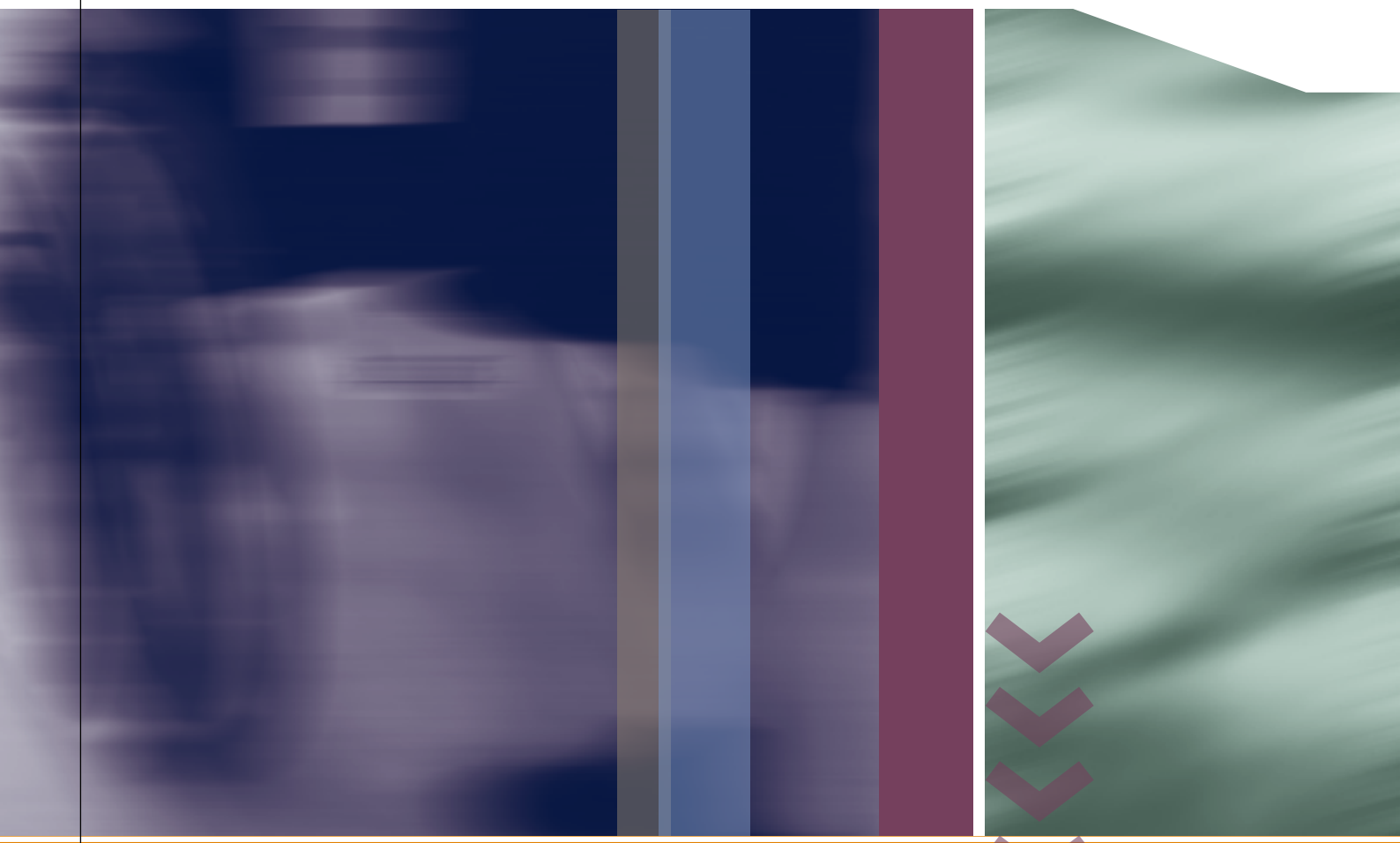
WORK-RELATED INJURY HOSPITALISATIONS AUSTRALIA: 2002–03 AND 2003–04



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Contents

Abbreviations used

ABS	Australian Bureau of Statistics
ACL	Anterior cruciate ligament (of the knee)
AIHW	Australian Institute of Health and Welfare
ASCC	Australian Safety and Compensation Council
ASCO	Australian Standard Classification of Occupations
ASGC-RA	Australian Standard Geographic Classification - Remoteness Areas
CT	Computed tomography
DEWR	Department of Employment and Workplace Relations
ICD–10–AM	The International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification, 3rd edition
LFS	Labour Force Survey
NCIS	National Coroners Information System
NDS	National Dataset of Compensation-based Statistics
NHMD	National Hospital Morbidity Database
NOHSC	National Occupational Health and Safety Commission (now replaced by the ASCC)
OHS	Occupational Health and Safety

Acknowledgement and disclaimer

This report is based on data made available by the AIHW (hospitalisations) and the ABS (labour force data). The authors, and not these agencies, are responsible for the use made of the data in this report.

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Executive summary

In 2002 the National Occupational Health and Safety Strategy 2002–2012 was implemented with the vision of 'Australian workplaces free from death, injury and disease' and aims of a reduction in workplace injury by at least 40% and reduction in workplace fatalities of at least 20% by June 2012.

To achieve these aims, continuing review of workplace injury is required. This report reviews work-related injuries that were serious enough to result in hospitalisation during the two year period ending on 30 June 2004. Case data are from the AIHW National Hospital Morbidity Database.

Three sets of cases were analysed: Hospitalised injury while working for income (n=51,777), Injury hospitalisation expected to be funded by workers' compensation (n=53,420), and Hospitalised injury while engaged in unpaid work (n=27,921).

These sets include all cases readily identifiable as work-related. However, inconsistency between the cases included in the first and second of these sets, and large numbers of injury hospitalisation cases with unspecified activity when injured, suggest that these are underestimates. Data quality is discussed in Chapters 14 and 15.

The total number of hospitalised injury cases identified either as occurring while working or as being expected to be funded by workers' compensation was about 37 thousand cases per year. This can be compared to the number of compensated cases included in the national compilation of workers' compensation data, about 136 thousand per year in the study period.

While work related injury is a small proportion of all injury related hospitalisations, it is an important cause of hospitalisation among working-age persons, particularly young males.

In more than five out of six cases of hospitalised injury while working for income in Australia in 2002–03 and 2003–04 the injured worker was male (84.6%). The hospitalisation rate per 100,000 workers was more than 4 times higher for males than females and the hospitalisation rate per million hours worked was more than 3 times higher for males than females.

Among male workers the rate of hospitalisation was higher in the extremes of age (15–24 and 65 years and over). For female workers the rate was generally highest in the oldest age group.

Nearly one-third of cases were hospitalised because of injury to the wrist or hand (31.6%). This was the most frequent type of injury. Although wrist and hand injury is unlikely to be fatal, it may affect future ability to return to employment. 2,381 cases involved traumatic amputation at the level of the wrist or hand.

A novel feature of the data reported here is the availability of some information on the industry sector in which the case of hospitalised injury while working for income occurred.

The largest numbers of cases were for people recorded as working in the Construction industry (n=5,529, 10.7%), followed by Agriculture, forestry and fishing (n=5,057, 9.8%) and Manufacturing (n=4,199, 8.1%). Estimated rates were

highest for Mining, followed by Agriculture, forestry and fishing, Construction and Transport and storage.

This report provides information that will aid further occupational health and safety policy development by adding to the picture of work-related injury in Australia provided by reports of fatal injuries and workers compensation cases. It is the most comprehensive analysis to date on hospitalised cases of work-related injury.

Future enhancements to data quality (especially validating the item 'activity when injured' and reducing use of residual categories for this item) and content (especially addition of information on occupation) would make this source even more useful in improving our knowledge about work-related occupational health and safety.

1 Introduction

Work-related injury, disease and death are largely preventable but common and costly. In 2003–04 there were 137,550 new compensation claims and in 2002–03 there were 134,480 new claims*. This equates to an incidence rate of 2.3 work related compensated fatalities per 100,000 Australian employees in 2003–04 and 2.5 per 100,000 employees in 2002–03, (DEWR 2006; DEWR 2006).

Work related injury and illness are costly to the individual both in pain and suffering and monetary terms. Work related injury and illness is also costly to the community. It has been estimated that, for the 2000–01 financial year, the total cost to the Australian economy of workplace related injury and illness was $34.3 billion or 5% of Gross Domestic Product (National Occupational Health and Safety Commission (NOHSC) 2004a).

In 2002, the NOHSC developed the National Occupational Health and Safety (OHS) Strategy 2002–2012 and all states and territories agreed to its principles. The Strategy embodies a national vision of 'Australian workplaces free from death, injury and disease' (Australian Safety and Compensation Council (ASCC) 2005). The Building and construction; Transport and storage; Manufacturing; and Health and community services industries were initially identified as priority industries, with the Agriculture, forestry and fishing industry being included later (ASCC 2005). The priority industries include those previously found to have high rates of work-related fatal injury (Driscoll et al 2001). Initial national aims for the Strategy are a sustained reduction in work-related fatalities of at least 10% by 30 June 2007 and at least 20% by 30 June 2012, as well as at least a 20% reduction in workplace injury by 30 June 2007 and 40% by 30 June 2012. Preliminary data suggest that there has been a reduction in the incidence of work-related fatalities of 25% from the 2001–02 to the 2003–04 periods. However, there was an increase in Agriculture, forestry and fishing work-related fatalities (ASCC 2005).

Most statistical reports of work-related injury have been based on Workers' Compensation data and data from coroners. Less use has been made of another source: data on cases admitted to a hospital. While most cases of work-related injury do not result in admission to a hospital, those that are admitted include severe cases. A previous report prepared for the NOHSC concluded that, though the source has limitations, more detailed reporting using it was warranted (NOHSC 2004b). This report is a response to that conclusion.

Data on hospital cases in Australia

About seven million episodes of in-patient (i.e. admitted patient) care are provided by hospitals in Australia each year (AIHW 2005). Statistical summaries of nearly all cases are provided by the hospitals (both public and private) to health authorities, and are compiled at the national level by the Australian Institute of Health and Welfare (AIHW) as the National Hospital Morbidity Database (NHMD). The collection includes all public-sector hospitals except "those not within the jurisdiction of a state or territory health authority (for example, hospitals operated by the Australian Defence Force or

* Included are accepted claims resulting in death, permanent incapacity or at least one week of absence from work.

correctional authorities) and hospitals located in offshore territories" (AIHW 2006). Nearly all private hospitals are included.

Hospital data used for this project

An overview of case selection and related matters is provided here. Appendix 1 (Data Issues) provides further details.

In summary, this report presents an analysis of three sets of records from the NHMD. These are records where the date on which the episode of hospitalisation ended (i.e. the date on which the person 'separated' from the hospital) was during the two year period 1 July 2002 to 30 June 2004, the episode did not follow transfer from another acute care hospital (this is to reduce multiple counting of cases), the record included at least one diagnosis code for injury (ICD-10-AM S00-T98) or at least one External Cause code (ICD-10-AM V01-Y98) and:

Set 1: the first 'Activity when injured' item = *While working for income* (n=51,777)

Set 2: the first 'Activity when injured' item = *While engaged in other types of work* (n=27,921)

Set 3: the 'Funding source for hospital patient' item = *Workers' compensation* (n=53,420)

Note that Set 1 and Set 3 overlap (see Figure 1.1).

Study period

This report focuses on NHMD data for the two years ending on 30 June 2004. This period was chosen because the third edition of the Australian Clinical Modification of the International Classification of Diseases (ICD-10-AM), introduced on that date, enables coding of the industry sector in which a person was working when injured (NCCH (NCCH) 2002a). This capability partly overcomes one of the limitations of the NHMD identified in the previous report (NOHSC 2004b). Use of two years of data helps to overcome the problem that detailed analysis (e.g. by age, sex, industry sector and type of injury) can result in table cells containing such small numbers that they are not useful or reportable.

Cases and episodes

Each record in the NHMD corresponds to a single episode in hospital. Since some injury occurrences result in more than one episode in hospital (e.g. for initial management at one hospital, then transfer to another for specialised treatment) the number of episodes of hospitalisation is normally larger than the number of cases (i.e. persons requiring hospital treatment). Cases are more relevant than episodes for purposes such as assessing the incidence of work-related injury in a population. The NHMD does not provide an ideal way to report the data in terms of cases. In this report, a method has been used to reduce multiple counting of cases by omitting from case counts records where the episode began with transfer from another acute care hospital. Note that inward transfer records were retained when calculating days of hospitalised care (i.e. length of stay).

Selection and reporting of work-related cases

Since almost all episodes in hospital in Australia are included in the NHMD, it follows that this collection includes records for nearly all episodes of hospitalisation due to work-related conditions. However, the NHMD was not designed with occupational health and safety reporting in mind. This is reflected in constraints on identifying work-related cases among all cases recorded in the database.

Two data items in the NHMD provide a basis for selection of relevant cases. One of these is an item designed to record the activity of an injured person at the time of injury. The other is an item to record the expected source of payment for each episode in hospital.

For present purposes, the most important category in the classification of 'activity at the time of injury' is *While working for income* (ICD-10-AM code U73.0). This is defined in the ICD-10-AM as including paid work (manual or professional), transportation (time) to and from such activities, and work for salary, bonus and other types of income (NCCH 2002a).

Most of this report focuses on cases that were assigned activity code U73.0, because these were recorded as occurring during paid work, and because the ICD-10-AM classification allows further specification of this set of cases according to the industry sector in which they occurred. In this report, the set of NHMD records that had been assigned U73.0 as the first 'activity when injured' code are referred to as *hospitalised injury while working for income*. This set is the subject of most of the report.

Coverage of *hospitalised injury while working for income* in the report begins with an overview (Chapter 2). This is followed by a series of nine chapters, each describing the subset of *hospitalised injury while working for income* cases that were further specified in the NHMD data as occurring while a person was engaged in activities related to an industry sector:

Chapter 3 Construction (U73.03)

Chapter 4 Agriculture, forestry and fishing (U73.00)

Chapter 5 Manufacturing (U73.02)

Chapter 6 Wholesale and retail trade (U73.04)

Chapter 7 Transport and storage (U73.05)

Chapter 8 Mining (U73.01)

Chapter 9 Health services (U73.07)

Chapter 10 Government administration and defence (U73.06)

Chapter 11 cases assigned the code "Other specified work for income" (U73.08)

The cases included in each of these chapters are described in terms of the following variables available in the NHMD: age, sex, remoteness of place of residence, mechanism of injury, place of occurrence, day and month of admission, principal diagnosis, nature of injury, body region involved, principal procedure performed and length of stay. Findings are presented as estimated case counts and proportions, and as rates, using ABS Labour Force Survey (LFS) data as denominators.

The next chapter of the report (Chapter 12) describes cases assigned another value of the 'activity when injured' item, U73.1, which means *While engaged in other types of work*. This is defined in ICD-10-AM as including the following activities:

Domestic duties such as, caring for children and relatives, cleaning, cooking, gardening and household maintenance

Duties for which one would not normally gain an income

Undergoing education and learning activities, such as attending a school session or lesson.

The scope of this category is broad, and not sharply circumscribed. It can be summarised as including cases that occur while engaged in work that is not undertaken for income.

The final set of NHMD records described in this report were selected on the basis of the NHMD data item 'Funding source for hospital patient', which is designed to record the 'expected principal source of funds for an admitted patient episode or non-admitted patient service event' (AIHW 2006). Records were selected where this item had the value meaning *workers' compensation*. This set of cases is described in Chapter 13.

Suppression of small cell counts

Where the small number of cases would produce counts of 1, 2 or 3 in tables, these have been suppressed, to protect confidentiality and because small numbers are subject to fluctuations due to chance effects. Other values have been suppressed where this was necessary to prevent discovery of the suppressed values (see Appendix 1, Data Issues for details).

Types of cases included

This report focuses on cases of injury and related conditions that are identifiable in the NHMD as being work-related. The approach taken has included all cases in the NHMD in which the first 'activity when injured' item is coded to mean *While working for income* or *While engaged in other types of work.* In addition, we examine the cases in which an injury or external cause is mentioned and the anticipated source of payment was workers' compensation.

The term *injury* is commonly used as shorthand for cases assigned a code from Chapter 19 of ICD-10, *Injury and Poisoning* (code range S00-T98). We have followed that convention in naming diagnoses reported for the cases included in the report (e.g. see Table 2.7). However, inclusion of all cases with the first 'activity when injured' item coded to *While working for income* or *While engaged in other types of work* has the effect of including some cases with diagnosis codes outside the conventional scope of *injury*, as characterised in the ICD-10-AM. About 16% of cases in the *hospitalised injury while working for income* set have a main (i.e. principal) diagnosis code outside this range. The great majority of these 'non-injury' cases are of two types, both closely related to injury. The first type is cases where the main diagnosis is a musculoskeletal condition. These account for 43% of the 'non-injury' cases assigned an activity code of *While working for income.* These conditions have much in common with conditions included in the *Injury and Poisoning* chapter of ICD-10. The second type is cases in which the main diagnosis code refers to a 'factor influencing health status and contact with health services', rather than to a diagnosed condition. These account for another 30% of the 'non-injury' cases assigned an activity code of *While working for income.* More than 9 out of 10 of these were for rehabilitation or surgical follow-up care, and about the same proportion refer to an injury condition in an additional diagnosis code.

Similarly, a little over one-third of the cases reported in Set 3 (workers' compensation) have a principal diagnosis code from outside the injury and poisoning chapter of the ICD-10-AM. Of these cases, 58% were coded as involving a musculoskeletal condition, and 12% have a code for a 'factor influencing health status and contact with health services'.

As defined above, Sets 1 (injury while working for income) and 2 (injury while engaged in other work) are mutually exclusive. As might be expected, there is considerable overlap between Set 1 and Set 3 (hospitalised with injury or external cause; payment expected from workers' compensation). The number of cases in either Set 1 or Set 3 is

74,389, of which 41.4% are in both sets, 28.2% are only in Set 1 and 30.4% are only in Set 3 (Figure 1.1).

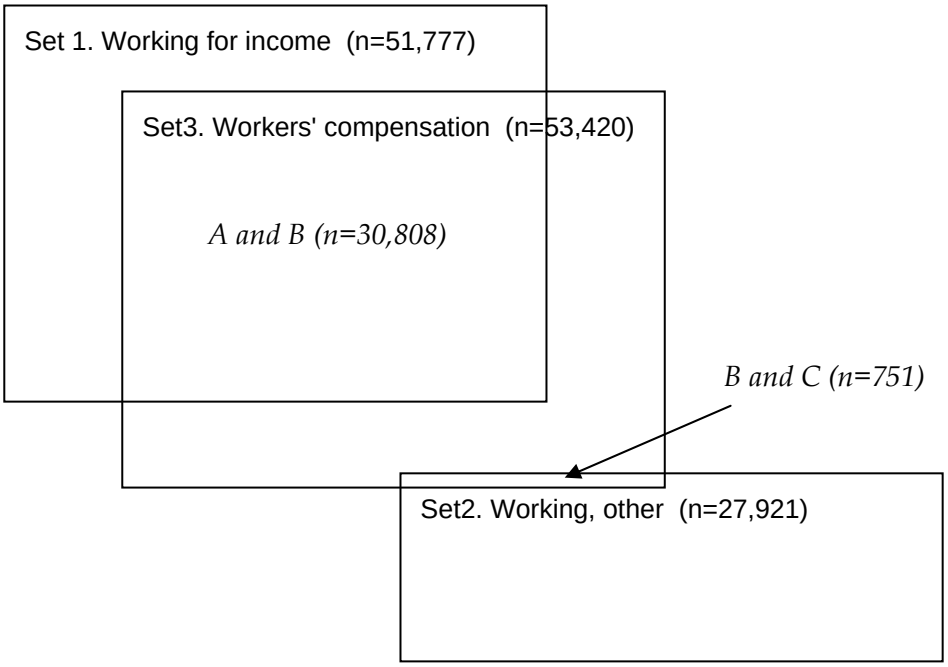


Figure 1.1: Diagram of case numbers in the three analysis sets and overlap between them Hospitalised work-related injury, Australia 2002–03 and 2003–04:

It is not surprising that some cases of hospitalised injury while working for income do not have workers' compensation recorded as the expected source of payment. The main reason for this is that not all people who work are covered by workers' compensation provisions. Evidence for this is that large differences are observed in the proportion of overlap between Set 1 and Set 3 by industry sector. Of cases in Set 1 that are recorded as occurring in mining and manufacturing, more than 70% have workers' compensation recorded as the expected funding source. In contrast, the proportion is about 35% for cases in Agriculture, forestry and fishing. Another reason is that information about expected payment source is likely to have been recorded in hospital data systems within a few days of injury. In some cases it will not have been clear at this stage whether the circumstances of the injured person and the nature of the injurious event would result in a claim.

It is more difficult to interpret the cases where workers' compensation was recorded as the expected funding source, but activity when injured was not recorded as 'while working for income'. About two-fifths of these (42%) are records in which there is no Activity code. The remaining 58% have Activity codes, but not 'working for income' (except 20 records in this set, which have code U73.0 as the second or subsequent activity code). Of those with an activity code, more than seven in ten have the residual code U73.9, meaning 'unspecified activity'. The principal diagnosis code in these records is from the 'injury and poisoning chapter of ICD-10-AM in 63% of cases and the musculoskeletal conditions chapter for 22%. Unfortunately, the absence of an activity code prevents analysis of these cases in terms of industry.

Deaths

The great majority of NHMD records used in this report show that the person left hospital alive, most often discharged home. However, in 99 instances (0.2%) during the two year study period, cases of hospitalised injury while working for income ended with the death of the person, while in hospital. The equivalent value for hospitalised injury while engaged in unpaid work was 189 cases (0.7%), and 64 cases (0.1%) for injury hospitalisation expected to be funded by workers' compensation.

A large proportion of deaths due to work related fatal injury occur immediately, or so soon after injury that the person is not admitted to a hospital. Hence, as expected, the annual number of fatal work related injury cases identified in the NHMD is much smaller than the total number identified in a study of work-related fatalities at much the same period (ASCC 2006a). That investigation found 226 fatal injuries while working for income in a one-year period (2002–03). Comparison of this value with the 99 deaths in hospital following injury while working for income during the two year period covered by this report suggests that in about 22% of cases, persons fatally injured while working for income died after admission to a hospital.

Work-related deaths are recorded by coroners, workers' compensation schemes and the Notified Fatalities (NF) system (ASCC 2006a). In principle, all of the deaths in hospital due to work-related injury while working for income, or during injury hospitalisation expected to be funded by workers' compensation, should be recorded by one or more of these sources, as well as in hospital data. Assessment of person-linked data would be necessary to learn whether all of the work-related deaths identified in hospital data are, in fact, also recorded in the other sources. The correspondence might not be exact, due to factors including differing inclusion criteria and coding errors.

Denominators for rates

Data from the Australian Bureau of Statistics (ABS) LFS were used as denominators when calculating rates. Rates have been calculated in terms of numbers of workers and in terms of hours worked. See Appendix 1 (Data issues) for further information.

2 Hospitalised injury while working for income - overview

This chapter provides an overview of NHMD cases resulting in hospitalisation where the person was recorded as working for income when injured (i.e. first–reported Activity=U73.0). Chapters 3 to 11 each describe the subset of the same data in which a particular industry sector was specified.

The cases included in this chapter are referred to in this report as *hospitalised injury while working for income*. Refer to Chapter 1 and Appendix 1 (Data Issues) for further information on case inclusion criteria and related matters.

Table 2.1 provides summary measures for this set of cases.

Table 2.1: Summary measures for Hospitalised injury while working for income, Australia, 2002–03 and 2003–04

Indicator	
Cases	51,777
Estimated number of workers ('000) * **	9,725.5
Hospitalisation rate per 100,000 workers per year* **	265.5
Hospitalisation rate per million hours worked* **	1.5

* Workers and working hours refer to the total employed labour force in the study period (ABS 2006a).

** Only includes persons 15 + years.

Background

There is limited information about fatal and non-fatal work-related injury for most industries in Australia. Available information is briefly summarized for each industry at the beginning of the relevant chapter.

The available information on fatal injury is more comprehensive than for non-fatal injury and primarily comes from a detailed study of work-related injury deaths in Australia in the four-year period 1989 to 1992. This information is documented in two major publications (Driscoll et al 2001; Driscoll 2003) and a series of specific papers arising from the study. A report on work-related traumatic injury fatalities in the year 2003-04 provides more recent data for half of the period covered by this report (Australian Safety and Compensation Council 2006a). A few other sources provide some relevant information on work-related fatal injury and these are cited where relevant.

Most information on non-fatal injuries comes from workers' compensation data, a national compilation of which is accessible on-line from the ASCC (ASCC 2006b). When interpreting information from this source, it should be kept in mind that the data source only includes injuries that occurred to workers covered by workers' compensation provisions, resulted in at least one work-week of time loss, and were the subject of a successful claim for workers' compensation.

The hospital data presented in this report have a wider scope than the scope of worker's compensation entitlements. Any person admitted to a hospital in Australia with a condition recorded as injury while working for income is included. The report also presents, in Chapter 12, information on people recorded as being injured while doing other work (i.e. unpaid).

The scope of the population in which the cases of hospitalised injury while working for income described in this chapter have occurred should be similar to the scope of the employed labour force, as defined by the ABS (ABS 2007). The employed labour force includes usual residents of Australia aged 15 years or older who were employed, full-time or part-time. It includes employees, employers and self-employed people working for any form of remuneration, or working without pay in a family business or on a farm.

Cases that may have been included in this chapter, but which fall outside the scope of the labour force, are mainly among the specific exclusions of the labour force. The labour force does not include Australian defence personnel, or "non-Australian defence personnel (and their dependants) stationed in Australia, diplomatic personnel of overseas governments, and people who are usually resident in other countries and are temporarily residing in Australia." (ABS 2007) These types of cases are not readily distinguishable using data available in NHMD records. However, they are likely to account for a small proportion of cases.

Another type of case included in the chapter, but beyond the scope of the employed labour force, is those where the age of the injured person was under 15 years (n=130; 0.3%). These cases were, however, omitted from calculation of rates based on LFS data.

Work without pay in a family business or on a farm falls within the scope of the employed labour force. Cases of injury occurring in this context are likely to have been coded as occurring during "other" (i.e. unpaid) work and, if so, will be among the cases included in Chapter 12, rather than this chapter.

According to ABS labour force statistics, the total size of the employed civilian labour force in Australia during the study period was 9.725 million persons (ABS 2006a).

Age and sex

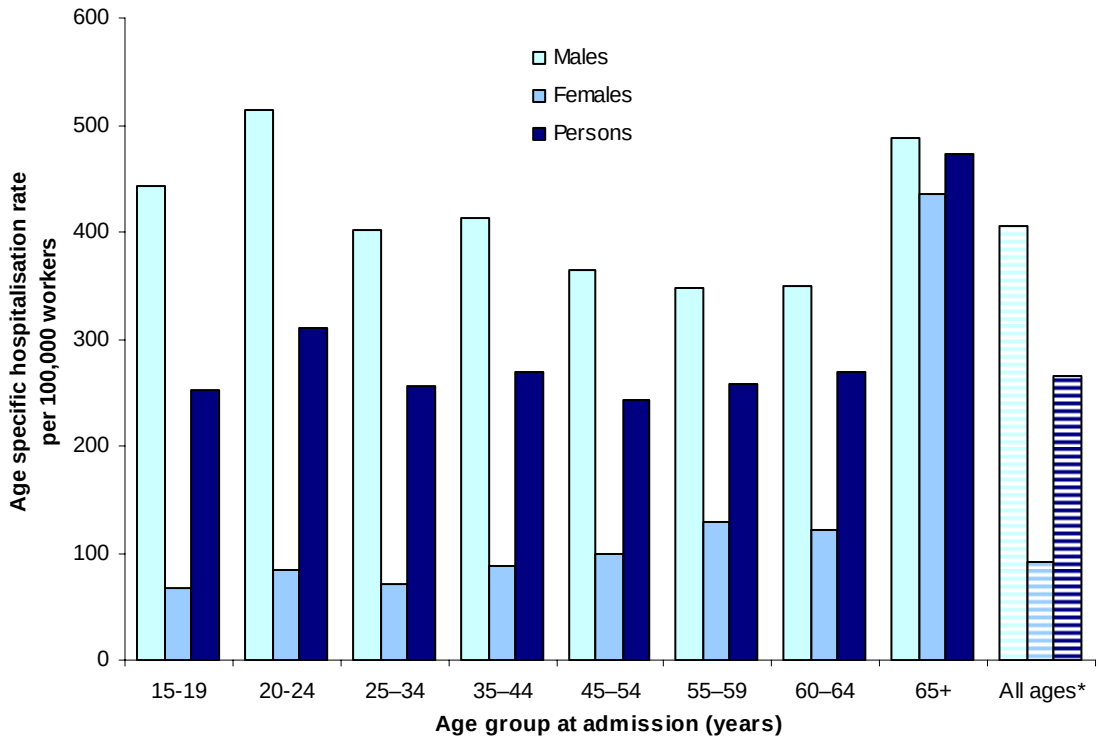
Analysis of NHMD data suggests that 51,777 cases of hospitalised injury while working for income occurred in Australia during the two year period ending on 30 June 2004 (Table 2.2). A large majority of the cases were males (n=43,821, 84.6%). Few cases were recorded at ages under 15 years, and the largest numbers were recorded for the age groups 25–34 years (n=12,561, 24.3%) and 35–44 years (n=12,424, 24.0%).

Values are presented as annual average rates for the two-year period covered by the report.

Age specific rates for hospitalised injury while working for income are shown in figure 2.1. The all ages rate (15 years and over) was 405.9, 91.3 and 265.5 hospitalisations per 100,000 workers for males, females and persons, respectively. The highest age-specific rate for males occurred in the 20–24 year age group (514.2 hospitalisations per 100,000 workers) and the highest rate for females occurred in the 65 years and over age group (436.0 hospitalisations per 100,000 workers). Rates for males were also high in this age group (Figure 2.1).

Table 2.2: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: estimated case numbers by age group and sex.

Age group at admission (years)	Males	Females	Persons
0–14	93	37	130
15-19	2,968	468	3,436
20-24	5,425	802	6,227
25–34	11,038	1,523	12,561
35–44	10,604	1,820	12,424
45–54	8,279	1,922	10,201
55–59	2,846	723	3,569
60–64	1,481	278	1,759
65+	1,087	383	1,470
All ages	**43,821**	**7,956**	**51,777**



* Only includes persons 15 + years.

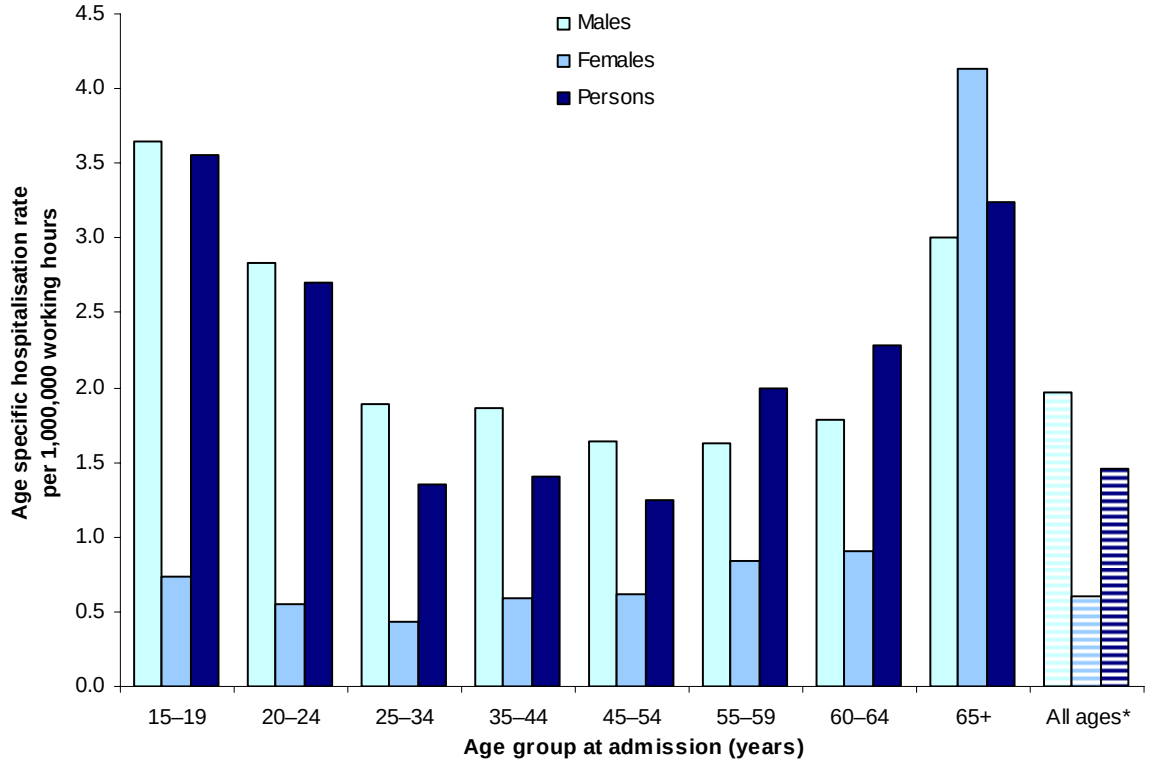
Figure 2.1: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean annual rate per 100,000 employed labour force, by age group and sex

Age specific rates of hospitalised injury while working for income per million hours worked by the employed labour force are shown in Figure 2.2.

For males the highest rate occurred in the 15–19 year age group with 3.7 hospitalisations per million hours worked and for females the highest occurred in the 65 years and over

age group with 4.1 hospitalisations per million hours worked. For males and, to a less marked extent, females, rates have a U-shaped distribution, being higher at both age extremes than at intermediate ages.

The hospitalisation rate (all ages 15 years and over) was 2.0, 0.6 and 1.5 per million hours worked for males, females and persons, respectively (Figure 2.2).



* Only includes persons 15 + years.

Figure 2.2: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: rate per million hours worked by the employed labour force, by age group and sex

Industry sector

The ICD-10-AM classification provides, for cases coded as injury while working for income (U73.0), categories to specify the industry sector in which the case occurred (NCCH 2002a).

Cases of hospitalised injury while working for income were most numerous in the Construction industry and the Agriculture, forestry and fishing industry, where there were 5,529 and 5,057 hospitalisations, respectively, during the 2 year period. Each of the industry sectors shown in Table 2.3 is discussed in more detail in the chapters that follow.

There was a large variation in the ratio of male cases to female cases across the industries. The highest proportion of male hospitalisations was in the Construction industry (99.0%) and the lowest proportion was in the Health services industry (27.6%) (Table 2.3). Note that the order in which industries are shown in this table, and elsewhere in this chapter, is the same as the order of the industry-specific chapters, Chapter 2 to Chapter 11.

Table 2.3: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: estimated case numbers and proportions by industry sector and sex

Industry	Males (%)	Females (%)	Persons (%)
Construction	5,476 (12.5)	53 (0.7)	5,529 (10.7)
Agriculture, forestry & fishing	4,520 (10.3)	537 (6.7)	5,057 (9.8)
Manufacturing	3,861 (8.8)	338 (4.2)	4,199 (8.1)
Wholesale & retail trade	2,487 (5.7)	1,054 (13.2)	3,541 (6.8)
Transport & storage	2,430 (5.5)	149 (1.9)	2,579 (5.0)
Mining	1,314 (3.0)	40 (0.5)	1,354 (2.6)
Health services	371 (0.8)	975 (12.3)	1,346 (2.6)
Government administration & defence	563 (1.3)	150 (1.9)	713 (1.4)
Other specified work for income*	8,231 (18.8)	1,948 (24.5)	10,179 (19.7)
Unspecified work for income	14,568 (33.2)	2,712 (34.1)	17,280 (33.4)
Total	**43,821 (100.0)**	**7,956 (100.0)**	**51,777 (100.0)**

* See Chapter 11 for a list of the diverse industry sectors included in this category

Industry-specific rates of hospitalised injury while working for income are shown in Table 2.4. Cases recorded as occurring in the Mining industry represented 763.6 hospitalisations per 100,000 workers per year and 3.1 hospitalisations per million hours worked. The rates for cases in the Agriculture, forestry and fishing industry sector were 667.6 hospitalisations per 100,000 workers per year and 3.1 hospitalisations per million hours worked (Table 2.4).

Table 2.4: Hospitalised injury while working for income per million hours worked, Australia 2002–03 and 2003–04, by industry (persons aged 15 years and older)

Industry	Estimated number of workers* (thousands)	Hospitalisations per 100,000 workers per year*	Hospitalisations per million hours worked*
Construction	747.5	369.8	1.9
Agriculture, forestry & fishing	376.0	667.6	3.1
Manufacturing	1,092.2	191.9	1.0
Wholesale & retail trade	1,883.8	93.8	0.6
Transport & storage	420.3	303.4	1.5
Mining	88.5	763.6	3.1
Health services	946.8	71.0	0.5
Government administration & defence	438.1	80.6	0.5
All industries	9,725.5	265.5	1.5

* Using the Labour Force Survey, which only includes persons 15 + years (ABS 2006a).

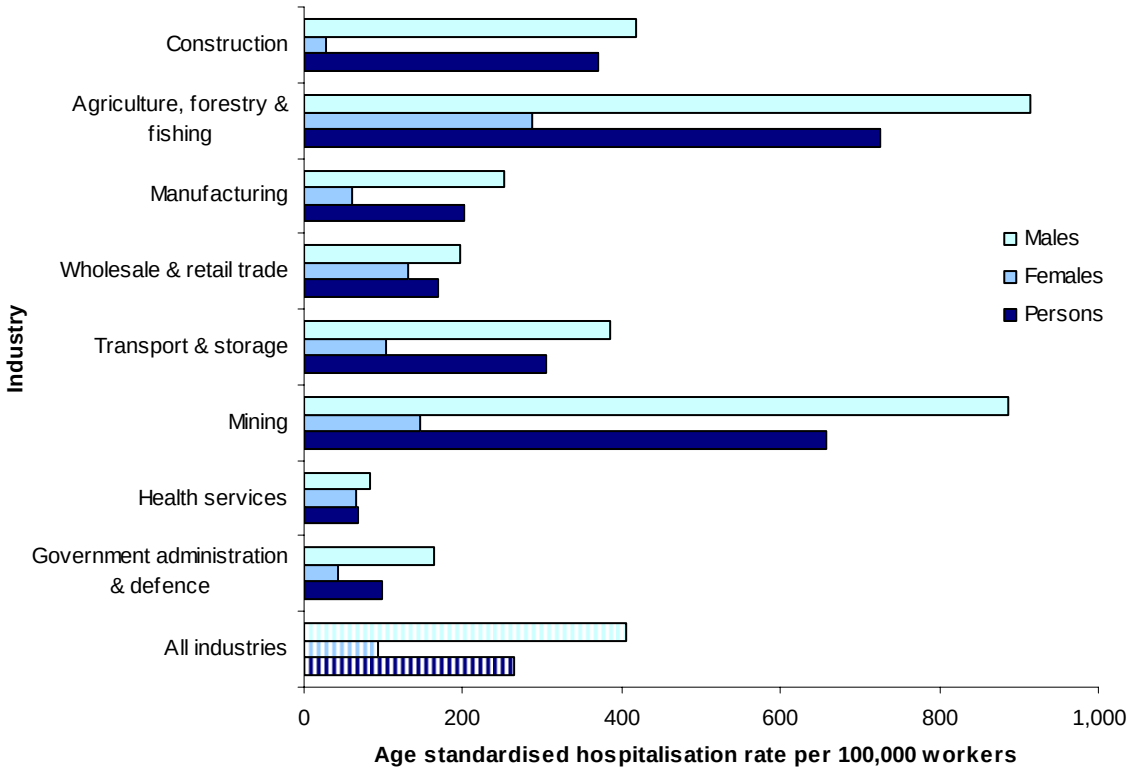


Figure 2.3: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: age standardised rates per 100,000 workers, by industry and sex (persons aged 15 years and older)

Rates of Hospitalised injury while working for income vary with age, and the age distribution of workers differs between industries. Adjustment (or standardisation) of rates by age allows comparison between industries as if they all had the same age distribution.

For males, the age adjusted hospitalisation rate per 100,000 workers, 15 years and over, was highest for the Agriculture, forestry and fishing industry, with 913.8 hospitalisations per 100,000 workers per year, followed by 887.7 hospitalisations per 100,000 workers per year for the Mining industry. For females, the adjusted rate was highest for the Agriculture, forestry and fishing industry with 288.4 hospitalisations per 100,000 workers per year. Considering both genders together, the hospitalisation rate was highest for the Agriculture, forestry and fishing industry with 726.4 hospitalisations per 100,000 workers, followed by 658.5 hospitalisations per 100,000 workers for the Mining industry and 305.2 hospitalisations per 100,000 workers in the Transport and storage industry (Figure 2.3).

The age adjusted hospitalisation rate per million hours worked by persons aged 15 years and over was highest for the Agriculture, forestry and fishing industry with 3.7, 1.8 and 3.3 hospitalisations per million hours worked for males, females and persons, respectively and the Mining industry with 3.7, 1.0 and 3.3 hospitalisations per million hours worked for males, females and persons, respectively (Figure 2.4).

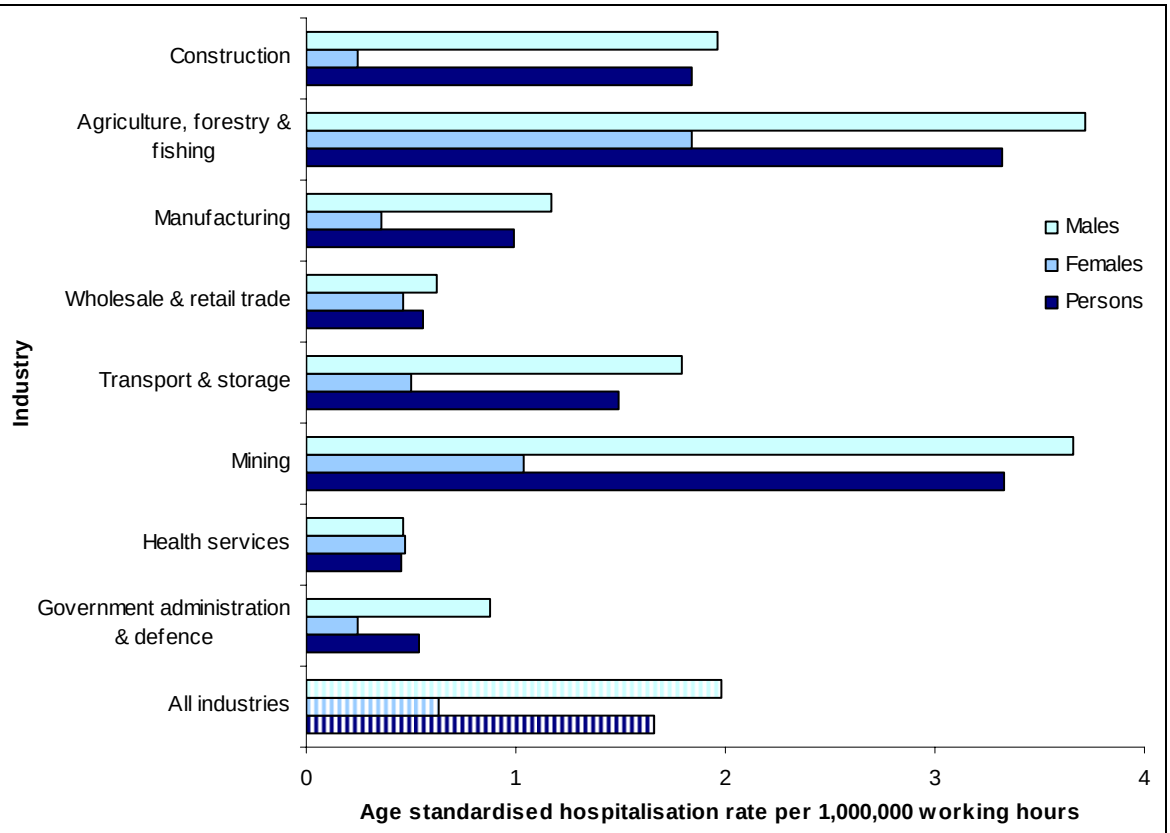


Figure 2.4: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: age standardised rates per million hours worked, by industry and sex (persons aged 15 years and older)

Rates for females were generally found to be much lower than rates for males. This is likely to be mainly due to different exposure to risk for males and females, reflecting different patterns of occupations and tasks. The NHMD does not contain information on occupation when injured, so occupation-specific rates could not be calculated.

Remoteness of residence

Figure 2.5 shows the proportions of cases due to injury while working for income according to the remoteness of the injured person's usual place of residence. Remoteness has been calculated according to the ASGC remoteness zones specified by the ABS (See Appendix 1 for further information).

Some 57.9% of males, 61.7% of females and 58.5% of persons hospitalised due to injury while working for income resided in major cities.

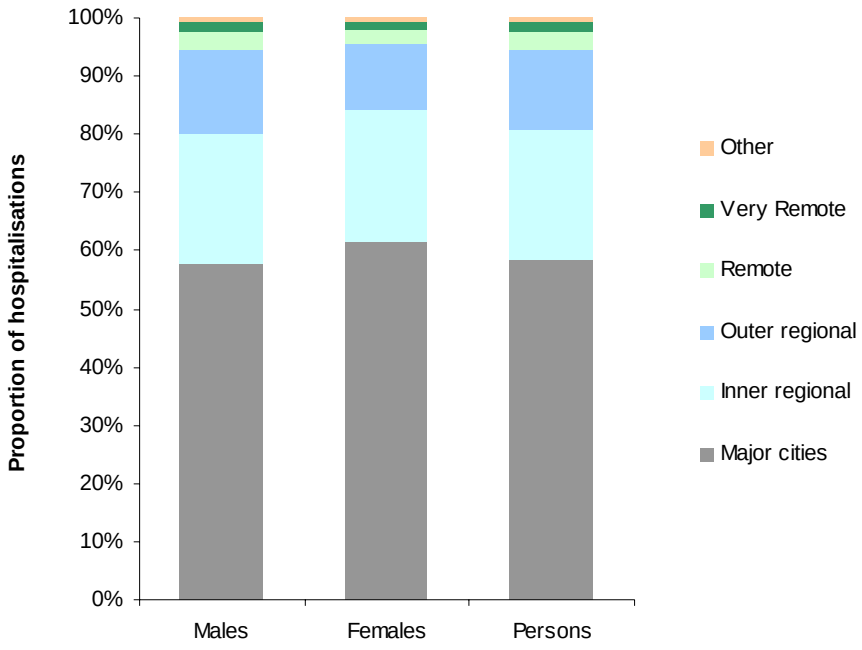


Figure 2.5: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: remoteness zone of usual residence, by sex.

Mechanism of injury

The way in which injuries occurred can be described in terms of the categories provided in the ICD-10-AM 'External Causes' chapter injured (NCCH 2002a).

Exposure to inanimate mechanical forces was the most common broad type of mechanism for Hospitalised injury while working for income (n=22,925, 44.3%). More specific mechanisms of exposure to inanimate mechanical forces were caught, crushed, jammed or pinched in or between objects (n=3,008, 5.8%), struck by thrown, projected or falling objects (n=2,769, 5.3%) and contact with other and unspecified machinery (n=2,744, 5.3%) (Table 2.5).

There were 8,481 fall-related hospitalisations while working for income (16.4%). Of these, 1,374 cases were recorded as being due to an 'other fall from one level to another' (2.7%), 1,270 to a fall on or from a ladder (2.5%) and 1,012 to a fall on the same level from slipping (2.0%) (Table 2.5).

Transport-related mechanisms accounted for 4,998 cases (9.7%), with 'other land transport accidents' (n=1,306, 2.5%), 'car occupant injured in transport accident' (n=1,061, 2.0%) and 'occupant of heavy transport vehicle injured in transport accident' (n=883, 1.7%) being the categories reported most frequently (Table 2.5).

