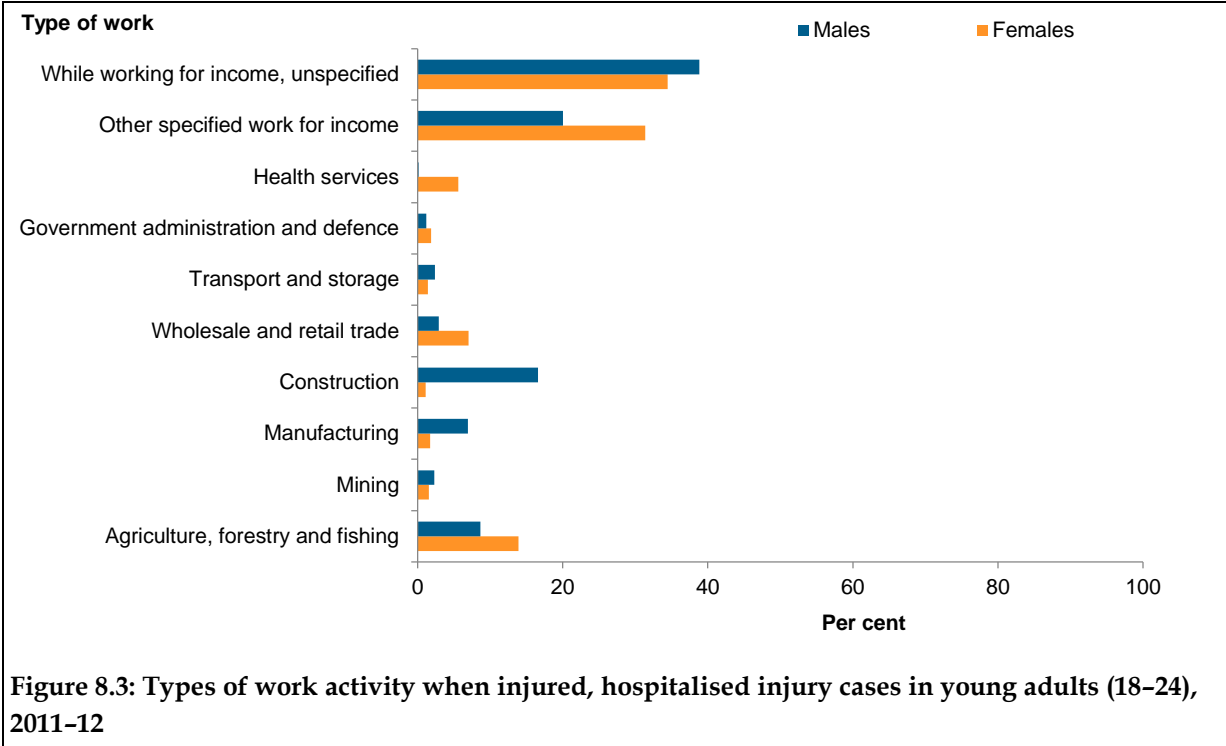


Figure 8.3: Types of work activity when injured, hospitalised injury cases in young adults (18–24), 2011–12

Remoteness of usual residence

The age-specific rate of injury in young adults aged 18 to 24 increased with increasing remoteness (Table 8.16). The rate of injury for residents of *Remote* regions (5,378 per 100,000 population) was more than twice the rate for residents of *Major cities* (1,998 per 100,000 population).

Table 8.16: Hospitalised injury cases, by remoteness of usual residence for young adults (18–24), 2011–12

| Indicators | Remoteness of usual residence | | | | | Total ^(a) |
|--|-------------------------------|----------------|----------------|--------|-------------|----------------------|
| | Major cities | Inner regional | Outer regional | Remote | Very remote | |
| Estimated injury cases | 32,939 | 10,508 | 5,322 | 1,466 | 1,147 | 52,718 |
| Proportion of estimated injury cases (%) | 62.5 | 19.9 | 10.1 | 2.8 | 2.2 | 100 |
| Age-standardised rate/100,000 population | 1,998 | 3,007 | 3,249 | 5,378 | 5,204 | 2,390 |

(a) Includes 1,336 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander young adults

There were 3,546 cases of young Indigenous adults hospitalised due to injury and poisoning during 2011–12 (Table 8.17). Rates of injury were higher than those of other Australians, with rates for young Aboriginal and Torres Strait Islander men being higher than for young Aboriginal and Torres Strait Islander women, and both being much higher than for their other Australian counterparts. Rates of injury in young Aboriginal and Torres Strait Islander women were almost 3 times those of other Australian females.