Table 2.5: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: case numbers by mechanism of injury by sex

Mechanism	Males	Females	Persons
Exposure to inanimate mechanical forces	21,085	1,840	22,925
Caught, crushed, jammed or pinched in or between objects	*2,769*	*239*	*3,008*
Struck by thrown, projected or falling object	*2,556*	*213*	*2,769*

Contact with other & unspecified machinery	*2,432*	*312*	*2,744*
Contact with other powered hand tools & household machinery	*2,122*	*102*	*2,224*
Foreign body or object entering through skin	*1,816*	*102*	*1,918*
Contact with knife, sword or dagger	*1,485*	*209*	*1,694*
Striking against or struck by other objects	*1,436*	*199*	*1,635*
Contact with woodworking & forming machinery	*1,227*	*25*	*1,252*
Contact with lifting & transmission devices, not elsewhere classified	*752*	*42*	*794*
Contact with non-powered hand tool	*680*	*98*	*778*
Contact with metalworking machinery	*741*	*14*	*755*
Contact with sharp glass	*591*	*124*	*715*
Foreign body entering into or through eye or natural orifice	*406*	*22*	*428*
Contact with other & unspecified agricultural machinery	*272*	*24*	*296*
Contact with earthmoving, scraping & other excavating machinery	*163*		
Contact with mining & earth drilling machinery	*155*		
Explosion of other materials	*127*	*5*	*132*
Contact with grain auger, elevator & conveyor	*61*	*4*	*65*
Contact with powered lawnmower	*53*		
Exposure to high pressure jet	*49*	*0*	*49*
Contact with harvesting machinery	*44*		
Explosion & rupture of gas cylinder	*34*		
Explosion & rupture of pressurised tyre, pipe or hose	*33*	*0*	*33*
Striking against or struck by sports equipment	*16*	*15*	*31*
Contact with hay baler & haying implements	*22*		
Contact with other specified equipment towed or powered by tractor	*20*		
Discharge from other & unspecified firearms	*19*		
Explosion & rupture of other specified pressurised devices	*15*		
Contact with equipment towed or powered by tractor: posthole digger	*10*		
Contact with equipment towed or powered by tractor: tillage & cultivating equipment	*11*	*0*	*11*
Handgun discharge	*11*	*0*	*11*
Discharge of firework	*8*	*0*	*8*
Contact with unspecified equipment towed or powered by tractor	*7*	*0*	*7*
Contact with equipment towed or powered by tractor: seeding & planting implement	*5*		
Contact with prime mover	*6*	*0*	*6*
Explosion & rupture of boiler	*6*	*0*	*6*
Exposure to other & unspecified inanimate mechanical forces	*925*	*72*	*997*
Falls	6,328	2,153	8,481
Other fall from one level to another	*1273*	*101*	*1,374*
Fall on & from ladder	*1,185*	*85*	*1,270*
Fall on same level from slipping	*542*	*470*	*1,012*

Fall from, out of or through building or structure	*770*	*31*	*801*
Fall on same level from tripping	*427*	*336*	*763*
Other fall on same level	*476*	*224*	*700*
Fall on and from stairs	*365*	*293*	*658*
Fall on & from scaffolding	*341*		
Fall involving furniture	*52*	*90*	*142*
Fall on same level from stumbling	*62*	*50*	*112*
Fall from tree	*81*		
Other fall same level from collision or push by person	*36*	*31*	*67*
Fall from cliff	*19*	*5*	*24*
Fall involving ice-skates, skis, roller skates or skateboards	*4*	*4*	*8*
Fall on same level involving ice & snow	*4*		
Other & unspecified fall	*691*	*428*	*1,119*
Accidental exposure to other & unspecified factors	4,501	1,047	5,548
Accidental exposure to unspecified factors	*4,318*	*1,005*	*5,323*
Accidental exposure to other specified factors	*183*	*42*	*225*
Transport	4,156	842	4,998
Other land transport accidents	*1,061*	*245*	*1,306*
Car occupant injured in transport accident	*651*	*410*	*1,061*
Occupant of heavy transport vehicle injured in transport accident	*868*	*15*	*883*
Motorcycle rider injured in transport accident	*673*	*61*	*734*
Pedestrian injured in transport accident	*283*	*53*	*336*
Occupant of pick-up truck or van injured in transport accident	*185*	*16*	*201*
Water transport accidents	*156*	*11*	*167*
Pedal cyclist injured in transport accident	*148*	*12*	*160*
Air & space transport accidents	*53*		
Bus occupant injured in transport accident	*29*	*4*	*33*
Occupant of three-wheeled motor vehicle injured in transport accident	*7*		
Other & unspecified transport accidents	*42*	*14*	*56*
Overexertion & privation	2,466	888	3,354
Exposure to animate mechanical forces (excluding transport)	899	304	1,203
Bitten or struck by other mammal (excluding marine)	*521*	*158*	*679*
Hit, struck, kick, twist, bite or scratch by another person	*64*	*52*	*116*
Bitten or other contact with dog	*46*	*36*	*82*
Contact with marine animal	*42*	*5*	*47*
Striking against or bump into by another person	*28*	*11*	*39*
Bitten or struck by horse	*0*	*0*	*0*
Contact with other animate or vegetative forces	198	42	240
Accidental poisoning by & exposure to noxious substances	770	150	920
Accidental poisoning by and exposure to other gases & vapours	197	31	228
Accidental poisoning by exposure to pharmaceuticals	65	20	85

Accidental poisoning by and exposure to pesticides	67	9	76
Accidental poisoning by exposure to organic solvents & halogenated hydrocarbons & their vapours	40	12	52
Other accidental poisoning	*401*	*78*	*479*
Assault	700	133	833
Assault by bodily force	*396*	*68*	*464*
Assault by blunt object	*96*	*8*	*104*
Assault by sharp object	*81*	*13*	*94*
Assault by handgun discharge	*12*	*0*	*12*
Assault by other & unspecified firearm discharge	*7*	*0*	*7*
Assault by other specified means	*32*	*24*	*56*
Assault by unspecified means	*76*	*20*	*96*
Exposure to heat & hot substances	525	114	639
Contact with heat & hot substances	*408*	*90*	*498*
Exposure to high & low air pressure & changes in air pressure	*94*	*24*	*118*
Exposure to excessive heat or cold of man-made origin	*23*	*0*	*23*
Sequelae (late effects)	468	127	595
Sequelae of other accidents	*372*	*99*	*471*
Sequelae of other & unspecified external cause	*48*	*14*	*62*
Sequelae of transport accidents	*35*	*9*	*44*
Sequelae of events of undetermined intent	*13*	*5*	*18*
Exposure to electric current, radiation & extreme air temperature & pressure & other man-made environmental factors	500	76	576
Exposure to electric transmission lines & current	*485*	*76*	*561*
Exposure to man-made visible & ultraviolet light including welding light	*8*	*0*	*8*
Exposure to other & unspecified man-made environmental factors	*7*	*0*	*7*
Contact with venomous animals & plants	372	53	425
Exposure to smoke, fire & flames	359	35	394
Complications of medical & surgical care	136	62	198
Exposure to forces of nature	171	13	184
Intentional self harm	31	40	71
Intentional self-harm by exposure to drugs, biological substances, pesticides & other noxious substances	*19*	*31*	*50*
Intentional self-harm by other specified means	*12*	*9*	*21*
Event of undetermined intent	35	12	47
Drowning & submersion	6	0	6
Other specified & unspecified mechanism	313	67	380
Total	**43,821**	**7,956**	**51,777**

Where cell numbers for males or females are low, the cell number and total are not shown.

Place of occurrence

The types of settings in which hospitalised injuries while working for income occur can be described in terms of the categories provided in the ICD-10-AM Place of Occurrence classification (NCCH 2002a).

In about one-third of cases of hospitalised injury while working for income, the type of place was unspecified (n=16,928; 32.7%) or no code was supplied (n=244; 0.5%) (Table 2.6).

For males, the most commonly specified general type of place of occurrence was an Industrial or construction area (32.3%). 'Factory and plant' (12.6% for males) and 'Construction area' (5.9% for males) were the most frequently reported sub-types. Other frequently reported types of place for males were Trade and service area (10.3%) and Farm (7.1%)

The pattern of reported places of occurrence was different for females. The most frequently reported general type of place was Trade and service area (23.2%). For females the most common specific place of occurrence was a 'Health service area' with 10.1% of hospitalisations (Table 2.6).

Table 2.6: Place of occurrence for Hospitalised injury while working for income, by sex, in Australia, 2002–03 and 2003–04

Place of occurrence	Males (%)	Females (%)	Persons (%)
Industrial & construction area	14,171 (32.3)	702 (8.8)	14,873 (28.7)
Factory & plant	*5,512 (12.6)*	*411 (5.2)*	*5,923 (11.4)*
Construction area	*2,598 (5.9)*	*13 (0.2)*	*2,611 (5.0)*
Mine & quarry	*1,208 (2.8)*	*32 (0.4)*	*1,240 (2.4)*
Shipyard	*172 (0.4)*		
Oil & gas extraction	*74 (0.2)*		
Demolition site	*66 (0.2)*	*0 (0.0)*	*66 (0.1)*
Power station	*47 (0.1)*	*5 (0.1)*	*52 (0.1)*
Other specified industrial & construction area	*1,572 (3.6)*	*105 (1.3)*	*1,677 (3.2)*
Unspecified industrial & construction area	*2,922 (6.7)*	*132 (1.7)*	*3,054 (5.9)*
Trade & service area	4,496 (10.3)	1,846 (23.2)	6,342 (12.2)
Shop & store	*1,266 (2.9)*	*693 (8.7)*	*1,959 (3.8)*
Cafe hotel & restaurant	*847 (1.9)*	*514 (6.5)*	*1,361 (2.6)*
Commercial garage	*436 (1.0)*	*31 (0.4)*	*467 (0.9)*
Office building	*103 (0.2)*	*140 (1.8)*	*243 (0.5)*
Other specified trade & service area	*1,151 (2.6)*	*266 (3.3)*	*1,417 (2.7)*
Unspecified trade & service area	*693 (1.6)*	*202 (2.5)*	*895 (1.7)*
Farm	3,098 (7.1)	440 (5.5)	3,538 (6.8)
Street & highway	2,164 (4.9)	603 (7.6)	2,767 (5.3)
Roadway	*1,859 (4.2)*	*497 (6.2)*	*2,356 (4.6)*
Sidewalk	*110 (0.3)*	*64 (0.8)*	*174 (0.3)*
Cycleway	*5 (0.0)*	*0 (0.0)*	*5 (0.0)*
Other specified public highway, street, road	*65 (0.1)*	*10 (0.1)*	*75 (0.1)*

Unspecified public highway, street, road	*125 (0.3)*	*32 (0.4)*	*157 (0.3)*
School, other institution & public administrative area	785 (1.8)	1,312 (16.5)	2,097 (4.1)
Health service area	*423 (1.0)*	*802 (10.1)*	*1,225 (2.4)*
School	*228 (0.5)*	*401 (5.0)*	*629 (1.2)*
Other specified institution & public administrative area	*134 (0.3)*	*109 (1.4)*	*243 (0.5)*
Home	794 (1.8)	232 (2.9)	1,026 (2.0)
Sports & athletics area	330 (0.8)	127 (1.6)	457 (0.9)
Residential institution	131 (0.3)	190 (2.4)	321 (0.6)
Aged care facilities	*29 (0.1)*	*135 (1.7)*	*164 (0.3)*
Prison or Juvenile detention centre	*55 (0.1)*	*20 (0.3)*	*75 (0.1)*
Military camp	*25 (0.1)*	*4 (0.1)*	*29 (0.1)*
Other & unspecified residential institution	*22 (0.1)*	*31 (0.4)*	*53 (0.1)*
Other specified place of occurrence	2,772 (6.3)	412 (5.2)	3,184 (6.1)
Large area of water	*366 (0.8)*	*23 (0.3)*	*389 (0.8)*
Beach	*40 (0.1)*	*4 (0.1)*	*44 (0.1)*
Stream of water	*32 (0.1)*	*8 (0.1)*	*40 (0.1)*
Area of still water	*16 (0.0)*		
Forest	*109 (0.2)*	*6 (0.1)*	*115 (0.2)*
Desert	*6 (0.0)*		
Other specified countryside	*80 (0.2)*	*14 (0.2)*	*94 (0.2)*
Parking lot	*36 (0.1)*	*8 (0.1)*	*44 (0.1)*
Other specified place of occurrence	*2,087 (4.8)*	*347 (4.4)*	*2,434 (4.7)*
Unspecified	15,080 (34.4)	2092 (26.3)	17,172 (33.2)
Unspecified place of occurrence	*14,871 (33.9)*	*2,057 (25.9)*	*16,928 (32.7)*
No place code	*209 (0.5)*	*35 (0.4)*	*244 (0.5)*
Total	**43,821 (100.0)**	**7,956 (100.0)**	**51,777 (100.0)**

Where cell numbers for males or females are low, the cell number and total are not shown.

Month of admission

The frequency of cases of hospitalised injury while working for income did not vary greatly by month of year (Figure 2.6). During the two year study period, the largest number of hospitalisations occurred in the month of March (n= 4,950, 9.6%) and the smallest occurred in January (n=3,767, 7.3%).

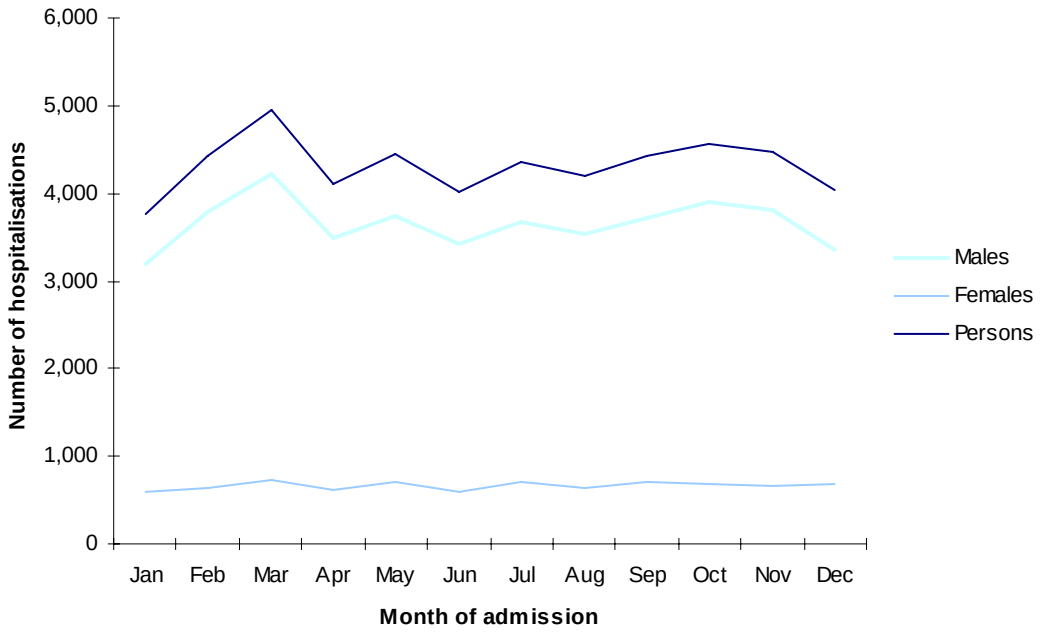


Figure 2.6: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by month of admission to hospital and sex

Day of admission

The NHMD does not contain information on date of injury. Date of admission to hospital is likely to be a fairly good guide to date of occurrence, since injuries serious enough to warrant admission to hospital are likely to be admitted soon after occurrence.

During the two-year study period, the largest number of admissions of injury while working for income occurred on Tuesdays, with 8,346, 1,686 and 10,032 hospitalisations for males, females and persons, respectively. The lowest number of hospitalisations occurred on Sundays, with 1,959, 428 and 2,387 hospitalisations, for males, females and persons, respectively (Figure 2.7).

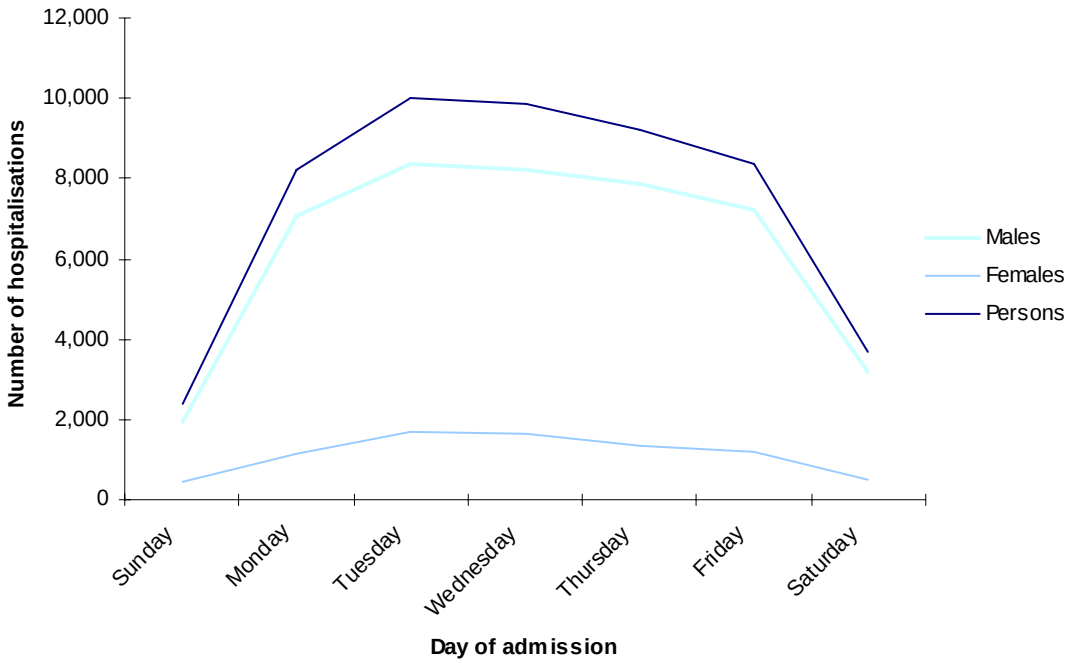


Figure 2.7: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by weekday of admission to hospital and sex

Nature of injury (Principal Diagnosis)

'Principal Diagnosis' is the condition or other reason most responsible for an episode in hospital. In the NHMD, diagnoses are coded according to the ICD-10-AM (NCCH 2002a). Injury diagnosis codes can be summarised according to the nature of the condition (Figure 2.8 and Table 2.7) and most can be summarised according to the body part injured (Figures 2.9 and 2.10). (Details of these re-codes of Principal Diagnosis codes are provided in Tables 16.1 and 16.2.)

Fractures were the most common type of Principal Diagnosis among cases of hospitalised injury while working for income, accounting for 23.3% of cases (n=12,073). Fractures were more common, as a proportion of all cases for the sex, in males (23.8%) than in females (20.5%). 7,801 hospitalisations were due to open wounds (15.1%).

In 8,453 (16.3%) of cases meeting the study definition of injury while working for income, the Principal Diagnosis code was not from the ICD-10-AM chapter 'injury and poisoning'. For this reason, these cases are labelled 'not injury' in Figure 2.8 and other figures and tables reporting diagnoses. While not falling within this conventional definition of injury, most cases in this group are closely related to it. In Table 2.8, the 83.7% of cases with Principal Diagnosis codes from the 'injury and poisoning' chapter have been collapsed into a single row, and the Principal Diagnoses of the remaining 16.3% are shown in the remaining rows.

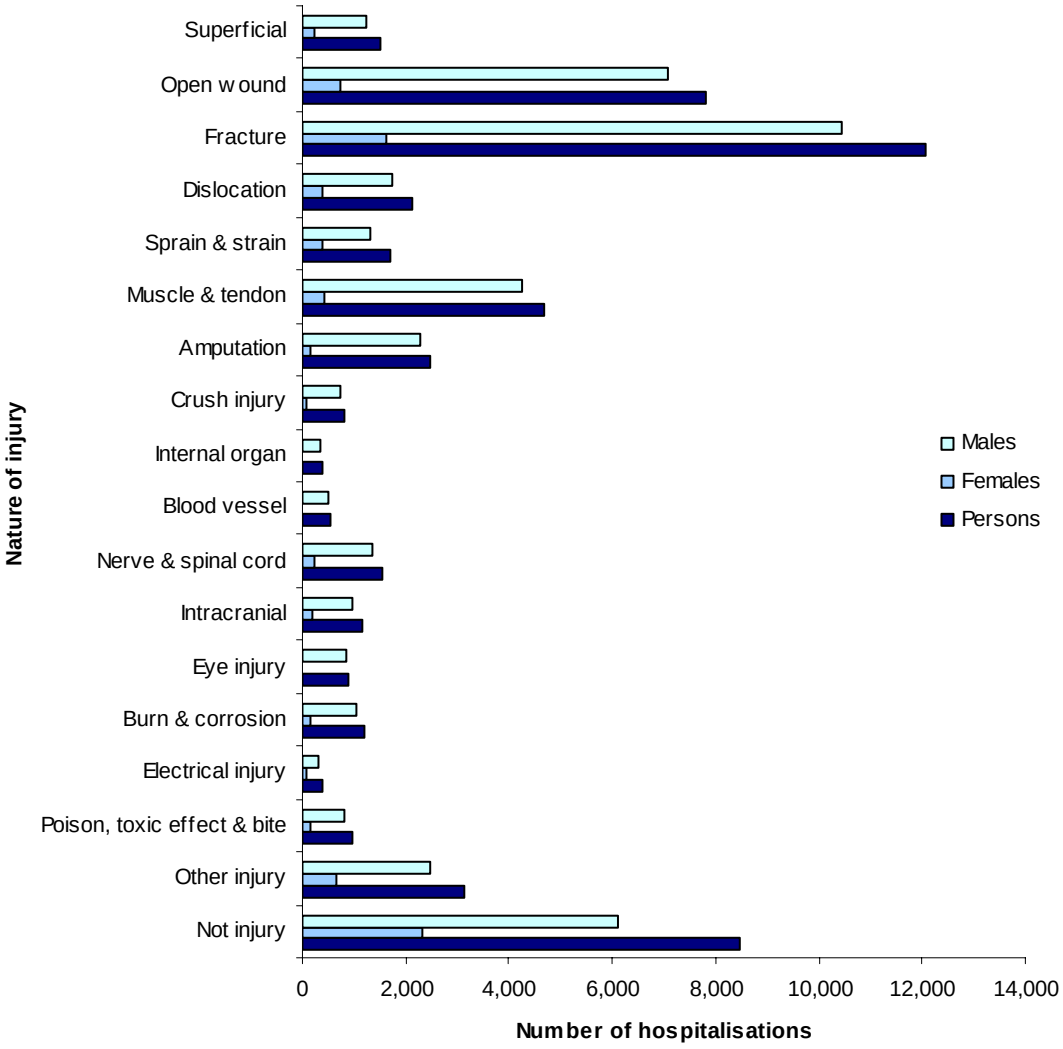


Figure 2.8: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: numbers of cases by nature of injury and sex

Two categories account for the bulk of this group of cases: 'Diseases of the musculoskeletal system & connective tissue' (43% of them) and 'Factors influencing health status & contact with health services' (30%). As shown in Table 2.8, the musculoskeletal conditions are predominantly disorders of the spinal column and other joints. In some contexts, such conditions are referred to as injuries. More than ninety per cent of the cases with a Principal Diagnosis code from the range meaning 'Factors influencing health status & contact with health services' have codes referring to rehabilitation or to follow-up care after surgery. About as many have a code from the 'injury and poisoning' chapter as an additional diagnosis code. This suggests that these records generally refer to care of injury conditions after the initial stage of treatment.

There were 78 cases with a principal diagnosis in the range referring to conditions of 'Pregnancy, childbirth and the puerperium'. Six sevenths of these cases (n=67) were in the 20-34 year age group and a large majority had a length of stay of 1 day (n=62). Most had a poorly specified industry , either 'other specified work for income' (n=12) or 'unspecified

working for income' (n=36). The mechanism of injury was most commonly a fall (n=44), followed by a transport event (n=12). Additional diagnoses for these cases were frequently musculoskeletal injury, unspecified abdominal pain, threatened abortion, false labour and examination following an accident. It is likely that most of these cases involved pregnant women who experienced an event, such as a fall, while working. The absence of indications of severe injury to the woman in most of the cases suggests that at least some of these admissions were precautionary, with a focus on the pregnancy.

Table 2.7: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: numbers and proportions of cases by nature of injury (Principal Diagnosis) and sex

Nature	Males (%)	Females (%)	Persons (%)
Superficial	1,255 (2.9)	245 (3.1)	1,500 (2.9)
Open wound	7,082(16.2)	719 (9.0)	7,801 (15.1)
Fracture	10,444 (23.8)	1,629 (20.5)	12,073 (23.3)
Dislocation	1,740 (4.0)	376 (4.7)	2,116 (4.1)
Sprain & strain	1,319 (3.0)	384 (4.8)	1,703 (3.3)
Muscle & tendon	4,235 (9.7)	434 (5.5)	4,669 (9.0)
Amputation	2,295 (5.2)	165 (2.1)	2,460 (4.8)
Crush injury	724 (1.7)	69 (0.9)	793 (1.5)
Internal organ	344 (0.8)	33 (0.4)	377 (0.7)
Blood vessel	484 (1.1)	40 (0.5)	524 (1.0)
Nerve & spinal cord	1,342 (3.1)	223 (2.8)	1,565 (3.0)
Intracranial	961 (2.2)	208 (2.6)	1,169 (2.3)
Eye injury	840 (1.9)	54 (0.7)	894 (1.7)
Burn & corrosion	1,043 (2.4)	149 (1.9)	1,192 (2.3)
Electrical injury	309 (0.7)	65 (0.8)	374 (0.7)
Poison, toxic effect & bite	805 (1.8)	164 (2.1)	969 (1.9)
Other injury	2,474 (5.6)	671 (8.4)	3,145 (6.1)
Not injury	6,125 (14.0)	2,328 (29.3)	8,453 (16.3)
Total	**43,821 (100.0)**	**7,956 (100.0)**	**51,777 (100.0)**

Table 2.8: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: numbers of cases by Principal Diagnosis and sex

Nature	Males	Females	Persons
Certain infectious & parasitic diseases	22	11	33
Neoplasms	24	6	30
Diseases of the blood & blood forming organs & certain disorders involving the immune mechanism	12		
Endocrine & nutritional & metabolic diseases	38	10	48
Mental & behavioural disorders	123	44	167
Diseases of the nervous system	140	64	204

Diseases of the eye & adnexa	79		
Diseases of the ear & mastoid process		4	
Diseases of the circulatory system	111	22	133
Diseases of the respiratory system	80	22	102
Diseases of the digestive system	379	32	411
Diseases of the skin & subcutaneous tissue	550	61	611
Diseases of the musculoskeletal system & connective tissue	2,337	1,278	3,615
Infectious arthropathies	*24*	*5*	*29*
Inflammatory polyarthropathies	*14*		
Arthrosis	*102*	*42*	*144*
Other joint disorders	*504*	*180*	*684*
Systemic connective tissue disorders		*0*	
Deforming dorsopathies	*5*	*7*	*12*
Spondylopathies	*39*	*26*	*65*
Other dorsopathies	*1,192*	*799*	*1,991*
Disorders of muscles	*12*		
Disorders of synovium & tendon	*79*	*41*	*120*
Other soft tissue disorders	*260*	*118*	*378*
Disorders of bone density & structure		*0*	
Other osteopathies	*90*	*49*	*139*
Chondropathies	*8*		
Other disorders of the musculoskeletal system & connective tissue	*5*	*5*	*10*
Diseases of the genitourinary system	50	11	61
Pregnancy & childbirth & the puerperium	0	78	78
Certain conditions originating in the perinatal period		0	
Congenital malformations & deformations & chromosomal abnormalities		0	
Symptoms, signs & abnormal clinical & laboratory findings not elsewhere classified	237	90	327
Injury & poisoning & certain other consequences of external causes	37,696	5,628	43,324
Factors influencing health status & contact with Health services	1,937	588	2,525
Total	**43,821**	**7,956**	**51,777**

Where cell numbers for males or females are low, the cell number and total are not shown.

Body region injured (Principal Diagnosis)

Most ICD-10-AM Principal Diagnosis codes for injuries can be summarised according to the body part injured (Figures 2.9 and 2.10). Some conditions cannot be summarised in this way (e.g. poisoning and asphyxia).

The wrist and hand were the body parts affected most frequently in cases of Hospitalised injury while working for income, especially for males. There were 14,914 (34.0%) wrist

and hand injury hospitalisations in males and 1,471 (18.5%) in females, comprising 16,385 (31.6%) overall.

'Other injury' refers to injury conditions that could not be summarised according to body region. See the section above for a discussion of the group of Hospitalised injury while working for income cases labelled 'not injury'.

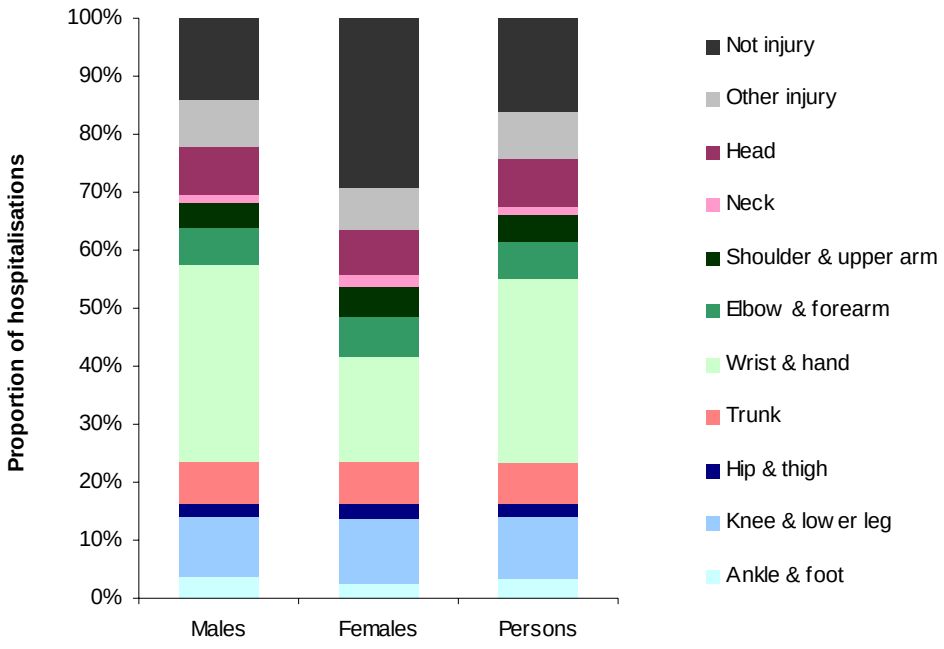


Figure 2.9: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by body region injured and sex

The overall prominence of wrist and hand injuries (Figure 2.9) is even more marked for young adult workers (Figure 2.10). Injuries of some other body regions become more prominent at older ages (e.g. injuries of the trunk, hip and thigh).

Injury of the wrist and hand injury accounted for 45.4% (n=1,559) of hospitalised injury while working for income in the 15–19 year age group. The proportion was lower in the 25–34 year age group (34.5%), but this was the ten-year age group in which the number of cases was greatest (n=4,335).

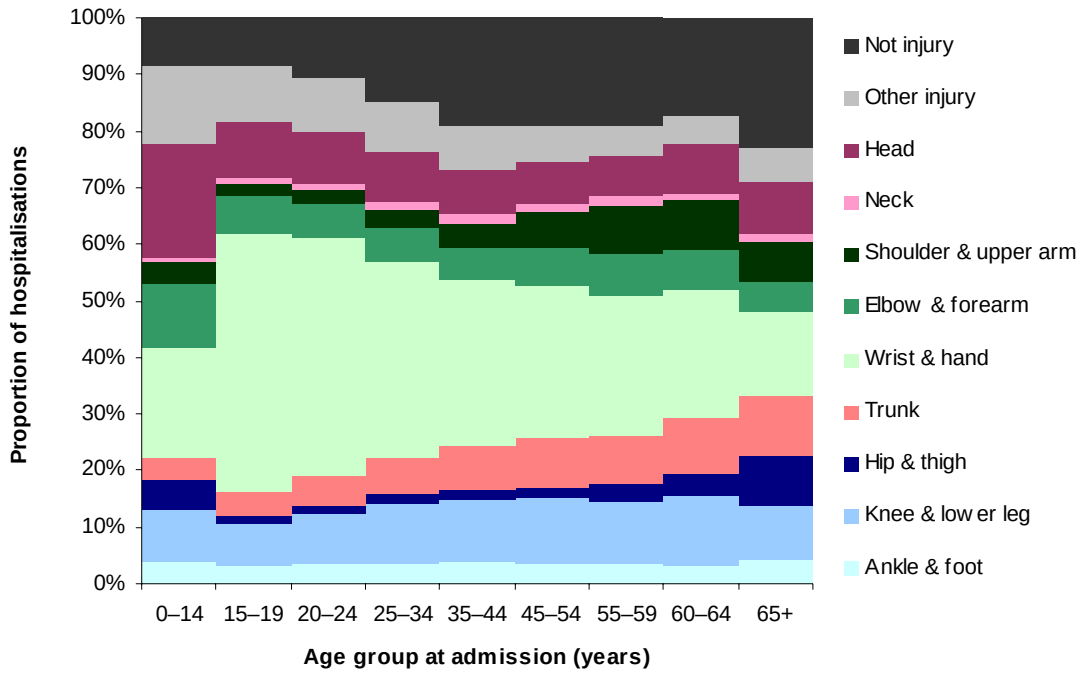


Figure 2.10: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by body region injured and age group

Most frequent Principal Diagnoses

In the sections above, diagnosis codes in the NHMD data have been grouped to show patterns of nature of injury and body region injured. This section shows the most frequently occurring Principal Diagnosis codes for hospitalised injury while working for income.

Table 2.9 shows the ten detailed diagnosis codes occurring most frequently among these cases. Between them, these ten diagnoses accounted for 25% of all cases of hospitalised injury while working for income. Open wound of finger without damage to nail (S610) (n=2,416, 4.7%) was the most common diagnosis for Hospitalised injury while working for income. Eight of the top ten diagnoses involved the wrist and hand (Table 2.9).

Table 2.10 shows similar data, considering diagnosis codes at a slightly less specific level (i.e. the first three characters of ICD-10-AM codes). The most frequent three-character Principal Diagnosis codes accounted for over half of all hospitalised injury while working for income. Open wound of wrist and hand (S61) was the most common diagnosis grouping (n=4,599, 8.9%), followed by fracture at wrist and hand level (S62) and injury of muscle and tendon at wrist and hand level (S66) (Table 2.10).

Table 2.9: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: numbers and proportions of the ten most frequent Principal Diagnoses (at most detailed level), by sex

Principal diagnosis (code)	Males (%)	Females (%)	Persons (%)
Open wound of finger without damage to nail (S610)	2,150 (4.9)	266 (3.3)	2,416 (4.7)
Care involving use of other rehabilitation procedures (Z508)	1,315 (3.0)	416 (5.2)	1,731 (3.3)
Traumatic amputation of other single finger (not thumb) (S681)	1,542 (3.5)	122 (1.5)	1,664 (3.2)
Fracture of distal phalanx of other finger (not thumb) (S6263)	1,327 (3.0)	95 (1.2)	1,422 (2.7)
Injury of extensor muscles & tendon of other finger (not thumb) at wrist & hand level (S663)	1,071 (2.4)	68 (0.9)	1,139 (2.2)
Open wound of finger(s) or thumb with damage to nail (S611)	1,022 (2.3)	96 (1.2)	1,118 (2.2)
Tear of meniscus, current (S832)	870 (2.0)	182 (2.3)	1,052 (2.0)
Open wound of other parts of wrist & hand including palm (S6188)	610 (1.4)	59 (0.7)	669 (1.3)
Injury of digital nerve of other finger (not thumb) (S644)	547 (1.2)	96 (1.2)	643 (1.2)
Injury of tendon of rotator cuff of shoulder (S460)	496 (1.1)	131 (1.6)	627 (1.2)
Other principal diagnosis	32,871 (75.0)	6,425 (80.6)	39,296 (75.9)
Total	**43,821 (100.0)**	**7,956 (100.0)**	**51,777 (100.0)**

Table 2.10: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: numbers and proportions of the ten most frequent Principal Diagnoses (at 3-character code level), by sex

Principal diagnosis group (code)	Males (%)	Females (%)	Persons (%)
Open wound of wrist & hand (S61)	4,154 (9.5)	445 (5.6)	4,599 (8.9)
Fracture at wrist & hand level (S62)	3,499 (8.0)	251 (3.2)	3,750 (7.2)
Injury of muscle & tendon at wrist & hand level (S66)	2,349 (5.4)	168 (2.1)	2,517 (4.9)
Traumatic amputation of wrist & hand (S68)	2,221 (5.1)	160 (2.0)	2,381 (4.6)
Care involving use of rehabilitation procedures (Z50)	1,686 (3.8)	504 (6.3)	2,190 (4.2)
Fracture of lower leg, including ankle (S82)	1,752 (4.0)	385 (4.8)	2,137 (4.1)
Dislocation, sprain & strain of joints & ligaments of the knee(S83)	1,475 (3.4)	339 (4.3)	1,814 (3.5)
Fracture of forearm (S52)	1,374 (3.1)	431 (5.4)	1,805 (3.5)
Dorsalgia (M54)	963 (2.2)	686 (8.6)	1,649 (3.2)
Injury of nerves at wrist & hand level (S64)	1,075 (2.5)	182 (2.3)	1,257 (2.4)
Intracranial injury (S06)	961 (2.2)	208 (2.6)	1,169 (2.3)
Open wound of head (S01)	928 (2.1)	101 (1.3)	1,029 (2.0)
Fracture of foot, except ankle (S92)	888 (2.0)	62 (0.8)	950 (1.8)
Other principal diagnosis	20,496 (46.8)	4,034 (50.7)	24,530 (47.4)
Total	**4,3821 (100.0)**	**7,956 (100.0)**	**51,777 (100.0)**

The tables and figures above show that injuries to the hand and wrist accounted for about one in three cases of hospitalised injury while working for income in Australia during the two year study period. Principal diagnoses for these cases are presented in detail in Table 2.11.

There were 4,599 admissions due to open wound of wrist and hand (S61), with open wound of finger(s) without damage to nail (S610) (n=2,416) and open wound of finger(s) with damage to nail (S611) (n=1,118) being the most common diagnoses. Fracture at wrist and hand level (S62) accounted for 3,750 hospitalisations, with fracture of the distal phalanx of other finger (not thumb) (S6263) being most common (n=1,422). There were 1,257 hospitalisations due to injury of nerves at wrist and hand level (S64), with injury of digital nerve of other finger (not thumb) (S644) most common (n=643). Injury of muscle and tendon at wrist and hand level (S66) accounted for 2,517 hospitalisations, with 1,139 of these due to injury of extensor muscle and tendon of other finger (not thumb) at wrist and hand level (S663). There were 2,381 hospitalisations due to traumatic amputation of the wrist and hand (S68), with traumatic amputation of other single finger (not thumb) (S681) being the most common code (n=1,664) (Table2.11).

Table 2.11: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: numbers of wrist and hand injury cases by Principal Diagnosis and sex

Principal diagnosis (code)	Males	Females	Persons
Superficial injury of wrist & hand (S60)	279	58	337
Superficial foreign body (splinter) of wrist & hand (S6084)	*209*	*33*	*242*
Other superficial injury of wrist & hand	*70*	*25*	*95*
Open wound of wrist & hand (S61)	4,154	445	4,599
Open wound of finger(s) without damage to nail (S610)	*2,150*	*266*	*2,416*
Open wound of finger(s) with damage to nail (S611)	*1,022*	*96*	*1,118*
Open wound of other parts of wrist & hand (S6188)	*610*	*59*	*669*
Other open wound to wrist & hand	*372*	*24*	*396*
Fracture at wrist & hand level (S62)	3,499	251	3,750
Fracture of distal phalanx of other finger (not thumb) (S6263)	*1,327*	*95*	*1,422*
Fracture of proximal phalanx of other finger (not thumb) (S6261)	*421*	*33*	*454*
Fracture of middle phalanx of other finger (not thumb) (S6262)	*355*	*33*	*388*
Fracture of distal phalanx of thumb (S6252)	*299*	*13*	*312*
Fracture of proximal phalanx of thumb (S6251)	*159*	*10*	*169*
Fracture of other (excluding first) metacarpal bone(s), part unspecified (S6230)	*127*	*14*	*141*
Fracture of shaft of other (excluding first) metacarpal bone (S6232)	*133*	*7*	*140*
Fracture of phalanx of other finger (not thumb), part unspecified (S6260)	*98*	*9*	*107*
Fracture of navicular (scaphoid) bone (S620)	*83*	*5*	*88*
Fracture of base of other (excluding first) metacarpal bone(s) (S6231)	*72*	*5*	*77*
Fracture of neck of other (excluding first) metacarpal bone(s) (S6233)	*68*		
Fracture of base of first metacarpal (S6221)	*69*		
Other fracture at wrist & hand level	*288*	*21*	*309*
Dislocation, sprain & strain of joints & ligaments at wrist & hand level (S63)	302	73	375
Dislocation of interphalangeal joint of finger (S6312)	*47*	*6*	*53*
Other dislocation, sprain & strain of joints & ligaments at wrist & hand level	*255*	*67*	*322*
Injury of nerves at wrist & hand level (S64)	1,075	182	1,257

Injury of digital nerve of other finger (not thumb) (S644)	*547*	*96*	*643*
Injury of radial nerve at wrist & hand level (S642)	*164*	*24*	*188*
Injury of digital nerve of thumb (S643)	*161*	*24*	*185*
Injury of ulnar nerve at wrist & hand level (S640)	*131*	*17*	*148*
Injury of median nerve at wrist & hand level (S641)	*47*	*8*	*55*
Other injury of nerves at wrist & hand level	*25*	*13*	*38*
Injury of blood vessels at wrist & hand level (S65)	332	34	366
Injury of blood vessels of other finger (excluding thumb) (S655)	*166*	*18*	*184*
Injury of radial artery at wrist & hand level (S651)	*65*	*8*	*73*
Other injury of blood vessels at wrist & hand level	*101*	*8*	*109*
Injury of muscle & tendon at wrist & hand level (S66)	2,349	168	2,517
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	*1,071*	*68*	*1,139*
Injury of extensor muscle & tendon of thumb at wrist & hand level (S662)	*450*	*27*	*477*
Injury of flexor muscle & tendon of other finger (not thumb) at wrist & hand level (S661)	*428*	*46*	*474*
Injury of multiple extensor muscles & tendons at wrist & hand level (S667)	*91*		
Injury of long flexor muscle & tendon of thumb at wrist & hand level (S660)	*82*		
Injury of multiple flexor muscles & tendons at wrist & hand level (S666)	*60*	*7*	*67*
Other injury of muscle & tendon at wrist & hand level	*167*	*11*	*178*
Crushing injury of wrist & hand (S67)	534	56	590
Crushing injury of thumb & other fingers(s) (S670)	*461*	*38*	*499*
Crushing injury of other & unspecified parts of wrist & hand (S678)	*73*	*18*	*91*
Traumatic amputation of wrist & hand (S68)	2,221	160	2,381
Traumatic amputation of other single finger (not thumb) (S681)	*1,542*	*122*	*1,664*
Traumatic amputation of thumb (S680)	*361*	*18*	*379*
Traumatic amputation of two or more fingers alone (S682)	*304*	*19*	*323*
Traumatic amputation of hand at wrist level (S684)	*6*		
Other traumatic amputation at wrist & hand level	*8*		
Other & unspecified injuries of wrist & hand (S69)	169	44	213
Total injuries to wrist & hand	**14,914**	**1,471**	**16,385**

Where cell numbers for males or females are low, the cell number and total are not shown.

Mean length of stay in hospital

This section summarises the average duration of hospital stay for cases of injury while working for income. The duration of the period spent in hospital provides some indication of the severity of cases. Values have been calculated by dividing the total length of stay for a relevant set of records by the estimated number of cases of that type. Bed-days for inward transfer cases are included in this calculation.

The overall mean length of stay for hospitalised injury while working for income was 3.0 days. The Health services industry had the longest mean length of stay (4.7 days) and the Manufacturing industry had the shortest mean length of stay (2.4 days) (Figure 2.11).

Overall, mean length of stay was similar for males and females. However, the value for females was much smaller than that for males in the transport and storage and mining sectors. This might reflect the different occupational profiles of males and females in these industries, with consequent effect on the levels and types of exposure to hazards.

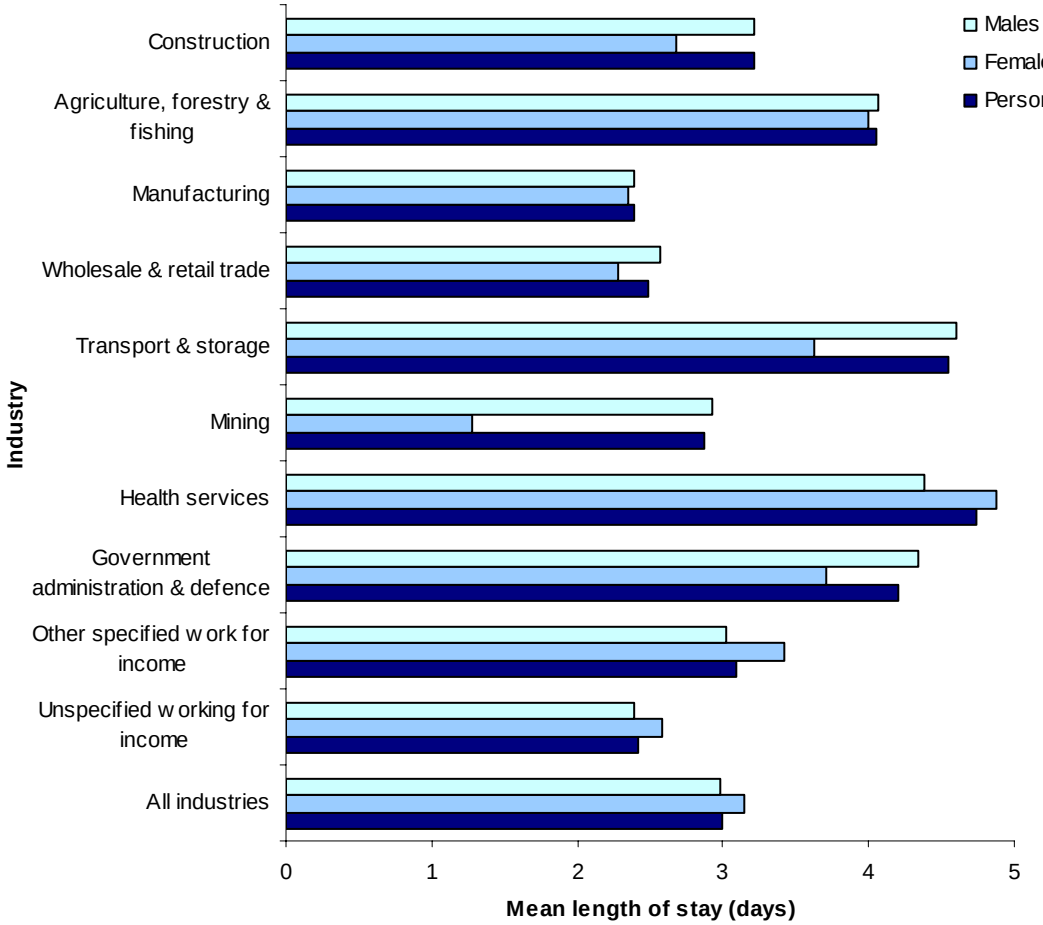


Figure 2.11: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay in hospital, by industry type and sex

Mean length of stay is shown by nature of injury in Figure 2.12. Injury of internal organs had the longest mean length of stay, with 8.2 days for males, 7.7 days for females and 8.1 days overall. For females the shortest mean length of stay was for electrical injury with 1.1 days. For males, and overall for persons, the shortest mean length of stay was for injury due to foreign bodies, for which the mean durations were 1.1 and 1.2 days, respectively (Figure 2.12).

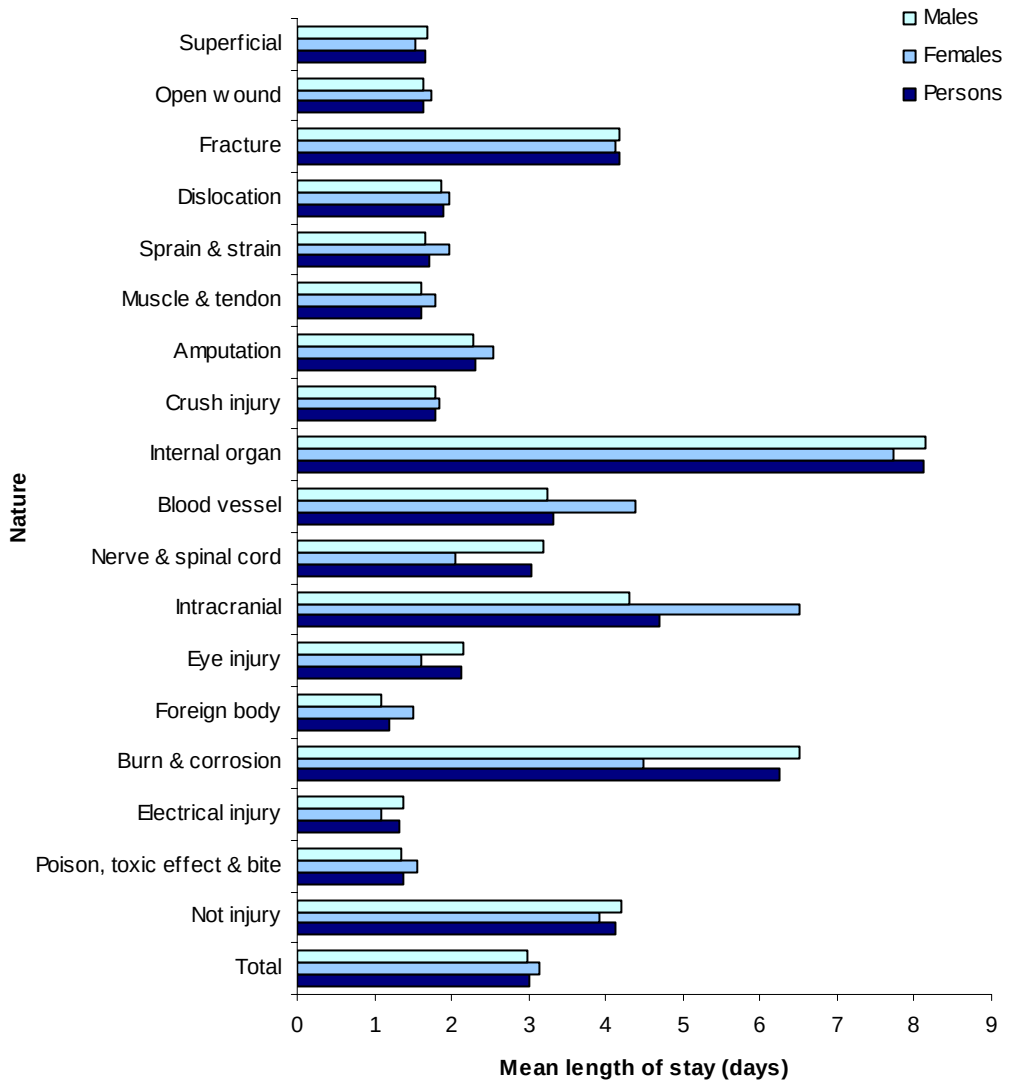


Figure 2.12: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay in hospital, by nature of injury (Principal Diagnosis) and sex

Figure 2.13 shows similar information to Figure 2.12, but with conditions grouped by the body region injured, rather than by the nature of injury.