Table 8.17: Hospitalised injury cases for young adults (18–24), Aboriginal and Torres Strait Islander and Other Australians, 2011–12

| Indicators | Aboriginal and Torres Strait Islander people | | | Other Australians | | |
|--|--|---------|---------|-------------------|---------|---------|
| | Males | Females | Persons | Males | Females | Persons |
| Separations from hospital due to injury | 2,290 | 1,589 | 3,879 | 37,238 | 14,688 | 51,928 |
| Estimated injury cases | 2,062 | 1,484 | 3,546 | 35,125 | 14,045 | 49,172 |
| Age-standardised rate/100,000 population | 4,894 | 3,734 | 4,331 | 3,244 | 1,366 | 2,329 |

Appendix A: Data issues

Data sources

The data on hospital separations were drawn from the Australian Institute of Health and Welfare's (AIHW) National Hospital Morbidity Database (NHMD). Comprehensive information on the quality of the data for 2011–12 is available in *Australian hospital statistics 2011–12* (AIHW 2012b) and in the data quality statement in this appendix. Nearly all injury cases admitted to hospitals in Australia are thought to be included in the NHMD reported data.

In 2011–12, diagnoses and external cause of injury and poisoning were recorded using the seventh edition of the *International statistical classification of diseases and related health problems, 10th revision, Australia modification* (ICD-10-AM) (NCCH 2010).

Denominators for most age-specific and age-standardised rates are estimated resident population (ERP) values as at 31 December 2011. Data from other sources, mostly based on ERPs, were used as denominators for rates by remoteness of usual residence and Indigenous status (see Rates, below).

Period

This report is restricted to admitted patient episodes for the period 1 July 2011 to 30 June 2012.

Estimating incident cases

Each record in the NHMD refers to a single episode of care in a hospital. Some injuries result in more than one episode in hospital and, hence, more than one NHMD record. This can occur in two main ways:

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

The NHMD does not include information designed to enable the set of records belonging to an injury case to be recognised as such. Hence, there is potential for some incident injury cases to be counted more than once, which exists when a single incident injury case results in two or more NHMD records being generated, all of which satisfy the selection criteria being used.

Information in the NHMD enables this problem to be reduced, though not eliminated. The approach used for this report makes use of the *Mode of Admission* variable, which indicates whether the current episode began with inward transfer from another acute care hospital. Episodes of this type (inward transfers) are likely to have been preceded by another episode that also met the case selection criteria for injury cases, so are omitted from our estimated case counts.

This procedure should largely correct for over-estimation of cases due to transfers, but will not correct for over-estimation due to readmissions.

Length of stay

Mean length of stay is calculated by dividing the total number of patient days for injury separations by the estimated number of injury cases. Patients who were admitted and discharged from hospital on the same day are counted as staying for 1 day.

Note that length of stay as presented in this report does not include some patient days potentially attributable to injury. In particular, it does not include days for most aspects of injury rehabilitation, which were difficult to assign correctly without information enabling identification of all admitted episodes associated with an injury case.

Rates

All age-specific rates in this report were calculated using, as the denominator, the final estimate of the estimated resident population (ERP) as at 31 December 2011. Direct standardisation was used to age-standardise rates using the Australian population in 2001 as the standard (ABS 2003).

Population denominators

General population

Where possible, rates were calculated using the final estimate of the resident population (ERP) as at 31 December in the relevant year as the denominator (for example, 31 December 2011 for 2011–12 data). Where tables of 31 December ERPs were not available but tables of 30 June ERPs were available, population denominators were calculated as the average of 30 June estimates for adjacent years. This method was used to produce denominators for rates by remoteness of usual residence. Australian ERPs for 30 June 2001 (persons, by five-year age groups to the same oldest group present in the population denominator data) were used as the standardising population throughout the report (ABS 2003).

Indigenous population

Rates of injury for Aboriginal and Torres Strait Islander people were calculated using the projected populations Series B (ABS 2009).

For Other Australians, populations were derived by calculating the difference between the corresponding Indigenous and total populations. The total populations used were 30 June ERPs/projections provided by the ABS on 25 September 2009.

Classification of remoteness area

'Remoteness area' in this report refers to the place of usual residence of the person who was admitted to hospital. The remoteness areas were specified according to the ABS Australian Standard Geographical Classification (ASGC) (ABS 2006). Remoteness categories were defined in a manner based on the Accessibility/Remoteness Index of Australia (ARIA). According to this method, remoteness was an index applicable to any point in Australia, based on road distance from urban centres of five sizes. The categories were:

- *Major cities*, with ARIA index value of 0 to 0.2
- *Inner regional*, with ARIA index value of >0.2 and ≤2.4
- *Outer regional*, with ARIA index value of >2.4 and ≤5.92
- *Remote*, with ARIA index value of >5.92 and ≤10.53
- *Very remote*, with average ARIA index value of >10.53.

Indigenous status

In this report the terms ‘Aboriginal and Torres Strait Islander people’ and ‘Indigenous people’ are used to refer to persons identified as such in Australian hospital separations data and population data collections. For analyses of the data, the term ‘Other Australians’ includes all separations for persons identified as not Indigenous, as well as separations where Indigenous status was not stated.

Quality of Indigenous status data

The AIHW regularly undertakes studies to assess the accuracy of Indigenous identification in hospital separations data in Australia (AIHW 2010a). The latest *Indigenous identification in hospital separations data–quality report* was released in May 2013 (AIHW 2013) and found that an estimated 88% of Indigenous patients were correctly identified in Australian public hospital admission records in 2011–12.

The report recommends that the data for all jurisdictions are used in analysis of Indigenous hospitalisation rates, for hospitalisations in total in national analyses of Indigenous admitted patient care for data from 2010–11 onwards.

The report also recommended using correction factors to adjust total hospital separations rates data, but that these should only be applied to total hospitalisations and not subsets (such as particular patient types or specific age groups); therefore correction factors were not used in this report.

Confidentiality and reliability of data

The AIHW operates under a strict privacy regime which has its basis in section 29 of the *Australian Institute of Health and Welfare Act 1987* (AIHW Act) and the *Privacy Act 1988* (Privacy Act).

Section 29 of the AIHW Act requires that confidentiality of data relating to persons (living and deceased) and organisations be maintained. The Privacy Act governs confidentiality of information about living individuals.

As well as the protection offered by AIHW Act and the Privacy Act, personal information held by the AIHW is covered by a range of other Commonwealth, state and territory legislation.

The AIHW is committed to reporting that maximises the value of information released for users while being statistically reliable and meeting legislative requirements described above. To ensure the confidentiality of its data, the AIHW has a range of policies, protocols and processes in place – the AIHW Policy on reporting to manage confidentiality and reliability (AIHW Confidentiality Policy) is one important example, as it deals with how data should be reported to ensure confidentiality.

AIHW Confidentiality Policy, a summary

The AIHW Confidentiality Policy contains 7 guidelines to assist those working with data to apply it to their outputs.

Guideline 1

It is AIHW policy that if the data being considered have already been released publicly at the granularity AIHW intends to release, further confidentialisation is not required.

Guideline 2

Cells in tables where the value of the cell is the same as a row/column/wafer total (that is, all other cells in the row, column or wafer are zero) generally lead to disclosure of an additional attribute. It is AIHW policy that these cells need to be confidentialised unless the attribute that would be disclosed is deemed to be non-sensitive in the context of the data being published.

Guideline 3

It is AIHW policy that data on organisations must be confidentialised if 1 organisation contributes more than 85% of the total, or 2 organisations more than 90%, unless the attribute that would be disclosed is deemed to be non-sensitive in the context of the data being published or the organisation(s) have given consent to release.

Guideline 4

It is AIHW policy that guidelines 2 and 3 need to be applied so as to ensure that attribute confidentiality is maintained within tables and across tables within the same release. That is, when assessing whether a cell needs to be confidentialised, consideration needs to be given to whether there are other cells in that table, or other tables in the release, which may require consequential confidentialisation.

Guideline 5

Rates, averages and other statistics based on denominators of less than 100 are usually not reliable and it is AIHW policy that they should generally not be reported.

Guideline 6

It is AIHW policy that if data suppliers or clients require additional suppression rules be applied to an AIHW release in order to manage confidentiality or reliability, then these should be applied. Where such additional rules are applied they should be described in the release, and it should be noted that this approach is required by the data supplier.

Guideline 7

It is AIHW policy that, if a client wishes to be provided with data output (for example, tables) at a more detailed level than any of the above guidelines would allow, then they may apply to be provided output against which some or all of the above guidelines are not applied. Provision of this more detailed output would be subject to the client signing a confidentiality undertaking and agreeing that any publication of information (including in online data cubes) based on output released to them will comply with this policy.

Errors, inconsistencies and uncertainties

Due to rounding, the sum of the percentages in tables may not equal 100%.

NHMD data are generally abstracted from records, entered and coded in hospitals, passed to state and territory health departments, then to the AIHW before being provided to the National Injury Surveillance Unit (NISU). Processing occurs at each of these steps. Errors and inconsistencies can arise due to the large number of people and processes involved in providing the data. Some variations occur in reporting and coding, although coding standards, national minimum data sets and other mechanisms have reduced this.