Hospitalisations for injuries of the trunk had the longest mean length of stay for males (5.6 days - this group includes injuries to internal organs; see Figure 2.12). Hip and thigh injury related hospitalisations had the longest mean length of stay for females (6.3 days). For persons, both hip and thigh injury hospitalisations and trunk injury hospitalisations had a mean length of stay of 5.6 days. The shortest mean length of stay was for wrist and hand injury hospitalisations, which had a mean duration of 1.5 days for both males and females (Figure 2.13).

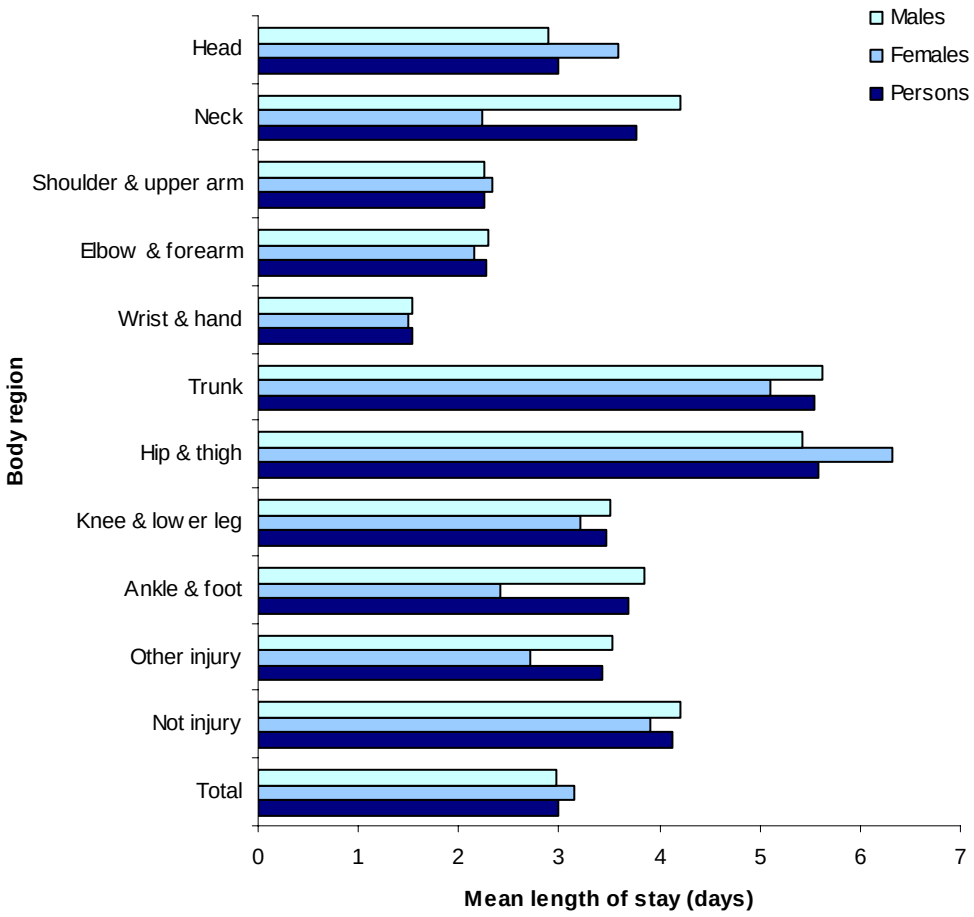


Figure 2.13: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay in hospital, by body region (Principal Diagnosis) and sex

The mean length of stay stratified by mechanism and industry group is shown in Table 2.12. The longest mean length of stay was for transport accidents in the Heath services industry (14.0 days). For All industries the longest length of stay was again for transport accidents (5.9 days - Table 2.12). Case numbers for the types of cases summarised in Table 2.12 are shown in Table 2.13.

Table 2.12: Hospitalised injury while working, Australia 2002–03 and 2003–04: mean length of stay (days) by industry group and mechanism

	Exposure to inanimate mechanical forces	Falls	Transport accidents	Overexertion, travel & privation	Contact with animals & plants	Accidental poisoning by & exposure to noxious substances	Exposure to electric current, radiation & extreme air temperature & pressure; smoke, fire & flames; Contact with heat & hot substances	Intentional self harm & assault	Other mechanism	Total
Construction	2.2	5.0	8.8	2.4	1.5	2.6	4.6	2.5	2.3	3.2
Agriculture, forestry & fishing	3.7	5.3	5.0	2.7	3.4	2.2	6.1	1.8	3.3	4.1
Manufacturing	2.2	4.0	7.0	1.8	1.4	2.0	3.7	2.1	1.7	2.4
Wholesale & retail trade	1.7	3.5	6.3	2.1	1.9	1.9	4.1	2.8	3.1	2.5
Transport & storage	3.0	4.4	6.5	2.0	1.9	3.0	4.6	2.5	3.8	4.5
Mining	3.0	2.6	4.2	1.7	1.3	2.0	2.2	2.3	2.7	2.9
Health services	2.3	5.5	14.0	2.0	2.6	3.7	1.6	3.9	7.9	4.7
Government administration & defence	2.0	5.2	6.8	2.0	1.6	3.1	2.9	2.9	4.5	4.2
Other specified work for income	2.3	4.2	6.6	2.1	2.8	2.7	3.5	2.2	2.2	3.1
Unspecified working for income	2.1	3.5	4.9	1.9	2.2	2.5	3.1	2.0	1.7	2.4
All industries	2.3	4.1	5.9	2.0	2.8	2.5	3.7	2.5	2.3	3.0

Table 2.13: Hospitalised injury while working, Australia 2002–03 and 2003–04: case numbers by industry group and mechanism

	Exposure to inanimate mechanical forces	Falls	Transport accidents	Overexertion, travel & privation	Contact with animals & plants	Accidental poisoning by & exposure to noxious substances	Exposure to electric current, radiation & extreme air temperature & pressure; smoke, fire & flames; Contact with heat & hot substances	Intentional self harm & assault	Other mechanism	Total
Construction	3,192	1,502	159	184	33	50	105	10	294	5,529
Agriculture, forestry & fishing	2,066	460	1,108	175	725	104	143	9	267	5,057
Manufacturing	3,026	352	76	200	14	93	145	11	282	4,199
Wholesale & retail trade	1,887	588	160	297	53	53	129	119	255	3,541
Transport & storage	701	313	1,010	160	35	42	63	87	168	2,579
Mining	627	139	174	78	18	71	97	3	147	1,354
Health services	207	312	69	266	91	33	46	70	252	1,346
Government administration & defence	98	157	133	70	38	9	20	42	146	713
Other specified work for income	4,477	1,904	910	627	378	241	500	380	762	10,179
Unspecified working for income	6,644	2,754	1,199	1,297	243	224	361	173	4,385	17,280
All industries	22,925	8,481	4,998	3,354	1,628	920	1,609	904	6,958	51,777

Procedures

The NHMD includes coded information on the procedures performed during episodes of care in hospitals. Available procedure codes are listed in the ICD–10–AM (NCCH 2002b).

Table 2.14 shows the ten codes that were reported most frequently as the first procedure for cases of hospitalised injury while working for income in Australia, 2002–03 and 2003–04. The top ten principal procedures accounted for about 28% of cases.

Physiotherapy was the most common principal procedure recorded (n=3,206, 6.2%). Most of the procedures performed most frequently involved the skin and musculoskeletal systems (Table 2.14).

Table 2.14: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: most frequently recorded Principal Procedures, by sex

Principal procedure (code)	Males	Females	Persons
Physiotherapy (9555003)	2,466	740	3,206
Excisional debridement of deep soft tissue including muscle, tendon, fascial ligaments or nerves (3002300)	2,158	162	2,320
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), superficial (3002600)	1,550	140	1,690
Primary repair of extensor tendon of hand (4642000)	1,465	82	1,547
Primary repair of nerve (3930000)	809	119	928
CT brain without intravenous contrast (5600100)	732	182	914
Primary repair of nail or nail bed (4648600)	763	75	838
Excisional debridement of skin & subcutaneous tissue (9066500)	758	69	827
Arthroscopic meniscectomy of knee with debridement, osteoplasty or chondroplasty (4956101)	641	147	788
Injection into vertebral facet joint (3901300)	372	340	712
Removal of foreign body from skin & subcutaneous tissue with incision (3006400)	514	48	562
Other principal procedure	31,593	5,852	37,445
Total	**4,3821**	**7,956**	**51,777**

Deaths

The NHMD records all hospital admissions. A small minority of these episodes end with the death of the person admitted. For the two year study period, of the 51,777 persons hospitalised due to injury while working for income, 99 were recorded as dying while in hospital.

Most work-related fatalities occur immediately after injury, or too soon afterwards for admission to hospital to occur. These are not included in this number. Nor are any deaths that might have occurred after discharge from hospital.

During the study period, 15 deaths occurred in hospital among people admitted due to injury while working for income in the Construction industry (all male), 12 deaths in the

Agriculture, forestry and fishing industry (all male), 10 deaths in the Transport and storage industry (all male) and six deaths in the Wholesale and retail trade industry. Smaller numbers of deaths in hospital were recorded for each of the other industry groups, and there were 24 among cases assigned the Other specified work for income category and 20 deaths among the cases with the code Unspecified work for income.

A recent ASCC study of work-related injury fatalities found that 226 deaths occurred whilst working for income between 1 July 2003 and 30 June 2004 (ASCC 2006a). Note that the 99 deaths in hospital due to injury while working for income occurred in a two year period, in contrast to the one year period of the ASCC report. Considering these two sources together suggests that about 22% of deaths due to injury while working for income in the study period occurred in hospital. This estimate is unlikely to be exactly correct, because ascertainment of work-relatedness in the data sources is probably incomplete, and because differences are sometimes found between the information in hospital separation records and in death records for people who die in hospital.

Summary

The NHMD recorded an estimated number of 51,777 hospitalisations due to injury while working for income in the 2 year period ending 30 June 2004. Most cases involved males (84.6%) and cases were most numerous at ages 25-35 (n=12,561). 58.5% of persons hospitalised resided in major cities.

Case numbers were largest in the Construction, Agriculture, forestry and fishing, Manufacturing and Wholesale and retail trade industry sectors. Rates of cases per 100,000 persons in the labour force per year were highest in the Mining, Agriculture, forestry and fishing, Construction and Transport and storage sectors, as were rates per million hours worked.

Exposure to inanimate mechanical forces accounted for 44.3% of hospitalisations, with 3,008 due to being caught, crushed, jammed or pinched in or between objects; 2,769 due to being struck by a thrown, projected or falling object; and 2,744 due to contact with other and unspecified machinery.

Nearly one-third of cases (31.6%) were for treatment of wrist and hand injury. Open wound of the finger without damage to the nail was the most common diagnosis (4.7%) and open wound of the wrist and hand was the most common diagnosis grouping (8.9%). Fractures accounted for 23.3% of hospitalisations and 15.1% were for open wounds.

3 Construction

This chapter includes the cases of Hospitalised injury while working for income that were further specified as occurring in the Construction industry (ICD–10–AM code U73.03). Summary measures for this set of cases are shown in Table 3.1.

Table 3.1: Hospitalised injury while working for income in the Construction industry, Australia 2002–03 and 2003–04: summary measures

Indicator	
Cases	5,529
Estimated number of workers ('000) * **	747.5
Hospitalisation rate per 100,000 workers per year * **	369.8
Hospitalisation rate per million hours worked * **	1.9

* Workers and working hours refer to the total employed labour force in the study period (ABS 2006a).

** Only includes persons 15 + years.

Background

There are approximately 750,000 workers in the Construction industry in Australia (ABS 2006b).

Workers in the Construction industry face a wide range of important physical hazards, with the changing layout and phases of many construction sites presenting significant challenges to the control of these hazards. Important hazards include working at height; uneven or cluttered flooring; mobile machinery; electricity; and work with sharp edged tools and power tools.

The rate of fatal injury (10.4 per 100,000 per year) and the rate of non-fatal compensable injury (23.1 per 1,000 per year) have been reported to be about twice the respective all-industry rates (fatal injury: 5.5 per 100,000 per year; non-fatal injury: 12.7 per 1,000 per year) (Driscoll et al 2001; Mitchell et al 2003; ASCC 2006b). A more recent estimate of the fatality rate, for 2003-04, is 6.7 deaths per 100,000 persons per year, nearly twice the all-industries rate for the same period, which was 3.5 per 100,000 persons per year (ASCC 2006a).

The most common incident mechanisms resulting in fatal injury of Construction industry workers in Australia are falls from a height, being hit by moving objects and being hit by falling objects (Mitchell et al 2003).

Mechanisms commonly involved in compensable non-fatal injury of Construction workers in Australia are falls on the same level and falls from a height; muscular stress while lifting, carrying or handling objects; and being hit by moving or falling objects (ASCC 2006b). An Australian study of injury in trade apprentices found that cuts to the fingers or hand while using a sharp-edged tool was a common occurrence in Construction trade apprentices (Driscoll & Hanson 1997). Eye injuries are also common, although usually minor (McCarty et al 1999).

Age and sex

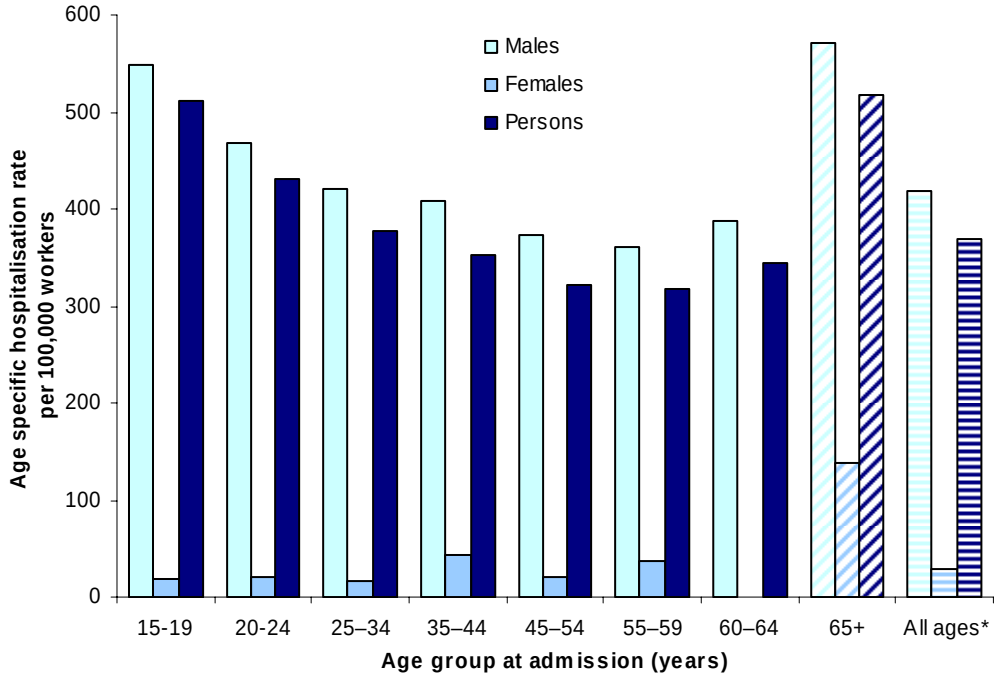
Table 3.2: Hospitalised injury while working for income in the Construction industry, Australia 2002–03 and 2003–04: case numbers by age group and sex

Age group at admission (years)	Males	Females	Persons
0–14			
15-19	405		
20-24	740		
25–34	1,460	7	1,467
35–44	1,326	25	1,351
45–54	978	9	987
55–59	309	5	314
60–64	171	0	171
65+	86		
All ages	**5,476**	**53**	**5,529**

Where cell numbers for males or females were low, those cell numbers and the total are not shown.

There were 5,529 hospitalisations due to injury while working for income in the Construction industry during the 2-year study period. Most of these injured workers were males (99.0%). The largest number of hospitalisations was in the 25–34 year age group (n=1,467), with nearly as many in the age group 35-44 years (Table 3.2).

For each age group 15 years and over, females had a lower age specific hospitalisation rate than males (Figure 3.1). Crude rates of cases at all ages older than 15 years were 417.5 hospitalisations per 100,000 workers per year for males, 28.9 for females and 370.0 for persons. In the oldest group (65 years and over) there were relatively small numbers of cases and the size of the labour force estimated in the LFS is small, given the size of the survey. This is especially so for females (e.g. an estimate of 1,100 female workers in the 65 years and over age group (ABS 2006a)). Because of this, estimated rates for this age group must be regarded as more uncertain than those for younger ages.

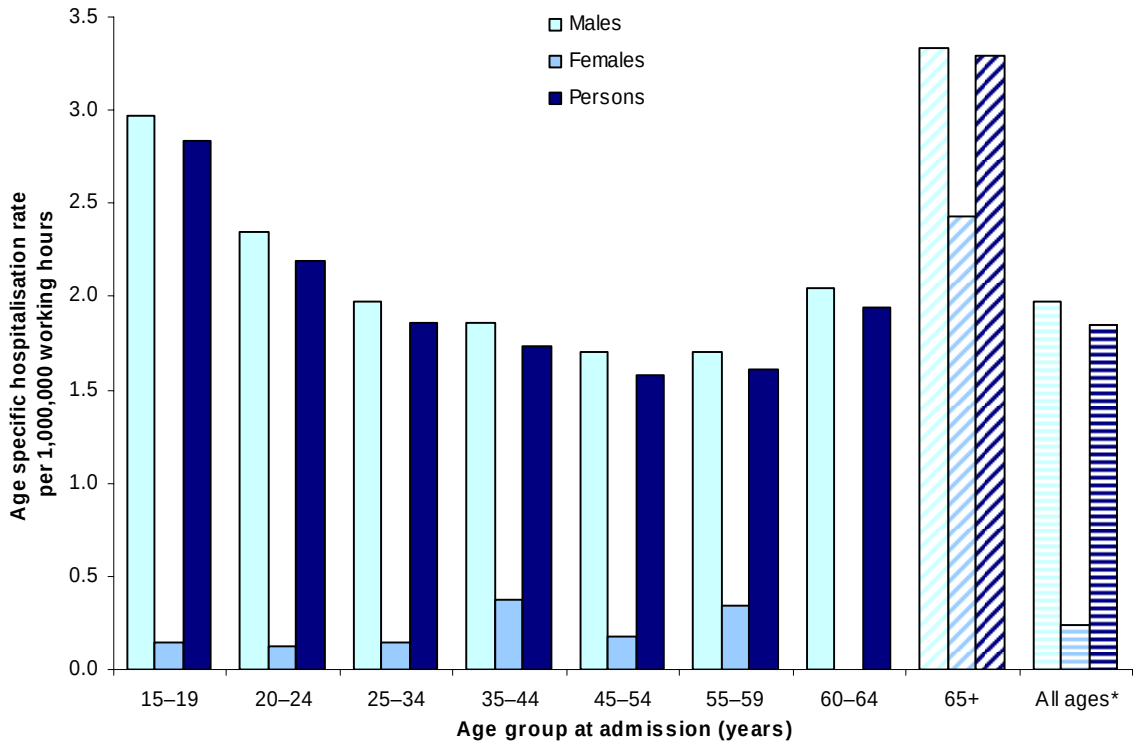


*Only includes persons 15 + years.

Figure 3.1: Hospitalised injury while working for income in the Construction industry, Australia 2002–03 and 2003–04: average annual rate per 100,000 in the employed labour force, by age group and sex

The age specific hospitalisation rate per million hours worked in the Construction industry was higher for males than for females. The all ages rate (15 years and over) was 2.0 hospitalisations per million hours worked for males, 0.2 hospitalisations per million hours worked for females and 1.9 hospitalisations per million hours worked overall. The rate for males and persons was higher at the extremes of age. For females, the estimated rate was much higher in 65 years and over age group than in other age groups (Figure 3.2). However, as stated above, this value is uncertain due to uncertainty of the relevant estimate in the LFS.

Rates based on numbers of workers and on hours worked both show a decline in rates with age of male workers to ages 55-59 years, after which rates appear to rise.



* Only includes persons 15 + years.

Figure 3.2: Hospitalised injury while working for income in the Construction industry, Australia 2002–03 and 2003–04: rate per million hours worked by the employed labour force, by age group and sex

Remoteness of residence

Figure 3.3 shows proportions of cases of hospitalised injury while working for income in the Construction industry according to the remoteness of the usual residence of the injured person, by sex. Values for cases in the Construction industry are contrasted with values for all cases of hospitalised injury while working for income in the study period (i.e. 'All industries).

In the Construction industry, 66.2% (n=3,660) of cases involved people who usually lived in major cities, compared with 58.5% among cases overall. A very small proportion of Construction industry cases involved usual residents of remote and very remote areas (Figure 3.3).

When exposure to inanimate mechanical forces is reviewed in more detail for cases in the Construction industry, contact with other powered hand tools and household machinery is the most common single mechanism (n=613), followed by struck by thrown, projected or falling object (Table 3.3).

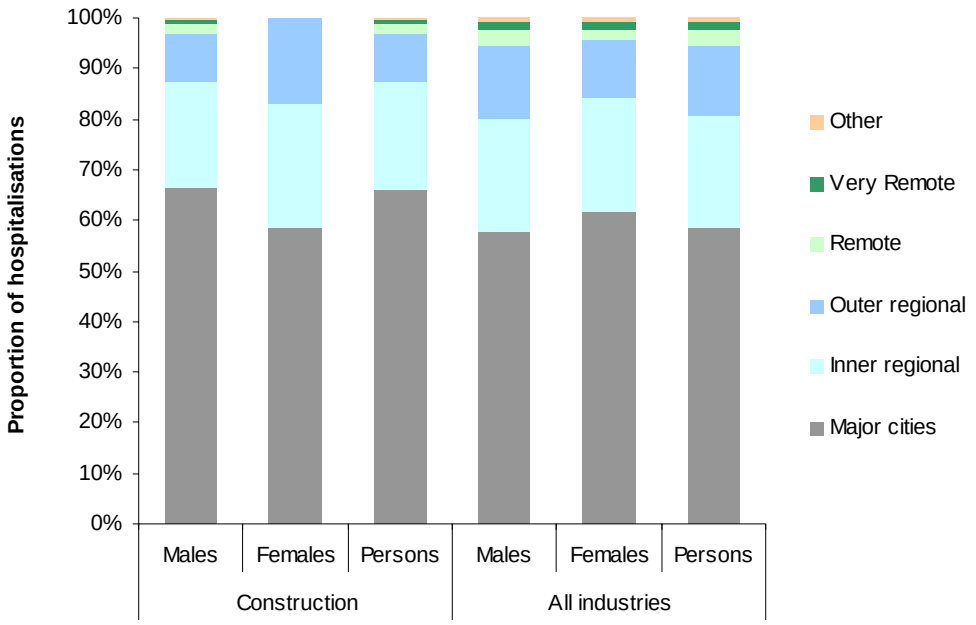


Figure 3.3: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by remoteness zone of usual residence, Construction industry and all industries, by sex

Mechanism of injury

Exposure to inanimate mechanical forces was the most common mechanism in persons hospitalised due to injury while working for income in the Construction industry (n=3192, 57.7%), followed by falls (n=1,502) (Figure 3.4). While these mechanisms were also the most common in cases of hospitalised injury while working for income overall, they accounted for a substantially higher proportion of cases in the Construction industry.

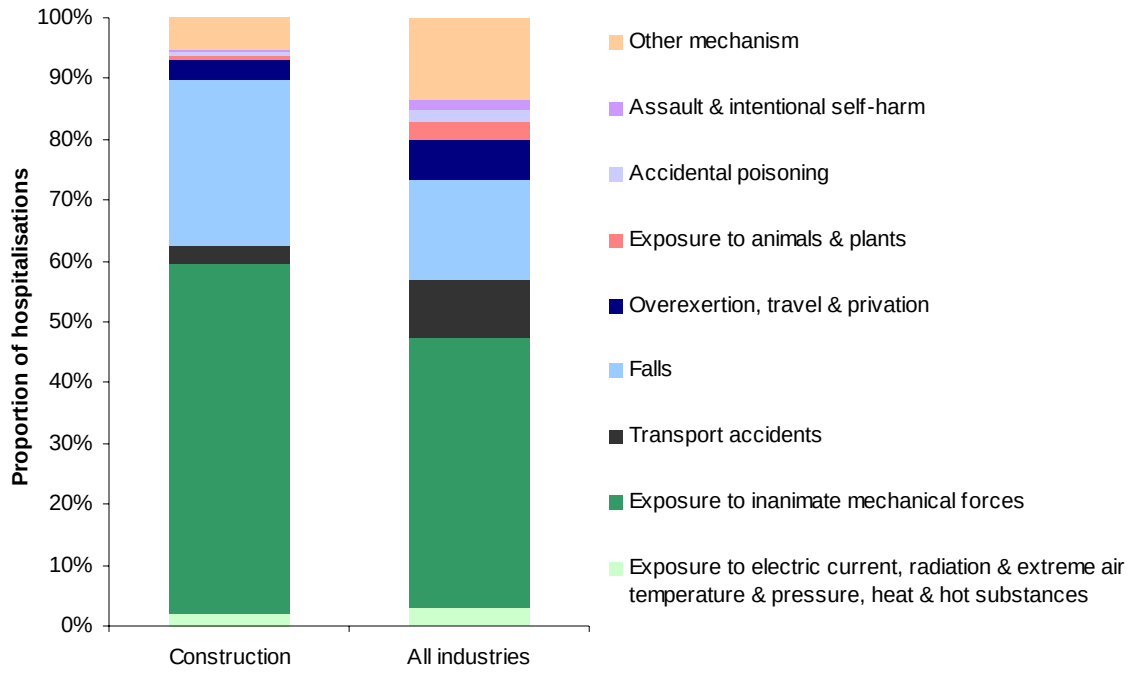


Figure 3.4: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by mechanism, Construction industry and all industries

Table 3.3: Hospitalised injury while working for income in the Construction industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was exposure to inanimate mechanical forces, by specific mechanism and sex

Mechanism	Males	Females	Persons
Contact with other powered hand tools & household machinery	608	5	613
Struck by thrown, projected or falling object	468		
Foreign body or object entering through skin	443	0	443
Caught, crushed, jammed or pinched in or between objects	331		
Contact with woodworking & forming machinery	320		
Contact with other & unspecified machinery	179	5	184
Striking against or struck by other objects	173	5	178
Contact with non-powered hand tool	101	0	101
Contact with sharp glass	85	0	85
Foreign body entering into or through eye or natural orifice	72	0	72
Contact with lifting & transmission devices, not elsewhere classified	63	0	63
Contact with knife, sword or dagger	63	0	63
Contact with metalworking machinery	59	0	59
Contact with earthmoving, scraping & other excavating machinery	52	0	52
Explosion of pressurised devices & other materials	16	0	16
Contact with mining & earth drilling machinery	14	0	14
Exposure to other & unspecified inanimate mechanical forces	124		
Total for exposure to inanimate mechanical forces	**3,171**	**21**	**3,192**

Where a cell number for females was low, that cell number and the total are not shown.

The most common type of fall was from, out of or through a building or structure (n=458), followed by falls on and from a ladder (n=339) (Table 3.4).

Table 3.4: Hospitalised injury while working for income in the Construction industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was a fall, by specific mechanism and sex

Mechanism	Males	Females	Persons
Fall from, out of or through building or structure	458		
Fall on & from ladder	339	0	339
Fall on & from scaffolding	227		
Other fall from one level to another	200		
Other fall on same level	82	0	82
Fall on same level from tripping	54		
Fall on same level from slipping	49		
Fall on and from stairs	23		
Fall on same level from stumbling	8	0	8
Other & unspecified fall	47	5	52
Total for falls	**1487**	**15**	**1502**

Where a cell number for females was low, that cell number and the total are not shown.

Place of occurrence

As expected, the most commonly reported type of place of occurrence for hospitalised injury while working for income in the Construction industry was a construction area (n=2,344, 42.4%). More than 60% of cases were recorded as occurring in the broader category of Industrial and Construction Area, and place was unspecified for most of the rest. A construction area was specified as the place of occurrence for only 17% of the small number of female cases of hospitalised injury while working for income in the Construction industry, though approximately 30% more were recorded as occurring in the broader category of Industrial and Construction Area (Figure 3.5).

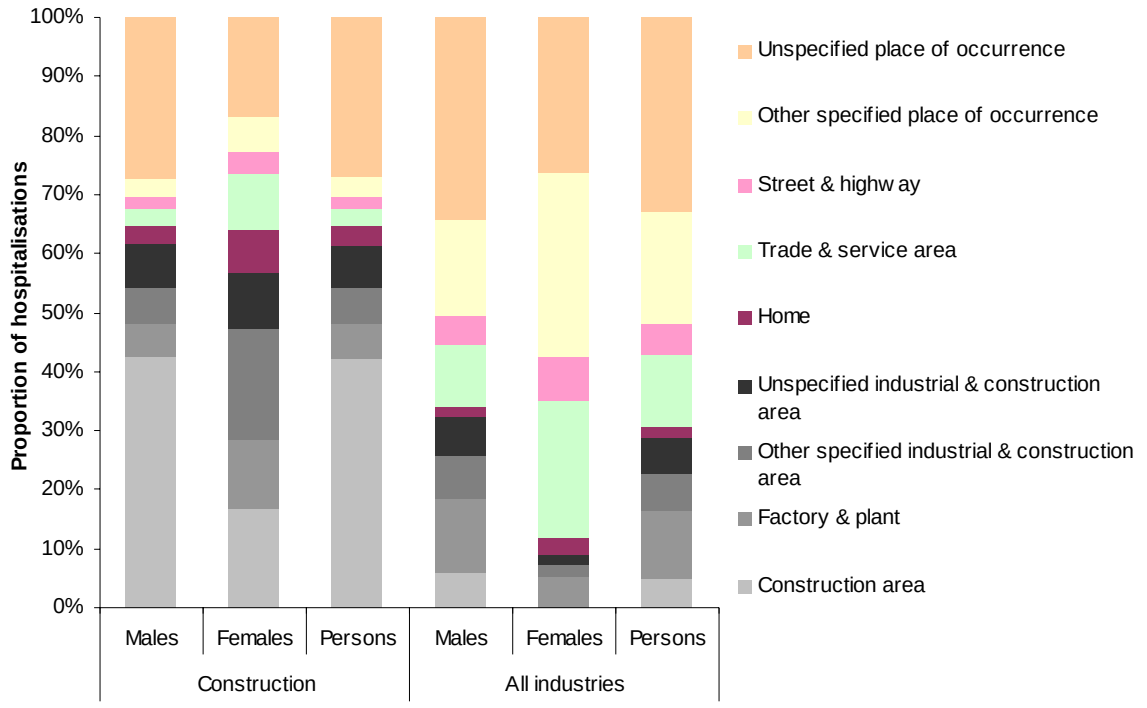


Figure 3.5: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by type of place of occurrence, Construction industry and all industries, by sex

Month of admission

Hospital admissions due to injury while working for income in the Construction industry show stronger seasonality than cases for all industries considered together (Figure 3.6). Monthly case counts were lowest in January (n=390, 7.1%), when holidays often occur. Counts tended for be lower in winter months than in autumn and spring. The largest monthly number of admissions of Construction industry cases occurred in March (n=574), accounting for 10.4% of all Construction cases. For all industries together, cases admitted in March accounted for 9.6%, of cases throughout the year.

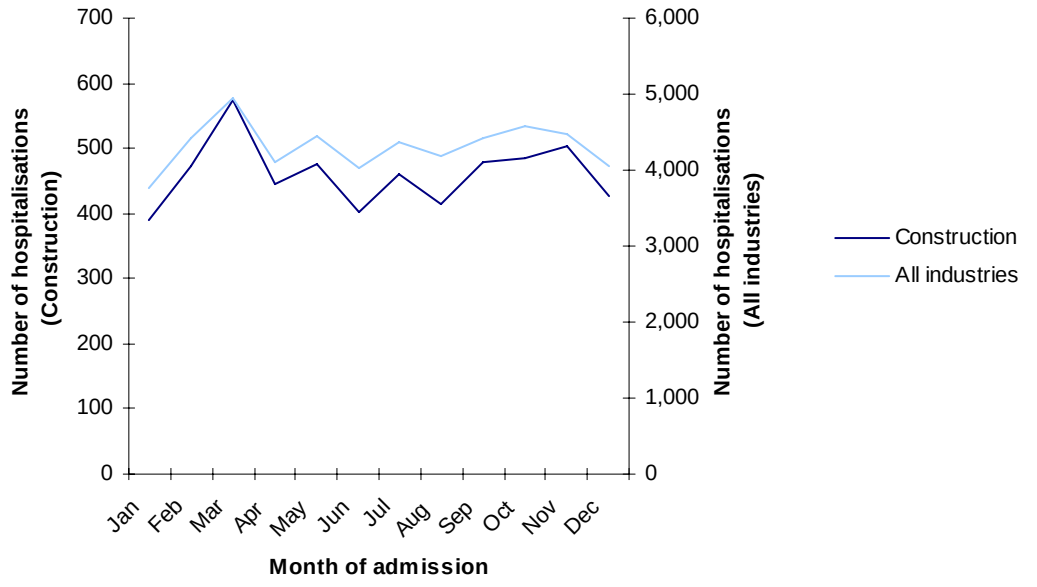


Figure 3.6: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by month of admission to hospital, Construction industry and all industries

Day of admission

Hospital admissions due to injury while working for income in the Construction industry show stronger variation by weekday of admission than do cases for all industries considered together (Figure 3.7). The proportion of Construction industry admissions on Sundays was lower than for all industries taken together, and the proportion on weekdays was higher.

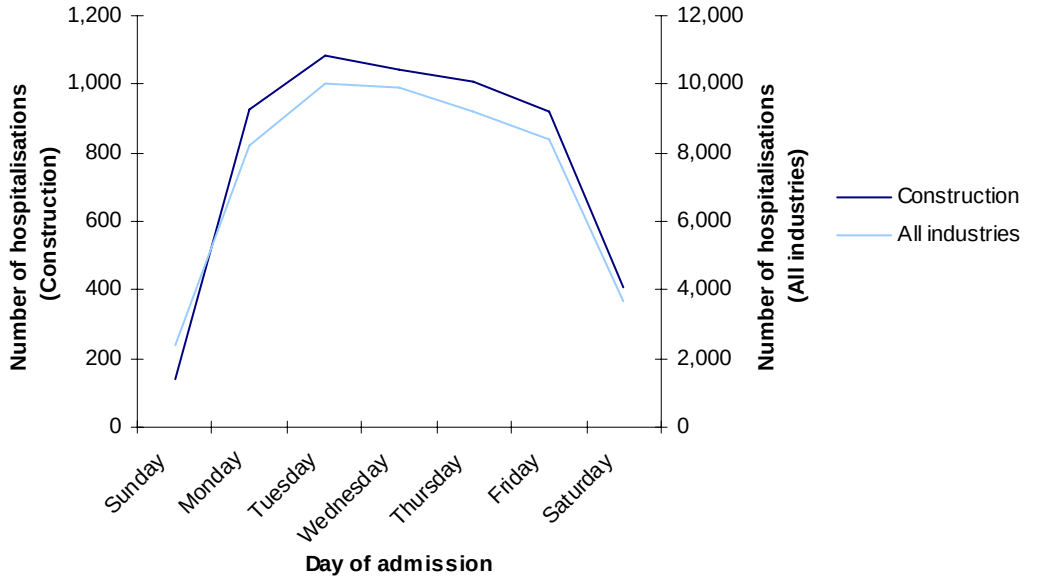


Figure 3.7: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by weekday of admission to hospital, Construction industry and all industries

Nature of injury (Principal Diagnosis)

Fractures were the most common principal diagnosis for hospitalised injury while working for income in the Construction industry (n=1,575, 28.5%), followed by open wounds (n=1,044, 18.9%) (Table 3.5). These types of Principal Diagnosis were more prominent for cases in the Construction industry than among all injury while working for income combined, where they accounted for 23.3% and 15.1% of cases (Figure 3.8).

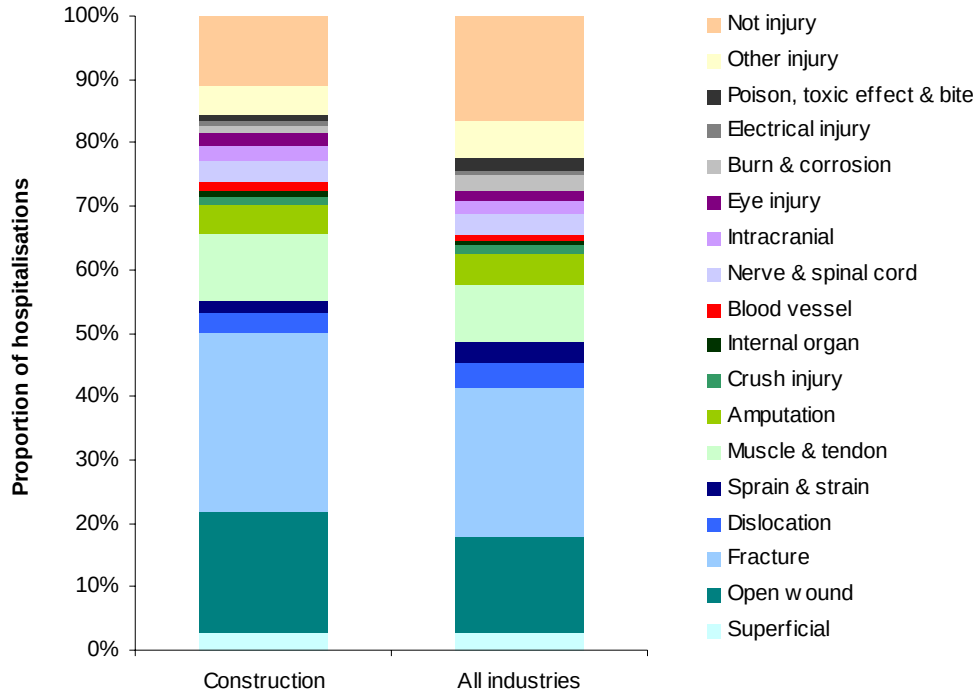


Figure 3.8: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by nature of injury (Principal Diagnosis), Construction industry and all industries

While much less numerous than fractures and open wounds, intracranial, nerve and spinal cord, internal organ and blood vessel injuries can be serious and are likely to require more time off work (Table 3.5).

Table 3.5: Hospitalised injury while working for income in the Construction industry, Australia 2002–03 and 2003–04: numbers and proportions of cases by nature of injury (Principal Diagnosis) and sex

Nature	Males (%)	Females (%)	Persons (%)
Superficial	151 (2.8)	3 (5.7)	154 (2.8)
Open wound	1,036 (18.9)	8 (15.1)	1,044 (18.9)
Fracture	1,564 (28.6)	11 (20.8)	1,575 (28.5)
Dislocation	165 (3.0)	5 (9.4)	170 (3.1)
Sprain & strain	101 (1.8)		
Muscle & tendon	581 (10.6)		
Amputation	264 (4.8)		

Crush injury	63 (1.2)		
Internal organ	53 (1.0)	0 (0.0)	53 (1.0)
Blood vessel	66 (1.2)	0 (0.0)	66 (1.2)
Nerve & spinal cord	194 (3.5)	0 (0.0)	194 (3.5)
Intracranial	120 (2.2)		
Eye injury	119 (2.2)	0 (0.0)	119 (2.2)
Burn & corrosion	60 (1.1)	0 (0.0)	60 (1.1)
Electrical injury	47 (0.9)		
Poison, toxic effect & bite	45 (0.8)		
Other injury	243 (4.4)		
Not injury	604 (11.0)	14 (26.4)	618 (11.2)
Total	5,476 (100.0)	53 (100.0)	5,529 (100.0)

Where a cell number for females was low, that cell number and the total are not shown.

The mean length of stay for hospitalised injury while working for income in the Construction industry was 3.2 days, slightly longer than the all-industries mean (3.0 days). As would be expected, length of stay varied with the type of injury. The longest mean length of stay for Construction industry related hospitalisations was for internal organ related hospitalisations with 9.7 days followed by burn and corrosion related hospitalisations with 9.0 days (Figure 3.9). For most nature of injury groups, the mean length of stay for cases in the Construction industry was similar to that for all industries (Figure 3.9).

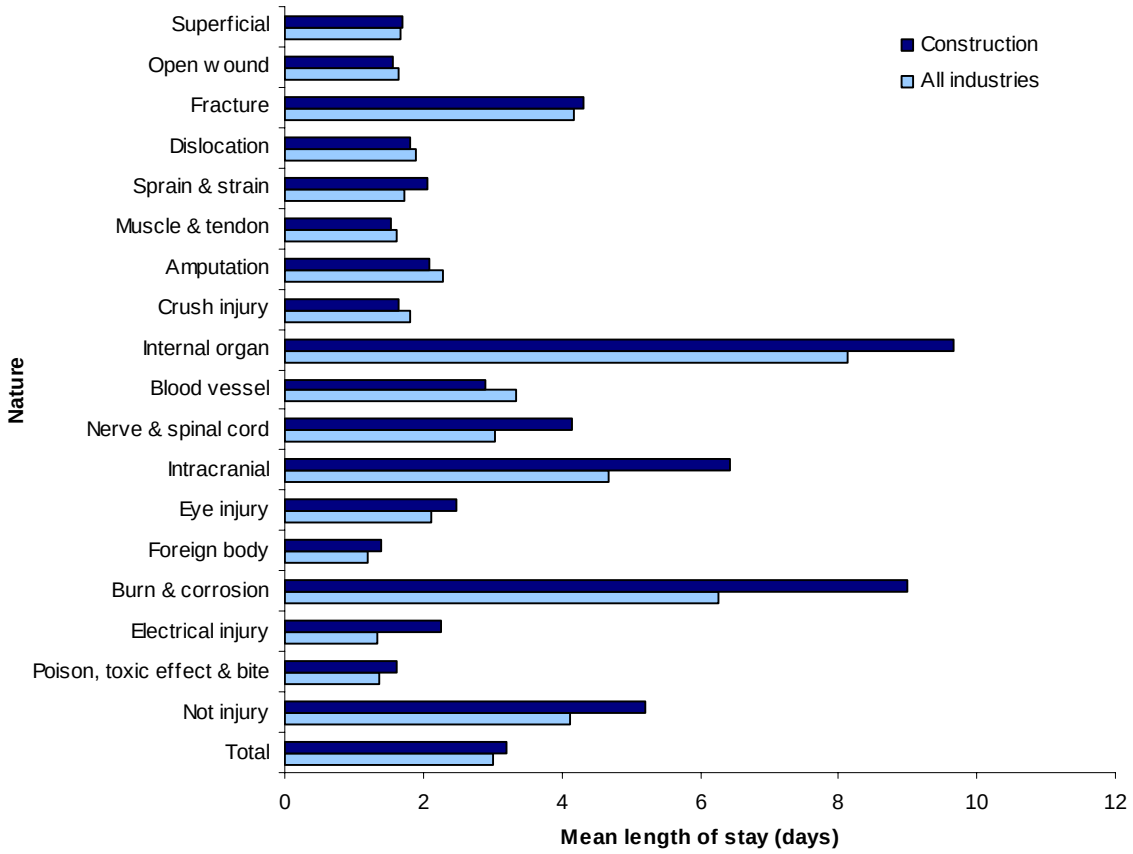


Figure 3.9 Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by nature of injury (Principal Diagnosis), Construction industry and all industries

Body region injured (Principal Diagnosis)

Wrist and hand was the body region affected most often by hospitalised injury sustained while working for income in the Construction industry (n=1,987, 35.9%), compared with 31.6% for all cases combined. Injuries of the knee and lower leg accounted for 10.6% of cases in the Construction industry (n=588; Figure 3.10).

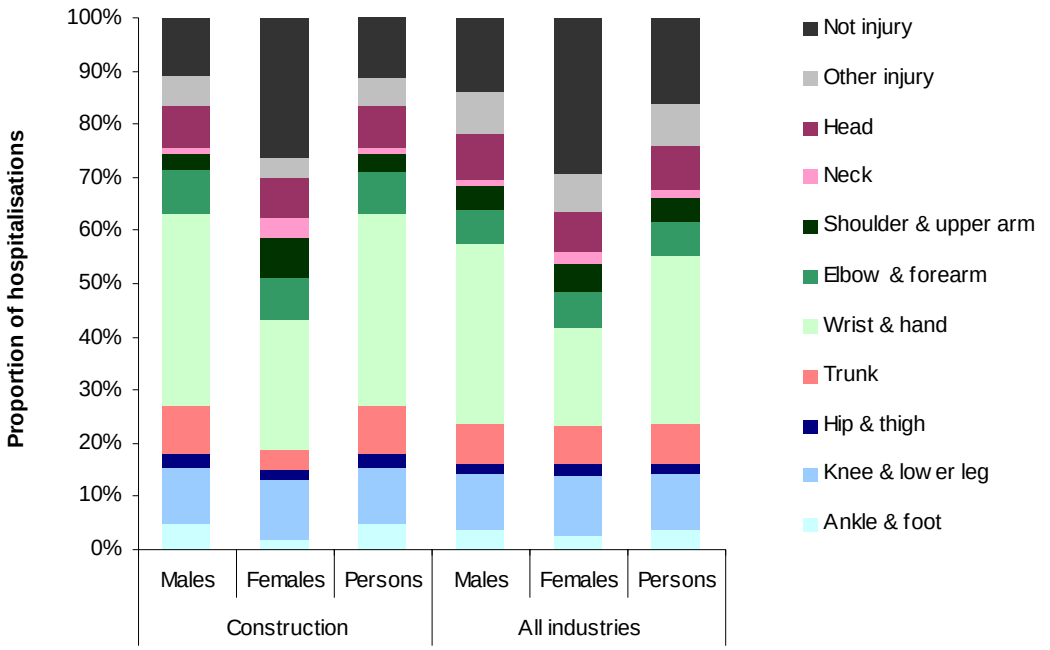


Figure 3.10: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by body region injured, Construction industry and all industries, by sex

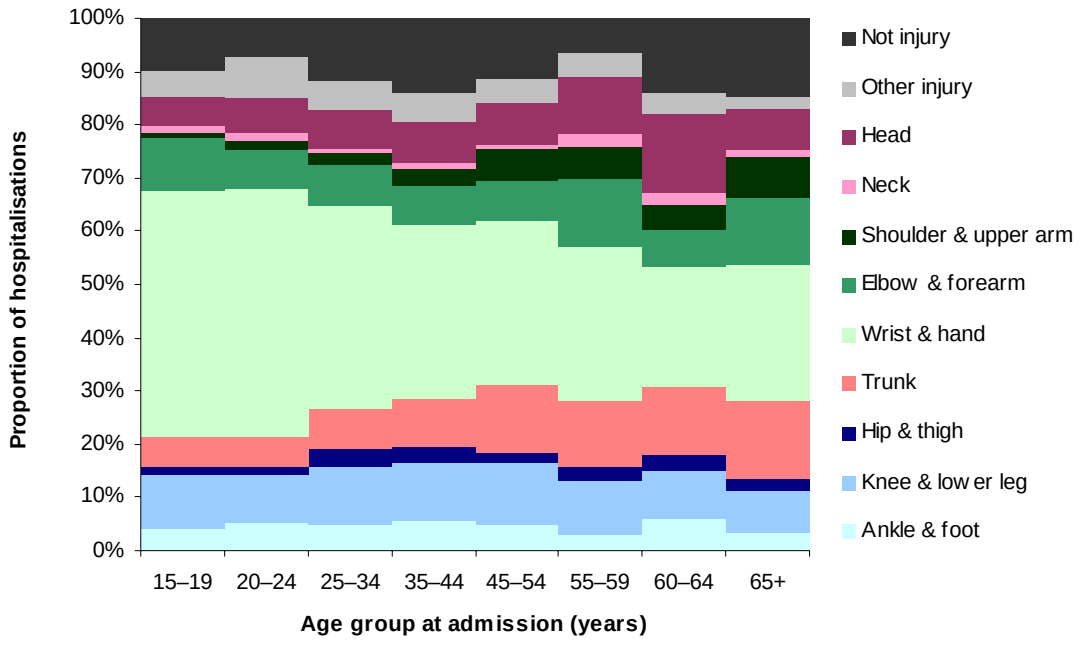


Figure 3.11: Hospitalised injury while working for income in the Construction industry, Australia 2002–03 and 2003–04: proportions of cases by body region injured and age group

Wrist and hand injury related hospitalisations were most common, as a proportion of all hospitalisations for the age group, in the 15–19 and 20-24 year age groups (n=534, 46.5% for the two groups combined) and lowest in the 60–64 year age group (n=38, 22.2%). Trunk injuries became more common, as a proportion of all hospitalisations for the age group, with increasing age, comprising only 5.5% of hospitalisations in the 15–19 year age

group but 14.6% of hospitalisations in the 65 years and over age group. Proportions are not shown for the 0–14 year age group, due to small numbers (Figure 3.11).

The mean length of stay for Construction industry related hospitalisations was 3.2 days. The longest mean length of stay was for trunk injury and neck injury related hospitalisations with 6.6 and 6.5 days, respectively (Figure 3.12).