Data Quality Statement: National Hospital Morbidity Database

This section provides a summary of key issues relevant to interpretation of the National Hospital Morbidity Database (NHMD) for 2011–12.

The full AIHW Data Quality Statement for the NHMD is accessible at:

<<http://meteor.aihw.gov.au/content/index.phtml/itemId/529483>>.

Summary of key issues

- The NHMD is a comprehensive dataset that has records for all separations of admitted patients from essentially all public and private hospitals in Australia.
- A record is included for each separation, not for each patient, so patients who separated more than once in the year have more than one record in the NHMD.
- For 2011–12, almost all public hospitals provided data for the NHMD. The exception was a mothercraft hospital in the Australian Capital Territory. The great majority of private hospitals also provided data, the exceptions being the private day hospital facilities in the Australian Capital Territory, and the single private free-standing day hospital facility in the Northern Territory.
- There is apparent variation between states and territories in the use of statistical discharges and associated assignment of care types. For example, for public hospitals, the proportion of separations ending with a statistical discharge varied from 0.9% to 3.9% across states and territories.
- Variations in admission practices and policies lead to variation among providers in the number of admissions for some conditions.
- Caution should be used in comparing diagnosis, procedure and external cause data over time, as the classifications and coding standards for those data can change over time.

Appendix B: Additional tables

Table B.1: Age-specific rates of hospitalised injury, external cause, sex and age, Australia, 2011–12

| Males | Age group | | | | | |
|--------------------------------------|-----------|-------|-------|-------|---------|---------|
| | <12 mths | 1–4 | 5–9 | 10–14 | 15–17 | 18–24 |
| Transport | 16.0 | 80.6 | 167.1 | 332.2 | 539.9 | 605.7 |
| Drowning and submersion | 9.3 | 15.4 | 2.9 | 3.1 | 1.6 | 3.2 |
| Poisoning, pharmaceuticals | 12.7 | 91.0 | 10.6 | 4.5 | 15.6 | 35.3 |
| Poisoning, other substances | 10.7 | 31.0 | 3.7 | 4.4 | 10.4 | 16.1 |
| Falls | 399.9 | 759.5 | 770.6 | 872.7 | 639.1 | 434.9 |
| Thermal causes | 76.8 | 96.8 | 29.6 | 24.7 | 33.6 | 50.5 |
| Other unintentional causes | 259.7 | 685.9 | 486.0 | 745.1 | 1,336.6 | 1,561.1 |
| Intentional self-harm ^(a) | n.p. | n.p. | n.p. | 15.2 | 118.8 | 160.5 |
| Assault | 36.1 | 9.1 | 4.6 | 28.1 | 200.7 | 377.2 |
| Females | | | | | | |
| Transport | 11.3 | 53.1 | 97.3 | 137.3 | 236.9 | 271.6 |
| Drowning and submersion | 9.9 | 10.5 | 1.0 | 0.9 | 1.0 | 0.8 |
| Poisoning, pharmaceuticals | 25.4 | 78.5 | 7.0 | 8.6 | 35.1 | 37.5 |
| Poisoning, other substances | 9.9 | 24.1 | 2.5 | 4.0 | 6.2 | 9.2 |
| Falls | 389.6 | 592.5 | 626.5 | 367.3 | 164.5 | 191.7 |
| Thermal causes | 57.2 | 82.8 | 19.5 | 11.8 | 16.0 | 18.7 |
| Other unintentional causes | 212.4 | 529.1 | 328.7 | 313.1 | 398.0 | 401.8 |
| Intentional self-harm ^(a) | n.p. | n.p. | n.p. | 80.8 | 533.6 | 337.7 |
| Assault | 32.5 | 9.4 | 3.7 | 16.7 | 70.9 | 119.6 |
| Persons | | | | | | |
| Transport | 13.7 | 67.2 | 133.1 | 237.2 | 392.7 | 442.4 |
| Drowning and submersion | 9.6 | 13.0 | 2.0 | 2.0 | 1.3 | 2.0 |
| Poisoning, pharmaceuticals | 18.9 | 84.9 | 8.8 | 6.5 | 25.1 | 36.4 |
| Poisoning, other substances | 10.3 | 27.7 | 3.1 | 4.2 | 8.4 | 12.7 |
| Falls | 394.9 | 678.2 | 700.5 | 626.4 | 408.6 | 316.0 |
| Thermal causes | 67.2 | 90.0 | 24.7 | 18.4 | 25.1 | 34.9 |
| Other unintentional causes | 236.7 | 609.5 | 409.5 | 534.5 | 880.7 | 994.3 |
| Intentional self-harm ^(a) | n.p. | n.p. | n.p. | 47.1 | 320.3 | 247.3 |
| Assault | 34.3 | 9.3 | 4.1 | 22.5 | 137.7 | 251.3 |

(a) Cases coded as intentional self-harm have been omitted for younger age groups, see Box 1.3.