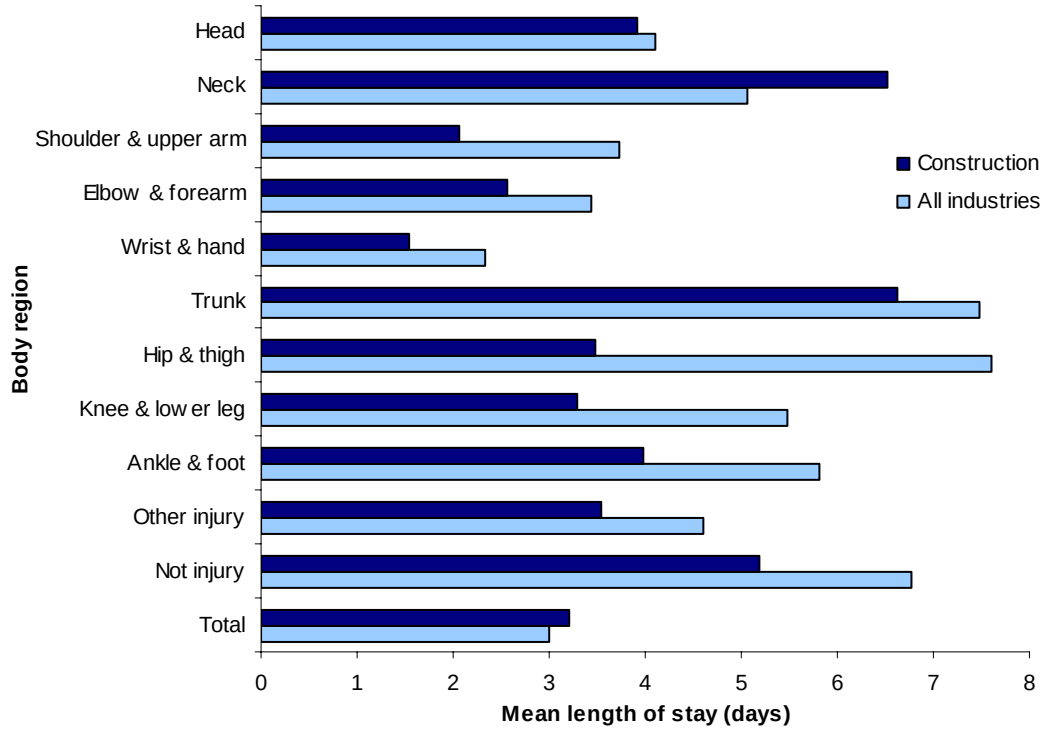


Figure 3.12: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by body region injured (Principal Diagnosis), Construction industry and all industries

Most frequent Principal Diagnoses

Care involving use of other rehabilitation procedures (Z508) and open wound of finger without damage to nail (S610) were the two most common single diagnoses in Construction industry related hospitalisations. Seven of the top ten diagnoses involved the hand and wrist. The ten diagnoses shown in Table 3.6 account for 28.3% of all Construction industry hospitalisations.

Table 3.6: Hospitalised injury while working for income in the Construction industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at most detailed level), by sex

Principal diagnosis (code)	Males (%)	Females (%)	Persons (%)
Care involving use of other rehabilitation procedures (Z508)	312 (5.7)	9 (17.0)	321 (5.8)
Open wound of finger without damage to nail (S610)	270 (4.9)		
Injury of extensor muscles & tendons of other finger (not thumb) at wrist & hand level (S663)	171 (3.1)	0 (0.0)	171 (3.1)
Fracture of distal phalanx of other finger (not thumb) (S6263)	159 (2.9)		
Traumatic amputation of other single finger (not thumb) (S681)	159 (2.9)		
Open wound of other parts of wrist & hand including palm (S6188)	126 (2.3)	0 (0.0)	126 (2.3)
Open wound of finger(s) or thumb with damage to nail (S611)	118 (2.2)		
Injury of extensor muscles & tendons of thumb at wrist & hand level (S662)	87 (1.6)	0 (0.0)	87 (1.6)
Open wound of other parts of lower leg (S8188)	72 (1.3)	0 (0.0)	72 (1.3)
Tear of meniscus, current (S832)	69 (1.3)		
Other principal diagnosis	3,933 (71.8)	33 (62.3)	3,966 (71.7)
Total	**5,476 (100.0)**	**53 (100.0)**	**5,529 (100.0)**

Where a cell number for females was low, that cell number and the total are not shown.

Open wound of wrist and hand (S61) and fracture at wrist and hand level (S62) were the two most common diagnoses groupings for Construction industry hospitalisations and these two types alone account for 18.3% of male and 20.7% of female Construction industry hospitalisations. The eleven diagnoses groupings listed in Table 3.7 account for 56.2% of all Construction industry related hospitalisations (Table 3.7).

Table 3.7: Hospitalised injury while working for income in the Construction industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at 3-character code level), by sex

Principal diagnosis group (code)	Males (%)	Females (%)	Persons (%)
Open wound of wrist & hand (S61)	565 (10.3)	6 (11.3)	571 (10.3)
Fracture at wrist & hand level (S62)	440 (8.0)	5 (9.4)	445 (8.0)
Injury of muscle & tendon at wrist & hand level (S66)	379 (6.9)	0 (0.0)	379 (6.9)
Care involving use of rehabilitation procedures (Z50)	342 (6.2)	10 (18.9)	352 (6.4)
Fracture of forearm (S52)	257 (4.7)		
Traumatic amputation of wrist & hand (S68)	252 (4.6)		
Fracture of lower leg, including ankle (S82)	243 (4.4)		
Fracture of foot (except ankle) (S92)	157 (2.9)	0 (0.0)	157 (2.8)
Open wound of lower leg (S81)	152 (2.8)	0 (0.0)	152 (2.7)
Fracture of rib(s), sternum & thoracic spine (S22)	149 (2.7)	0 (0.0)	149 (2.7)
Injury of nerves at wrist & hand level (S64)	146 (2.7)	0 (0.0)	146 (2.6)
Other principal diagnosis	2,394 (43.7)	26 (49.1)	2,420 (43.8)
Total	**5,476 (100.0)**	**53 (100.0)**	**5,529 (100.0)**

Where a cell number for females was low, that cell number and the total are not shown.

Wrist and hand injuries (as principal diagnosis) accounted for 35.9% (n=1,987) of Construction industry related hospitalisations. These diagnoses are detailed in Table 3.8.

Open wound of the wrist and hand was the most common grouping with open wounds of the fingers being the most common type. There were 445 wrist and hand fracture related hospitalisations with 276 of these being fractures to other finger (not thumb). Injury to muscle and tendon at wrist and hand level (n=379, 6.9%) and traumatic amputation of wrist and hand (n=253, 4.6%) were also common (Table 3.8).

Table 3.8: Hospitalised injury while working for income in the Construction industry, Australia 2002–03 and 2003–04: numbers of wrist and hand injury cases by Principal Diagnosis and sex

Principal diagnosis (code)	Males	Females	Persons
Superficial injury of wrist & hand (S60)	47	0	47
Open wound of wrist & hand (S61)	565	6	571
Open wound of finger(s) without damage to nail (S610)	*270*		
Open wound of other parts of wrist & hand (S6188)	*126*	*0*	*126*
Open wound of finger(s) with damage to nail (S611)	*118*		
Open wound of other parts of wrist & hand, part unspecified (S619)	*46*	*0*	*46*
Other wound of wrist & hand	*5*	*0*	*5*
Fracture at wrist & hand level (S62)	440	5	445
Fracture of distal phalanx of other finger (not thumb) (S6263)	*159*		
Fracture of proximal phalanx of other finger (not thumb) (S6261)	*61*	*0*	*61*
Fracture of middle phalanx of other finger (not thumb) (S6262)	*52*		
Fracture of distal phalanx of thumb (S6252)	*47*	*0*	*47*
Fracture of shaft of other metacarpal bone (not first) (S6232)	*19*	*0*	*19*
Fracture of proximal phalanx of thumb (S6251)	*16*	*0*	*16*
Fracture of scaphoid bone of hand (S620)	*12*	*0*	*12*
Fracture of base of other metacarpal bone (not first) (S6231)	*10*	*0*	*10*
Fracture of neck of other metacarpal bone (not first) (S6233)	*10*	*0*	*10*
Fracture of other metacarpal bone (not first), part unspecified (S6230)	*9*	*0*	*9*
Fracture of phalanx of other finger (not thumb), part unspecified (S6260)	*8*	*0*	*8*
Fracture of base of first metacarpal bone (S6221)	*6*	*0*	*6*
Fracture of shaft of first metacarpal bone (S6222)	*6*	*0*	*6*
Fracture of head of other metacarpal bone (not first) (S6234)	*6*	*0*	*6*
Multiple fractures of fingers (S627)	*5*	*0*	*5*
Fracture of thumb, part unspecified (S6250)	*4*	*0*	*4*
Other fracture at wrist & hand level	*10*		
Dislocation, sprain & strain of joints & ligaments at wrist & hand level (S63)	26		
Dislocation of interphalangeal joint of finger (S6312)	*6*	*0*	*6*
Sprain & strain of wrist, part unspecified (S6350)	*4*	*0*	*4*
Other dislocation, sprain & strain of joints & ligaments at wrist & hand level	*16*		
Injury of nerves at wrist & hand level (S64)	146	0	146
Injury of digital nerve of other finger (not thumb) (S644)	*69*	*0*	*69*
Injury of digital nerve of thumb (S643)	*34*	*0*	*34*
Injury of ulnar nerve at wrist & hand level (S640)	*16*	*0*	*16*
Injury of radial nerve at wrist & hand level (S642)	*14*	*0*	*14*
Injury of median nerve at wrist & hand level (S641)	*9*	*0*	*9*
Other injury of nerves at wrist & hand level	*4*	*0*	*4*

Injury of blood vessels at wrist & hand level (S65)	51	0	51
Injury of blood vessels of other finger (excluding thumb) (S655)	*18*	*0*	*18*
Injury of radial artery at wrist & hand level (S651)	*15*	*0*	*15*
Injury of ulnar artery at wrist & hand level (S650)	*10*	*0*	*10*
Other injury of blood vessels at wrist & hand level	*8*	*0*	*8*
Injury of muscle & tendon at wrist & hand level (S66)	379	0	379
Injury of long flexor muscle & tendon of thumb at wrist & hand level (S660)	*7*	*0*	*7*
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	*171*	*0*	*171*
Injury of extensor muscle & tendon of thumb at wrist & hand level (S662)	*87*	*0*	*87*
Injury of flexor muscle & tendon of other finger (not thumb) at wrist & hand level (S661)	*61*	*0*	*61*
Injury of multiple extensor muscles & tendons at wrist & hand level (S667)	*17*	*0*	*17*
Injury of multiple flexor muscles & tendons at wrist & hand level (S666)	*15*	*0*	*15*
Injury of other muscles & tendons at wrist & hand level (S668)	*9*	*0*	*9*
Injury of unspecified muscle & tendon at wrist & hand level (S669)	*12*	*0*	*12*
Crushing injury of wrist & hand (S67)	53	0	53
Crushing injury of thumb & other fingers(s) (S670)	*44*	*0*	*44*
Crushing injury of other & unspecified parts of wrist & hand (S678)	*9*	*0*	*9*
Traumatic amputation of wrist & hand (S68)	252		
Traumatic amputation of other single finger (not thumb) (S681)	*159*		
Traumatic amputation of thumb (S680)	*55*	*0*	*55*
Other traumatic amputation at wrist & hand level	*38*	*0*	*38*
Other & unspecified injuries of wrist & hand (S69)	15	0	15
Total injuries to wrist & hand	**1,974**	**13**	**1,987**

Where a cell number for females was low, that cell number and the total are not shown.

Procedures

Physiotherapy was the most common principal procedure performed in persons hospitalised due to injury while working for income in the Construction industry. The majority of the top procedures are relatively superficial in nature and involve the skin and the musculoskeletal system rather than internal organs (Table 3.9).

Table 3.9: Hospitalised injury while working for income in the Construction industry, Australia 2002–03 and 2003–04: most frequently recorded Principal Procedures, by sex

Principal procedure (code)	Males	Females	Persons
Physiotherapy (9555003)	463	11	474
Excisional debridement of deep soft tissue including muscle, tendon, fascia ligaments or nerves (3002300)	268	4	272
Primary repair of extensor tendon of hand (4642000)	250	0	250
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), superficial (3002600)	190		
Removal of foreign body from skin & subcutaneous tissue with incision (3006400)	123	0	123
Primary repair of nerve (3930000)	121	0	121
CT brain without intravenous contrast (5600100)	108	0	108
Excisional debridement of skin & subcutaneous tissue (9066500)	108	0	108
Primary repair of nail or nail bed (4648600)	94	0	94
CT spine without intravenous contrast (5621000)	86		
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), involving deeper tissue (3002900)	71	0	71
Other procedure	3,594	34	3,628
Total	**5,476**	**53**	**5,529**

Where a cell number for females was low, that cell number and the total are not shown.

Summary

During the two year study period, 5,529 cases were identified as hospitalised injury while working for income in the Construction industry. Nearly all of the cases (99%) were males. The largest number of cases occurred in the 25–34 year age group (n=1,467). Rates were highest in the youngest and oldest groups.

More than fifty seven per cent (57.7 %) of hospitalisations resulted from exposure to inanimate forces, with contact with other powered hand tools and household machinery (n=613) and struck by thrown, projected or falling object (n=469) being the most common types. 27.2% of Construction industry related hospitalisation resulted from falls. This is a higher proportion of cases involving a fall than in cases from all industries combined (16.4%). The most common types were fall from, out of or through building or structure and fall on and from ladder.

Fractures accounted for 28.5% of Construction industry related hospitalisations. Wrist and hand injury was the most common body region involved in Construction industry related hospitalisations (35.9%). Open wound of the wrist and hand was the most common diagnosis grouping (10.3%), followed by fracture of the wrist and hand (8.0%).

4 Agriculture, forestry and fishing

This chapter includes the cases of Hospitalised injury while working for income that were further specified as occurring while engaged in Agriculture, forestry and fishing (ICD–10–AM code U73.00). Summary measures for this set of cases are shown in Table 4.1.

Table 4.1: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: summary measures

Indicator	
Cases	5,057
Estimated number of workers ('000) * **	376.0
Hospitalisation rate per 100,000 workers per year * **	667.6
Hospitalisation rate per million hours worked * **	3.1

* Workers and working hours refer to the total employed labour force in the study period (ABS 2006a).

** Only includes persons 15 + years.

Background

Approximately 380,000 workers are employed in rural industries in Australia (ABS 2006b).

Rural industries are characterised by occupational exposures to a wide range of physical hazards. Many of the important hazards cannot be eliminated because they are part of the physical environment in which the work takes place. Harsh terrain, stormy weather, extremes of temperature, water and large trees are typical environmental hazards faced in one or more of these industries. Common man-made hazards include mobile mechanical equipment, all-terrain vehicles, trucks, motor cars and power tools. Other common hazards include large animals and work at height.

Given the significant hazards faced by rural workers, and the difficulty in controlling exposure to them, it is not surprising that these rural industries, as a group and individually, have been found in Australia (and other countries) to have high rates of fatal injury (Driscoll et al 2001) and serious non-fatal injury, although the information available on non-fatal injury is much less comprehensive.

The rates of fatal injury in rural industries (Agriculture: 20.6 per 100,000 employed workers per year; fishing: 92.5 per 100,000 per year; logging 97.2 per 100,000 per year) is far higher than the all industry average (5.5 per 100,000 per year) (Driscoll et al 2001). The fatality rate in this industry remained high in 2003-04: a rate of 19.2 per 100,000, compared with 3.5 per 100,000 for all industries combined (ASCC 2006a). The rates of non-fatal compensated injury (Agriculture: 21.5 per 1,000; fishing: 33.8 per 1,000; forestry 28.4 per 1,000) are also considerably higher than the all industry average (12.7 per 1,000 per year) (ASCC 2006b).

In agriculture, tractor rollovers and run-overs, and incidents involving farm vehicles are the most common incident mechanisms for fatal injury of workers. Farms are commonly

both a workplace and a home, meaning that children are at greater risk of being exposed to work-related hazards than is the case for most other industries. As a result, there is a considerable number of children killed each year on Australia farms, most commonly from drowning in dams or being hit by vehicles or mobile equipment (Erlich et al 1993; Franklin et al 2001; Mitchell et al 2001c; Bugeja & Franklin 2005). A Victorian study of farm injuries resulting in hospital presentation or death identified tractors, motor cycles, farm vehicles and farm animals (particularly horses) as important agencies, and falls as the most important mechanism of injury (Day et al 1997). A similar New South Wales study of serious non-fatal injuries in persons presenting to a major rural hospital found that the injuries commonly involved horses or motorcycles, and commonly resulted from falls or being struck by moving objects (Franklin & Davies 2003; Davies & Franklin 2005). An industry-based survey in Tasmania identified 'other vehicles', tractors and motor cycles as the most important contributors to injury, along with shearing hand pieces and tools (Mather & Lower 2001), and a survey of farms in New South Wales identified animals as the single most common agency involved (Low et al 1996). A study of presentations to emergency departments and general practitioners in rural Queensland also provides some information on farm injuries (Franklin et al 2000).

Forestry and logging has one of the highest rates of fatal injury in Australia, both on an industry basis and an occupation basis. The key problems involve being struck by falling trees and hit by mobile mechanical equipment (Driscoll et al 1995; Mitchell et al 2001b). Less is known about non-fatal serious injury, although the rate of compensable injury is high (mainly claims for muscular stress while lifting, carrying or handling objects; falls on the same level; and being hit by moving or falling objects) (ASCC 2006b), and the same hazards, plus chainsaws, appear to be involved in many of the injury incidents.

Fishing has a similarly high fatal injury rate, again both as an industry or when measured on the basis of fishing occupations. Drowning is the main mechanism involved, commonly when a fisherman is thrown or washed overboard without wearing a life-jacket (Driscoll et al 1994; Mitchell et al 2001a; O'Connor & O'Connor 2006). Again as with forestry and logging, less is known about non-fatal serious injury, but the most common compensation claims are for muscular stress while lifting, carrying or handling objects; being hit by moving objects; and falls on the same level (ASCC 2006b).

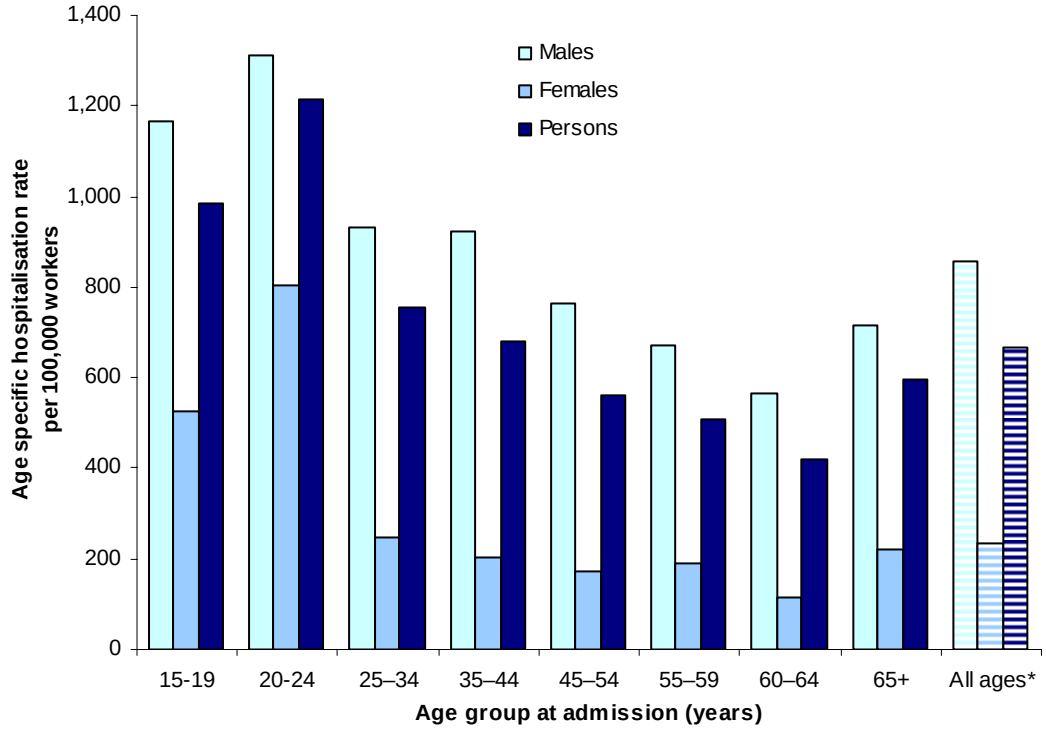
Age and sex

Among cases of hospitalised injury while working for income in the two year study period, 5,057 were recorded as occurring in the Agriculture, forestry and fishing industry sector. The largest number was in the 35–44 year age group with 1,054 hospitalisations. There was a predominance of male admissions (n=4,520, 89.4%) (Table 4.2).

The age specific hospitalisation rate (15 years and over) was highest in the 20–24 year age group, with 1,310.0 per 100,000 workers for males, 802.3 per 100,000 workers for females and 1,216.0 per 100,000 workers overall. The rates were lower for older age groups, the lowest values being seen for the 60–64 year age group. Estimated rates were a little higher in the oldest group, 65 years and over. The overall crude hospitalisation rate for those 15 years and over was 857.6 per 100,000 workers per year for males, 232.7 per 100,000 workers for females and 667.6 per 100,000 workers for persons. (Figure 4.1).

Table 4.2: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: case numbers by age group and sex

Age group at admission (years)	Males	Females	Persons
0–14	32	5	37
15-19	333	60	393
20-24	501	70	571
25–34	906	83	989
35–44	947	107	1,054
45–54	820	97	917
55–59	347	52	399
60–64	239	23	262
65+	395	40	435
All ages	**4,520**	**537**	**5,057**

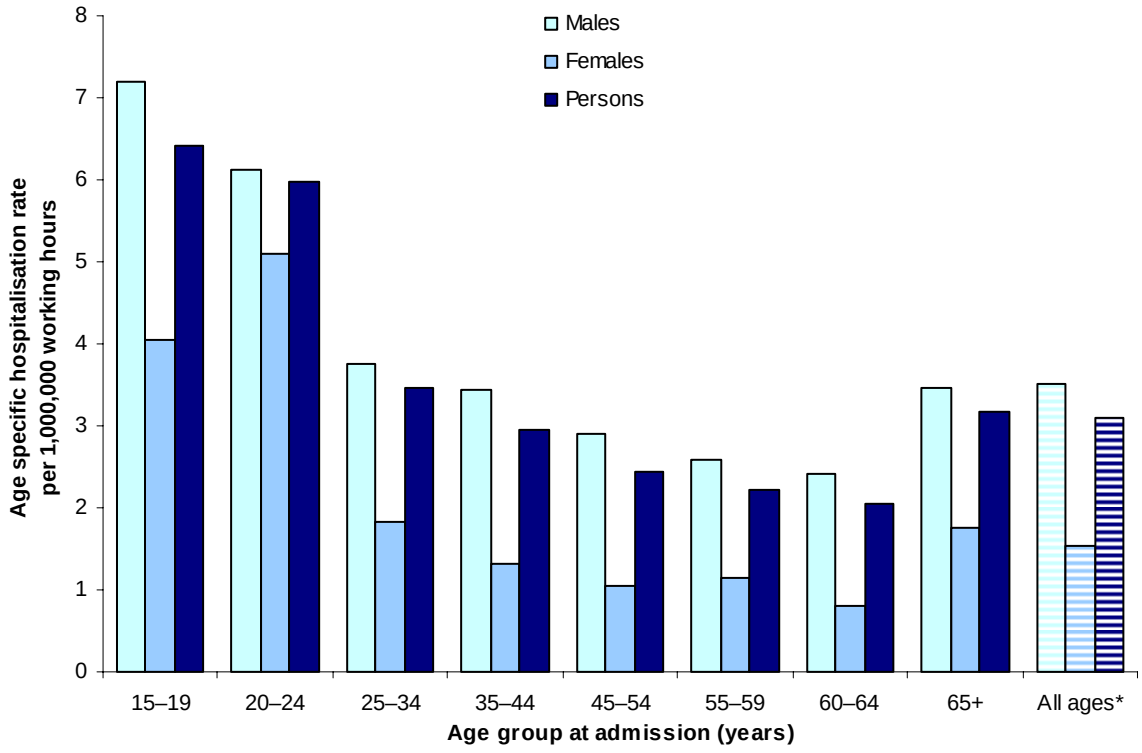


*Only includes persons 15 + years.

Figure 4.1: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: average annual rate per 100,000 in the employed labour force, by age group and sex

Variation of rates per hour worked was generally similar to that of rates based on the number of workers. A difference is that for males and for persons (15 years and over), the 15–19 year age group had the highest age specific hospitalisation rate per million hours

worked in the Agriculture, forestry and fishing industry, with 7.2 and 6.4 hospitalisations per million hours worked, respectively. For females, the 20–24 year age group had the highest rate with 4.0 hospitalisations per million hours worked. As for the age specific rate per 100,000 workers there was a general downward trend in rates to the 60–64 year age group. Crude rates (all ages 15 years and over) were 3.5 hospitalisations per million hours worked for males, 1.5 hospitalisations per million hours worked for females and 3.1 hospitalisations per million hours worked overall (Figure 4.2).



* Only includes persons 15 + years.

Figure 4.2: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: rate per million hours worked by the employed labour force, by age group and sex

Remoteness of residence

For persons hospitalised in the Agriculture, forestry and fishing industry, 39.5% (n=1,998) lived in the outer regional areas of Australia and 29.6% (n=1,499) lived in the inner regional areas, compared with 13.9% and 22.5%, respectively, for all cases of hospitalised injury while working for income. Only 10.5% (n=529) of cases involving workers injured in the Agriculture, forestry and fishing industry sector resided in a major city, compared with 58.5% for all hospitalisations for injury while working for income (Figure 4.3).

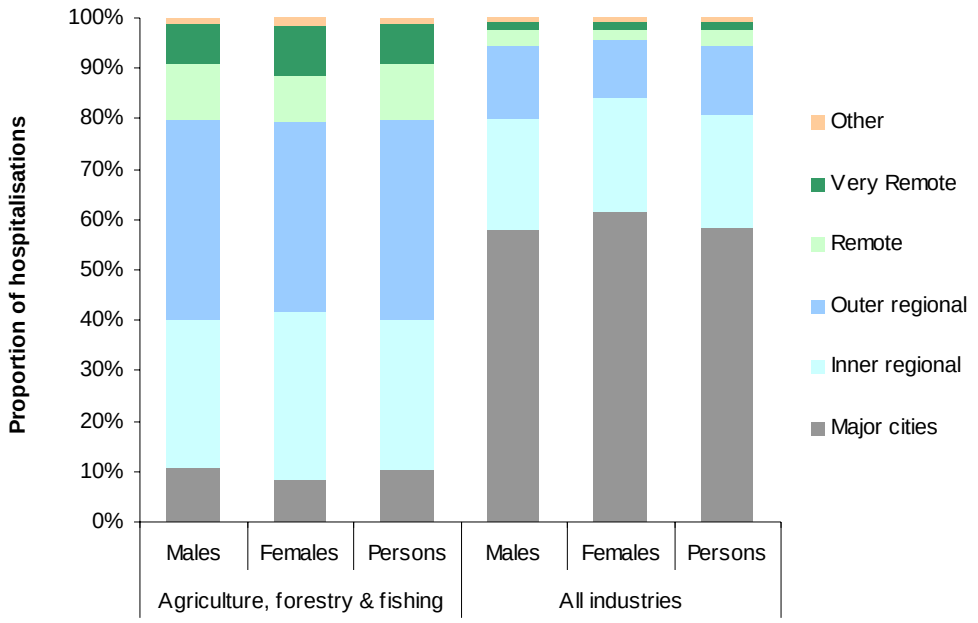


Figure 4.3: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by remoteness zone of usual residence, Agriculture, forestry and fishing industry and all industries, by sex

Mechanism of injury

Exposure to inanimate mechanical forces was the most common mechanism of injury in persons hospitalised due to injury while working for income in Agriculture, forestry or fishing (n=2,066, 40.9%), followed by transport accidents (n=1,108, 21.9%). In this sector , 14.3% (n=725) of the cases involved exposure to animals and plants and 9.1% (n=460) of admissions were due to falls, with the most common of these being other fall from one level to another (n=122) and fall on and from ladder (n=65) (Figure 4.4).

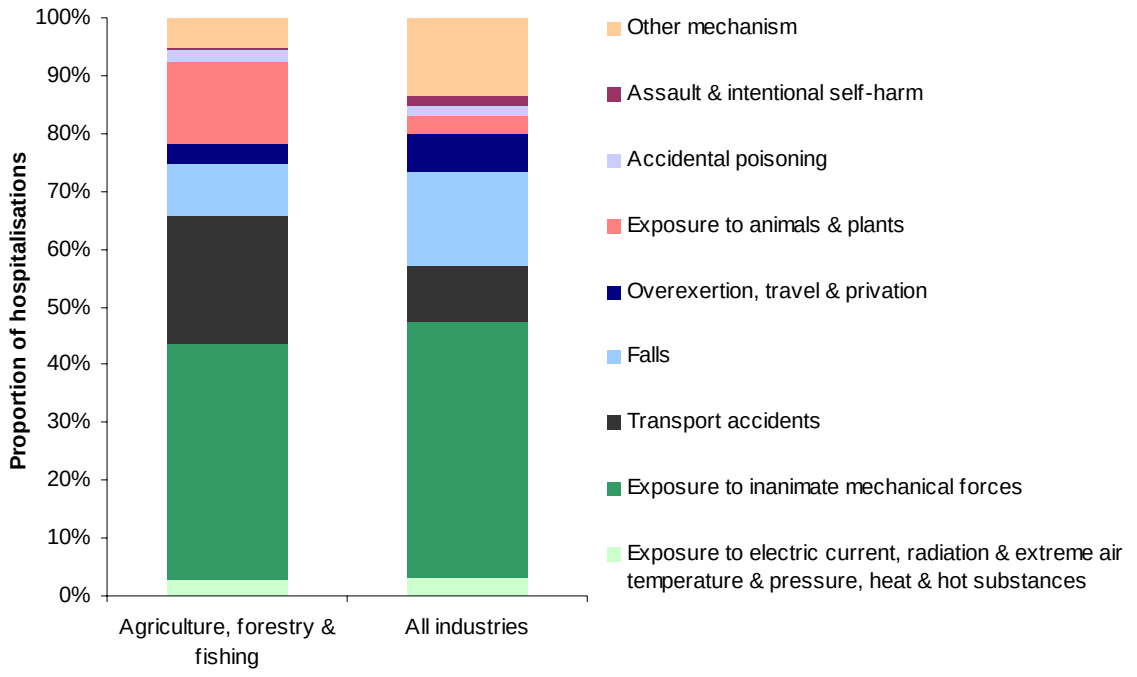


Figure 4.4: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by mechanism, Agriculture, forestry and fishing industry and all industries

Among cases involving exposure to inanimate mechanical forces, the most common specific mechanism was being struck by a thrown, projected or falling object (n=322, 6.4%). There were 280 admissions due to being caught, crushed, jammed or pinched in or between objects and 254 admissions due to contact with other and unspecified agricultural machinery (Tables 4.3).

Table 4.3: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was exposure to inanimate mechanical forces, by specific mechanism and sex

Mechanism	Males	Females	Persons
Struck by thrown, projected or falling object	306	16	322
Caught, crushed, jammed or pinched in or between objects	259	21	280
Contact with other & unspecified agricultural machinery	234	20	254
Contact with knife, sword or dagger	173	7	180
Contact with other & unspecified machinery	131	6	137
Striking against or struck by other objects	117	14	131
Contact with other powered hand tools & household machinery	128		
Foreign body or object entering through skin	97	14	111
Contact with non-powered hand tool	76	13	89
Contact with grain auger, elevator & conveyor	54	4	58
Contact with lifting & transmission devices, not elsewhere classified	51		
Contact with woodworking & forming machinery	49	0	49

Contact with harvesting machinery	37		
Foreign body entering into or through eye or natural orifice	23		
Contact with hay baler & haying implements	19		
Contact with other equipment towed or powered by tractor	19		
Contact with earthmoving, scraping & other excavating machinery	19	0	19
Contact with metalworking machinery	16	0	16
Contact with powered lawnmower	11	0	11
Discharge from firearms	11	0	11
Explosion of pressurised items and other materials	10		
Contact with equipment towed or powered by tractor: tillage & cultivating equipment	9	0	9
Contact with equipment towed or powered by tractor: posthole digger	7		
Contact with equipment towed or powered by tractor: seeding & planting implement	4		
Contact with mining & earth drilling machinery	5	0	5
Contact with sharp glass	4	0	4
Exposure to other & unspecified inanimate mechanical forces	61	7	68
Total for exposure to inanimate mechanical forces	**1,930**	**136**	**2,066**

Where cell numbers for males or females are low, the cell number and total are not shown.

Many transport-related cases of hospitalised injury while working for income in Agriculture, forestry and fishing were assigned codes from a range entitled 'Other land transport accidents', which includes riders of horses and other animals, and occupants of special vehicles mainly used in agriculture (n=525, 10.4%; Table 4.4). Of these, 231 involved an animal rider falling from or being thrown from a horse in a non-collision accident (V8000) (Table 4.4).

Another 351 hospitalisations involved a motorcycle rider, 94 of these being recorded as being a 'driver of a motorcycle designed primarily for off-road use injured in a non-traffic non-collision transport accident' (V2802) and 76 as a 'driver of a four-wheeled special all-terrain or other off-road motor vehicle injured in a non-traffic accident (V8652) (Table 4.4).

Table 4.4: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was a transport accident, by specific mechanism and sex

Mechanism	Males	Females	Persons
Other land transport accidents	426	99	525
Rider injured by fall from or being thrown from horse in non-collision accident (V8000)	*169*	*62*	*231*
Rider injured by fall from or being thrown from other animal in non-collision accident (V8001)	*5*		
Animal rider or occupant injured in collision with pedestrian or animal (V801)	*4*	*0*	*4*
Animal rider or occupant injured in collision with fixed or stationary	*5*		

object (V808)			
Animal rider or occupant injured in other & unspecified transport accident (V809)	*12*		
Driver of special agricultural vehicle injured in traffic accident (V840)	*5*	*0*	*5*
Person injured while boarding or alighting from special agricultural vehicle (V844)	*8*	*0*	*8*
Driver of special agricultural vehicle injured in non-traffic accident (V845)	*77*	*6*	*83*
Person on outside of special agricultural vehicle injured in non-traffic accident (V847)	*32*		
Unspecified occupant of special agricultural vehicle injured in non-traffic accident (V849)	*14*	*0*	*14*
Driver of special construction vehicle injured in non-traffic accident (V855)	*5*	*0*	*5*
Driver of four-wheeled special all-terrain or other off-road motor vehicle injured in non-traffic accident (V8652)	*62*	*14*	*76*
Unspecified occupant of four-wheeled special all-terrain or other off-road motor vehicle injured in non-traffic accident (V8692)	*4*	*0*	*4*
Occupant [any] of other land transport vehicle injured in other transport accident	*24*	*9*	*33*
Motorcycle rider injured in transport accident	322	29	351
Driver of motorcycle designed primarily for off-road use injured in non-traffic collision with pedestrian or animal (V2002)	*15*		
Driver of unspecified motorcycle injured in non-traffic collision with pedestrian or animal (V2009)	*7*	*0*	*7*
Motorcycle rider [any] injured in other collision with pedestrian or animal	*11*	*0*	*11*
Motorcycle rider [any] injured in collision with car, pick-up truck or van	*4*	*0*	*4*
Driver of motorcycle designed primarily for off-road use injured in non-traffic collision with fixed or stationary object (V2702)	*32*		
Driver of unspecified motorcycle injured in non-traffic collision with fixed or stationary object (V2709)	*16*		
Motorcycle rider [any] injured in other collision with fixed or stationary object	*9*		
Driver of motorcycle designed primarily for off-road use injured in non-traffic non-collision transport accident (V2802)	*85*	*9*	*94*
Driver of other specified motorcycle injured in non-traffic non-collision transport accident (V2808)	*4*		
Driver of unspecified motorcycle injured in non-traffic non-collision transport accident (V2809)	*47*		
Unspecified rider of motorcycle designed primarily for off-road use injured in non-traffic non-collision transport accident (V2822)	*6*	*0*	*6*
Unspecified rider of unspecified motorcycle injured in non-traffic non-collision transport accident (V2829)	*8*	*0*	*8*

Driver of motorcycle designed primarily for off-road use injured in traffic non-collision transport accident (V2842)	*4*	*0*	*4*
Driver of unspecified motorcycle injured in traffic non-collision transport accident (V2849)	*4*	*0*	*4*
Motorcycle rider [any] injured in other non-collision transport accident	*12*		
Motorcycle rider [any] injured in unspecified non-traffic accident (V293)	*32*		
Motorcycle rider [any] injured in unspecified traffic accident (V299)	*13*		
Motorcycle rider [any] injured in other specified transport accident	*13*	*4*	*17*
Water transport accidents	59		
Accident to fishing boat causing other injury (non-drowning & submersion) (V912)	*5*	*0*	*5*
Accident on board fishing boat without accident to watercraft, not causing drowning and submersion (V932)	*42*		
Other & unspecified water transport accidents: fishing boat (V942)	*4*	*0*	*4*
Car occupant injured in transport accident	42	7	49
Car occupant injured in collision with fixed or stationary object	*10*	*4*	*14*
Driver of four-wheeled motor-cycle injured in non-traffic non-collision transport accident (V4802)	*5*		
Car occupant [any] injured in other non-collision transport accident	*19*		
Car occupant [any] injured in other transport accident	*8*	*0*	*8*
Occupant of heavy transport vehicle injured in transport accident	40		
Driver of heavy transport vehicle injured in traffic non-collision transport accident (V685)	*19*	*0*	*19*
Occupant [any] of heavy transport vehicle injured in transport accident	*21*		
Occupant of pick-up truck or van injured in transport accident	30		
Driver of pick-up truck or van injured in non-traffic collision with fixed or stationary object (V570)	*4*	*0*	*4*
Person on outside of pick-up truck or van injured in non-traffic non-collision transport accident (V582)	*8*	*0*	*8*
Occupant [any] of pick-up truck or van injured in other transport accident	*18*		
Pedestrian injured in transport accident	19	4	23
Pedestrian injured in non-traffic collision with heavy transport vehicle or bus	*5*	*0*	*5*
Pedestrian injured in other accident	*14*	*4*	*18*
Air & space transport accidents	9	0	9
Occupant of three-wheeled motor vehicle injured in transport accident	6	0	6
Other & unspecified transport accidents	9	0	9
Total transport accidents	**962**	**146**	**1,108**

Where cell numbers for males or females are low, the cell number and total are not shown.

One hundred and four cases of hospitalisation due to injury while working for income in Agriculture, forestry and fishing were recorded as being due to accidental poisoning, with 43 of these due to accidental poisoning by and exposure to pesticides (Table 4.5).

Table 4.5: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was accidental poisoning, by specific mechanism and sex

Mechanism	Males	Females	Persons
Accidental poisoning by & exposure to pesticides	37	6	43
Accidental poisoning by exposure to pharmaceuticals	8	0	8
Accidental poisoning by & exposure to other gases & vapours	6	0	6
Other accidental poisoning	40	7	47
Total for accidental poisoning	**91**	**13**	**104**

Place of occurrence

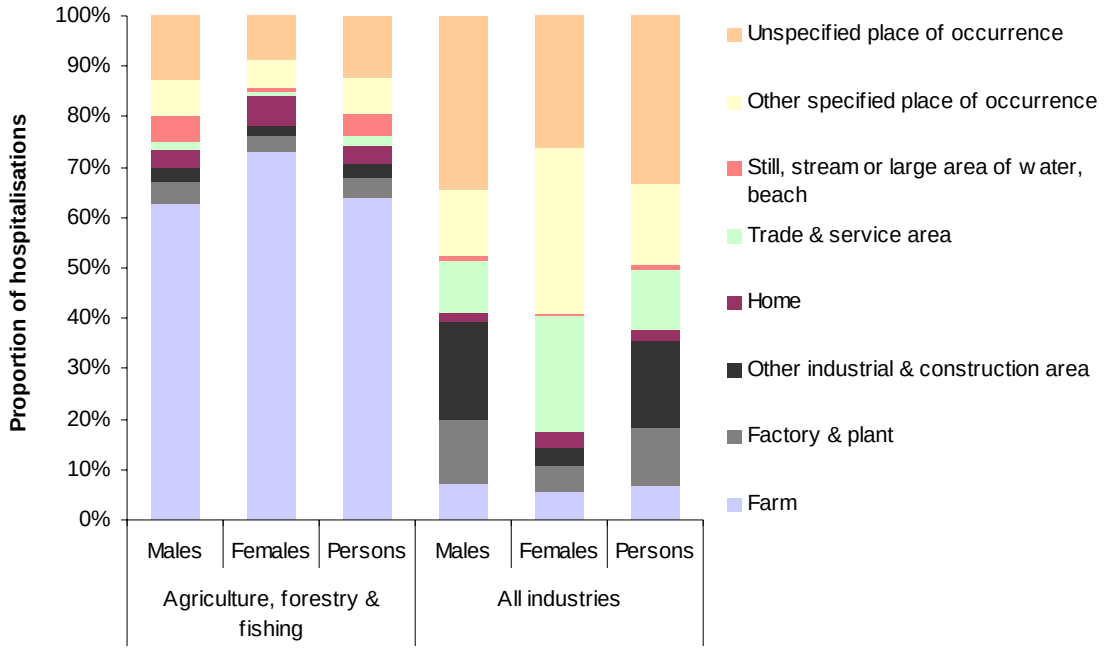


Figure 4.5: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by type of place of occurrence, Agriculture, forestry and fishing industry and all industries, by sex

The majority of admissions due to injury while working for income in Agriculture, forestry or fishing resulted from events that occurred at a farm (n=3,222, 63.7%), compared with only 6.8% of all industry hospitalisations (Figure 4.5).

Month of admission

A more distinctly seasonal pattern is evident in cases of hospitalised injury while working for income in the Agriculture, forestry and fishing sector than for cases in all industries combined, with higher numbers in autumn and spring than in summer and winter (Figure 4.6). The highest number of admissions occurred in April (n=467, 9.2%) and the lowest number occurred in August (n=380, 7.5%).

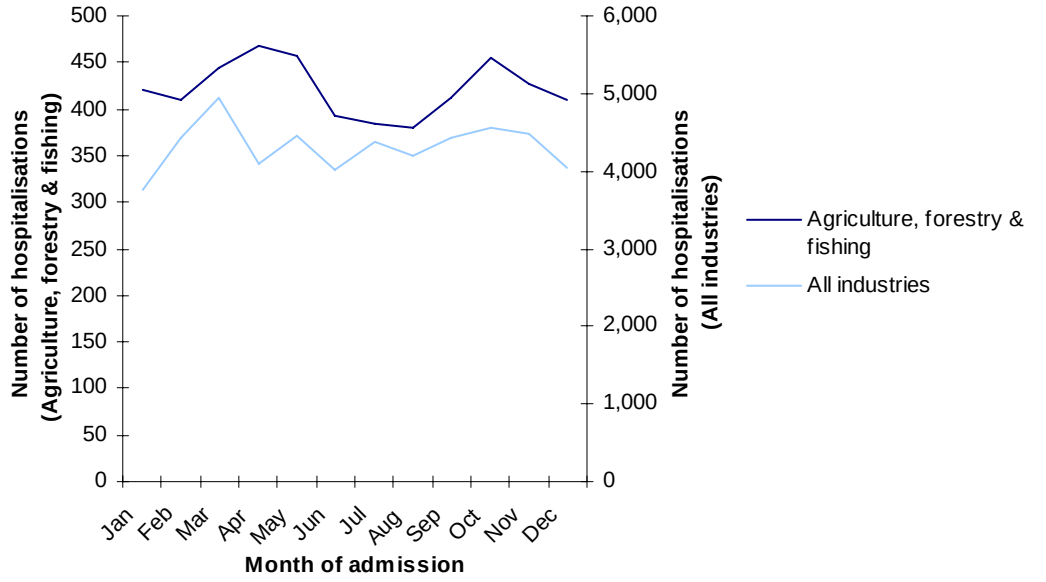


Figure 4.6: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by month of admission to hospital, Agriculture, forestry and fishing industry and all industries

Day of admission

The highest number of injury while working for income in Agriculture, forestry and fishing hospitalisations occurred on Wednesdays (n=880, 17.4%) and the lowest number occurred on Sundays (n=467, 9.2%) and Saturdays (n=468, 9.3%) (Figure 4.7). Variation in the number of admissions by day of week was somewhat less for this sector than for all work-related injury admissions.

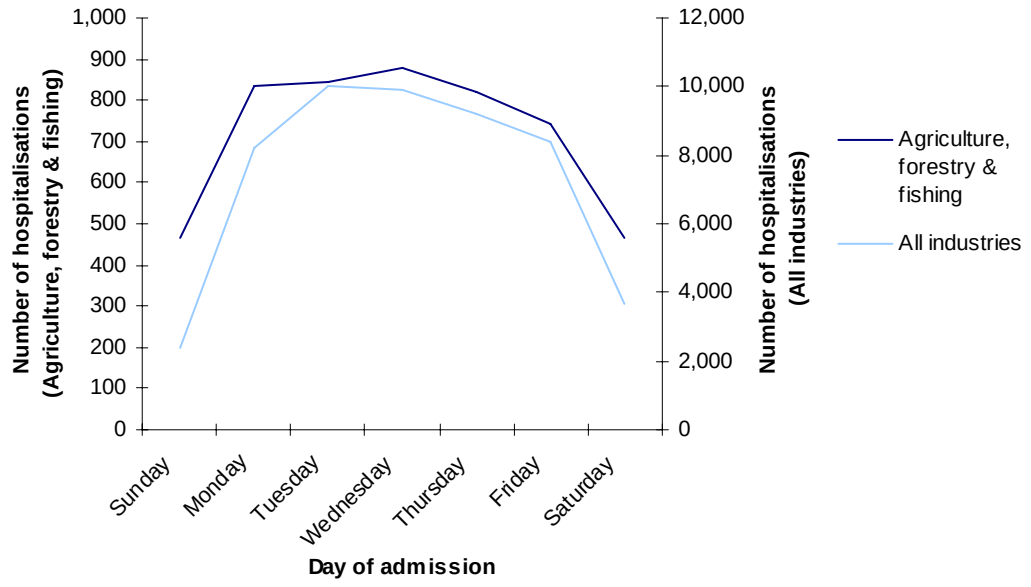


Figure 4.7: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by weekday of admission to hospital, Agriculture, forestry and fishing industry and all industries

Nature of injury (Principal Diagnosis)

Figure 4.8: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by nature of injury (Principal Diagnosis), Agriculture, forestry and fishing industry and all industries

Fracture was the most common type of diagnosis in persons hospitalised for Agriculture, forestry and fishing industry related reasons (n=1,463, 28.9%) compared with 23.3% for all industry related hospitalisations. A diverse range of other types of injury also occurred in this sector. Muscle and tendon injury was less common in Agriculture, forestry and fishing than in all hospitalised injury while working for income (5.5% versus 9.0%) (Figure 4.8).

Hospitalisation due to internal organ injury (n=80, 1.6%) and intracranial injury (n=225, 4.4%) were more common in Agriculture, forestry and fishing industry cases than overall (0.7% and 2.3% respectively). Intracranial reasons accounted for 6.9% (n=37) of Agriculture, forestry and fishing industry related hospitalisations in females, compared with 2.6% for female cases in all industries combined. Poisoning, toxic effects and bite related hospitalisations were also more common in the Agriculture, forestry and fishing industry (n=180, 3.6%) than overall (1.9%).

Table 4.6: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: numbers and proportions of cases by nature of injury (Principal Diagnosis) and sex

Nature	Males (%)	Females (%)	Persons (%)
Superficial	156 (3.5)	31 (5.8)	187 (3.7)
Open wound	746 (16.5)	64 (11.9)	810 (16.0)
Fracture	1,299 (28.7)	164 (30.5)	1,463 (28.9)
Dislocation	165 (3.7)	14 (2.6)	179 (3.5)
Sprain & strain	106 (2.3)	15 (2.8)	121 (2.4)
Muscle & tendon	259 (5.7)	17 (3.2)	276 (5.5)
Amputation	187 (4.1)	24 (4.5)	211 (4.2)
Crush injury	75 (1.7)	9 (1.7)	84 (1.7)
Internal organ	68 (1.5)	12 (2.2)	80 (1.6)
Blood vessel	32 (0.7)		
Nerve & spinal cord	81 (1.8)	10 (1.9)	91 (1.8)
Intracranial	188 (4.2)	37 (6.9)	225 (4.4)
Eye injury	67 (1.5)	10 (1.9)	77 (1.5)
Burn & corrosion	86 (1.9)	12 (2.2)	98 (1.9)
Electrical injury	7 (0.2)		
Poison, toxic effect & bite	163 (3.6)	17 (3.2)	180 (3.6)
Other injury	396 (8.8)	51 (9.5)	447 (8.8)
Not injury	439 (9.7)	45 (8.4)	484 (9.6)
Total	**4,520 (100.0)**	**537 (100.0)**	**5,057 (100.0)**

Where cell numbers for males or females are low, the cell number and total are not shown.

The mean length of stay in hospital for injury while working for income in Agriculture, forestry and fishing industry related hospitalisations was 4.1 days compared with 3.0 days for cases in all industries. Fractures, the most frequent type of hospitalised work-related injury during Agriculture, forestry and fishing, had a mean length of stay of 5.0

days. While case numbers were relatively low, the long mean length of stay of certain types of condition indicates the potential severity of these injuries: nerves and spinal cord (8.9 days), blood vessels (8.8 days) and burns and corrosion (8.8 days) (Figure 4.9).

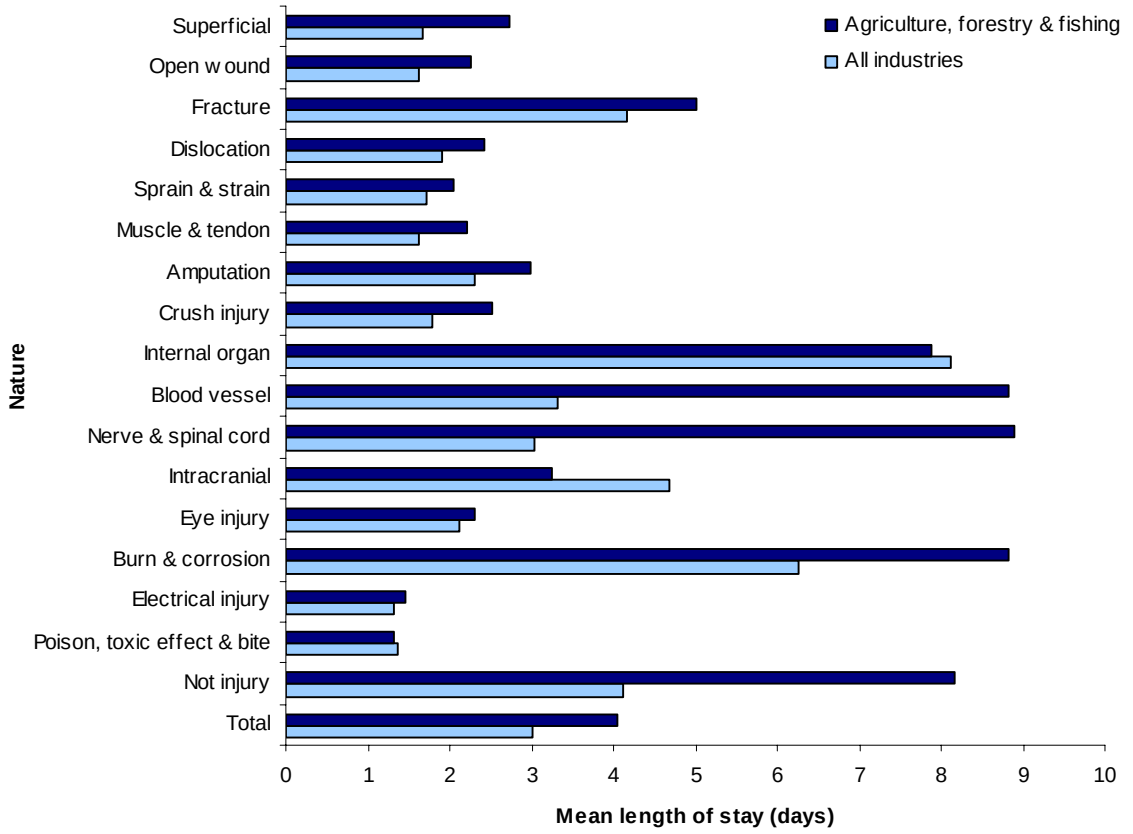


Figure 4.9 Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by nature of injury (Principal Diagnosis), Agriculture, forestry and fishing industry and all industries

Body region injured (Principal Diagnosis)

While hospitalised injury sustained while working for income in Agriculture, forestry and fishing frequently involved the wrist and hand 22.3% (n=1,126), this was a smaller proportion than for all hospitalised work-related injuries (31.6%). Injuries of the head and trunk were more prominent in this group of cases than overall (Figure 4.10).

The knee and lower leg (n=643, 12.7%) and the head (n=635, 12.6) followed wrist and hand as the next most commonly injured body regions (Figure 4.10).

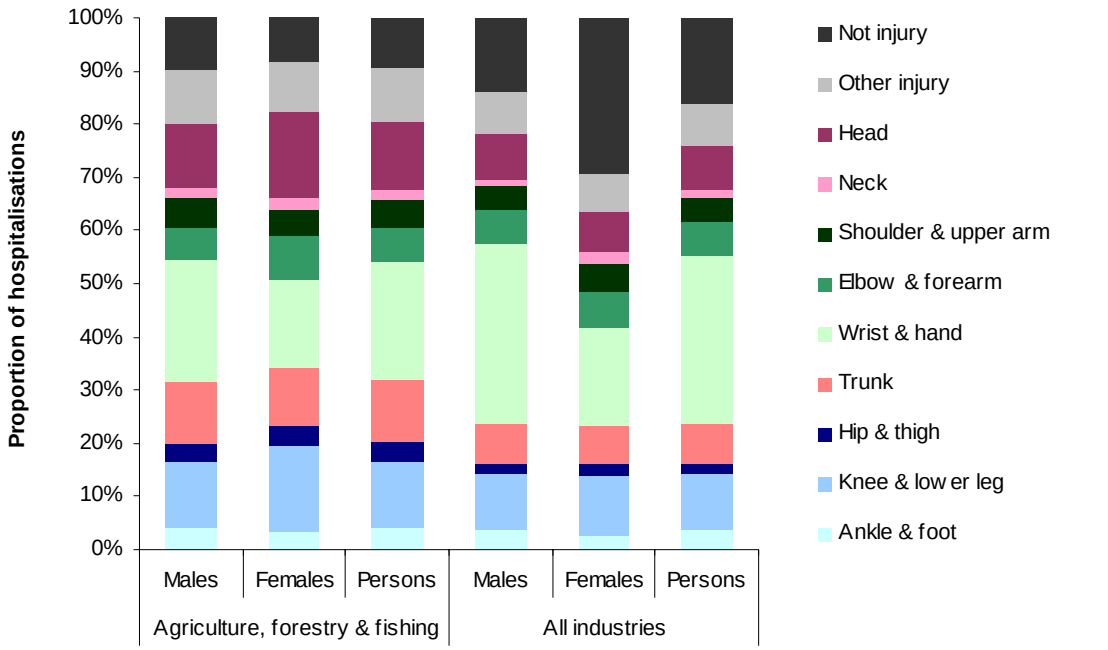


Figure 4.10: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by body region injured, Agriculture, forestry and fishing industry and all industries, by sex

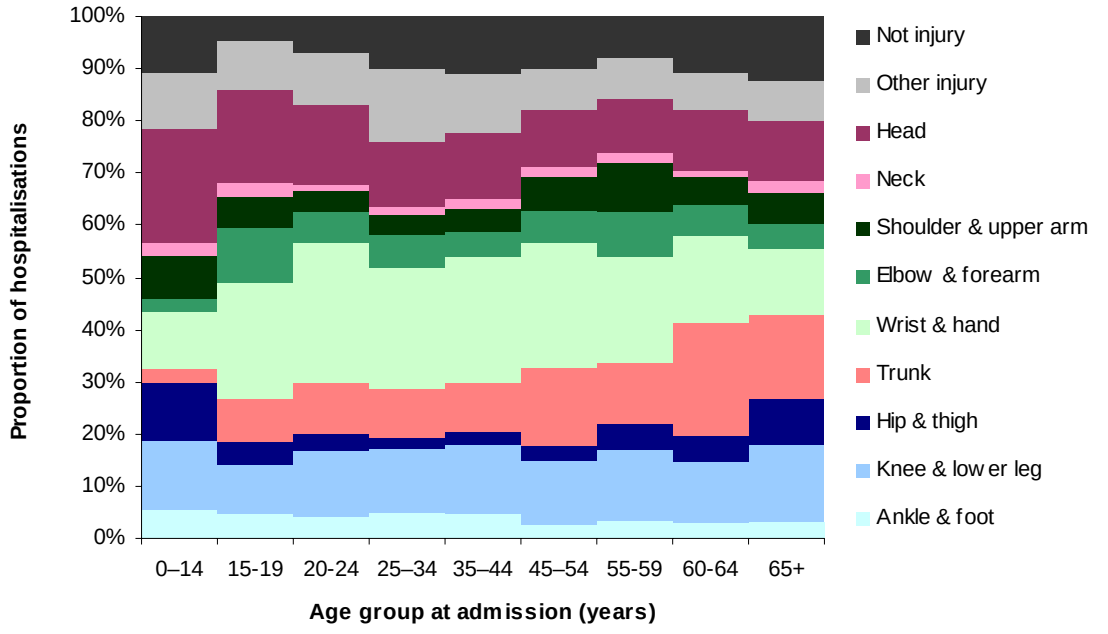


Figure 4.11: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: proportions of cases by body region injured and age group

Variation with age in the pattern of body regions injured was less striking for cases in the Agriculture, forestry and fishing sector than overall. As a proportion of cases in each age group, head injuries declined with age while injuries involving the trunk increased. The number of hospitalised cases due to wrist and hand injuries peaked in the 35–44 year age group (n=254, 24.1%). However, in terms of the proportion of admissions for the age group, wrist and hand injury related hospitalisations was highest in the 20–24 year age group with 27.0% (n=154) (Figure 4.11).

Head related injury admissions were most numerous in the 15–24 year age group (n=157, 16.3%). However, in terms of the proportion of all hospitalisations for the age group, they peaked in the 0–14 year age group with 21.6% (n=8) (Figure 4.11).

The mean length of stay for hospitalised injury while working for income in Agriculture, forestry and fishing was 4.1 days compared with 3.0 days for cases overall. The average stay was longest for cases where the principal diagnosis was in the group labelled 'not injury', which are predominantly for musculoskeletal conditions and rehabilitation (mean = 8.2 days). Cases involving wrist and hand injuries, the most frequent type of case, had the shortest mean length of stay of any of the major body regions (2.0 days; Figure 4.12).

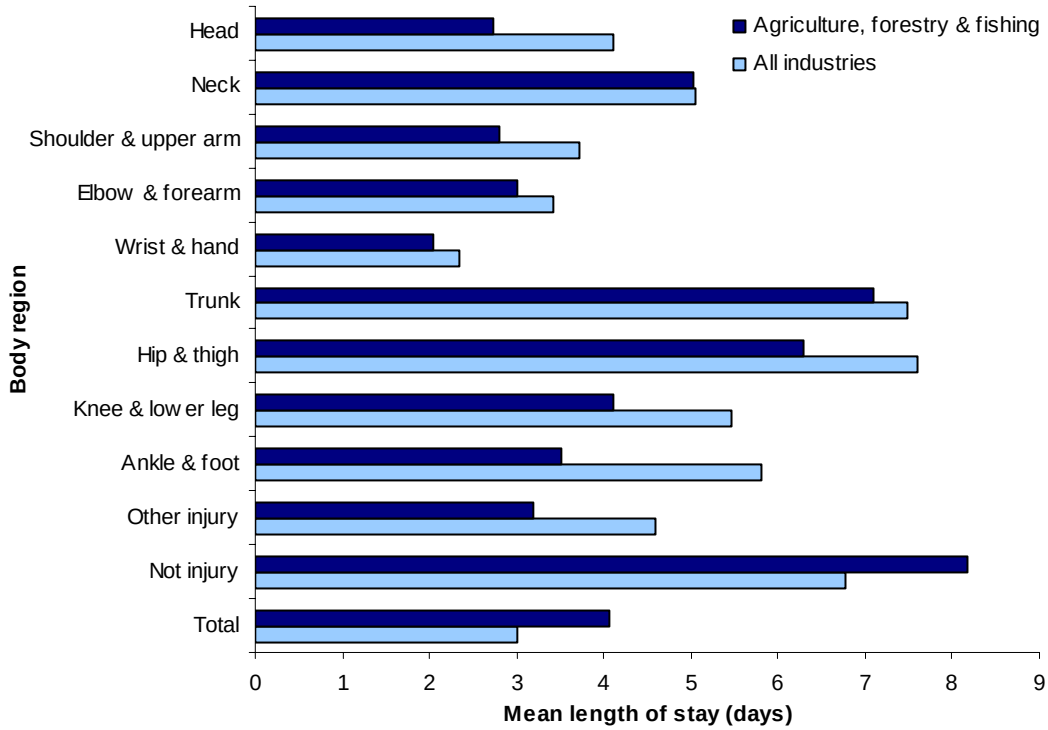


Figure 4.12: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by body region injured (Principal Diagnosis), Agriculture, forestry and fishing industry and all industries

Most frequent Principal Diagnoses

The top single reason for hospitalisation in persons admitted for injury while working for income in Agriculture, forestry and fishing was open wound of finger without damage to nail (S610) and this accounted for 3.5% of hospitalisations (n=179). Five of the top ten specific diagnoses involved the wrist and hand and three involved the head (Table 4.7).

Table 4.7: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at most detailed level), by sex

Principal diagnosis (code)	Males (%)	Females (%)	Persons (%)
Open wound of finger without damage to nail (S610)	163 (3.6)	16 (3.0)	179 (3.5)
Traumatic amputation of other single finger (not thumb) (S681)	122 (2.7)	13 (2.4)	135 (2.7)
Fracture of distal phalanx of other finger (not thumb) (S6263)	92 (2.0)	6 (1.1)	98 (1.9)
Loss of consciousness for less than 30 minutes (S0602)	78 (1.7)	16 (3.0)	94 (1.9)
Unspecified injury of head (S099)	57 (1.3)	15 (2.8)	72 (1.4)
Unspecified injury of abdomen, lower back & pelvis (S399)	60 (1.3)	10 (1.9)	70 (1.4)
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	58 (1.3)	6 (1.1)	64 (1.3)
Concussion (S0600)	49 (1.1)	12 (2.2)	61 (1.2)
Care involving use of other rehabilitation procedures (Z508)	55 (1.2)	0 (0.0)	55 (1.1)
Open wound of other parts of wrist & hand including palm (S6188)	49 (1.1)	5 (0.9)	54 (1.1)
Open wound of other parts of lower leg (S8188)	48 (1.1)	6 (1.1)	54 (1.1)
Other principal diagnosis	3,689 (81.6)	432 (80.4)	4,121 (81.5)
Total	4,520 (100.0)	537 (100.0)	5,057 (100.0)

When broader diagnosis groupings were used, open wound of the wrist and hand was most common with 6.5% of admissions (n=327). Fracture of the lower leg and ankle was the most common diagnosis grouping for females with 9.1% of hospitalisations (n=49). The diagnosis groupings listed in Table 4.8 account for 43.9% of all Agriculture, forestry and fishing industry related hospitalisations (Table 4.8).

Table 4.8: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at 3-character code level), by sex

Principal diagnosis group (code)	Males (%)	Females (%)	Persons (%)
Open wound of wrist & hand (S61)	302 (6.7)	25 (4.7)	327 (6.5)
Fracture of lower leg, including ankle (S82)	262 (5.8)	49 (9.1)	311 (6.1)
Fracture at wrist & hand level (S62)	275 (6.1)	20 (3.7)	295 (5.8)
Intracranial injury (S06)	188 (4.2)	37 (6.9)	225 (4.4)
Traumatic amputation of wrist & hand (S68)	178 (3.9)	21 (3.9)	199 (3.9)
Fracture of forearm (S52)	153 (3.4)	35 (6.5)	188 (3.7)
Fracture of rib(s), sternum & thoracic spine (S22)	141 (3.1)	12 (2.2)	153 (3.0)
Open wound of head (S01)	131 (2.9)	12 (2.2)	143 (2.8)
Injury of muscle & tendon at wrist & hand level (S66)	121 (2.7)	8 (1.5)	129 (2.6)
Open wound of lower leg (S81)	115 (2.5)	14 (2.6)	129 (2.6)
Fracture of skull & facial bones (S02)	110 (2.4)	10 (1.9)	120 (2.4)
Other principal diagnosis	2,544 (56.3)	294 (54.7)	2,838 (56.1)
Total	4,520 (100.0)	537 (100.0)	5,057 (100.0)

The wrist and hand was the most common body region injured in Agriculture, forestry and fishing industry related hospitalisations (n=1,126, 22.3%). Wrist and hand injury principal diagnosis groupings are listed in table 4.9 and where there were larger numbers single diagnoses are listed also. Open wounds accounted for 29.0%, fractures for 26.2% and traumatic amputations for 17.7% of hospitalised wrist and hand injury while working for income in the Agriculture, forestry and fishing industry sector (Table 4.9).

Table 4.9: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: numbers of wrist and hand injury cases by Principal Diagnosis (at most detailed level), by sex

Principal diagnosis (code)	Males	Females	Persons
Superficial injury of wrist & hand (S60)	19		
Open wound of wrist & hand (S61)	302	25	327
Open wound of finger(s) without damage to nail (S610)	*163*	*16*	*179*
Open wound of finger(s) with damage to nail (S611)	*44*		
Open wound of other parts of wrist & hand (S6188)	*49*	*5*	*54*
Open wound of other parts of wrist & hand, part unspecified (S619)	*40*		
Other wound of wrist & hand	*6*		
Fracture at wrist & hand level (S62)	275	20	295
Fracture of distal phalanx of other finger (not thumb) (S6263)	*92*	*6*	*98*
Fracture of proximal phalanx of other finger (not thumb) (S6261)	*30*		
Fracture of middle phalanx of other finger (not thumb) (S6262)	*23*		
Fracture of distal phalanx of thumb (S6252)	*17*	*0*	*17*
Fracture of other metacarpal bone (not first), part unspecified (S6230)	*13*		
Fracture of proximal phalanx of thumb (S6251)	*13*		
Fracture of shaft of other metacarpal bone (not first) (S6232)	*12*		
Fracture of phalanx of other finger (not thumb), part unspecified (S6260)	*10*		
Fracture of base of first metacarpal bone (S6221)	*7*		
Multiple fractures of metacarpal bones (S624)	*9*	*0*	*9*
Fracture of neck of other metacarpal bone (not first) (S6233)	*7*	*0*	*7*
Fracture of thumb, part unspecified (S6250)	*7*	*0*	*7*
Fracture of scaphoid bone of hand (S620)	*6*	*0*	*6*
Fracture of head of other metacarpal bone (not first) (S6234)	*5*	*0*	*5*
Fracture of base of other metacarpal bone (not first) (S6231)	*4*	*0*	*4*
Multiple fractures of fingers (S627)	*4*	*0*	*4*
Other fracture at wrist & hand level	*16*		
Dislocation, sprain & strain of joints & ligaments at wrist & hand level (S63)	22	0	22
Dislocation of interphalangeal joint of finger (S6312)	*5*	*0*	*5*
Other dislocation at wrist & hand level	*17*	*0*	*17*
Injury of nerves at wrist & hand level (S64)	51		
Injury of digital nerve of other finger (not thumb) (S644)	*22*	*0*	*22*
Injury of ulnar nerve at wrist & hand level (S640)	*10*	*0*	*10*

Injury of digital nerve of thumb (S643)	*7*	*0*	*7*
Injury of radial nerve at wrist & hand level (S642)	*6*		
Other injury of nerves at wrist & hand level	*6*		
Injury of blood vessels at wrist & hand level (S65)	16		
Injury of radial artery at wrist & hand level (S651)	*6*	*0*	*6*
Injury of blood vessels of other finger (excluding thumb) (S655)	*5*		
Other injury of blood vessels at wrist & hand level	*5*		
Injury of muscle & tendon at wrist & hand level (S66)	121	8	129
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	*58*	*6*	*64*
Injury of extensor muscle & tendon of thumb at wrist & hand level (S662)	*20*		
Injury of flexor muscle & tendon of other finger (not thumb) at wrist & hand level (S661)	*18*	*0*	*18*
Injury of long flexor muscle & tendon of thumb at wrist & hand level (S660)	*8*	*0*	*8*
Injury of multiple extensor muscles & tendons at wrist & hand level (S667)	*7*	*0*	*7*
Injury of other muscles & tendons at wrist & hand level (S668)	*5*		
Other injury of muscle & tendon at wrist & hand level	*5*	*0*	*5*
Crushing injury of wrist & hand (S67)	38	5	43
Crushing injury of thumb & other fingers(s) (S670)	*28*		
Crushing injury of other & unspecified parts of wrist & hand (S678)	*10*		
Traumatic amputation of wrist & hand (S68)	178	21	199
Traumatic amputation of other single finger (not thumb) (S681)	*122*	*13*	*135*
Traumatic amputation of two or more fingers alone (S682)	*29*	*4*	*33*
Other traumatic amputation at wrist & hand level	*27*	*4*	*31*
Other & unspecified injuries of wrist & hand (S69)	16		
Total injuries to wrist & hand	1,038	88	1,126

Where cell numbers for males or females are low, the cell number and total are not shown.

Procedures

The most common principal procedure undertaken in persons hospitalised for Agriculture, forestry and fishing was physiotherapy (n=262, 5.2%). The most common surgical procedure was repair of a superficial wound of the skin and subcutaneous tissue of other site (excluding face and neck) (n=180, 3.6%). The majority of the top ten procedures involve the skin and musculoskeletal system (Table 4.10).

Table 4.10: Hospitalised injury while working for income in the Agriculture, forestry and fishing industry, Australia 2002–03 and 2003–04: most frequently recorded Principal Procedures, by sex

Principal procedure (code)	Males	Females	Persons
Physiotherapy (9555003)	242	20	262
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), superficial (3002600)	165	15	180
Excisional debridement of deep soft tissue including muscle, tendon, fascia ligaments or nerves (3002300)	153	11	164
Primary repair of extensor tendon of hand (4642000)	90	5	95
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), involving deeper tissue (3002900)	82	7	89
Excisional debridement of skin & subcutaneous tissue (9066500)	72	7	79
CT brain without intravenous contrast (5600100)	61	14	75
Excisional debridement of soft tissue involving bone or cartilage (3002301)	46	5	51
Open reduction of fracture of ankle with internal fixation of diastasis, fibula or malleolus (4760001)	37	14	51
CT spine without intravenous contrast (5621000)	42		
Closed reduction of dislocation of shoulder (4700900)	40		
Other principal procedure	3,490	433	3,923
Total	**4,520**	**537**	**5,057**

Where cell numbers for males or females are low, the cell number and total are not shown.

Summary

Among cases admitted to Australian hospitals during the two years ending 30 June 2004, 5,057 were recorded as injury while working for income in Agriculture, forestry and fishing. Males accounted for 89.4% of these cases. The largest number of admissions occurred in the 35–44 year age group (n=1,054). Rates were considerably higher for males (857.6 hospitalisations per 100,000 male workers in this sector per year) than females (232.7 hospitalisations per 100,000 female workers per year). The male excess was somewhat less marked when measured in terms of cases per million hours worked: 3.5 for males and 1.5 for females.

Only 10.5% of persons hospitalised due to injury while working for income in Agriculture, forestry and fishing resided in a major city, compared with 58.5% for all hospitalised work-related injuries.

Of all Agriculture, forestry and fishing industry related hospitalisations, 40.9% were due to exposure to inanimate forces, with struck by thrown, projected or falling object being most common (n=322). The majority of incidents resulting in hospitalisation occurred at a farm (63.7%).

Fracture was the most common type of diagnosis (28.9%). 22.3% of hospitalisations involved wrist and hand injury. Open wound of the wrist and hand was the most common diagnosis grouping (6.5%).

5 Manufacturing

This chapter includes the cases of Hospitalised injury while working for income that were further specified as occurring in Manufacturing (ICD–10–AM code U73.02). Summary measures for this set of cases are shown in Table 5.1.

Table 5.1: Hospitalised injury while working for income in the Manufacturing industry, Australia 2002–03 and 2003–04: summary measures

Indicator	
Cases	4,199
Estimated number of workers ('000) * **	1,092.2
Hospitalisation rate per 100,000 workers per year * **	191.9
Hospitalisation rate per million hours worked * **	1.0

* Workers and working hours refer to the total employed labour force in the study period (ABS 2006a).

** Only includes persons 15 + years.

Background

Approximately 1.1 million workers are employed in the Manufacturing industry in Australia (ABS 2006b).

The main injury hazards facing workers in the Manufacturing industry are inadequate guarding, electricity, powered fixed machinery and mobile machinery.

The rate of fatal injury in the manufacturing industry from 1989 to 1992 (3.0 per 100,000 per year) was considerably lower than the all-industry rate (5.5 per 100,000 per year) (Driscoll et al 2001; ABS 2006a). The fatality rate estimated for this industry in 2003-04, 2.4 per 100,000 per year, was also lower than for all industries combined, in the same period, 3.5 per 100,000 per year. In contrast, the rate of non-fatal compensated injury in this industry (22.7 per 1,000 per year) is nearly twice the all-industry average (12.7 per 1,000 per year) (Australian Safety and Compensation Council 2006b).

The most common incident mechanisms resulting in fatal injury of manufacturing workers in Australia are being hit by objects, vehicle incidents and falls from a height (Driscoll 2003). Thirty-six per cent of recent manufacturing fatalities involved motor vehicle crashes on public roads (ASCC 2006a).

Mechanisms commonly involved in non-fatal injury of manufacturing workers in Australia are muscular stress while lifting, carrying or handling objects; falls on the same level; and being hit by moving or falling objects (ASCC 2006b). Eye injuries have also been identified as an important problem (Fong & Taouk 1995).

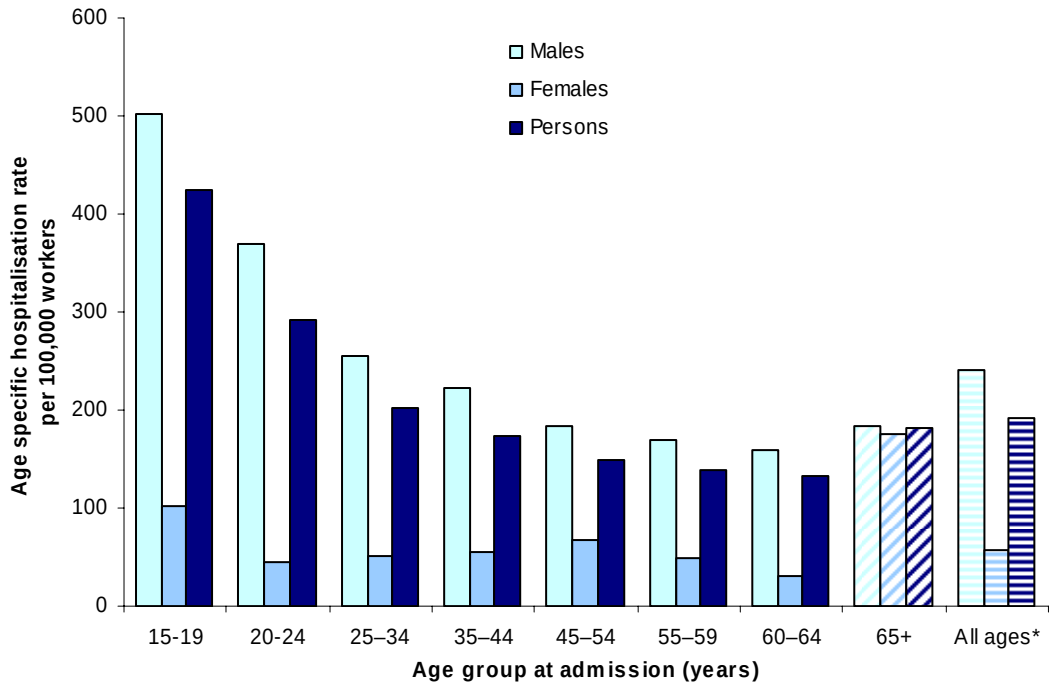
Age and sex

Of all cases of hospitalised injury while working for income in the Manufacturing industry, 3,861 (92.0%) involved males. The largest number of hospitalisations was in the 25–34 year age group for males (n=1,024) and the 45–54 year age group for females (n=100) (Table 5.2).

Table 5.2: Hospitalised injury while working for income in the Manufacturing industry, Australia 2002–03 and 2003–04: case numbers by age group and sex

Age group at admission (years)	Males	Females	Persons
0–14			7
15-19	357	17	374
20-24	541	21	562
25–34	1,024	71	1,095
35–44	939	94	1,033
45–54	641	100	741
55–59	217	21	238
60–64	100	5	105
65+			44
All ages	**3,861**	**338**	**4,199**

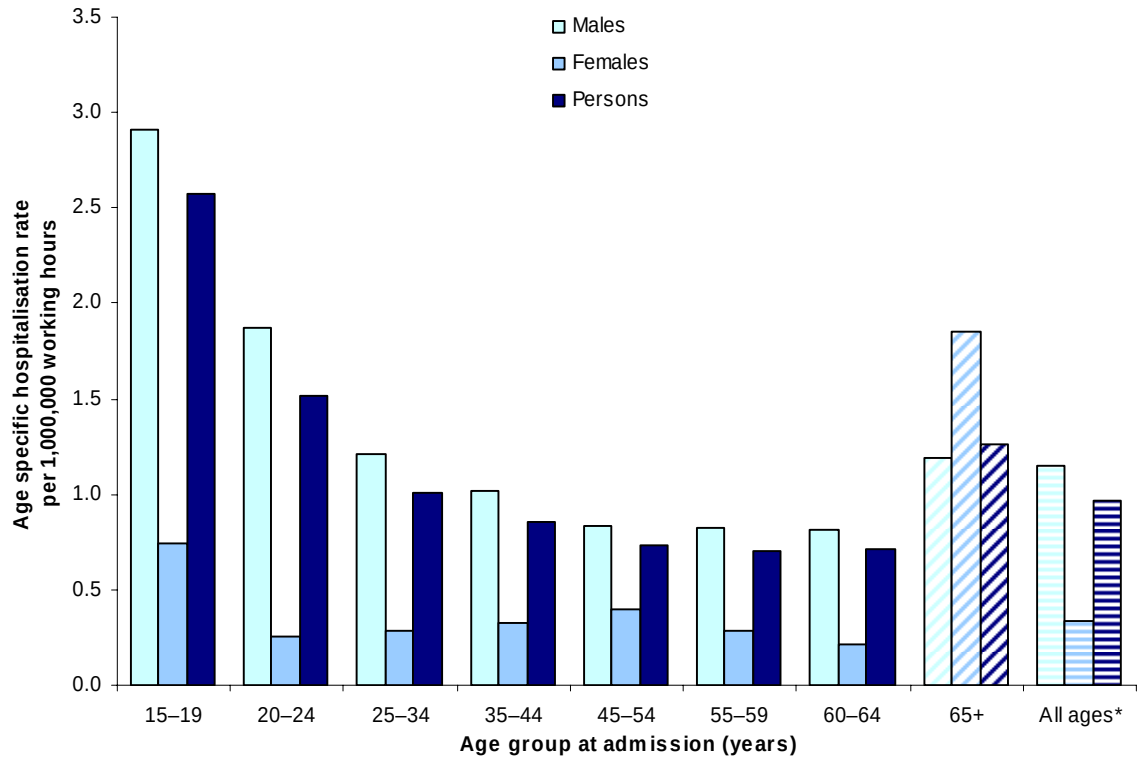
The age specific rate of hospitalisation per 100,000 workers per year for males was highest in the 15–19 year age group with 501.1 hospitalisations, compared with 241.1 per 100,000 workers for all ages (15 years and over) (Figure 5.1). For males (and overall) there was a gradual decrease in the hospitalisation rate with increasing age to a minimum in the 60–64 year age group. Rates were a little higher in the age group 65 years and over. For females the highest rate was in the 65 years and over age group with 176.1 hospitalisations per 100,000 workers, compared 57.4 for all ages (15 years and over). It should be noted, however, that in the 65 years and over age group the LFS provides a small estimate of the number of female workers (n=2000), a value with substantial uncertainty (ABS 2006a). The number of cases in this group (n=7) is also small enough to be susceptible to substantial variation due to chance factors..There were 191.9 hospitalisations per 100,000 workers (15 years and over) overall due to injury while working for income in Manufacturing.



* Only includes persons 15 + years.

Figure 5.1: Hospitalised injury while working for income in the Manufacturing industry, Australia 2002–03 and 2003–04: average annual rate per 100,000 in the employed labour force, by age group and sex

As with the age specific hospitalisation rate per 100,000 workers, the rate per million hours worked peaked in the 15–19 year age group for males (2.9 hospitalisations per million hours worked) and in the 65 years and over age group for females (1.8 hospitalisations per million hours worked). For the all ages category (15 years and over) there were 1.1, 0.3 and 1.0 hospitalisations per million hours worked for males, females and overall, respectively (Figure 5.2). As with rates per 100,000 workers, the value for females aged 65 years and older should be interpreted cautiously, due to the uncertain labour force estimate and the small number of cases.



* Only includes persons 15 + years.

Figure 5.2: Hospitalised injury while working for income in the Manufacturing industry, Australia 2002–03 and 2003–04: rate per million hours worked by the employed labour force, by age group and sex

Remoteness of residence

Most persons hospitalised due to injury while working for income in the Manufacturing industry resided in major cities (n=2,761, 65.8%), compared with 58.5% for all paid work related injury hospitalisations. Only 1.6% resided in remote and very remote locations (Figure 5.3).

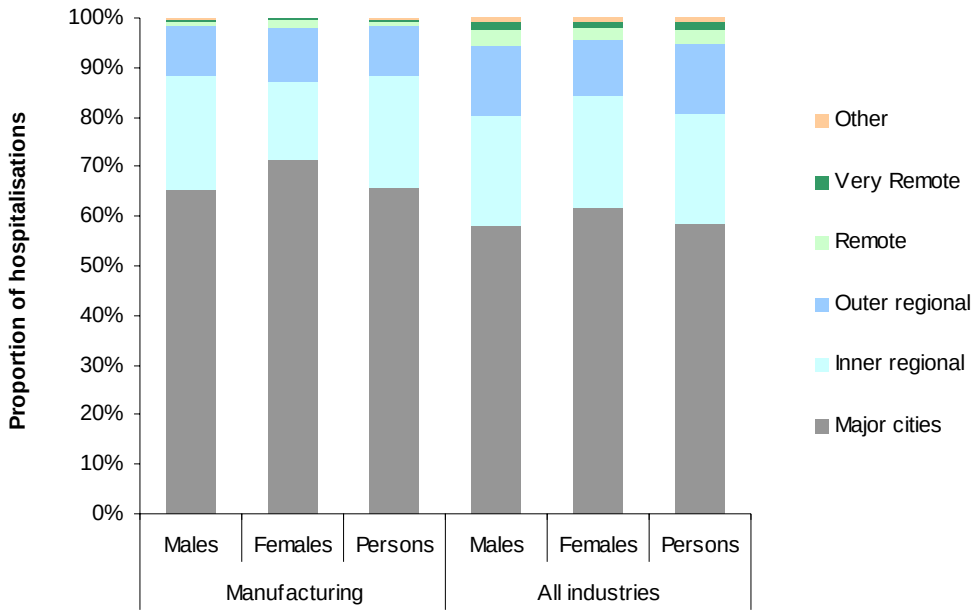


Figure 5.3: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by remoteness zone of usual residence, Manufacturing industry and all industries, by sex

Mechanism of injury

Exposure to inanimate mechanical forces was by far the most common type of mechanism in persons hospitalised due to injury while working for income in the Manufacturing industry (n=3,026, 72.1%). Falls accounted for 8.4% (n=352) of hospitalisations (Figure 5.4).

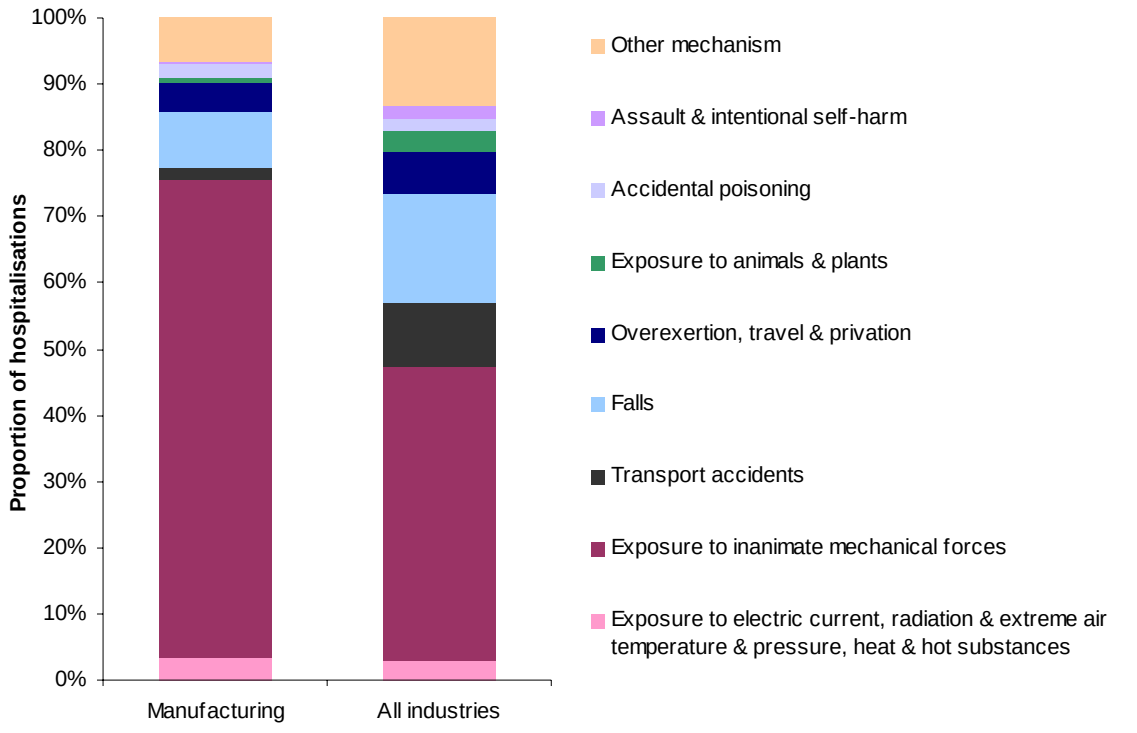


Figure 5.4: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by mechanism, Manufacturing industry and all industries

Considering only the cases due to exposure to inanimate mechanical forces, contact with other and unspecified machinery was the most common single mechanism (n=658), followed by being caught, crushed, jammed or pinched in or between objects (n=331), followed by coming into contact with metalworking machinery (n=305) (Table 5.3).

Falls accounted for only 8.4% of hospitalisations due to injury in this industry sector, with fall on and from stairs being most common type (n=79) (Table 5.4).

Table 5.3: Hospitalised injury while working for income in the Manufacturing industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was exposure to inanimate mechanical forces, by specific mechanism and sex

Mechanism	Males	Females	Persons
Contact with other & unspecified machinery	570	88	658
Caught, crushed, jammed or pinched in or between objects	309	22	331
Contact with metalworking machinery	298	7	305
Contact with other powered hand tools & household machinery	248	10	258
Contact with woodworking & forming machinery	246	11	257
Foreign body or object entering through skin	232	4	236
Struck by thrown, projected or falling object	216	10	226
Contact with knife, sword or dagger	170	16	186
Striking against or struck by other objects	120	7	127
Contact with lifting & transmission devices, not elsewhere classified	100	5	105
Contact with non-powered hand tool	74	8	82
Contact with sharp glass	52		
Foreign body entering into or through eye or natural orifice	42	0	42
Explosion of other materials	14	0	14
Explosion & rupture of pressurised devices	12	0	12
Contact with other & unspecified agricultural machinery	7		
Contact with earthmoving, scraping & other excavating machinery	4	0	4
Exposure to other & unspecified inanimate mechanical forces	113	6	119
Total for exposure to inanimate mechanical forces	**2,827**	**199**	**3,026**

Where cell numbers for males or females are low, the cell number and total are not shown.

Table 5.4: Hospitalised injury while working for income in the Manufacturing industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was a fall, by specific mechanism and sex

Mechanism	Males	Females	Persons
Fall on & from stairs	76		
Other fall from one level to another	55	5	60
Fall on same level from slipping	41	11	52
Other fall on same level	25	11	36
Fall on & from ladder	34		
Fall on same level from tripping	20	9	29
Fall on & from scaffolding	7	0	7
Fall on same level from stumbling	4		
Other & unspecified fall	33	16	49
Total falls	295	57	352

Where cell numbers for males or females are low, the cell number and total are not shown.

Place of occurrence

Factory and plant was by far the most common site of injury in persons hospitalised in the Manufacturing industry (n=3,096, 73.7%) compared with 11.4% for all paid work related hospitalisations. Males and females hospitalised due to injury in this industry sector had a similar profile (Figure 5.5).

Figure 5.5: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by type of place of occurrence, Manufacturing industry and all industries, by sex

Month of admission

For the 2 year study period, October was the most common month for admission to hospital due to injury while working for income in the Manufacturing industry (n=411, 9.8%). Troughs occurred in mid-year and in December and January with n=303 and n=304 hospitalisations, respectively (7.2%) (Figure 5.6).

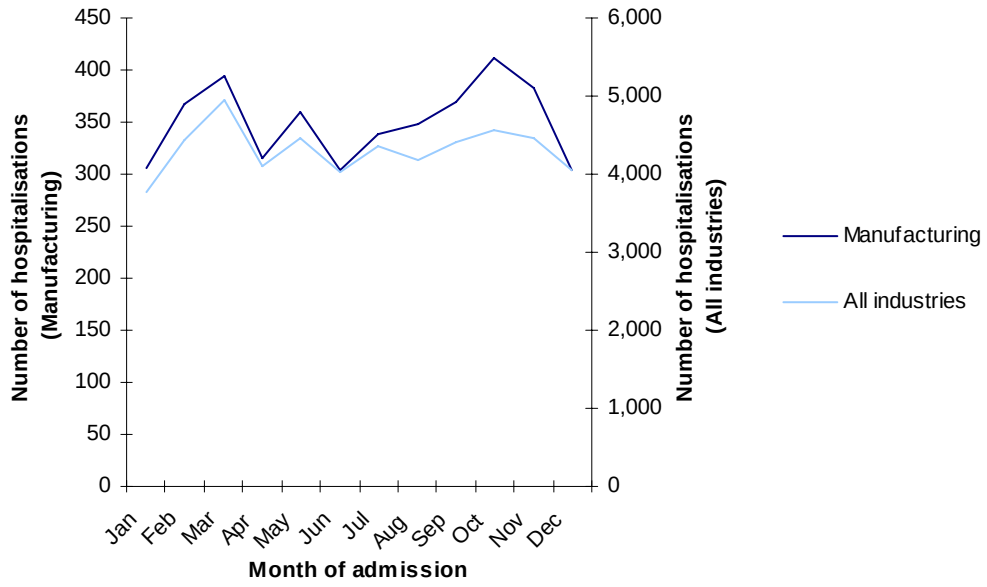


Figure 5.6: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by month of admission to hospital, Manufacturing industry and all industries

Day of admission

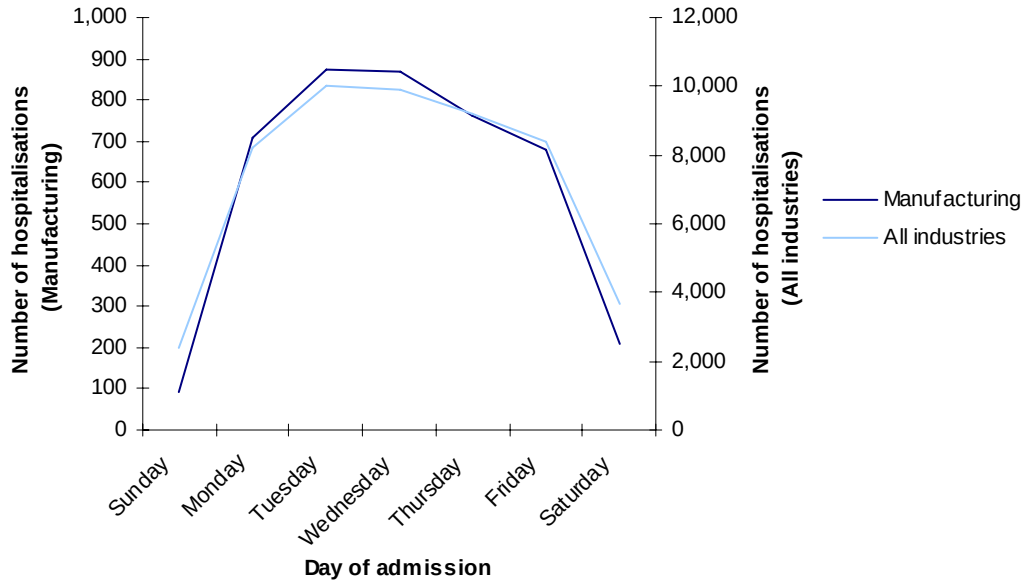


Figure 5.7: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by weekday of admission to hospital, Manufacturing industry and all industries

Admissions due to injury while working for income in the Manufacturing industry varied more strongly with weekday than did cases overall.

The largest number of hospitalisations occurred on Tuesdays (n=873, 20.8%) and Wednesdays (n=871, 20.7%). The lowest number of hospitalisations was on Sundays with only 2.2% (n=93) (Figure 5.7).

Nature of injury (Principal Diagnosis)

Fractures (n=828, 19.7%) and open wounds (n=778, 18.5%) were the most common types of diagnosis prompting admission to hospital due to injury while working for income in Manufacturing. Amputations (n=439, 10.5%) were more common in the Manufacturing industry than in All industries (4.8%). In the Manufacturing industry, amputations were relatively common for both males and females, but more so for males (10.7%) than females (7.4%) (Figure 5.8 and Table 5.5).

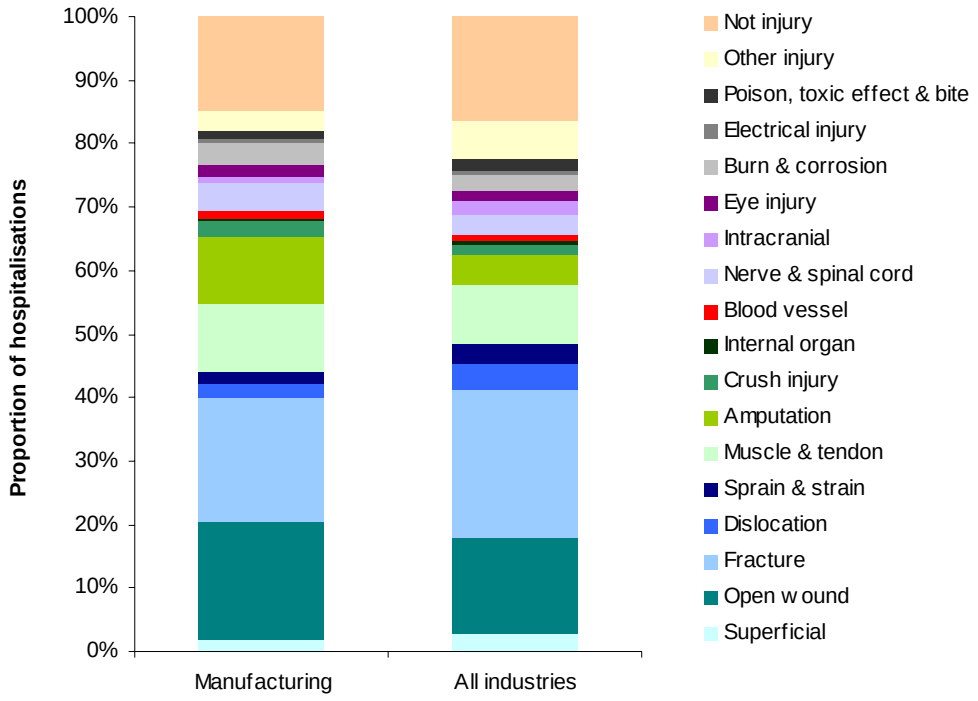


Figure 5.8: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by nature of injury (Principal Diagnosis), Manufacturing industry and all industries

Table 5.5: Hospitalised injury while working for income in the Manufacturing industry, Australia 2002–03 and 2003–04: numbers and proportions of cases by nature of injury (Principal Diagnosis) and sex

Nature	Males (%)	Females (%)	Persons (%)
Superficial	73 (1.9)	9 (2.7)	82 (2.0)
Open wound	727 (18.8)	51 (15.1)	778 (18.5)
Fracture	751 (19.5)	77 (22.8)	828 (19.7)
Dislocation	74 (1.9)	9 (2.7)	83 (2.0)
Sprain & strain	68 (1.8)	11 (3.3)	79 (1.9)
Muscle & tendon	438 (11.3)	19 (5.6)	457 (10.9)
Amputation	414 (10.7)	25 (7.4)	439 (10.5)
Crush injury	90 (2.3)	12 (3.6)	102 (2.4)
Internal organ	8 (0.2)	0 (0.0)	8 (0.2)
Blood vessel	60 (1.6)		
Nerve & spinal cord	168 (4.4)	11 (3.3)	179 (4.3)
Intracranial	46 (1.2)		
Eye injury	71 (1.8)		
Burn & corrosion	133 (3.4)	9 (2.7)	142 (3.4)
Electrical injury	31 (0.8)		
Poison, toxic effect & bite	49 (1.3)	5 (1.5)	54 (1.3)
Other injury	115 (3.0)	21 (6.2)	136 (3.2)
Not injury	545 (14.1)	72 (21.3)	617 (14.7)
Total	3, 861 (100.0)	338 (100.0)	4,199 (100.0)

Where cell numbers for males or females are low, the cell number and total are not shown.

The mean length of stay in hospital due to injury while working for income in the Manufacturing industry was 2.4 days, compared with 3.0 days for cases overall. Cases with a principal diagnosis of injury to an internal organ had by far the longest mean length of stay with 13.1 days, but there were few cases of this type (n=8). The shortest mean length of stay was for hospitalisations due to foreign bodies, electrical injury and poison, toxic effect and bites which had mean length of stays of 1.0, 1.0 and 1.1 days, respectively (Figure 5.9).