Glossary

Definitions in this Glossary contain, where applicable, an identification number from the Metadata Online Registry (METeOR). METeOR is Australia's central repository for health, community services and housing assistance metadata, or 'data about data'. It provides definitions for data for health- and community services-related topics, and specifications for related national minimum data sets (NMDs) – such as the NMDs that form the basis of this report. METeOR can be viewed on the AIHW website at <www.aihw.gov.au>. For further information on the terms used in this report, refer to definitions in the *National health data dictionary*, version 16 (AIHW 2012c).

Activity when injured: The type of activity being undertaken by a person at the time of injury. METeOR identifier: 391320.

Acute: Having a short and relatively severe course.

Acute care: Acute care is care in which the clinical intent or treatment goal is to:

- cure illness or provide definitive treatment of injury
- perform surgery
- relieve symptoms of illness or injury (excluding palliative care)
- reduce severity of an illness or injury
- protect against exacerbation and/or complication of an illness and/or injury which could threaten life or normal function
- perform diagnostic or therapeutic procedures. See Care type. METeOR identifier: 270174.

Acute care hospital: Establishments which provide at least minimal medical, surgical or obstetric services for inpatient treatment and/or care, and which provide round-the-clock comprehensive qualified nursing service as well as other necessary professional services. They must be licensed by the state health department, or controlled by government departments. Most of the patients have acute conditions or temporary ailments and the average stay per admission is relatively short.

Admitted patient: A patient who undergoes a hospital's admission process to receive treatment and/or care. This treatment and/or care is provided over a period of time and can occur in hospital and/or in the person's home (for hospital-in-the-home patients). METeOR identifier: 268957.

Age-standardisation: A set of techniques used to remove, as far as possible, the effects of differences in age when comparing two or more populations.

Episode of care: A period of health care with a defined start and end. METeOR identifier: 268978.

External cause: The environmental event, circumstance or condition as the cause of injury, poisoning and other adverse effect, as represented by a code. METeOR identifier: 391330.

Hospital: A health care facility established under Commonwealth, state or territory legislation as a hospital or a free-standing day procedure unit and authorised to provide treatment and/or care to patients. METeOR identifier: 268971.

International Classification of Diseases and Related Health Conditions (ICD): The World Health Organization's internationally accepted classification of diseases and related health conditions. The 10th revision, Australian modification (ICD-10-AM) is currently in use in Australian hospitals for admitted patients. METeOR identifier: 391301.

Length of stay: The length of stay of a patient, excluding leave days, measured in days. Formula: LOS = Separation date minus Admission date minus Total leave days. The calculation is inclusive of admission and separation dates. METeOR identifier: 269982.

Mode of admission: The mechanism by which a person begins an episode of care, as represented by a code. METeOR identifier: 269976.

Patient days: The total number of days for all patients who were admitted for an episode of care and who separated during a specified reference period. Patients admitted and separated on the same date (same-day patients) are given a count of one patient day. METeOR identifier: 270045.

Principal diagnosis: The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code. METeOR identifier: 391326.

Private hospital: A privately owned and operated institution, catering for patients who are treated by a doctor of their own choice. Patients are charged fees for accommodation and other services provided by the hospital and relevant medical and paramedical practitioners. Acute care and psychiatric hospitals are included, as are private free-standing day hospital facilities.

Public hospital: A hospital controlled by a state or territory health authority. Public hospitals offer free diagnostic services, treatment, care and accommodation to all eligible patients.

Same-day patient: An admitted patient who is admitted and separated on the same date. METeOR identifier: 327270.

Separation: An episode of care for an admitted patient, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a stay beginning or ending in a change of type of care (for example, from acute to rehabilitation). Separation also means the process by which an admitted patient completes an episode of care either by being discharged, dying, transferring to another hospital or changing type of care.

Separation rate: The total number of episodes of care for admitted patients divided by the total number of persons in the population under study. Often presented as a rate per 10,000 or 100,000 members of a population. Rates may be crude or standardised.

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The aim of this report is to provide information about serious hospitalised injury in Australian children and young people aged 0 to 24 years. The report takes a developmental stage approach to examining injury acknowledging that age and injury are more closely linked at some periods of life (for example, early childhood and young adulthood).