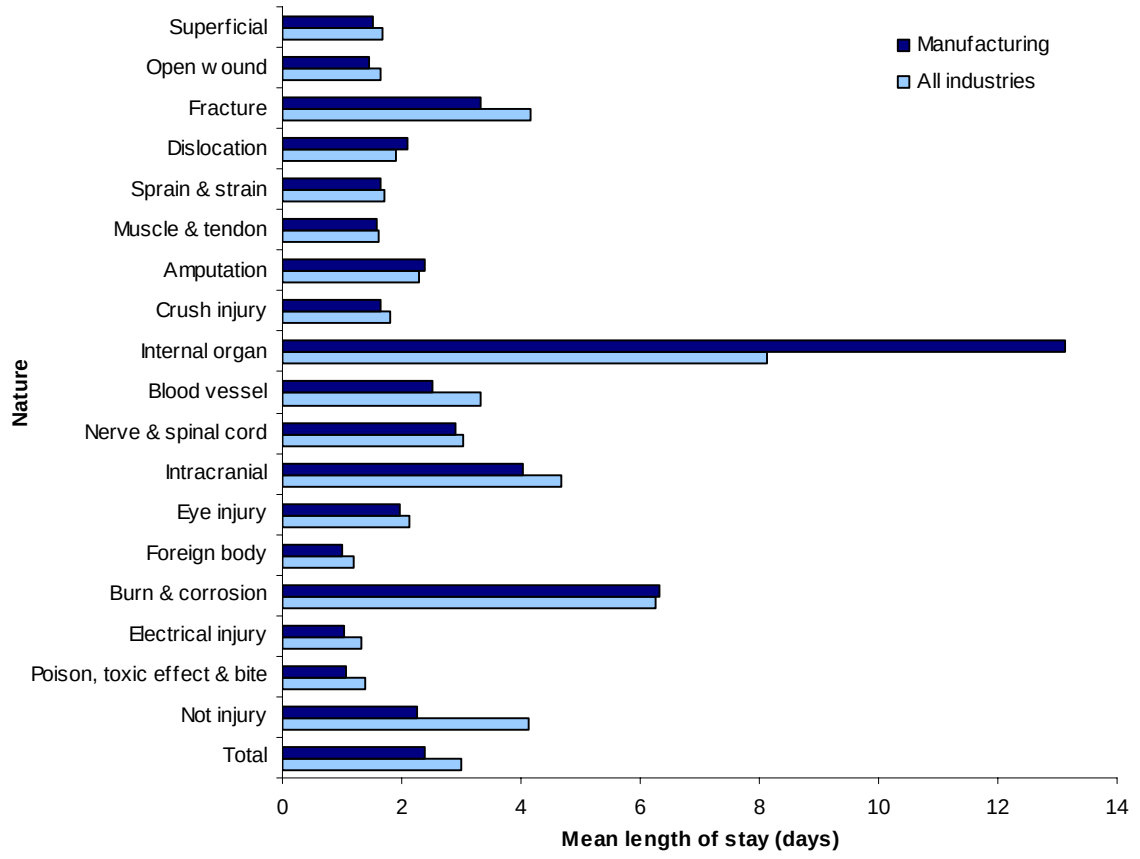


Figure 5.9 Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by nature of injury (Principal Diagnosis), Manufacturing industry and all industries

Body region injured (Principal Diagnosis)

In the Manufacturing industry, wrist and hand injury hospitalisations due to injury while working for income accounted for 52.1% (n=2,188), compared with 31.6% for cases overall (Figure 5.10).

As a proportion of all Manufacturing industry hospitalisations in an age group, wrist and hand injuries were most common in the 15–19 year age group (n=243, 65.0%). However, the largest number of such cases was in the 25–34 year age group with (n=560, 51.1%) (Figure 5.11).

Figure 5.10: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by body region injured, Manufacturing industry and all industries, by sex

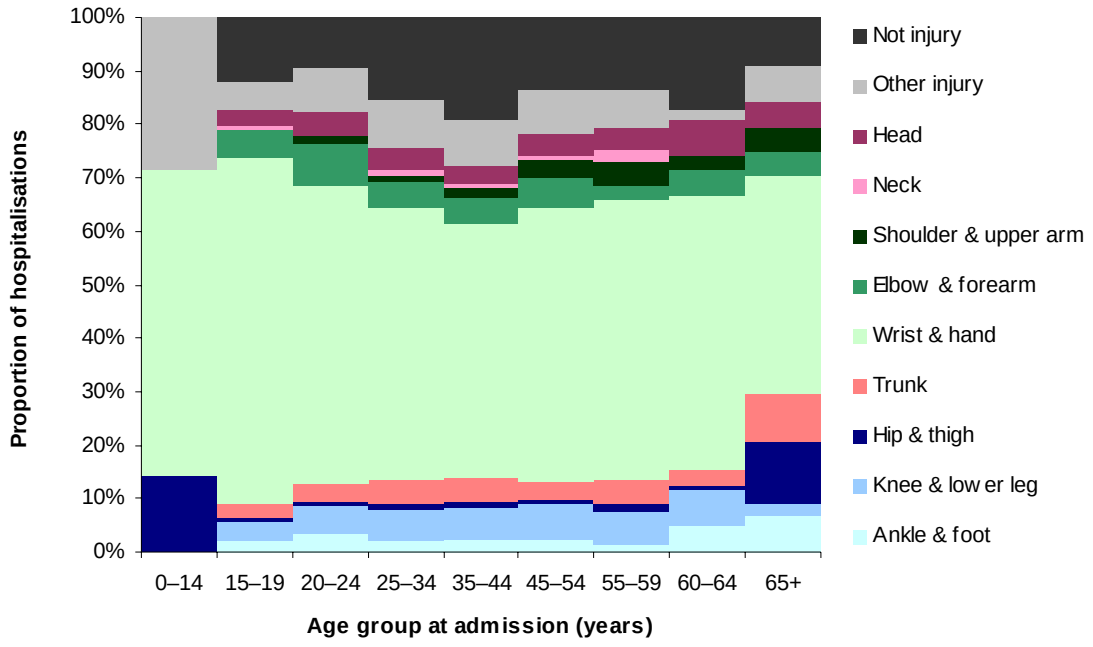


Figure 5.11: Hospitalised injury while working for income in the Manufacturing industry, Australia 2002–03 and 2003–04: proportions of cases by body region injured and age group

The mean length of stay for hospitalised injury while working for income in the Manufacturing industry was 2.4 days. Hip and thigh injury hospitalisations and trunk injury hospitalisations had the longest mean length of stay with 5.9 and 5.6 days, respectively. The shortest length of stay was for wrist and hand injury related hospitalisations with a mean length of stay of 1.6 days (Figure 5.12).

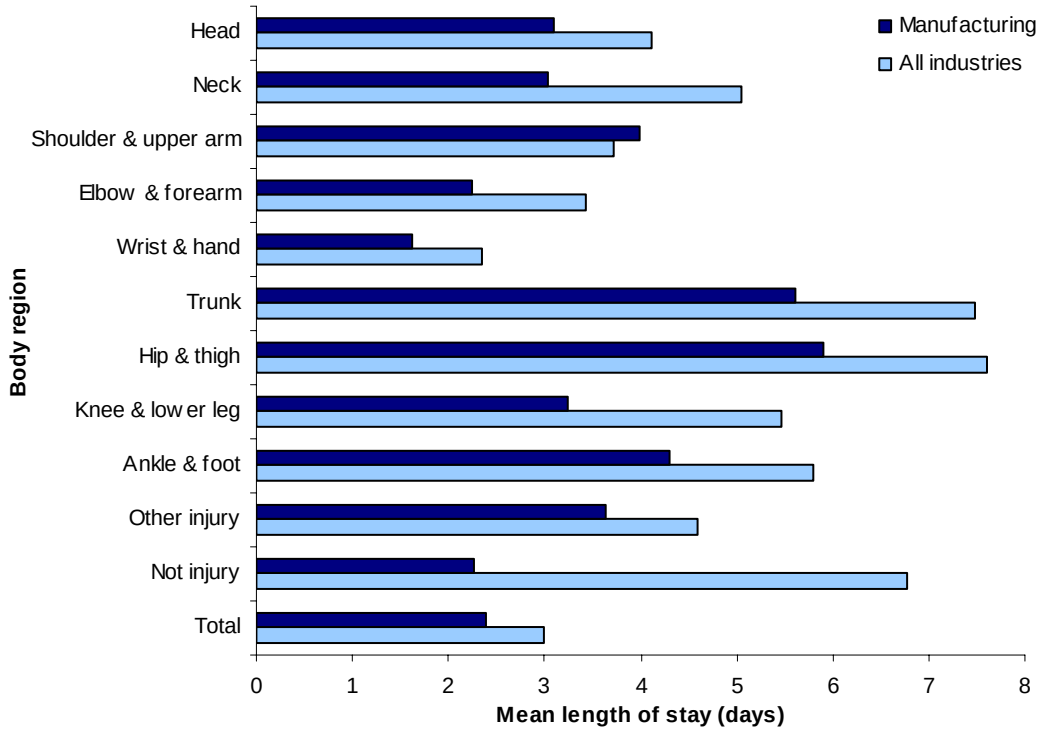


Figure 5.12: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by body region injured (Principal Diagnosis), Manufacturing industry and all industries

Most frequent Principal Diagnoses

Nine of the most frequent ten principal diagnoses among cases of injury while working for income in the Manufacturing industry involve the wrist and hand. Traumatic amputation of a single finger (not the thumb) (S681) was the most common diagnosis with 303 (7.2%) admissions. The top ten single diagnoses listed in Table 5.6 account for 41.2% of all hospitalisations due to injury while working for income in the Manufacturing industry.

Table 5.6: Hospitalised injury while working for income in the Manufacturing industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at most detailed level), by sex

Principal diagnosis (code)	Males (%)	Females (%)	Persons (%)
Traumatic amputation of other single finger (not thumb) (S681)	282 (7.3)	21 (6.2)	303 (7.2)
Open wound of finger without damage to nail (S610)	262 (6.8)	21 (6.2)	283 (6.7)
Fracture of distal phalanx of other finger (not thumb) (S6263)	226 (5.9)	26 (7.7)	252 (6.0)
Care involving use of other rehabilitation procedures (Z508)	230 (6.0)	12 (3.6)	242 (5.8)
Open wound of finger(s) or thumb with damage to nail (S611)	187 (4.8)	12 (3.6)	199 (4.7)
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	148 (3.8)	6 (1.8)	154 (3.7)
Injury of digital nerve of other finger (not thumb) (S644)	86 (2.2)	4 (1.2)	90 (2.1)
Open wound of other parts of wrist & hand including palm (S6188)	69 (1.8)	5 (1.5)	74 (1.8)
Crushing injury of thumb & other finger(s) (S670)	60 (1.6)	8 (2.4)	68 (1.6)
Traumatic amputation of two or more fingers alone (S682)	64 (1.7)	2 (0.6)	66 (1.6)
Other principal diagnosis	2,247 (58.2)	221 (65.4)	2,468 (58.8)
Total	**3,861 (100.0)**	**338 (100.0)**	**4,199 (100.0)**

Considered in terms of three-character ICD-10-AM diagnosis codes, 14.0% (n=589) of hospitalised cases due to injury while working for income in the Manufacturing industry were due to open wounds of the wrist and hand (S61). Fracture of the wrist and hand was also common with 502 hospitalisations (12.0%). The eleven diagnosis groupings listed in Table 5.7 account for 62.6% of cases in the Manufacturing industry.

Table 5.7: Hospitalised injury while working for income in the Manufacturing industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at 3-character code level), by sex

Principal diagnosis group (code)	Males (%)	Females (%)	Persons (%)
Open wound of wrist & hand (S61)	548 (14.2)	41 (12.1)	589 (14.0)
Fracture at wrist & hand level (S62)	450 (11.7)	52 (15.4)	502 (12.0)
Traumatic amputation of wrist & hand (S68)	407 (10.5)	25 (7.4)	432 (10.3)
Injury of muscle & tendon at wrist & hand level (S66)	303 (7.8)	10 (3.0)	313 (7.5)
Care involving use of rehabilitation procedures (Z50)	243 (6.3)	13 (3.8)	256 (6.1)
Injury of nerves at wrist & hand level (S64)	142 (3.7)	10 (3.0)	152 (3.6)
Fracture of lower leg, including ankle (S82)	78 (2.0)	10 (3.0)	88 (2.1)
Crushing injury of wrist & hand (S67)	71 (1.8)	10 (3.0)	81 (1.9)
Fracture of forearm (S52)	66 (1.7)	7 (2.1)	73 (1.7)
Dislocation, sprain & strain of joints & ligaments of the knee(S83)	64 (1.7)	8 (2.4)	72 (1.7)
Dorsalgia (M54)	48 (1.2)	24 (7.1)	72 (1.7)
Other principal diagnosis	1,441 (37.3)	128 (37.9)	1,569 (37.4)
Total	**3,861 (100.0)**	**338 (100.0)**	**4,199 (100.0)**

There were 432 hospitalisations due to traumatic amputation of wrist and hand (S68) (10.3%), with 428 of these due to traumatic amputation of the fingers and/or thumb (Table 5.8).

Table 5.8: Hospitalised injury while working for income in the Manufacturing industry, Australia 2002–03 and 2003–04: numbers of wrist and hand injury cases by Principal Diagnosis and sex

Principal diagnosis (code)	Males	Females	Persons
Superficial injury of wrist & hand (S60)	24	5	29
Superficial foreign body (splinter) of wrist & hand (S6084)	*18*		
Other superficial injury of wrist & hand	*6*		
Open wound of wrist & hand (S61)	548	41	589
Open wound of finger(s) without damage to nail (S610)	*262*	*21*	*283*
Open wound of finger(s) with damage to nail (S611)	*187*	*12*	*199*
Open wound of other parts of wrist & hand (S6188)	*69*		
Other wound of wrist & hand	*30*		
Fracture at wrist & hand level (S62)	450	52	502
Fracture of distal phalanx of other finger (not thumb) (S6263)	*226*	*26*	*252*
Fracture of middle phalanx of other finger (not thumb) (S6262)	*52*	*8*	*60*
Fracture of distal phalanx of thumb (S6252)	*39*	*4*	*43*
Fracture of proximal phalanx of other finger (not thumb) (S6261)	*33*		
Fracture of proximal phalanx of thumb (S6251)	*26*	*4*	*30*
Fracture of shaft of other metacarpal bone (not first) (S6232)	*15*	*0*	*15*
Fracture of phalanx of other finger (not thumb), part unspecified (S6260)	*11*		
Fracture of other metacarpal bone (not first), part unspecified (S6230)	*6*		
Fracture of base of other metacarpal bone (not first) (S6231)	*7*	*0*	*7*
Fracture of base of first metacarpal bone (S6221)	*6*	*0*	*6*
Fracture of head of other metacarpal bone (not first) (S6234)	*5*		
Multiple fractures of fingers (S627)	*5*	*0*	*5*
Fracture of scaphoid bone of hand (S620)	*4*	*0*	*4*
Other fracture of wrist & hand	*15*	*4*	*19*
Dislocation, sprain & strain of joints & ligaments at wrist & hand level (S63)	27		
Dislocation of interphalangeal joint of finger (S6312)	*7*	*0*	*7*
Sprain & strain of interphalangeal (joint), hand (S6362)	*6*	*0*	*6*
Sprain & strain of metacarpophalangeal joint (S6361)	*5*	*0*	*5*
Sprain & strain of other parts of wrist (S6358)	*4*	*0*	*4*
Other dislocation, sprain & strain of joints & ligaments at wrist & hand level	*5*		
Injury of nerves at wrist & hand level (S64)	142	10	152
Injury of digital nerve of other finger (not thumb) (S644)	*86*	*4*	*90*
Injury of radial nerve at wrist & hand level (S642)	*24*		
Injury of ulnar nerve at wrist & hand level (S640)	*12*		

Injury of digital nerve of thumb (S643)	*12*		
Injury of median nerve at wrist & hand level (S641)	*4*		
Injury of other nerves at wrist & hand level (S648)	*4*	*0*	*4*
Injury of blood vessels at wrist & hand level (S65)	47		
Injury of blood vessels of other finger (excluding thumb) (S655)	*30*	*0*	*30*
Injury of blood vessel(s) of thumb (S654)	*6*	*0*	*6*
Injury of radial artery at wrist & hand level (S651)	*5*	*0*	*5*
Injury of other blood vessels at wrist & hand level	*6*		
Injury of muscle & tendon at wrist & hand level (S66)	303	10	313
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	*148*	*6*	*154*
Injury of flexor muscle & tendon of other finger (not thumb) at wrist & hand level (S661)	*53*		
Injury of extensor muscle & tendon of thumb at wrist & hand level (S662)	*53*	*0*	*53*
Injury of other muscles & tendons at wrist & hand level (S668)	*12*	*0*	*12*
Injury of multiple extensor muscles & tendons at wrist & hand level (S667)	*10*		
Injury of long flexor muscle & tendon of thumb at wrist & hand level (S660)	*10*	*0*	*10*
Injury of multiple flexor muscles & tendons at wrist & hand level (S666)	*7*	*0*	*7*
Other injury of muscle & tendon at wrist & hand level	*10*	*0*	*10*
Crushing injury of wrist & hand (S67)	71		
Crushing injury of thumb & other fingers (S670)	*60*	*8*	*68*
Crushing injury of other & unspecified parts of wrist & hand (S678)	*11*		
Traumatic amputation of wrist & hand (S68)	407	25	432
Traumatic amputation of other single finger (not thumb) (S681)	*282*	*21*	*303*
Traumatic amputation of thumb (S680)	*58*		
Other traumatic amputation at wrist & hand level	*67*		
Other & unspecified injuries of wrist & hand (S69)	11		
Total injuries to wrist & hand	**2,030**	**158**	**2,188**

Where cell numbers for males or females are low, the cell number and total are not shown.

Procedures

The most common procedure reported as having been performed in cases of hospitalised injury while working for income in the Manufacturing industry was excisional debridement of deep soft tissue including muscle, tendon, fascia ligaments or nerves (3002300) (n=379, 9.0%). The majority of procedures involved the skin and musculoskeletal system rather than internal organs (Table 5.9).

Table 5.9: Hospitalised injury while working for income in the Manufacturing industry, Australia 2002–03 and 2003–04: most frequently recorded Principal Procedures, by sex

Principal procedure (code)	Males	Females	Persons
Excisional debridement of deep soft tissue including muscle, tendon, fascia ligaments or nerves (3002300)	360	19	379
Physiotherapy (9555003)	284	19	303
Primary repair of extensor tendon of hand (4642000)	174	5	179
Primary repair of nail or nail bed (4648600)	112	9	121
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), superficial (3002600)	109	6	115
Primary repair of nerve (3930000)	94	5	99
Excisional debridement of soft tissue involving bone or cartilage (3002301)	87	8	95
Excisional debridement of skin & subcutaneous tissue (9066500)	76	5	81
Amputation of finger (excluding amputation of tip of finger) (4646500)	77		
Debridement of open fracture site (excluding that with open reduction of fracture) (9058000)	49		
Removal of foreign body from skin & subcutaneous tissue with incision (3006400)	41	11	52
Other procedure	2,398	245	2,643
Total	**3,861**	**338**	**4,199**

Where cell numbers for males or females are low, the cell number and total are not shown.

Summary

During 2002–03 and 2003–04, 4,199 cases of injury while working for income in the Manufacturing industry were admitted to hospitals in Australia, 92.0% of which were males. The largest number of hospitalisations occurred in the 25–34 year age group (n=1,095). There were 241.1 hospitalisations per 100,000 male workers and 57.4 hospitalisations per 100,000 female workers (15 years and over). The age specific rate per million hours worked for workers 15 years and over, was 1.1 and 0.3 for males and females, respectively.

Exposure to inanimate mechanical forces accounted for 72.1% of hospitalisations, with contact with other and unspecified machinery (n=658) being most common. Factory and plant was the most common place of occurrence (73.7%).

More than half of the cases (52.1%) involved injury to the wrist and hand. Open wound of the wrist and hand was the most common diagnosis grouping (14.0%) and traumatic amputation of other single finger (not thumb) was the most common principal diagnosis code (7.2%). Amputation of part(s) of the fingers or hands was the main reason for admission in 432 cases. Fractures accounted for 19.7% of hospitalisations and 18.5% were due to open wounds.

6 Wholesale and retail trade

This chapter includes the cases of Hospitalised injury while working for income that were further specified as occurring in Wholesale and retail trade (ICD–10–AM code U73.04). Summary measures for this set of cases are shown in Table 6.1.

Table 6.1: Hospitalised injury while working for income in the Wholesale and retail trade industry, Australia 2002–03 and 2003–04: summary measures

Indicator	
Cases	3,541
Estimated number of workers ('000) * **	1,883.8
Hospitalisation rate per 100,000 workers per year * **	93.8
Hospitalisation rate per million hours worked * **	0.6

* Workers and working hours refer to the total employed labour force in the study period (ABS 2006a).

** Only includes persons 15 + years.

Background

There are approximately 1.9 million workers employed in Wholesale and retail trade in Australia (ABS 2006b).

The main injury hazards facing workers in Wholesale and retail trade are heavy objects that need to be handled and vehicles.

The rate of fatal injury in Wholesale and retail trade (1.8 per 100,000 per year from 1989 to 1992; 1.4 per 100,0000 per year in 2003–04) was considerably lower than the all-industry rate in equivalent periods (5.5 and 3.5 deaths per 100,000 per year in the two periods) (Driscoll et al 2001; ASCC 2006a). In contrast, the rate of non-fatal compensated injury in the wholesale trade industry (12.6 per 1,000 per year) is similar to the all-industry average (12.7 per 1,000 per year), and that for retail trade is lower (8.5 per 1,000 per year) (ASCC 2006b).

The most common incident mechanisms resulting in fatal injury of wholesale and retail trade workers in Australia are vehicle incidents and being hit by objects (Driscoll 2003). Thirty-eight per cent of recent wholesale and retail trade fatalities involved motor vehicle crashes on public roads (ASCC 2006a).

Mechanisms commonly involved in non-fatal injury of wholesale and retail trade workers in Australia are falls on the same level; muscular stress while lifting, carrying or handling objects; and being hit by moving or falling objects (ASCC 2006b).

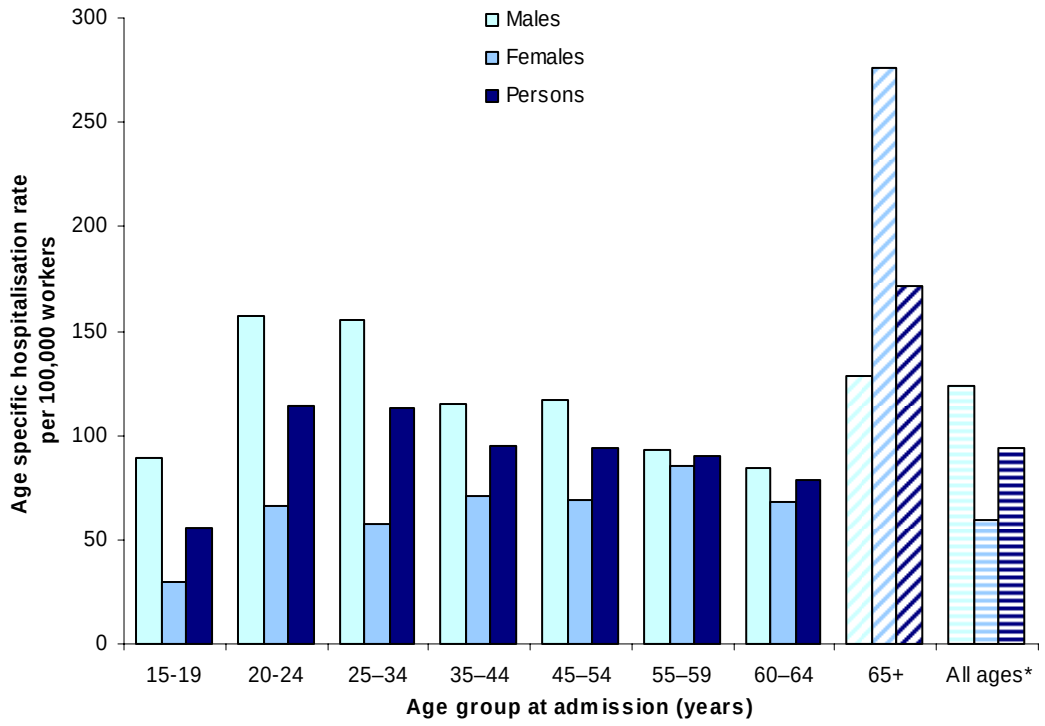
Age and sex

In the two year study period, 3,541 hospitalisations due to injury while working for income in the Wholesale and retail trade industry were recorded, with 2,487 (70.2%) of them involving males. The largest number of hospitalisations was in the 25–34 year age group in males (n=688) and in the 35–44 year age group in females (n=234) (Table 6.2).

Table 6.2: Hospitalised injury while working for income in the Wholesale and retail trade industry, Australia 2002–03 and 2003–04: case numbers by age group and sex

Age group at admission (years)	Males	Females	Persons
0–14	5		
15–19	285	117	402
20–24	441	169	610
25–34	688	194	882
35–44	469	234	703
45–54	382	206	588
55–59	121	75	196
60–64	57	24	81
65+	39		
All ages	**2,487**	**1,054**	**3,541**

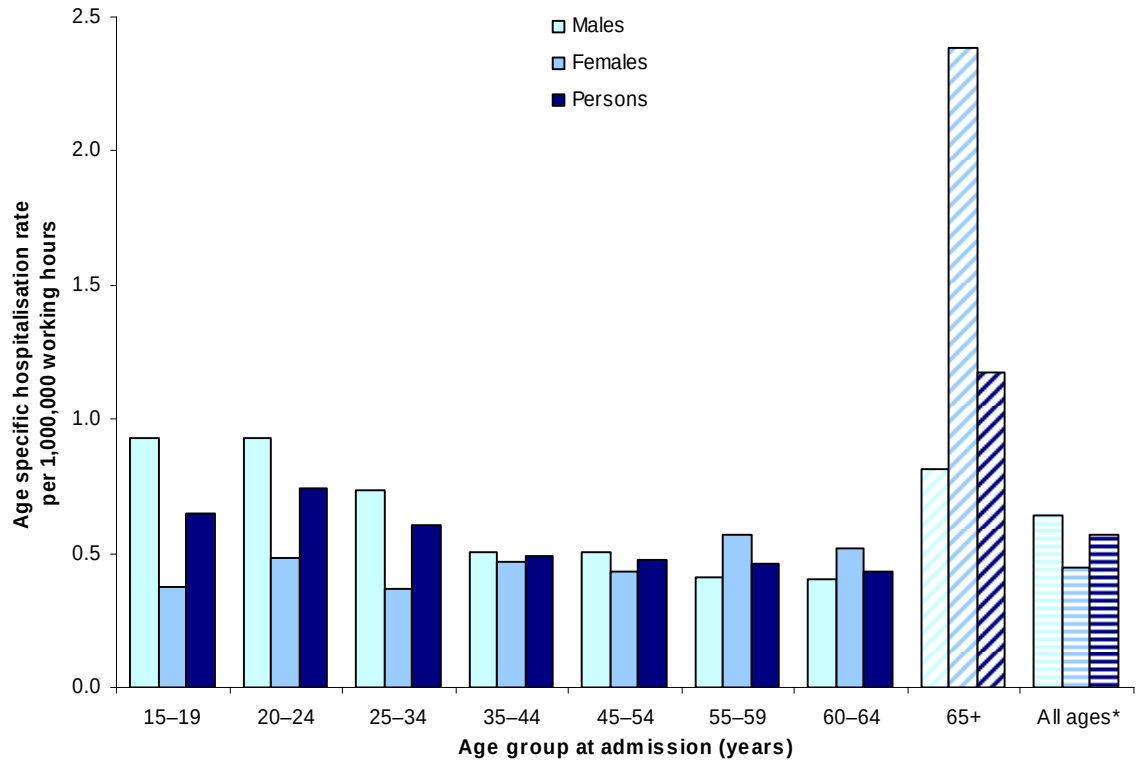
In the Wholesale and retail trade industry, the crude rates of hospitalisation due to injury while working for income at ages 15 years and older were 123.6, 59.8 and 93.8 per 100,000 workers per year for males, females and persons, respectively. For males, the highest rates were at ages 20–24 years and 25–34 years, followed by the oldest group. For females the highest rate was for the oldest group, and rates did not show a strong trend with age at younger ages (Figure 6.1). The apparently high rates in the oldest group (128.7, 275.9 and 171.3 hospitalisations per 100,000 workers per year for males, females and persons, respectively) must be interpreted cautiously, due to the small and uncertain LFS estimates for this group (approximately 15,200 male and 6,200 female workers in the 65 years and over age group, ABS 2006a), and the fairly small case numbers.



* Only includes persons 15 + years.

Figure 6.1: Hospitalised injury while working for income in the Wholesale and retail trade industry, Australia 2002–03 and 2003–04: average annual rate per 100,000 in the employed labour force, by age group and sex

The age specific hospitalisation rate per million hours worked was 0.6 for males, 0.4 for females and 0.6 overall (for persons 15 years and over). For males the highest was in the 20–24 and 15–19 year age groups both with 0.9 hospitalisations per million hours worked. For females and persons, the highest rate was for the age group 65 years and over, with 2.4 and 1.2 hospitalisations per million hours worked, respectively. The apparently high rates in the oldest group should be regarded as uncertain, due to the small size of the workforce in this industry and age-group, especially females, estimated by the LFS. There were also small numbers of hospitalisations in the 65 years and over age group, particularly in females (Figure 6.2).



* Only includes persons 15 + years.

Figure 6.2: Hospitalised injury while working for income in the Wholesale and retail trade industry, Australia 2002–03 and 2003–04: rate per million hours worked by the employed labour force, by age group and sex

Remoteness of residence

Most persons hospitalised due to injury while working for income in the Wholesale and retail trade industry resided in major cities (n=2,311, 65.3%), compared with 58.5% in cases arising in all industries. The proportion residing in major cities was higher for females (n=743, 70.5%) than males (n=1,568, 63.0%) (Figure 6.3).

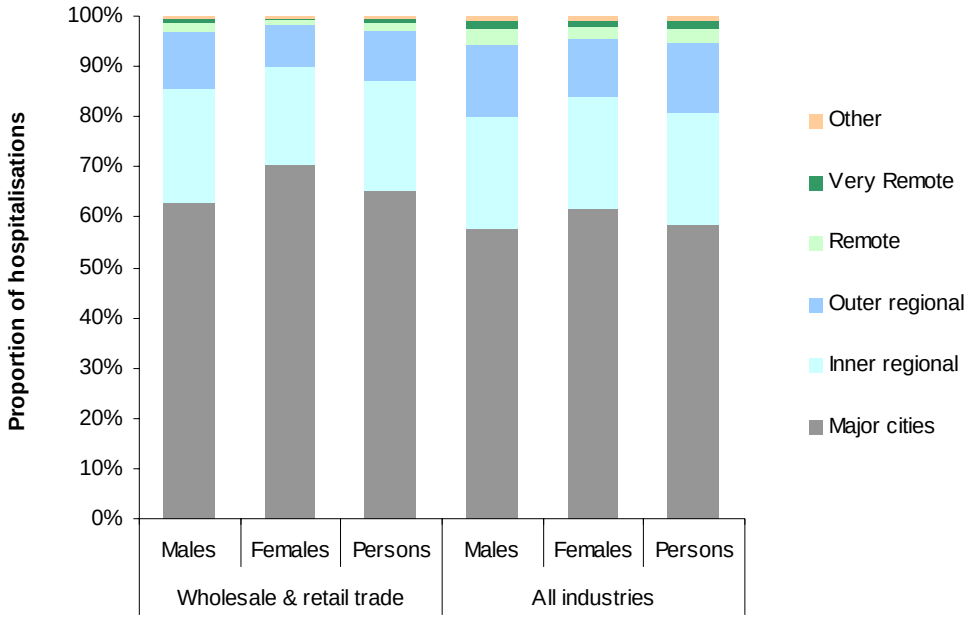


Figure 6.3: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by remoteness zone of usual residence, Wholesale and retail trade industry and all industries, by sex

Mechanism of injury

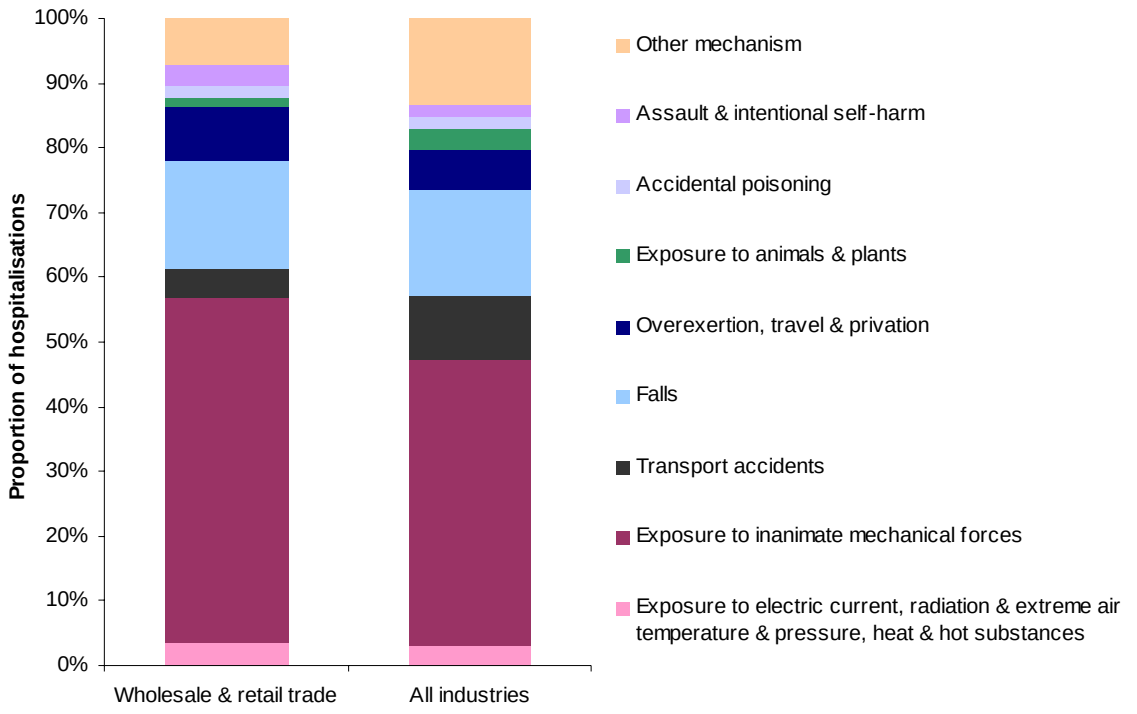


Figure 6.4: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by mechanism, Wholesale and retail trade industry and all industries

Exposure to inanimate mechanical forces was the most common type of mechanism for Wholesale and retail trade (n=1,887, 53.3%). There were 588 admissions as a result of falls (Figure 6.4).

Within the cases arising in the Wholesale and retail trade sector where the broad type of mechanism was exposure to inanimate mechanical forces, contact with knife, sword or dagger (n=459, 13.3%) was the most common among the more specific mechanisms that can be distinguished in NHMD data, followed by being caught, crushed, jammed or pinched in or between objects (n=249) (Table 6.3).

Table 6.3: Hospitalised injury while working for income in the Wholesale and retail trade industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was exposure to inanimate mechanical forces, by specific mechanism and sex

Mechanism	Males	Females	Persons
Contact with knife, sword or dagger	397	62	459
Caught, crushed, jammed or pinched in or between objects	201	48	249
Contact with other & unspecified machinery	131	63	194
Struck by thrown, projected or falling object	114	77	191
Contact with sharp glass	106	40	146
Contact with other powered hand tools & household machinery	105	39	144
Striking against or struck by other objects	97	38	135
Foreign body or object entering thru skin	81	20	101
Contact with woodworking & forming machinery	71	5	76
Contact with lifting & transmission devices, not elsewhere classified	46	7	53
Contact with non-powered hand tool	38	10	48
Explosion & rupture of other specified pressurised devices	8		
Explosion of other materials	7		
Foreign body entering into or thru eye or natural orifice	6		
Contact with metalworking machinery	5	0	5
Exposure to other & unspecified inanimate mechanical forces	49	12	61
Total for exposure to inanimate mechanical forces	**1,462**	**425**	**1,887**

Where cell numbers for males or females are low, the cell number and total are not shown.

Fall on the same level from slipping (n=144) was the most common type of fall for persons hospitalised due to injury while working for income in the Wholesale and retail trade industry. Fall on same level from tripping was the second most common with 74 hospitalisations (Table 6.4).

Table 6.4: Hospitalised injury while working for income in the Wholesale and retail trade industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was a fall, by specific mechanism and sex

Mechanism	Males	Females	Persons
Fall on same level from slipping	55	89	144
Fall on same level from tripping	30	44	74
Other fall on same level	27	33	60
Fall on & from ladder	37	21	58
Other fall from one level to another	46	11	57
Fall on & from stairs	17	37	54
Fall from, out of or through building or structure	16		
Fall on same level from stumbling	8	8	16
Fall involving furniture	6		
Other & unspecified fall	39	55	94
Total for falls	**281**	**307**	**588**

Where cell numbers for males or females are low, the cell number and total are not shown.

Place of occurrence

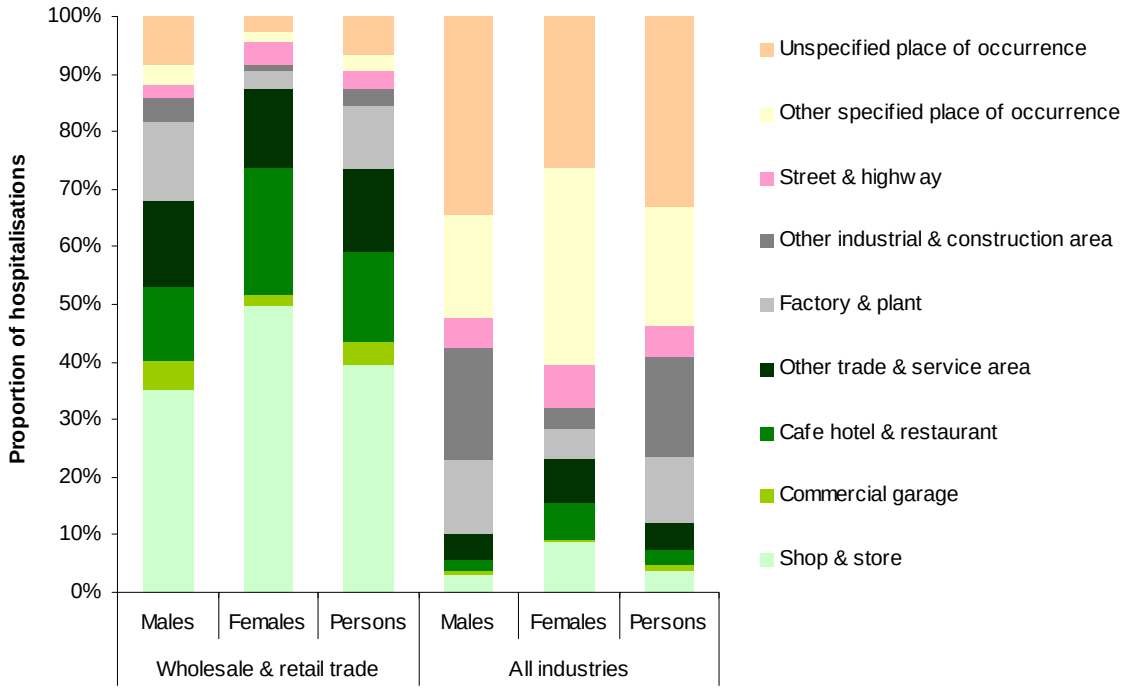


Figure 6.5: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by type of place of occurrence, Wholesale and retail trade industry and all industries, by sex

Shop and store was the most common type of place of occurrence for hospitalised injury while working for income in Wholesale and retail trade (n=1,395, 39.4%). There were 550

hospitalisations resulting from occurrences at cafés, hotels and restaurants and 150 occurred at commercial garages (Figure 6.5).

Month of admission

Admissions due to injury while working for income in this sector largely followed the annual pattern of cases in all industries combined. The main exception is the presence of a rise, rather than a fall, in December, presumably reflecting the busy pre-Christmas retail period.

The largest number of hospitalisations in the Wholesale and retail trade industry occurred in March (n=336, 9.5%) and December (n=335, 9.5%). The lowest number occurred in June (n=214, 6.0%) (Figure 6.6).

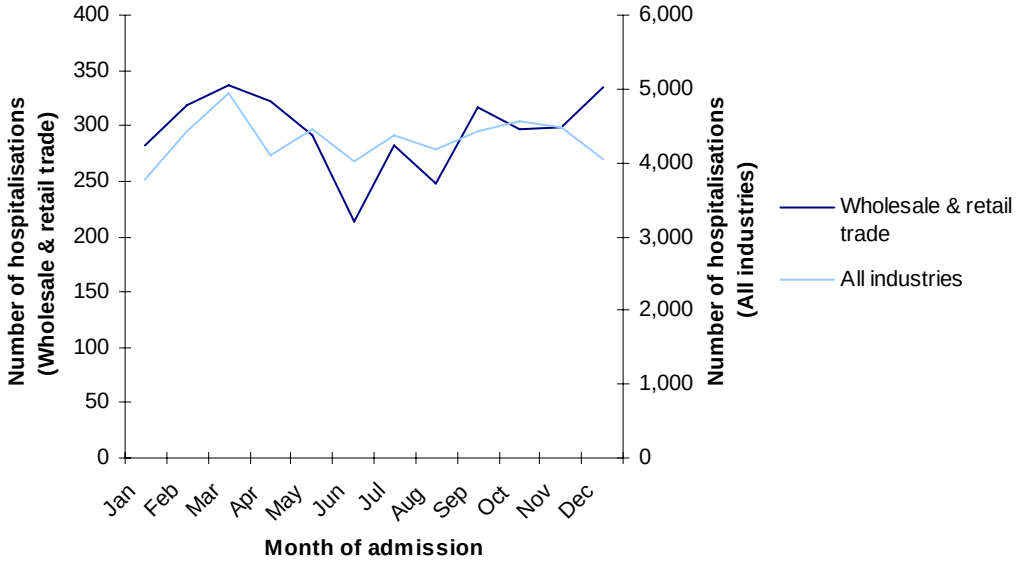


Figure 6.6: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by month of admission to hospital, Wholesale and retail trade industry and all industries

Day of admission

The largest number of Wholesale and retail trade industry hospitalisations occurred on Wednesdays (n=712, 20.1%) and the lowest number occurred on Sundays (n=191, 5.4%) (Figure 6.7). The pattern is very similar to that of cases in all industries combined.

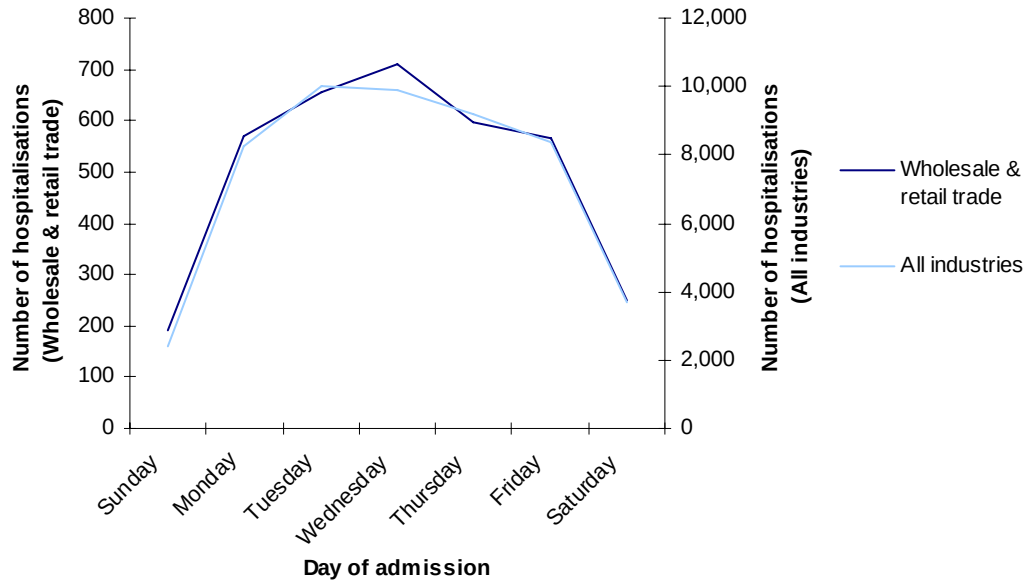


Figure 6.7: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by weekday of admission to hospital, Wholesale and retail trade industry and all industries

Nature of injury (Principal Diagnosis)

Among hospitalised injury while working for income in Wholesale and retail trade, open wound was the most common type of diagnosis (n=577, 16.3%), followed by fracture (n=548, 15.5%), compared with 15.1% and 23.3%, respectively for all industries (Figure 6.8).

Hospitalisations due to injury while working for income that are included in the 'not injury' category were more common in Wholesale and retail trade (n=912, 25.8%) than in all industries (16.3%). There were 532 hospitalisations in this group due to factors influencing health status and contact with health services, 225 hospitalisations due to diseases of the musculoskeletal system and connective tissue and 50 hospitalisations due to diseases of the skin and subcutaneous tissue.

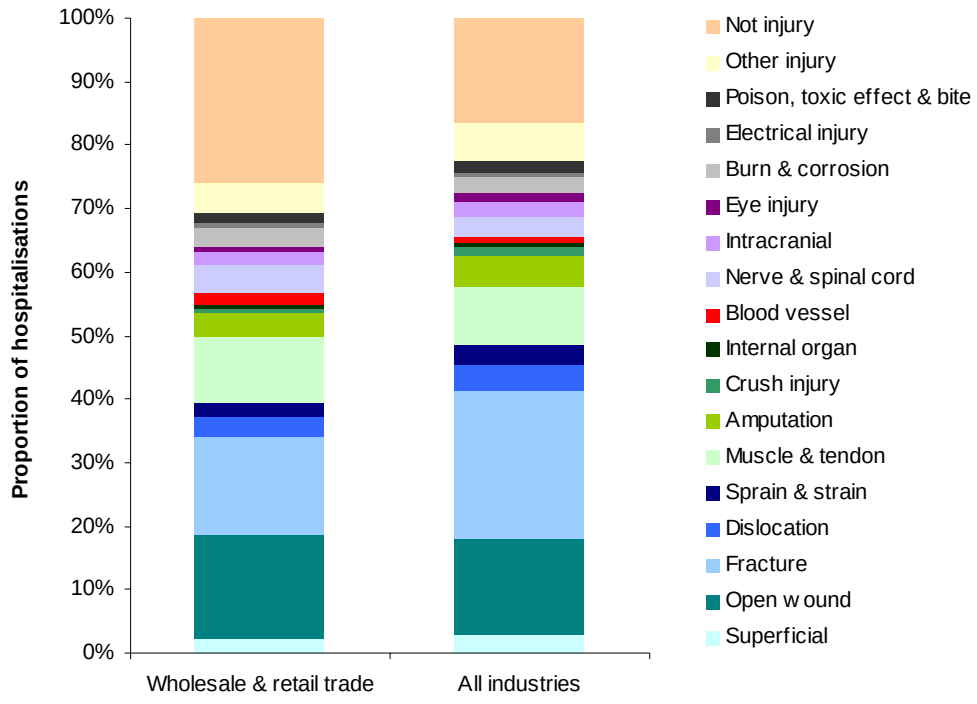


Figure 6.8: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by nature of injury (Principal Diagnosis), Wholesale and retail trade industry and all industries

Open wounds were more common as a proportion of all hospitalisations for males (n=442, 17.8%) than females (n=135, 12.8%). Dislocations were more common, as a proportion of all hospitalisations, in females than males (Table 6.5).

Table 6.5: Hospitalised injury while working for income in the Wholesale and retail trade industry, Australia 2002–03 and 2003–04: numbers and proportions of cases by nature of injury (Principal Diagnosis) and sex

Nature	Males (%)	Females (%)	Persons (%)
Superficial	55 (2.2)	25 (2.4)	80 (2.3)
Open wound	442 (17.8)	135 (12.8)	577 (16.3)
Fracture	385 (15.5)	163 (15.5)	548 (15.5)
Dislocation	67 (2.7)	42 (4.0)	109 (3.1)
Sprain & strain	43 (1.7)	36 (3.4)	79 (2.2)
Muscle & tendon	308 (12.4)	59 (5.6)	367 (10.4)
Amputation	111 (4.5)	29 (2.8)	140 (4.0)
Crush injury	15 (0.6)	5 (0.5)	20 (0.6)
Internal organ	20 (0.8)	4 (0.4)	24 (0.7)
Blood vessel	51 (2.1)	11 (1.0)	62 (1.8)
Nerve & spinal cord	110 (4.4)	52 (4.9)	162 (4.6)
Intracranial	46 (1.8)	19 (1.8)	65 (1.8)
Eye injury	33 (1.3)	6 (0.6)	39 (1.1)

Burn & corrosion	71 (2.9)	29 (2.8)	100 (2.8)
Electrical injury	18 (0.7)	12 (1.1)	30 (0.8)
Poison, toxic effect & bite	33 (1.3)	19 (1.8)	52 (1.5)
Other injury	108 (4.3)	67 (6.4)	175 (4.9)
Not injury	571 (23.0)	341 (32.4)	912 (25.8)
Total	**2,487 (100.0)**	**1,054 (100.0)**	**3,541 (100.0)**

The mean length of stay for hospitalised injury while working for income in Wholesale and retail trade was 2.5 days, compared with 3.0 days for all industries combined. The longest mean length of stay was 5.7 days for burn and corrosion related hospitalisations and the shortest was 1.0 days for both foreign body and electrical injury related hospitalisations (Figure 6.9).

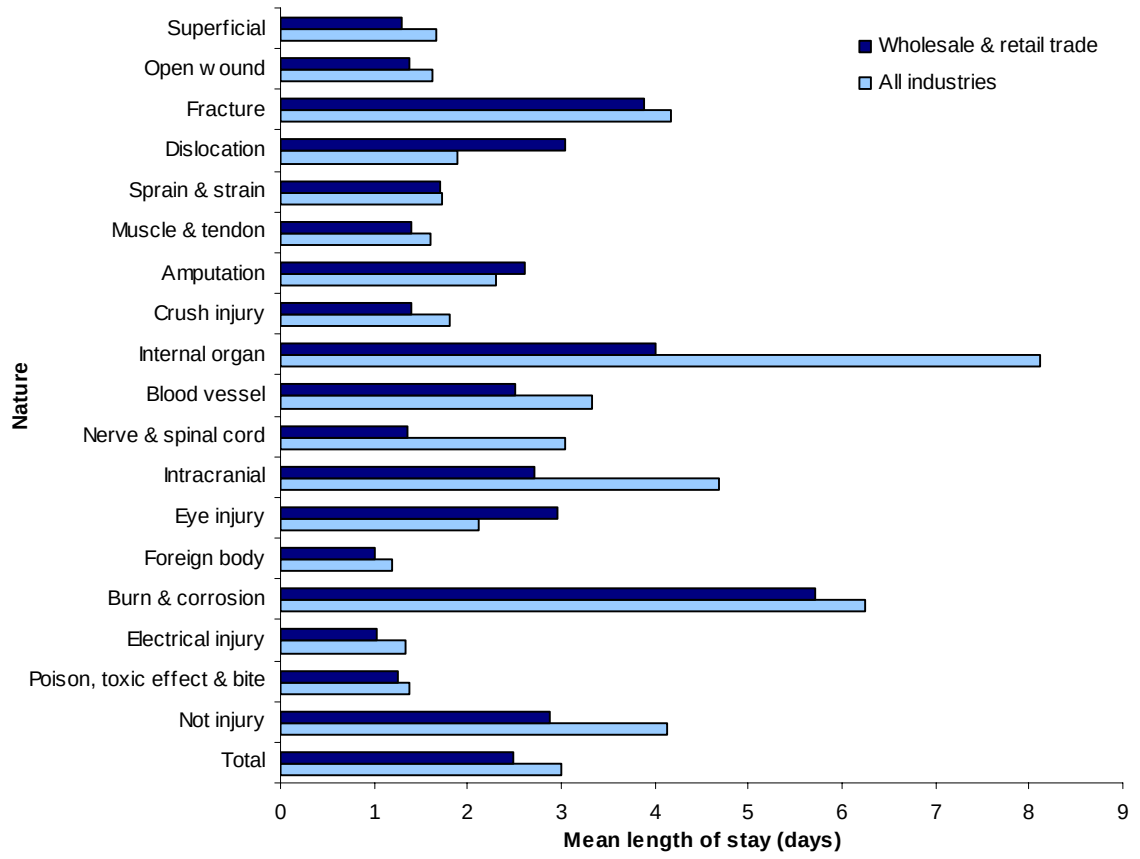


Figure 6.9: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by nature of injury (Principal Diagnosis), Wholesale and retail trade industry and all industries

Body region injured (Principal Diagnosis)

The wrist and hand was the most common principal body region involved in hospitalised injury while working for income in Wholesale and retail trade (n=1,190, 33.6%). Wrist and hand injury hospitalisations were more common as a proportion of all hospitalisations for males (n=932, 37.5%) than females (n=258, 24.5%). In 25.8% of hospitalisations the

principal diagnosis was assigned to a code outside the injury chapter of ICD-10-AM and this was more common in females than males (32.4% versus 23.0%) (Figure 6.10).

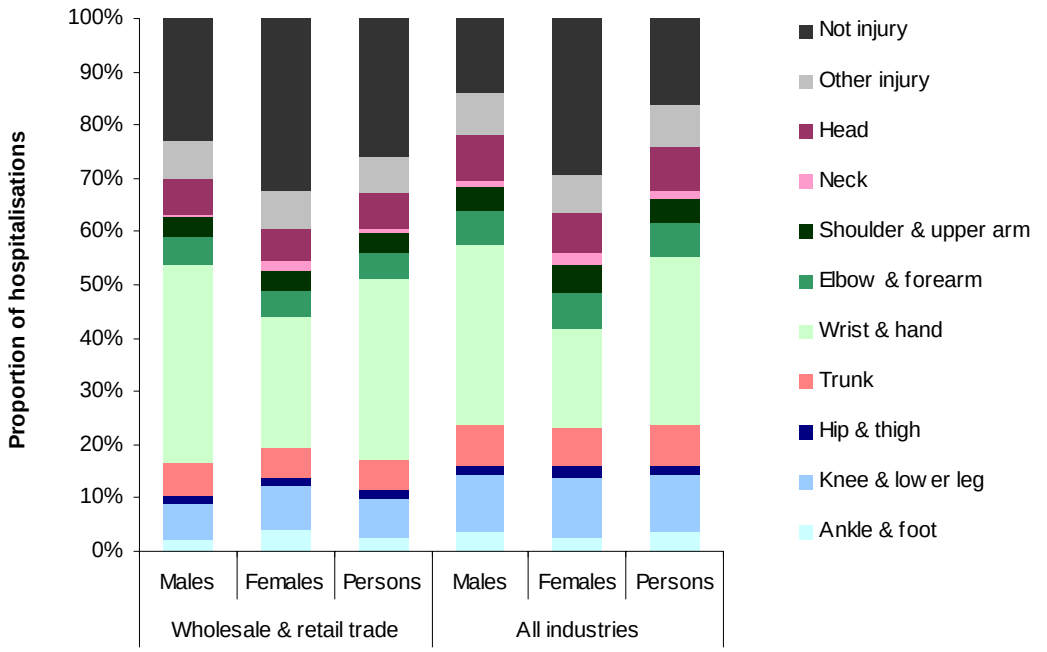


Figure 6.10: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by body region injured, Wholesale and retail trade industry and all industries, by sex

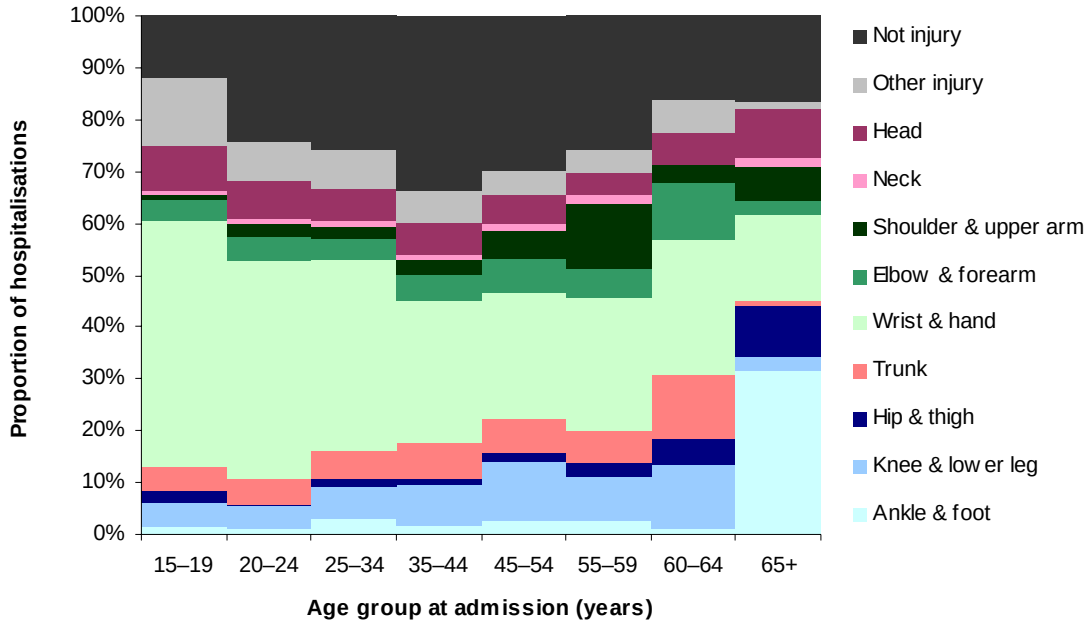


Figure 6.11: Hospitalised injury while working for income in the Wholesale and retail trade industry, Australia 2002–03 and 2003–04: proportions of cases by body region injured and age group

Wrist and hand injury hospitalisations were most common, as a proportion of all hospitalisations, in the 15–19 year age group (n=191, 47.5%) and least common in the 65 years and over age group (n=12, 16.4%). The 0–14 year age group is not shown due to small numbers (Figure 6.11).

The mean length of stay in hospital due to injury while working for income in Wholesale and retail trade was 2.5 days. Wrist and hand injury hospitalisations had the shortest mean length of stay with 1.5 days and hip and thigh injury related hospitalisations had the longest with 4.4 days (Figure 6.12).

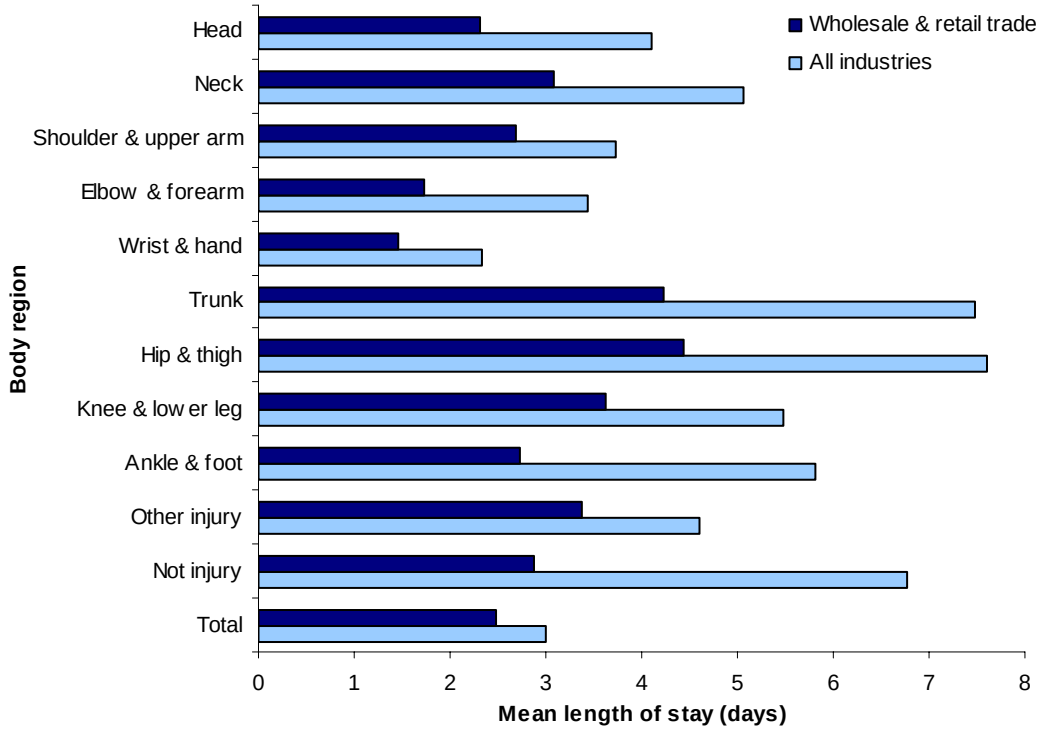


Figure 6.12: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by body region injured (Principal Diagnosis), Wholesale and retail trade industry and all industries

Most frequent Principal Diagnoses

Care involving use of other rehabilitation procedures (Z508) was the most common principal diagnosis among cases of hospitalised injury while working for income in Wholesale and retail trade (n=507, 14.3%). Eight of the top ten principal diagnoses involved the wrist and hand (Table 6.6).

Care involving use of rehabilitation procedures (Z50) was the most common three-character diagnosis grouping for Wholesale and retail trade industry related hospitalisations but five types of wrist and hand diagnoses, dorsalgia (M54) (back pain), fracture of lower leg, including ankle (S82) and dislocation, sprain and strain of joints and ligaments of the knee (S83) also feature in the top ten (Table 6.7).

Table 6.6: Hospitalised injury while working for income in the Wholesale and retail trade industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at most detailed level), by sex

Principal diagnosis (code)	Males (%)	Females (%)	Persons (%)
Care involving use of other rehabilitation procedures (Z508)	344 (13.8)	163 (15.5)	507 (14.3)
Open wound of finger without damage to nail (S610)	182 (7.3)	58 (5.5)	240 (6.8)
Injury of extensor muscles & tendon of other finger (not thumb) at wrist & hand level (S663)	93 (3.7)	13 (1.2)	106 (3.0)
Traumatic amputation of other single finger (not thumb) (S681)	81 (3.3)	23 (2.2)	104 (2.9)
Injury of digital nerve of other finger (not thumb) (S644)	46 (1.8)	31 (2.9)	77 (2.2)
Open wound of finger(s) or thumb with damage to nail (S611)	50 (2.0)	20 (1.9)	70 (2.0)
Fracture of distal phalanx of other finger (not thumb) (S6263)	58 (2.3)	10 (0.9)	68 (1.9)
Injury of extensor muscles & tendon of thumb at wrist & hand level (S662)	45 (1.8)	9 (0.9)	54 (1.5)
Injury of flexor muscles & tendon of other finger (not thumb) at wrist & hand level (S661)	44 (1.8)	10 (0.9)	54 (1.5)
Tear of meniscus, current (S832)	33 (1.3)	18 (1.7)	51 (1.4)
Other principal diagnosis	1,511 (60.8)	699 (66.3)	2,210 (62.4)
Total	**2,487 (100.0)**	**1,054 (100.0)**	**3,541 (100.0)**

Table 6.7: Hospitalised injury while working for income in the Wholesale and retail trade industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at 3-character code level), by sex

Principal diagnosis group (code)	Males (%)	Females (%)	Persons (%)
Care involving use of rehabilitation procedures (Z50)	353 (14.2)	167 (15.8)	520 (14.7)
Open wound of wrist & hand (S61)	293 (11.8)	89 (8.4)	382 (10.8)
Injury of muscle & tendon at wrist & hand level (S66)	222 (8.9)	37 (3.5)	259 (7.3)
Fracture at wrist & hand level (S62)	137 (5.5)	27 (2.6)	164 (4.6)
Injury of nerves at wrist & hand level (S64)	97 (3.9)	48 (4.6)	145 (4.1)
Traumatic amputation of wrist & hand (S68)	107 (4.3)	29 (2.8)	136 (3.8)
Dorsalgia (M54)	44 (1.8)	84 (8.0)	128 (3.6)
Fracture of lower leg, including ankle (S82)	77 (3.1)	41 (3.9)	118 (3.3)
Fracture of forearm (S52)	46 (1.8)	39 (3.7)	85 (2.4)
Dislocation, sprain & strain of joints & ligaments of the knee (S83)	52 (2.1)	32 (3.0)	84 (2.4)
Other principal diagnosis	1,059 (42.6)	461 (43.7)	1,520 (42.9)
Total	**2,487 (100.0)**	**1,054 (100.0)**	**3,541 (100.0)**

One in three cases of hospitalised injury while working for income in Wholesale and retail trade involved the wrist and hand. Open wound of the wrist and hand was the most common diagnosis group (n=382, 10.8%) and, of these hospitalisations, 310 involved the fingers. There were 164 fractures at wrist and hand level with fracture of distal phalanx of other finger (not thumb) (S6263) being the most common type (n=68). There were 145 hospitalisations for injury to nerves and 259 for injury to muscles and tendons at

wrist and hand level (Table 6.8). One hundred and thirty-six cases involved amputation of the fingers or hand.

Table 6.8: Hospitalised injury while working for income in the Wholesale and retail trade industry, Australia 2002–03 and 2003–04: numbers of wrist and hand injury cases by Principal Diagnosis and sex

Principal diagnosis (code)	Males	Females	Persons
Superficial injury of wrist & hand (S60)	15	5	20
Open wound of wrist & hand (S61)	293	89	382
Open wound of finger(s) without damage to nail (S610)	*182*	*58*	*240*
Open wound of finger(s) with damage to nail (S611)	*50*	*20*	*70*
Other wound of wrist & hand	*61*	*11*	*72*
Fracture at wrist & hand level (S62)	137	27	164
Fracture of distal phalanx of other finger (not thumb) (S6263)	*58*	*10*	*68*
Fracture of proximal phalanx of other finger (not thumb) (S6261)	*13*	*5*	*18*
Fracture of distal phalanx of thumb (S6252)	*12*		
Fracture of proximal phalanx of thumb (S6251)	*11*	*0*	*11*
Fracture of middle phalanx of other finger (not thumb) (S6262)	*8*		
Fracture of shaft of other metacarpal bone (not first) (S6232)	*5*		
Fracture of base of other metacarpal bone (not first) (S6231)	*4*		
Fracture of neck of other metacarpal bone (not first) (S6233)	*4*		
Fracture of base of first metacarpal bone (S6221)	*4*	*0*	*4*
Other fracture at wrist & hand level	*18*	*6*	*24*
Dislocation, sprain & strain of joints & ligaments at wrist & hand level (S63)	8	5	13
Injury of nerves at wrist & hand level (S64)	97	48	145
Injury of digital nerve of other finger (not thumb) (S644)	*46*	*31*	*77*
Injury of radial nerve at wrist & hand level (S642)	*17*		
Injury of digital nerve of thumb (S643)	*14*	*5*	*19*
Injury of ulnar nerve at wrist & hand level (S640)	*11*	*6*	*17*
Other injury of nerves at wrist & hand level	*9*		
Injury of blood vessels at wrist & hand level (S65)	33	8	41
Injury of blood vessels of other finger (excluding thumb) (S655)	*15*	*4*	*19*
Injury of radial artery at wrist & hand level (S651)	*8*		
Injury of ulnar artery at wrist & hand level (S650)	*6*		
Other injury of blood vessels at wrist & hand level	*4*		
Injury of muscle & tendon at wrist & hand level (S66)	222	37	259
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	*93*	*13*	*106*
Injury of extensor muscle & tendon of thumb at wrist & hand level (S662)	*45*	*9*	*54*
Injury of flexor muscle & tendon of other finger (not thumb) at wrist & hand level (S661)	*44*	*10*	*54*

Injury of long flexor muscle & tendon of thumb at wrist & hand level (S660)	*11*		
Injury of other muscles & tendons at wrist & hand level (S668)	*8*		
Injury of multiple flexor muscles & tendons at wrist & hand level (S666)	*7*	*0*	*7*
Injury of multiple extensor muscles & tendons at wrist & hand level (S667)	*7*	*0*	*7*
Other injury of muscle & tendon at wrist & hand level	*7*		
Crushing injury of wrist & hand (S67)	13	5	18
Traumatic amputation of wrist & hand (S68)	107	29	136
Traumatic amputation of other single finger (not thumb) (S681)	*81*	*23*	*104*
Traumatic amputation of thumb (S680)	*22*		
Traumatic amputation of two or more fingers alone (S682)	*4*		
Other & unspecified injuries of wrist & hand (S69)	7	5	12
Total injuries to wrist & hand	**932**	**258**	**1,190**

Where cell numbers for males or females are low, the cell number and total are not shown.

Procedures

Physiotherapy was the most common principal procedure performed on persons hospitalised due to injury while working for income in Wholesale and retail trade (n=574). Computed tomography (CT) features twice on the list of the most frequently recorded principal procedures. CT of the brain is frequently used in suspected head injuries to look for intracranial bleeding and CT of the spine is used to look for fractures. Again, most procedures involve the musculoskeletal system and skin (Table 6.9).

Table 6.9: Hospitalised injury while working for income in the Wholesale and retail trade industry, Australia 2002–03 and 2003–04: most frequently recorded Principal Procedures, by sex

Principal procedure (code)	Males	Females	Persons
Physiotherapy (9555003)	385	189	574
Excisional debridement of deep soft tissue including muscle, tendon, fascia ligaments or nerves (3002300)	126	25	151
Primary repair of extensor tendon of hand (4642000)	118	16	134
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), superficial (3002600)	94	23	117
Removal of foreign body from skin & subcutaneous tissue with incision (3006400)	80	31	111
Primary repair of nerve (3930000)	17	51	68
CT brain without intravenous contrast (5600100)	32	19	51
Excisional debridement of skin & subcutaneous tissue (9066500)	34	12	46
Primary repair of nail or nail bed (4648600)	37	8	45
CT spine without intravenous contrast (5621000)	31	4	35
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), involving deeper tissue (3002900)	385	189	574
Other procedure	1,148	487	1,635
Total	**2,487**	**1,054**	**3,541**

Summary

In the 2 year study period there were 3,541 cases of hospitalised injury while working for income in Wholesale and retail trade. Of these, 70.2% of admissions occurred in males. The largest number of admissions occurred in the 25–34 year age group (n=882). The highest hospitalisation rate occurred in the 65 years and over age group with 171.3 hospitalisations per 100,000 workers. Two thirds (65.3%) of the hospitalised persons resided in major cities.

There were 1,887 hospitalisations due to exposure to inanimate mechanical forces, with contact with knife, sword or dagger being the most common type (n=459). There were 588 fall related hospitalisations. Injuries which occurred in a shop or store accounted for 39.4% of hospitalisations.

In this industry, 16.3% of hospitalisations were due to open wounds and 15.5% were due to fractures. Wrist and hand injury was the most common site of injury (33.6%). Care involving rehabilitation procedures was the most common diagnosis grouping (14.7%), followed by open wound of the wrist and hand (10.8%).

7 Transport and storage

This chapter includes the cases of Hospitalised injury while working for income that were further specified as occurring in the Transport and storage sector (ICD–10–AM code U73.05). Summary measures for this set of cases are shown in Table 7.1.

Table 7.1: Hospitalised injury while working for income in the Transport and storage industry, Australia 2002–03 and 2003–04: summary measures

Indicator	
Cases	2,579
Estimated number of workers ('000) * **	420.3
Hospitalisation rate per 100,000 workers per year * **	303.4
Hospitalisation rate per million hours worked * **	1.5

* Workers and working hours refer to the total employed labour force in the study period (ABS 2006a).

** Only includes persons 15 + years.

Background

There are approximately 420,000 workers employed in the Transport and storage industry in Australia (ABS 2006b).

The main injury hazards facing workers in the Transport and storage industry relate to road vehicles, the cargo being loaded or carried, and the equipment required to move or to load the cargo.

The rate of fatal injury in the Transport and storage industry (23.0 per 100,000 per year from 1989 to 1992; 14.3 per 100,000 per year in 2003–04) is about four times the all-industry rate (5.5 per 100,000 per year from 1989 to 1992; 3.5 per 100,000 per year in 2003–04) (Driscoll et al 2001; ASCC 2006a). The rate of non-fatal compensated injury in this sector (24.0 per 1,000 per year) is nearly twice the all-industry average (12.7 per 1,000 per year) (ASCC 2006b).

The most common incident mechanism resulting in fatal injury of transport and storage workers in Australia is vehicle incidents (Driscoll 2003). Motor vehicle crashes on public roads accounted for 69% of recent transport and storage fatalities (ASCC 2006a).

Mechanisms commonly involved in non-fatal injury of transport and storage workers in Australia are muscular stress while lifting, carrying or handling objects; falls on the same level or from a height; and being hit by moving or falling objects (ASCC 2006b).

Age and sex

There were 2,579 admissions due to injury while working for income in the Transport and storage industry in the two years ending 30 June 2004, the great majority being males (n=2,430, 94.2%). The largest number of hospitalisations was in the 35–44 year age group

for males (n=678), the 25–34 year age group for females (n=37) and the 35–44 year age group overall (n=699) (Table 7.2).

Table 7.2: Hospitalised injury while working for income in the Transport and storage industry, Australia 2002–03 and 2003–04: case numbers by age group and sex

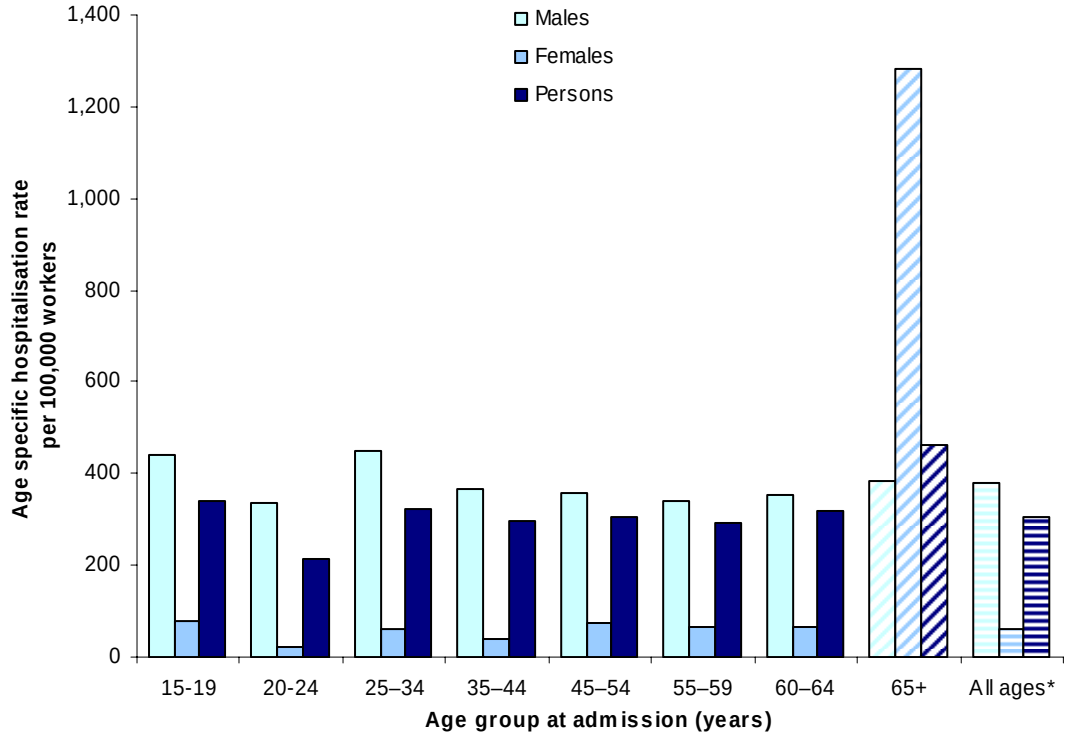
Age group at admission (years)	Males	Females	Persons
0–14	4		
15-19	57	4	61
20-24	121	5	126
25–34	564	37	601
35–44	678	21	699
45–54	623	28	651
55–59	217	9	226
60–64	115	3	118
65+	51		
All ages	**2,430**	**149***	**2,579***

*24 records were likely a 65+ year old female who was readmitted 23 times for single day stays. These presumed readmissions have been excluded from the 65+ counts but not the All ages total.

Compared with other sectors, rates of hospitalised injury while working for income in the Transport and storage industry, specified in terms of cases per 100,000 members of the employed labour force, did not vary greatly by age (Figure 7.1).

The exception to this is the high estimated rate for females aged 65 years and older. This rate should be regarded as very uncertain, because it is calculated using a small and uncertain labour force estimate (n=700) (ABS 2006a). The labour force of males in this age group (estimated at 6,700) was also fairly small and uncertain.

The rates for all ages 15 years and over were 378.2 for males, 62.2 for females and 303.4 for persons per 100,000 workers per year.



* Only includes persons 15+ years.

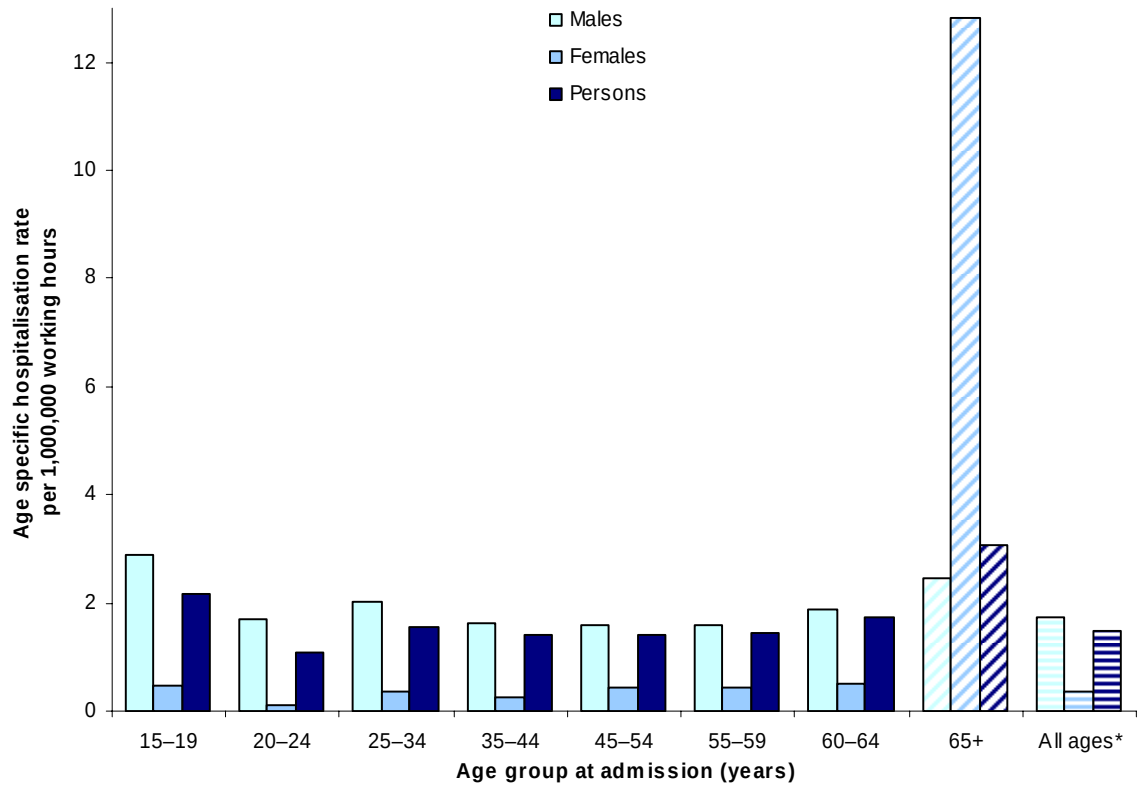
** There were 24 records that were likely a 65+ year old female readmitted 23 times for single day stays. These readmissions have been excluded from the calculations.

Figure 7.1: Hospitalised injury while working for income in the Transport and storage industry, Australia 2002–03 and 2003–04: average annual rate per 100,000 in the employed labour force, by age group and sex

Rates calculated on the basis of estimates of age- and sex-specific hours worked in the Transport and storage industry show a similar pattern to those calculated using estimates of numbers of workers: no strong relationship with age and a very high estimate (based on small numbers) for females aged 65 years and older.

As for the equivalent value in Figure 7.1, the value for females aged 65 and older should not be regarded as a reliable estimate.

The age specific hospitalisation rate per million hours worked was highest in the 65 years and older age group, with a value of 3.1 hospitalisations per million hours worked. The highest rate for males occurred in the 15–19 year age group with 2.9 hospitalisations per million hours worked. The crude rates for persons 15 years and over were 1.7 for males, 0.4 for females and 1.5 overall, per million hours worked (Figure 7.2).



* Only includes persons 15+ years.

** There were 24 records that were likely a 65+ year old female being readmitted 23 times for single day stays. These readmissions have been excluded from the calculations.

Figure 7.2: Hospitalised injury while working for income in the Transport and storage industry, Australia 2002–03 and 2003–04: rate per million hours worked by the employed labour force, by age group and sex

Remoteness of residence

In this industry, 54.6% (n=1,409) of hospitalised persons injured while working for income resided in the major cities (compared with 58.5% for all industries). This proportion was higher for females than males (71.8% versus 53.6%) (Figure 7.3).

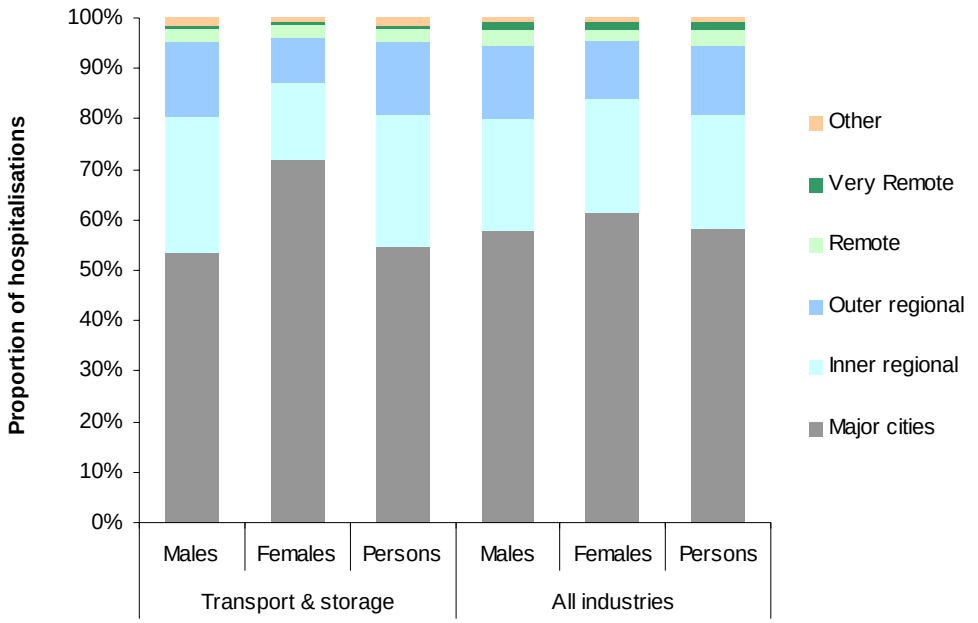


Figure 7.3: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by remoteness zone of usual residence, Transport and storage industry and all industries, by sex

Mechanism of injury

The most common mechanism of injury for Transport and storage industry related injury hospitalisations was transport (n=1,010, 39.2%) followed by exposure to inanimate mechanical forces (n=701, 27.2%) (Figure 7.4).

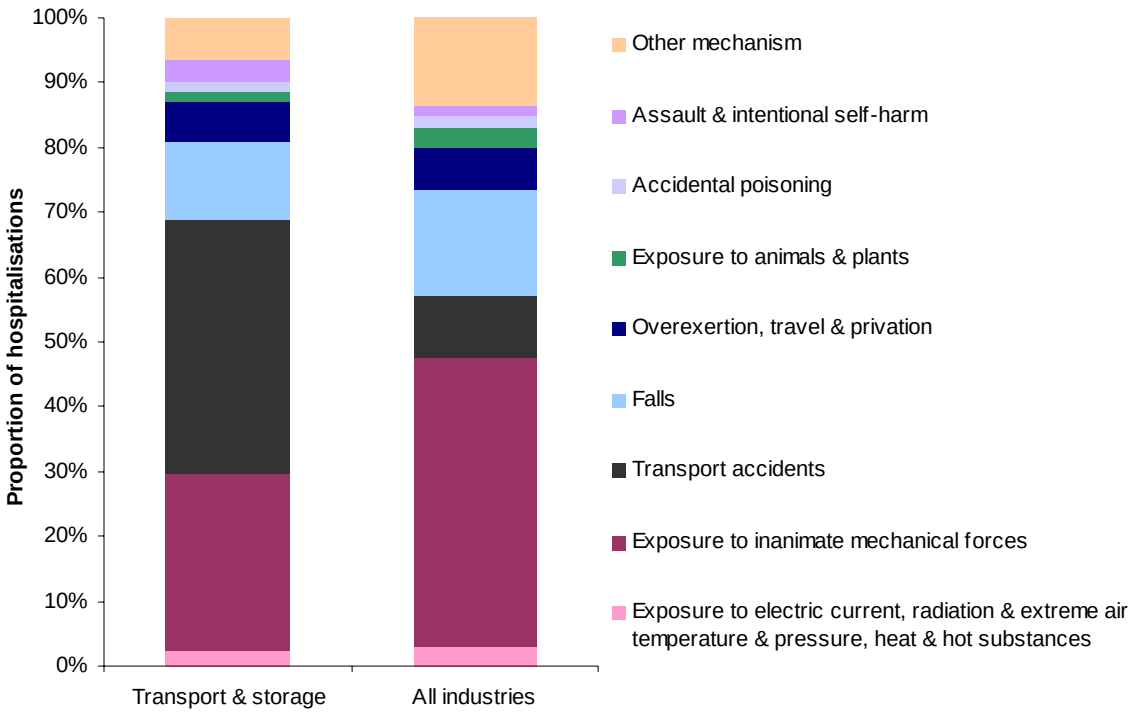


Figure 7.4: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by mechanism, Transport and storage industry and all industries

There were 1,010 Transport and storage industry hospitalisations with a mechanism of injury of transport. Of these, 541 hospitalisations involved an occupant of a heavy transport vehicle who was injured in a transport accident (V6), with driver of heavy transport vehicle injured in traffic non-collision transport accident (V685) being most common specific category (n=185). Car occupants injured in a transport accident accounted for 175 hospitalisations (V4) (Table 7.3).

Table 7.3: Hospitalised injury while working for income in the Transport and storage industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was a transport accident, by specific mechanism and sex

Mechanism	Males	Females	Persons
Occupant of heavy transport vehicle injured in transport accident	537	4	541
Driver of heavy transport vehicle injured in traffic collision with car, pick-up truck or van (V635)	*31*	*0*	*31*
Driver of heavy transport vehicle injured in traffic collision with heavy transport vehicle or bus (V645)	*29*	*0*	*29*
Driver of heavy transport vehicle injured in non-traffic collision with fixed or stationary object (V670)	*4*	*0*	*4*
Driver of heavy transport vehicle injured in traffic collision with fixed or stationary object (V675)	*44*	*0*	*44*
Driver of heavy transport vehicle injured in non-traffic non-collision transport accident (V680)	*63*	*0*	*63*
Person on outside of heavy transport vehicle injured in non-traffic non-collision transport accident (V682)	*25*		
Person injured whilst boarding or alighting from heavy transport vehicle in non-collision transport accident (V684)	*22*	*0*	*22*
Driver of heavy transport vehicle injured in traffic non-collision transport accident (V685)	*184*		
Occupant [any] of heavy transport vehicle injured in unspecified non-traffic accident (V693)	*44*	*0*	*44*
Occupant [any] of heavy transport vehicle injured in specified transport accident	*70*		
Occupant [any] of heavy transport vehicle injured in unspecified transport accident (V699)	*21*	*0*	*21*
Car occupant injured in transport accident	122	53	175
Driver of sedan injured in traffic collision with car, pick-up truck or van (V4350)	*35*	*4*	*39*
Driver of unspecified car injured in traffic collision with car, pick-up truck or van (V4359)	*19*		
Passenger of sedan injured in traffic collision with car, pick-up truck or van (V4360)	*0*	*26*	*26*
Car occupant [any] injured in collision with car, pick-up truck or van, other	*10*	*4*	*14*
Car occupant [any] injured in collision with heavy transport vehicle or bus	*5*	*0*	*5*
Driver of sedan injured in traffic collision with fixed or stationary	*9*		

object (V4750)			
Driver of unspecified car injured in traffic collision with fixed or stationary object (V4759)	*4*		
Car occupant [any] injured in collision with fixed or stationary object, other	*6*		
Driver of sedan injured in traffic non-collision transport accident (V4850)	*3*		
Car occupant [any] injured in non-collision transport accident	*10*		
Driver injured in collision with other & unspecified motor vehicles in traffic accident (V494)	*13*	*0*	*13*
Car occupant [any] injured in other transport accident	*8*	*7*	*15*
Motorcycle rider injured in transport accident	44	12	56
Driver of motorcycle designed primarily for on-road use injured in traffic collision with car, pick-up truck or van (V2341)	*11*		
Driver of motorcycle designed primarily for on-road use injured in non-traffic non-collision transport accident (V2801)	*4*	*0*	*4*
Driver of motorcycle designed primarily for on-road use injured in traffic non-collision transport accident (V2841)	*6*	*0*	*6*
Motorcycle rider [any] injured in unspecified traffic accident (V299)	*4*	*9*	*13*
Motorcycle rider [any] injured in other specified traffic accident	*19*		
Pedestrian injured in transport accident	51		
Pedestrian injured in non-traffic collision with car, pick-up truck or van (V030)	*5*		
Pedestrian injured in traffic collision with car, pick-up truck or van (V031)	*12*	*0*	*12*
Pedestrian injured in non-traffic collision with heavy transport vehicle or bus (V040)	*7*		
Pedestrian injured in traffic collision with heavy transport vehicle or bus (V041)	*4*		
Other pedestrian injured in transport accident	*23*	*0*	*23*
Occupant of pick-up truck or van injured in transport accident	50		
Driver of pick-up truck or van injured in traffic collision with car, pick-up truck or van (V535)	*3*		
Person on outside of pick-up truck or van injured in non-traffic non-collision transport accident (V582)	*5*	*0*	*5*
Person injured whilst boarding or alighting from pick-up truck or van injured in non-collision transport accident (V584)	*8*	*0*	*8*
Driver of pick-up truck or van injured in traffic non-collision transport accident (V585)	*6*	*0*	*6*
Occupant [any] of pick-up truck or van injured in other transport accident	*28*		
Other land transport accidents	44	6	50
Person injured while boarding or alighting from special industrial vehicle (V834)	*4*	*0*	*4*
Driver of special industrial vehicle injured in non-traffic accident	*7*	*0*	*7*

(V835)			
Person on outside of special industrial vehicle injured in non-traffic accident (V837)	*8*	*0*	*8*
Person injured in unspecified motor-vehicle accident, traffic (V892)	*2*		
Occupant [any] of other land transport vehicle injured in other transport accident	*23*		
Water transport accidents	37	0	37
Accident on board merchant ship without accident to watercraft, not causing drowning and submersion (V930)	*23*	*0*	*23*
Accident on board passenger ship without accident to watercraft, not causing drowning and submersion (V931)	*6*	*0*	*6*
Accident on board unspecified watercraft without accident to watercraft, not causing drowning and submersion (V939)	*4*	*0*	*4*
Other water transport accident	*4*	*0*	*4*
Bus occupant injured in transport accident	18	0	18
Driver of bus injured in traffic collision with fixed or stationary object (V775)	*7*	*0*	*7*
Bus occupant [any] injured in other transport accident	*11*	*0*	*11*
Air & space transport accidents	14	0	14
Pedal cyclist injured in transport accident	5	0	5
Other & unspecified transport accidents	7		
Total transport accidents	**929**	**81**	**1,010**

Where cell numbers for males or females are low, the cell number and total are not shown.

The second most frequent broad type of mechanism of injury while working for income in the Transport and storage industry was exposure to inanimate mechanical forces (n=701), the most common type of which was being caught, crushed, jammed or pinched in or between objects (n=197, 7.6%). There were also 161 hospitalisations due to events in which a person had been struck by a thrown, projected or falling object (Table 7.4).

Table 7.4: Hospitalised injury while working for income in the Transport and storage industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was exposure to inanimate mechanical forces, by specific mechanism and sex

Mechanism	Males	Females	Persons
Caught, crushed, jammed or pinched in or between objects	190	7	197
Struck by thrown, projected or falling object	156	5	161
Striking against or struck by other objects	81		
Contact with lifting & transmission devices, not elsewhere classified	64	4	68
Foreign body or object entering through skin	49		
Contact with other & unspecified machinery	57	0	57
Contact with other powered hand tools & household machinery	10	0	10
Contact with non-powered hand tool	10	0	10
Contact with sharp glass	8		
Foreign body entering into or through eye or natural orifice	8	0	8

Explosion & rupture of pressurised tyre, pipe or hose	7	0	7
Explosion other pressurised devices & of other materials	5	0	5
Exposure to high pressure jet	4	0	4
Contact with knife, sword or dagger	4	0	4
Contact with earthmoving, scraping & other excavating machinery	4	0	4
Exposure to other & unspecified inanimate mechanical forces	23	0	23
Total for exposure to inanimate mechanical forces	**680**	**21**	**701**

Where cell numbers for males or females are low, the cell number and total are not shown.

Place of occurrence

A roadway was the most common place of occurrence of hospitalised injury while working for income in the Transport and storage industry (n=727, 28.2%). This was more common, as a proportion of all admissions for the group, for females (44.3%) than males (27.2%) (Figure 7.5).

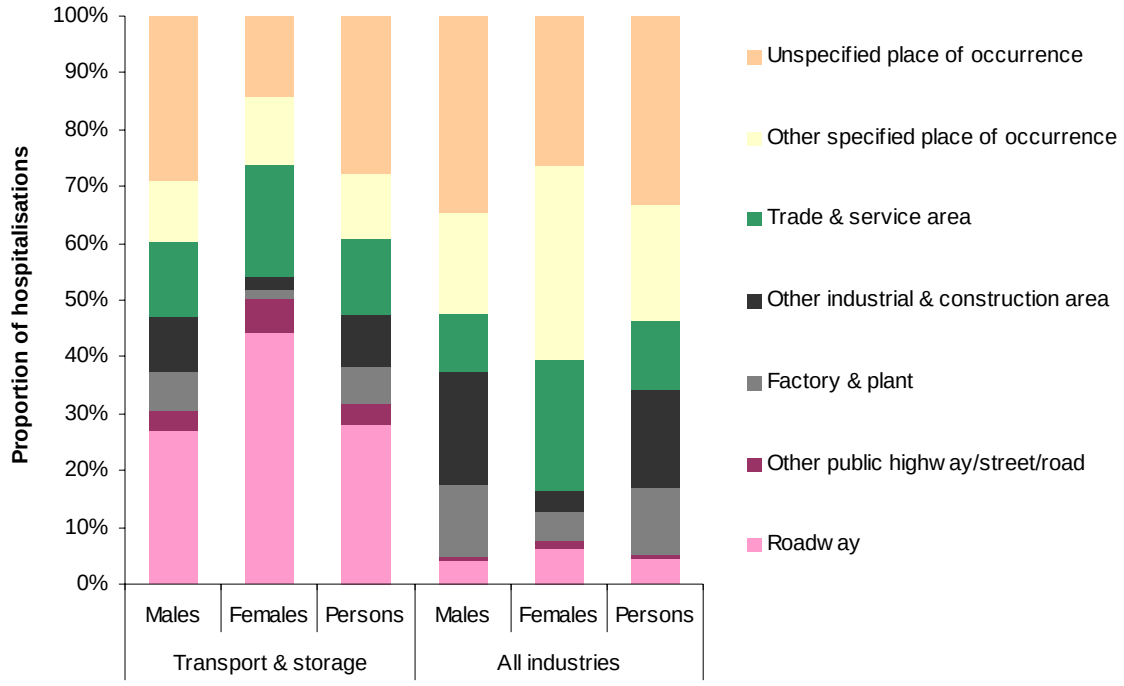


Figure 7.5: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by type of place of occurrence, Transport and storage industry and all industries, by sex

Month of admission

The profile of numbers of cases by month of admission for cases in the Transport and storage industry was very similar to that for cases in all industries combined (Figure 7.6). The largest number of Transport and storage industry related hospitalisations occurred in March (n=257, 10.0%) and the trough occurred in January (n=171, 6.6%). This was the same for all industries.

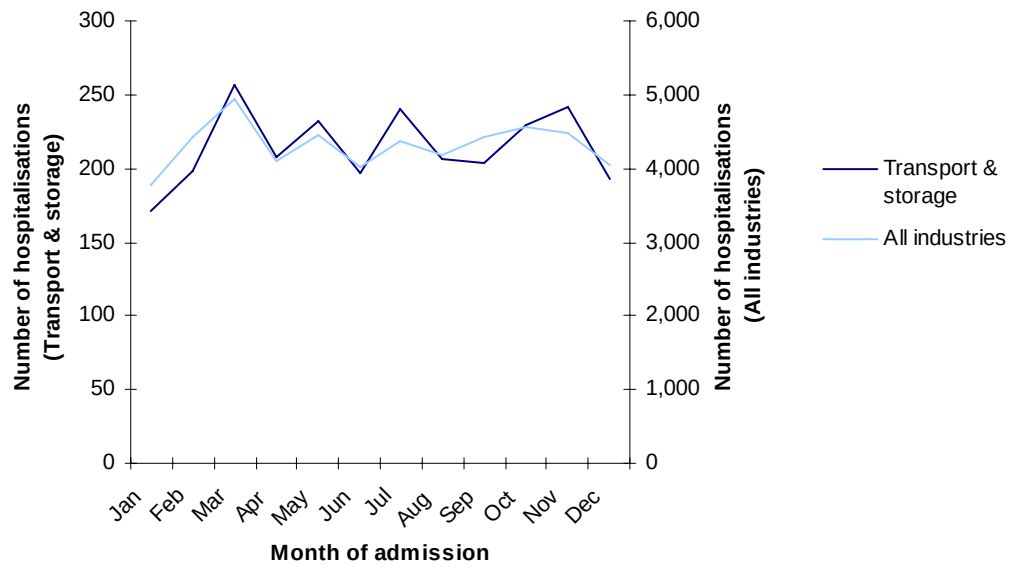


Figure 7.6: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by month of admission to hospital, Transport and storage industry and all industries

Day of admission

As for month of admission, weekday of admission for injury while working for income in the Transport and storage industry was very similar to the pattern for all industries combined (Figure 7.7).

The largest number of Transport and storage industry related hospitalisations occurred on Wednesdays (n=489, 19.0%) and Tuesdays (n=488, 18.9%). The lowest number of hospitalisations occurred on Sundays (n=148, 5.7%).

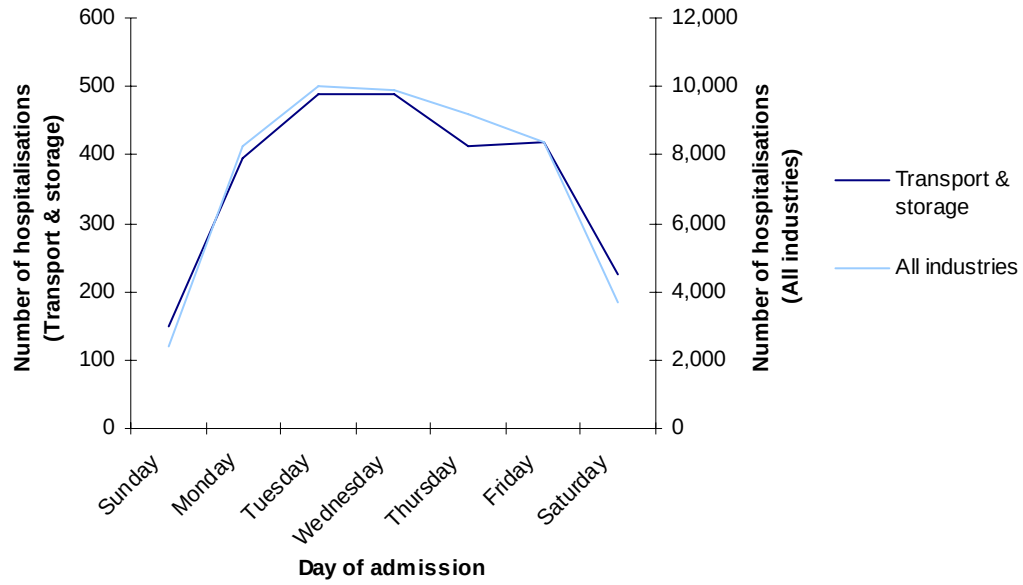


Figure 7.7: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by weekday of admission to hospital, Transport and storage industry and all industries

Nature of injury (Principal Diagnosis)

The most common diagnosis among cases of hospitalised injury while working for income in the Transport and storage industry was fracture (n=798, 30.9%), which accounted for a larger proportion of cases in this industry than of cases in all industries combined (23.3%). Intracranial injury occurred in 3.9% of admissions, compared with 2.3% for cases in all industries.

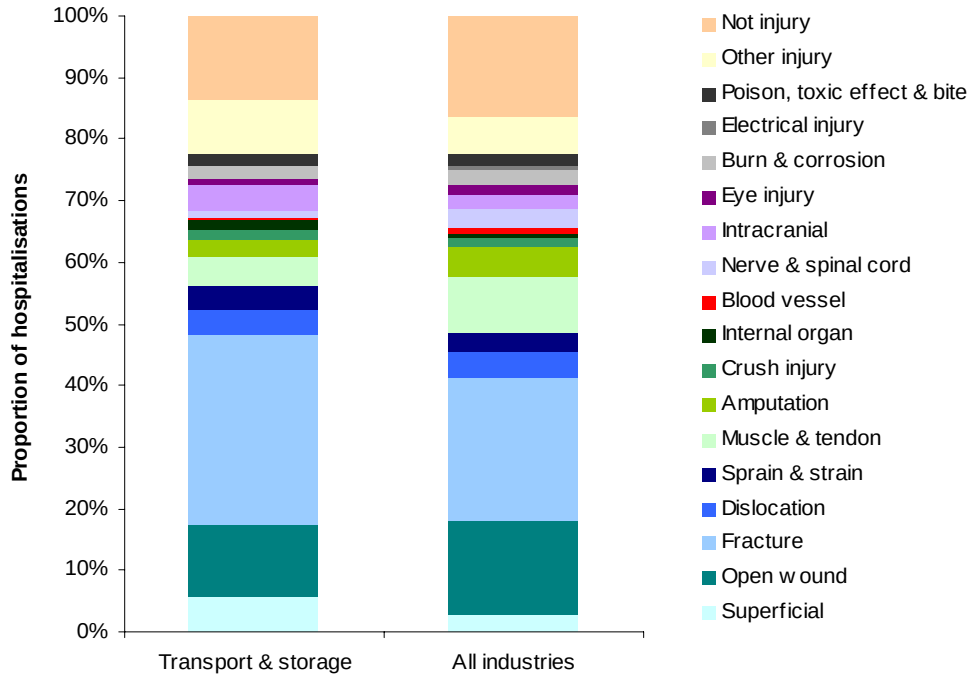


Figure 7.8: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by nature of injury (Principal Diagnosis), Transport and storage industry and all industries

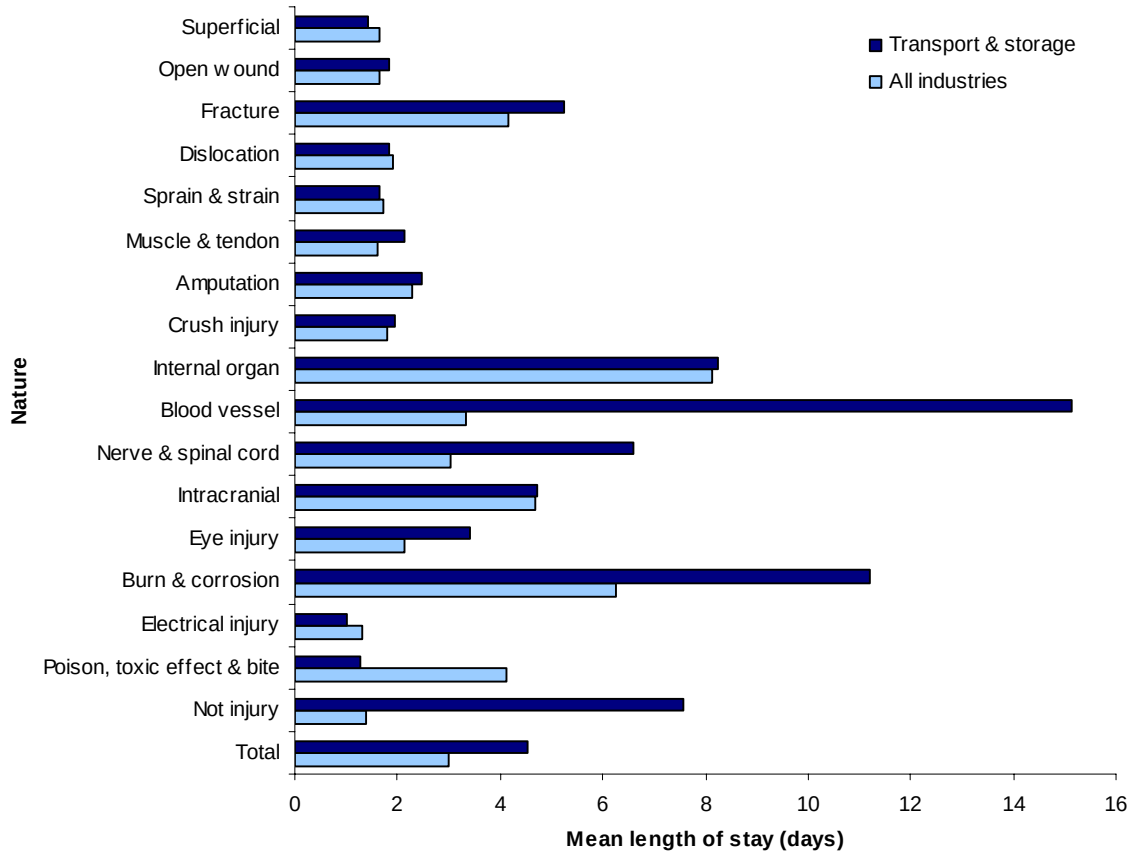
Fractures were more common as a proportion of male cases (31.6%) than female cases (20.1%) as was intracranial injury (4.0% versus 2.7%). Hospitalisations that were assigned principal diagnosis codes from outside the 'injury' chapter of the ICD-10-AM (n=348) related were much more common as a proportion of all hospitalisations, in females (42.3%) than in males (11.7%). Overall, factors influencing health status and contact with health services accounted for 139 hospitalisations and diseases of the musculoskeletal system and connective tissue accounted for 107 hospitalisations (Table 7.5).

Table 7.5: Hospitalised injury while working for income in the Transport and storage industry, Australia 2002–03 and 2003–04: numbers and proportions of cases by nature of injury (Principal Diagnosis) and sex

Nature	Males (%)	Females (%)	Persons (%)
Superficial	132 (5.4)	11 (7.4)	143 (5.5)
Open wound	295 (12.1)	11 (7.4)	306 (11.9)
Fracture	768 (31.6)	30 (20.1)	798 (30.9)
Dislocation	96 (4.0)	5 (3.4)	101 (3.9)
Sprain & strain	101 (4.2)		
Muscle & tendon	120 (4.9)		
Amputation	69 (2.8)		
Crush injury	38 (1.6)	0 (0.0)	38 (1.5)
Internal organ	43 (1.8)	0 (0.0)	43 (1.7)
Blood vessel	7 (0.3)		
Nerve & spinal cord	35 (1.4)		
Intracranial	97 (4.0)	4 (2.7)	101 (3.9)
Eye injury	26 (1.1)		
Burn & corrosion	55 (2.3)	0 (0.0)	55 (2.1)
Poison, toxic effect & bite	41 (1.7)		
Other injury	222 (9.1)	14 (9.4)	236 (9.2)
Not injury	285 (11.7)	63 (42.3)	348 (13.5)
Total	**2,430 (100.0)**	**149 (100.0)**	**2,579 (100.0)**

Where cell numbers for males or females are low, the cell number and total are not shown.

The mean length of stay for hospitalised injury while working for income in the Transport and storage industry was 4.5 days (compared with 3.0 for all industries). Cases involving blood vessel injury had the longest mean length of stay with 15.1 days (but note that this group includes only 7 cases) and electrical injury related hospitalisations had the shortest mean length of stay with 1.0 days (Figure 7.9).



There was one case with length of stay of 742 days.

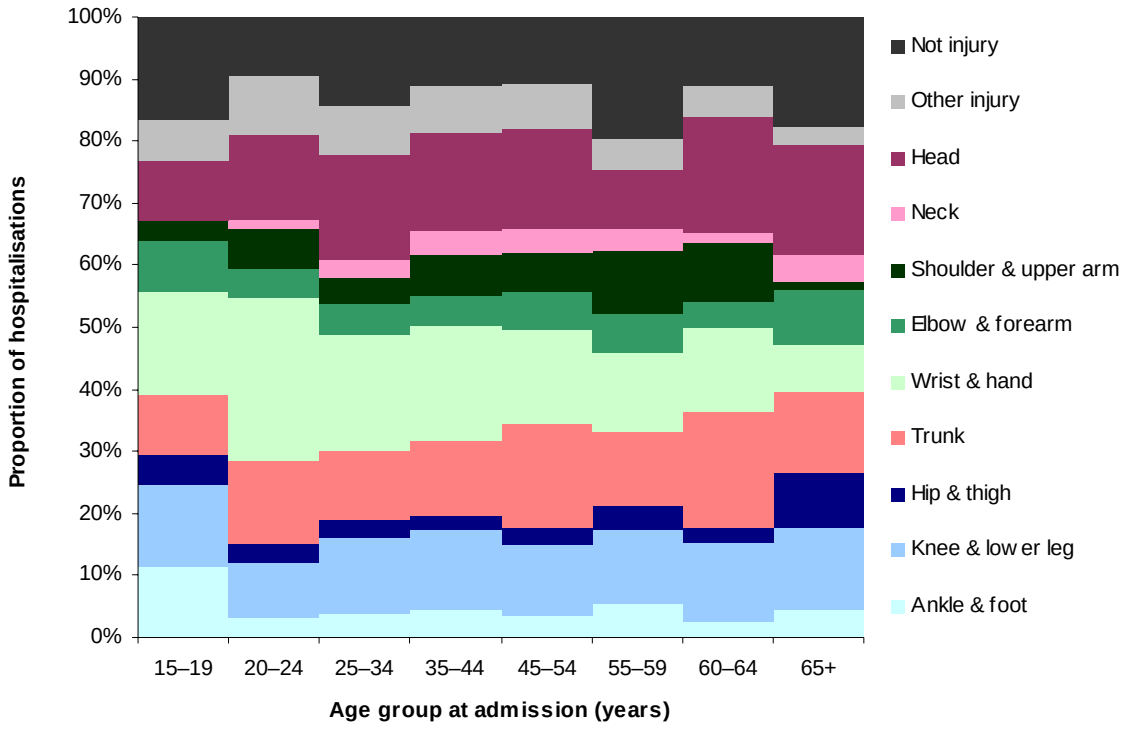
Figure 7.9: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by nature of injury (Principal Diagnosis), Transport and storage industry and all industries

Body region injured (Principal Diagnosis)

Wrist and hand injury was the body region most often involved in cases of hospitalised injury while working for income in the Transport and storage industry (n=436, 16.9%). The next most commonly injured region was the head (n=399, 15.5%). Wrist and hand injury was less common and head injury more common than for all work related hospitalisations due to injury while working for income (31.6% and 8.3% respectively) (Figure 7.10).

Wrist and hand injury related hospitalisations were most numerous, as a proportion of all hospitalisations for the age group, in the 20–24 year age group (n=33, 26.2%) and least so in 65 years and over age group. Head injuries were relatively evenly spread across the age groups, varying from 9.8% to 18.6% (excluding the 0–14 year age group, in which very small numbers occurred). The 0–14 year age group is not shown due to small case numbers (Figure 7.11).

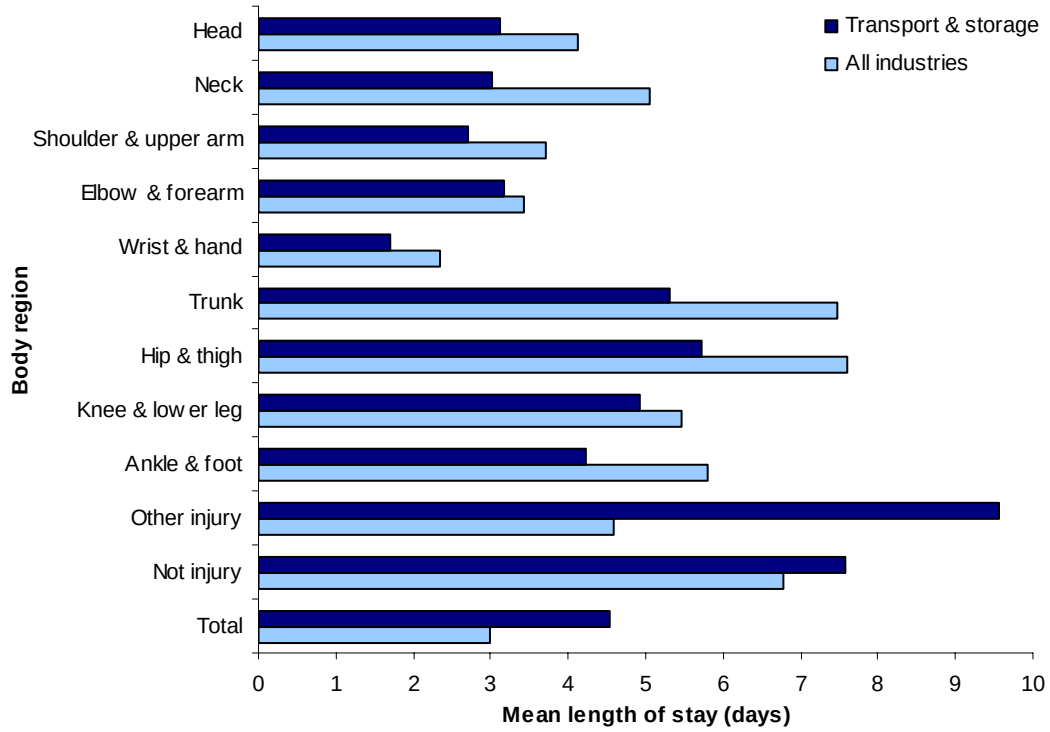
Figure 7.10: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by body region injured, Transport and storage industry and all industries, by sex



** There were 24 records that were likely a 65+ year old female readmitted 23 times for single day stays. These readmissions have been excluded from the calculations.

Figure 7.11: Hospitalised injury while working for income in the Transport and storage industry, Australia 2002–03 and 2003–04: proportions of cases by body region injured and age group

The mean length of stay for hospitalised injury while working for income in the Transport and storage industry was 4.5 days (compared with 3.0 days for cases in all industries combined). The longest mean length of stay was 9.6 days for the residual category 'other injury-related hospitalisations' and the shortest was 1.7 days for wrist and hand injuries hospitalisations (Figure 7.12).



There was one case with length of stay of 742 days.

Figure 7.12: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by body region injured (Principal Diagnosis), Transport and storage industry and all industries

Most frequent Principal Diagnoses

The most common principal diagnosis among cases of hospitalised injury while working for income in the Transport and storage industry was care involving use of other rehabilitation procedures (Z508) (n=68). A similar code also featured: care involving use of rehabilitation procedures, unspecified (Z509) (n=39). Three of the top ten involved the wrist and hand and three involved the head (Table 7.6).

Table 7.6: Hospitalised injury while working for income in the Transport and storage industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at most detailed level), by sex

Principal diagnosis (code)	Males (%)	Females (%)	Persons (%)
Care involving use of other rehabilitation procedures (Z508)	52 (2.1)	16 (10.7)	68 (2.6)
Fracture of distal phalanx of other finger (not thumb) (S6263)	62 (2.6)		
Open wound of finger without damage to nail (S610)	48 (2.0)		
Traumatic amputation of other single finger (not thumb) (S681)	49 (2.0)		
Open wound of scalp (S010)	44 (1.8)	0 (0.0)	44 (1.7)
Unspecified injury of head (S099)	40 (1.6)		
Tear of meniscus, current (S832)	39 (1.6)		
Care involving use of rehabilitation procedures, unspecified (Z509)	20 (0.8)	19 (12.8)	39 (1.5)
Unspecified injury of abdomen, lower back & pelvis (S399)	36 (1.5)		
Brief loss of consciousness (less than 30 minutes) (S0602)	32 (1.3)		
Other principal diagnosis	2,008 (82.6)	103 (69.1)	2,111 (81.9)
Total	**2,430 (100.0)**	**149 (100.0)**	**2,579 (100.0)**

Where cell numbers for males or females are low, the cell number and total are not shown.

Fracture at wrist and hand level (S62) was the most common three-character diagnosis grouping for Transport and storage industry related hospitalisations (n=166, 6.4%) and fracture of lower leg, including ankle (S82) was second most common (n=141, 5.5%). The top ten diagnosis groupings, shown in Table 7.8, account for 42.3% of all cases of hospitalised injury in the Transport and storage industry.

Table 7.7: Hospitalised injury while working for income in the Transport and storage industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at 3-character code level), by sex

Principal diagnosis group (code)	Males (%)	Females (%)	Persons (%)
Fracture at wrist & hand level (S62)	162 (6.7)	4 (2.7)	166 (6.4)
Fracture of lower leg, including ankle (S82)	138 (5.7)		
Care involving use of rehabilitation procedures (Z50)	76 (3.1)	41 (27.5)	117 (4.5)
Open wound of head (S01)	111 (4.6)	0 (0.0)	111 (4.3)
Open wound of wrist & hand (S61)	98 (4.0)	6 (4.0)	104 (4.0)
Intracranial injury (S06)	97 (4.0)	4 (2.7)	101 (3.9)
Fracture of forearm (S52)	85 (3.5)	9 (6.0)	94 (3.6)
Fracture of skull & facial bones (S02)	91 (3.7)		
Dislocation, sprain & strain of joints & ligaments of the knee(S83)	81 (3.3)		
Fracture of rib(s), sternum & thoracic spine (S22)	72 (3.0)	7 (4.7)	79 (3.1)
Other principal diagnosis	1,419 (58.4)	70 (47.0)	1,489 (57.7)
Total	**2,430 (100.0)**	**149 (100.0)**	**2,579 (100.0)**

Where cell numbers for males or females are low, the cell number and total are not shown.

While wrist and hand was the body region most often involved in cases of hospitalisation due to injury in Transport and storage (16.9%), this is a much lower proportion than for injuries in all industries combined (31.6%). Table 7.8 details the hand and wrist injuries in this industry.

Fracture at wrist and hand level was the most common wrist and hand diagnosis grouping (n=166, 6.4%), with fracture of distal phalanx of other finger (not thumb) (S6263) being the most common type (n=63). There were 104 hospitalisations due to open wound of the wrist and hand, with 82 of these involving the fingers (Table 7.8).

Table 7.8: Hospitalised injury while working for income in the Transport and storage industry, Australia 2002–03 and 2003–04: numbers of wrist and hand injury cases by Principal Diagnosis and sex

Principal diagnosis (code)	Males	Females	Persons
Superficial injury of wrist & hand (S60)	5		
Open wound of wrist & hand (S61)	98	6	104
Open wound of finger(s) without damage to nail (S610)	*48*		
Open wound of finger(s) with damage to nail (S611)	*29*		
Other wound of wrist & hand	*21*		
Fracture at wrist & hand level (S62)	162	4	166
Fracture of distal phalanx of other finger (not thumb) (S6263)	*62*		
Fracture of proximal phalanx of other finger (not thumb) (S6261)	*21*	*0*	*21*
Fracture of distal phalanx of thumb (S6252)	*14*	*0*	*14*
Fracture of middle phalanx of other finger (not thumb) (S6262)	*14*	*0*	*14*
Fracture of shaft of other metacarpal bone (not first) (S6232)	*7*	*0*	*7*
Fracture of proximal phalanx of thumb (S6251)	*7*	*0*	*7*
Fracture of scaphoid bone of hand (S620)	*4*		
Fracture of neck of other metacarpal bone (not first) (S6233)	*5*	*0*	*5*
Other fracture at wrist & hand level	*28*		
Dislocation, sprain & strain of joints & ligaments at wrist & hand level (S63)	18		
Injury of nerves at wrist & hand level (S64)	23		
Injury of digital nerve of other finger (not thumb) (S644)	*14*		
Other injury of nerves at wrist & hand level	*9*	*0*	*9*
Injury of muscle & tendon at wrist & hand level (S66)	25		
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	*13*		
Injury of flexor muscle & tendon of other finger (not thumb) at wrist & hand level (S661)	*8*	*0*	*8*
Other injury of muscle & tendon at wrist & hand level	*4*	*0*	*4*
Crushing injury of wrist & hand (S67)	22	0	22
Crushing injury of thumb & other fingers (S670)	*17*	*0*	*17*
Crushing injury of other & unspecified parts of wrist & hand (S678)	*5*	*0*	*5*
Traumatic amputation of wrist & hand (S68)	61		
Traumatic amputation of other single finger (not thumb) (S681)	*49*		

Traumatic amputation of thumb (S680)	*8*	*0*	*8*
Traumatic amputation of two or more fingers alone (S682)	*4*	*0*	*4*
Other & unspecified injuries of wrist & hand	4		
Total injuries to wrist & hand	**418**	**18**	**436**

Where cell numbers for males or females are low, the cell number and total are not shown.

Procedures

Physiotherapy was the most commonly performed procedure in persons hospitalised due to injury while working for income in the Transport and storage industry (n=190). Most of the top eleven procedures involve the skin and musculoskeletal system. Two of the top eleven procedures were CT scans. In trauma, CT scans of the brain are often performed to look for intracranial bleeding and CT scans of the spine are used to look for fractures (Table 7.9).

Table 7.9: Hospitalised injury while working for income in the Transport and storage industry, Australia 2002–03 and 2003–04: most frequently recorded Principal Procedures, by sex

Principal procedure (code)	Males	Females	Persons
Physiotherapy (9555003)	146	44	190
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), superficial (3002600)	86		
CT brain without intravenous contrast (5600100)	77		
Excisional debridement of deep soft tissue including muscle, tendon, fascia ligaments or nerves (3002300)	63		
CT spine without intravenous contrast (5621000)	53		
Repair of wound of skin & subcutaneous tissue of face or neck, superficial (3003200)	32	0	32
Excisional debridement of skin & subcutaneous tissue (9066500)	30		
Injection into vertebral facet joint (3901300)	30	0	30
Open reduction of fracture of ankle with internal fixation of diastasis, fibula or malleolus (4760001)	26	0	26
Primary repair of nail or nail bed (4648600)	22		
Arthroscopic meniscectomy of knee (4956003)	22		
Other principal procedure	1,843	93	1,936
Total	**2,430**	**149**	**2,579**

Where cell numbers for males or females are low, the cell number and total are not shown.

Summary

NHMD data for the two years to 30 June 2004 reveal 2,579 cases of hospitalised injury while working for income in the Transport and storage industry, in 94.2% of which the injured person was male. The largest number of cases occurred in the age group 35–44 years (n=699). The crude hospitalisation rate per 100,000 workers per year was 378.2 for males and 62.2 for females. The highest hospitalisation rate occurred in the age group 65 years and older.

In this industry, 39.2% of hospitalisations had a transport related mechanism of injury with an occupant of a heavy transport vehicle injured in a transport accident being most common (n=541). Incidents that occurred on a roadway accounted for 28.2% of admissions.

Fractures accounted for 30.9% of hospitalisations, with these being more common in males (31.6%) than females (20.1%). The wrist and hand was the most common principal body region injured (16.9%). Fracture at wrist and hand level (6.4%) was the most common diagnosis grouping.

The most common mechanism of injury for Transport and storage industry related hospitalisations was transport (n=1,010, 39.2%) followed by, exposure to inanimate mechanical forces (n=701, 27.2%).

8 Mining

This chapter includes the cases of Hospitalised injury while working for income that were further specified as occurring in the Mining industry (ICD–10–AM code U73.01). Summary measures for this set of cases are shown in Table 8.1.

Table 8.1: Hospitalised injury while working for income in the Mining industry, Australia 2002–03 and 2003–04: summary measures

Indicator	
Cases	1,354
Estimated number of workers ('000) * **	88.5
Hospitalisation rate per 100,000 workers per year * **	763.6
Hospitalisation rate per million hours worked * **	3.1

* Workers and working hours refer to the total employed labour force in the study period (ABS 2006a).

** Only includes persons 15 + years.

Background

There are approximately 90,000 workers employed in the Mining industry in Australia (ABS 2006b).

The main injury hazards facing workers in the Mining industry are vehicles, rock falls, handling heavy materials and equipment, and working at height (or near shafts).

The rate of fatal injury in the mining industry from 1989 to 1992 (36.1 per 100,000 workers per year) was more than six times the all-industry rate (5.5 per 100,000 per year) (Driscoll et al 2001; ASCC 2006a). A more recent study found a much lower fatality rate in the mining industry (8.3 per 100,000 workers per year) for 2003-04. While still higher than the all-industries average (3.5 per 100,000 workers per year), the rate ratio had declined to about 2.4.

The rate of non-fatal compensated injury (21.1 per 1,000 per year) is about 70% higher than the all-industry average (12.7 per 1,000 per year) (ASCC 2006b).

The most common mechanisms resulting in fatal injury of mining workers in Australia are being hit by falling objects, vehicle incidents, and falling from a height (Mitchell et al 1999; Driscoll 2003). None of the recent mining fatalities involved motor vehicle crashes on public roads (ASCC 2006a).

Mechanisms commonly involved in non-fatal injury of mining workers in Australia are muscular stress while lifting, carrying or handling objects; and falls on the same level (ASCC 2006b). Other problems identified in Australian studies include heat exhaustion in underground mines (Donoghue & Bates 2000; Donoghue et al 2005) and eye injuries (McCarty et al 1999).

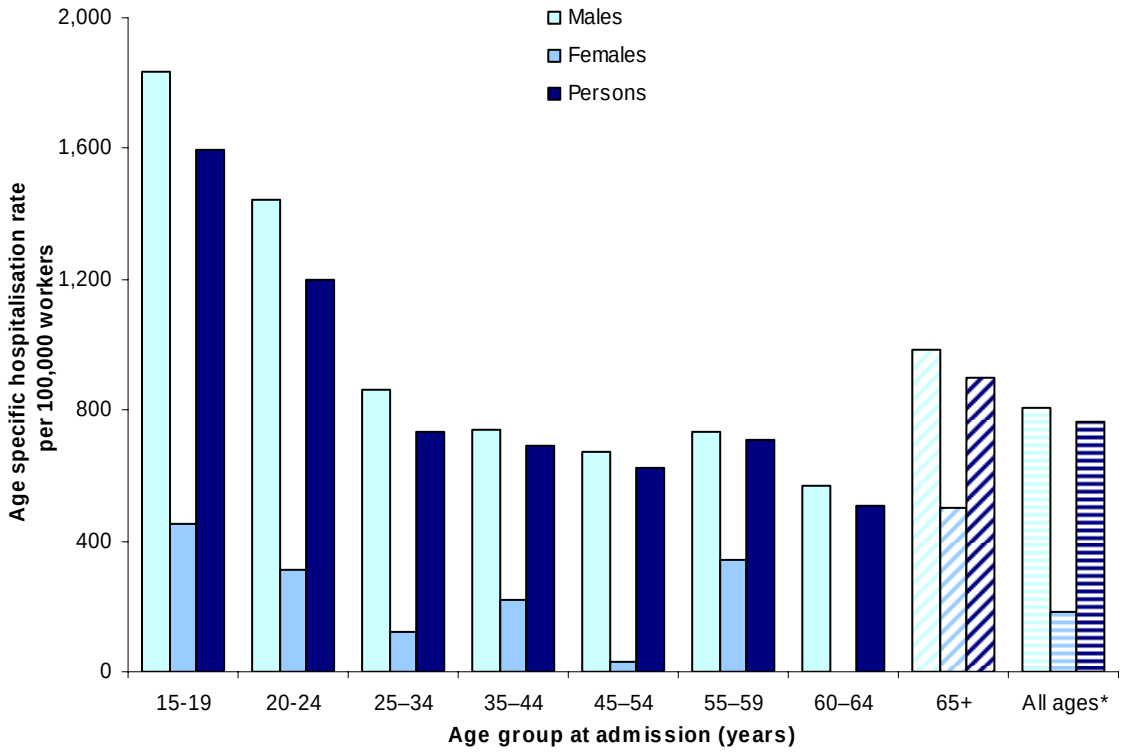
Age and sex

In the two year period, there were 1,354 hospitalisations due to injury whilst working for income in the Mining industry, with the majority in males (n=1,314, 97.0%). The largest number of hospitalisations occurred in the 35–44 year age group with 417 hospitalisations in males and 14 hospitalisations in females (Table 8.2).

Table 8.2: Hospitalised injury while working for income in the Mining industry, Australia 2002–03 and 2003–04: case numbers by age group and sex

Age group at admission (years)	Males	Females	Persons
0–14			..
15-19	39		41
20-24	132	8	140
25–34	345	10	355
35–44	417	14	431
45–54	266		267
55–59	81		84
60–64	24	0	24
65+	9		
All ages	**1,314**	**40**	**1,354**

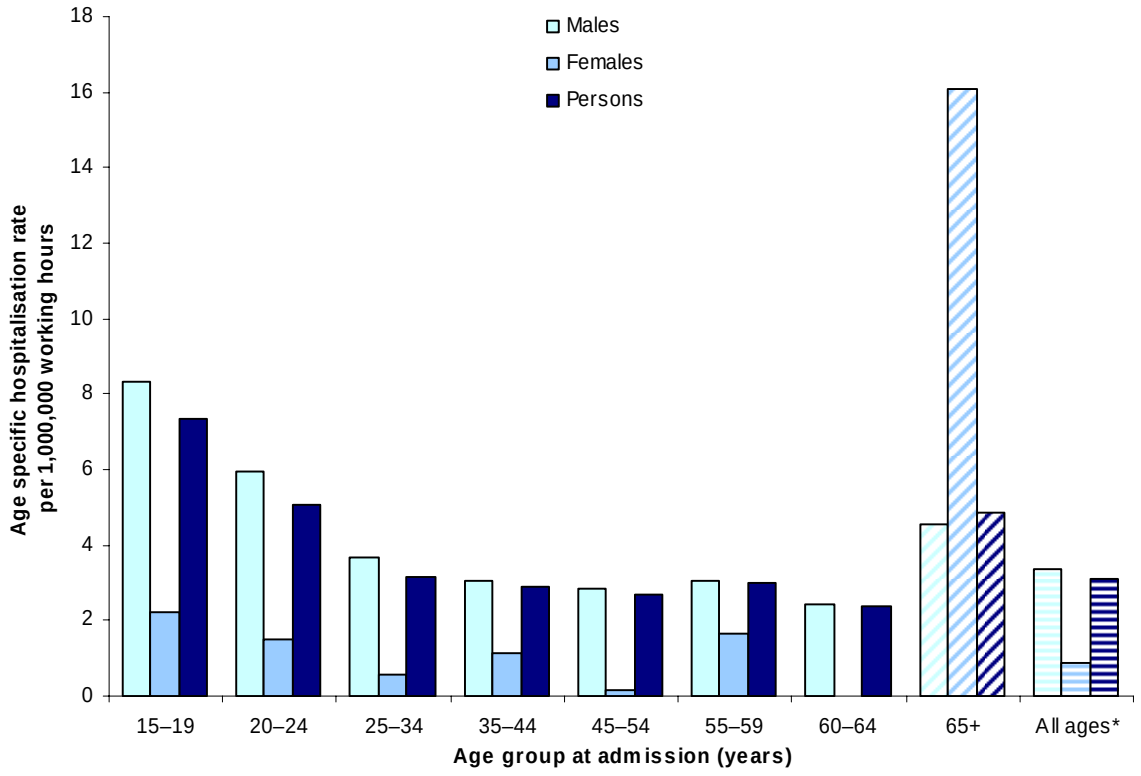
The crude rates of hospitalisation due to injury whilst working for income in the Mining industry at ages 15 years and over were 808.7, 185.3 and 763.6 hospitalisations per 100,000 workers, for males, females and persons, respectively. For males and persons, the highest crude rate of hospitalisation due to injury whilst working for income in the Mining industry (for ages 15 years and over) occurred in the 15–19 year age group with 1,835.3 hospitalisations per 100,000 workers for males and 1,598.4 hospitalisations per 100,000 workers for persons. For females the highest occurred in the 65 years and over age group with 500.0 hospitalisations per 100,000 workers (Figure 8.1).



* Only includes persons 15+ years.

Figure 8.1: Hospitalised injury while working for income in the Mining industry, Australia 2002–03 and 2003–04: average annual rate per 100,000 in the employed labour force, by age group and sex

The age specific hospitalisation rate per million hours worked for income in the Mining industry was 3.4, 0.9 and 3.1 hospitalisations for males, females and persons, respectively. The age specific hospitalisation rate peaked in the 15–19 year age group for males with 8.3 hospitalisations per million hours worked, and in the 65 years and over age group for females with 16.1 hospitalisations per million hours worked (Figure 8.2). The rate for females aged 65 years and older is based on case counts and labour force estimates that are too small to be considered reliable.



* Only includes persons 15+ years.

Figure 8.2: Hospitalised injury while working for income in the Mining industry, Australia 2002–03 and 2003–04: rate per million hours worked by the employed labour force, by age group and sex

Remoteness of residence

Only 29.0% (n=393) of persons hospitalised in the Mining industry whilst working for income resided in major cities compared with 58.5% for all industries. 28.3% (n=383) of persons hospitalised in the Mining industry resided in outer regional areas compared with only 13.9% for all industries. In this industry, 30.0% of females hospitalised resided in remote areas compared with 16.1% of males (Figure 8.3).

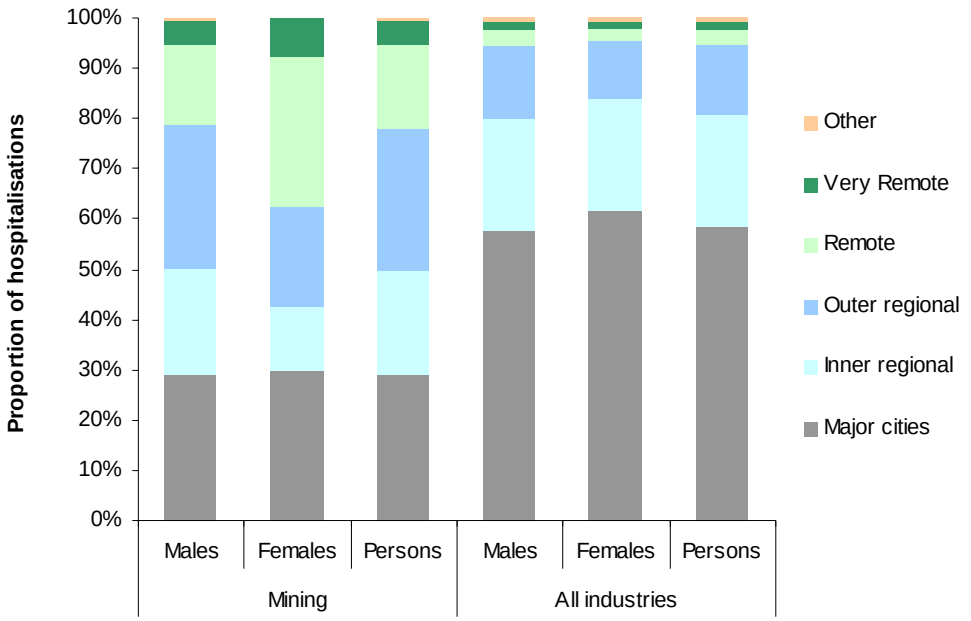


Figure 8.3: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by remoteness zone of usual residence, Mining industry and all industries, by sex

Mechanism of injury

Exposure to inanimate mechanical forces was the most common type of mechanism of injury for persons hospitalised whilst working for income in the Mining industry (n=627, 46.3%) followed by transport accidents (n=174, 12.9%) (Figure 8.4).

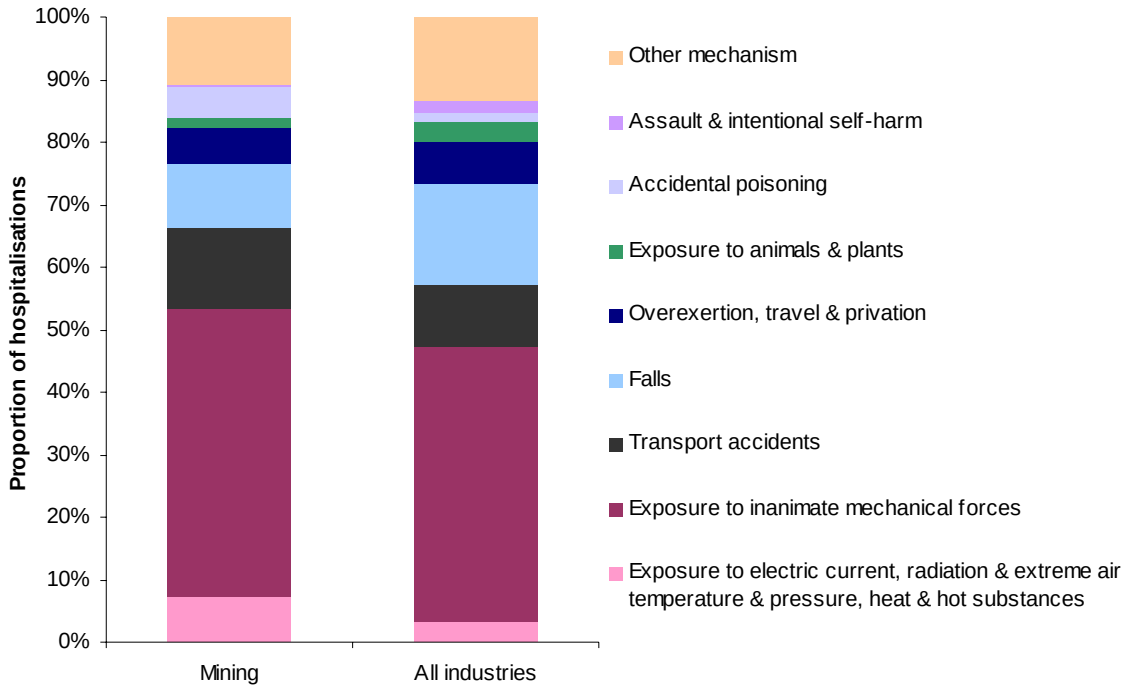


Figure 8.4: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by mechanism, Mining industry and all industries

Among cases due to exposure to inanimate mechanical forces, struck by thrown, projected or falling object (n=139, 10.3%) was the most common single mechanism, followed by contact with mining and earth drilling machinery (n=119, 8.8%) and caught, crushed, jammed or pinched in or between objects (n=109, 8.1%) (Table 8.3).

Table 8.3: Hospitalised injury while working for income in the Mining industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was exposure to inanimate mechanical forces, by specific mechanism and sex

Mechanism	Males	Females	Persons
Struck by thrown, projected or falling object	136		
Contact with mining & earth drilling machinery	118		
Caught, crushed, jammed or pinched in or between objects	108		
Contact with other & unspecified machinery	56	0	56
Contact with lifting & transmission devices, not elsewhere classified	41		
Striking against or struck by other objects	31	0	31
Explosion of other materials	21	0	21
Contact with non-powered hand tool	17	0	17
Contact with earthmoving, scraping & other excavating machinery	15	0	15
Foreign body or object entering through skin	14	0	14
Contact with knife, sword or dagger	13	0	13
Exposure to high pressure jet	10	0	10
Contact with metalworking machinery	9	0	9
Explosion & rupture of pressurised tyre, pipe or hose	6	0	6
Contact with other powered hand tools & household machinery	6	0	6
Foreign body entering into or through eye or natural orifice	5	0	5
Exposure to other & unspecified inanimate mechanical forces	14		
Total for exposure to inanimate mechanical forces	**620**	**7**	**627**

Where cell numbers for males or females are low, the cell number and total are not shown.

Other land transport accidents were the most common type of transport accidents for persons hospitalised in the Mining industry (n=80, 5.9%), with driver of special industrial vehicle injured in non-traffic accident (V835) being most common. There were 52 hospitalisations involving an occupant of a heavy transport vehicle and 24 hospitalisations involving a car occupant (Table 8.4).

Table 8.4: Hospitalised injury while working for income in the Mining industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was a transport accident, by specific mechanism and sex

Mechanism	Males	Females	Persons
Other land transport accidents	78		
Person injured while boarding or alighting from special industrial vehicle (V834)	*4*	*0*	*4*
Driver of special industrial vehicle injured in non-traffic accident (V835)	*46*		
Person injured while boarding or alighting from special construction vehicle (V854)	*4*	*0*	*4*
Driver of special construction vehicle injured in non-traffic accident (V855)	*15*	*0*	*15*
Occupant [any] of other land transport vehicle injured in transport accident	*9*		
Occupant of heavy transport vehicle injured in transport accident	47	5	52
Driver of heavy transport vehicle injured in non-traffic non-collision transport accident (V680)	*13*		
Person injured whilst boarding or alighting from heavy transport vehicle in non-collision transport accident (V684)	*9*	*0*	*9*
Occupant [any] of heavy transport vehicle injured in transport accident	*25*		
Car occupant injured in transport accident	23		
Driver of sedan injured in non-traffic non-collision transport accident (V4800)	*4*	*0*	*4*
Car occupant [any] injured in other non-collision transport accident	*6*		
Car occupant [any] injured in other transport accident	*13*	*0*	*13*
Occupant of pick-up truck or van injured in transport accident	5	0	5
Pedestrian injured in transport accident	5	0	5
Motorcycle rider injured in transport accident	4	0	4
Water transport accidents	4	0	4
Total transport accidents	**166**	**8**	**174**

Where cell numbers for males or females are low, the cell number and total are not shown.

Place of occurrence

Among hospitalisations occurring whilst working for income in the Mining industry, the majority of incidents occurred at a mine and quarry (n=1,107, 81.8%), compared with only 2.4% for all industries. A further 4.8% occurred at an oil and gas extraction site (n=65) (Figure 8.5).

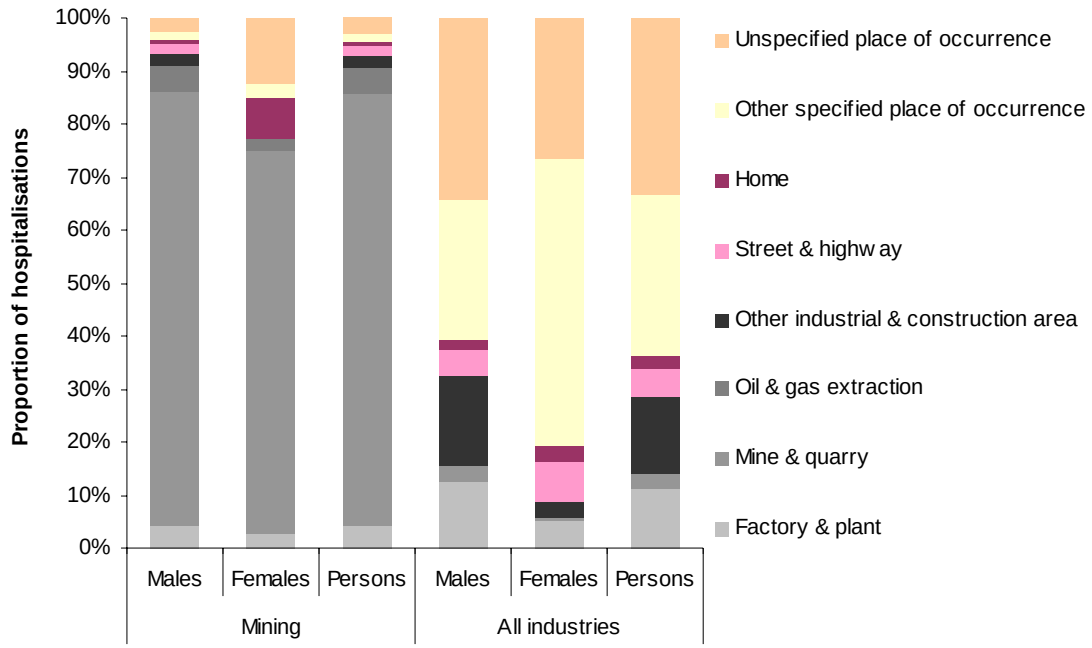


Figure 8.5: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by type of place of occurrence, Mining industry and all industries, by sex

Month of admission

For the two year period, the largest number of hospitalisations due to work-related injury in the Mining industry occurred in February (n=149, 11.0%) and the lowest in December (n=89, 6.6%) (Figure 8.6).

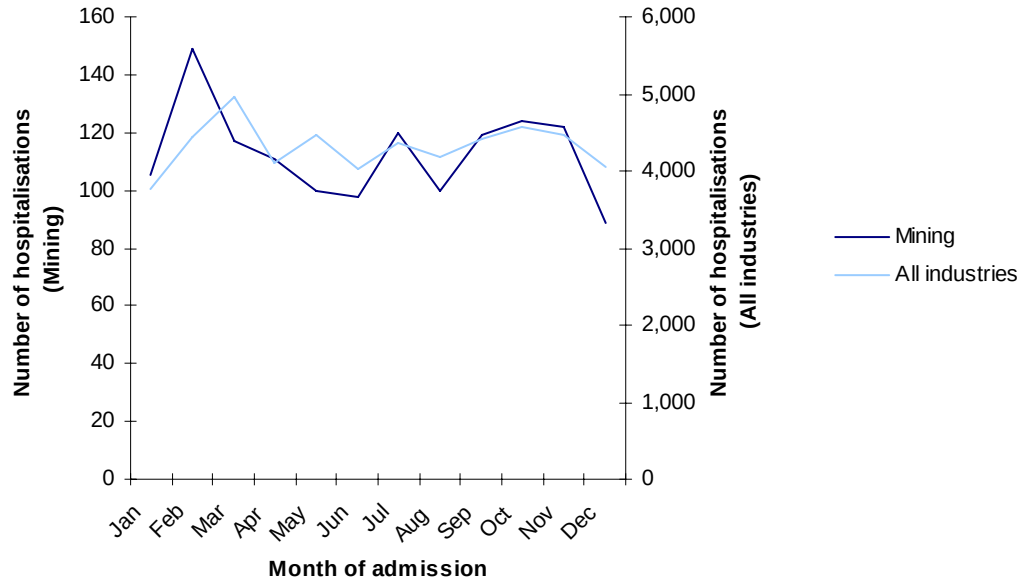


Figure 8.6: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by month of admission to hospital, Mining industry and all industries

Day of admission

The largest number of hospital admissions due to injury while working in the Mining industry occurred on Tuesdays (n=254, 18.8%) and the lowest number occurred on Sundays (n=113, 8.3%). This pattern is similar to that for all industries combined, though with a somewhat higher proportion of cases on weekends (Figure 8.7).

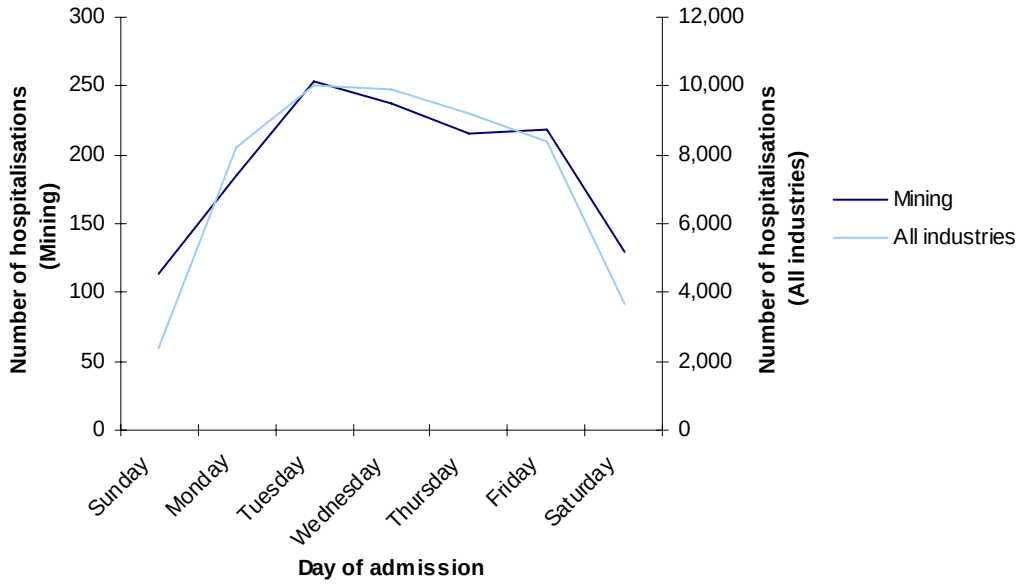


Figure 8.7: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by weekday of admission to hospital, Mining industry and all industries

Nature of injury (Principal Diagnosis)

Fracture was the most common type of diagnosis (n=268, 19.8%), followed by open wound (n=191, 14.1%) for persons hospitalised whilst working for income in the Mining industry. For al industries, 23.3% of admissions had a fracture as the principal diagnosis and 15.1% had an open wound as the principal diagnosis. Poison, toxic effect and bite occurred in 4.1% (n=56) of Mining industry related hospitalisations compared with 1.9% for all industries related hospitalisations (Figure 8.8).

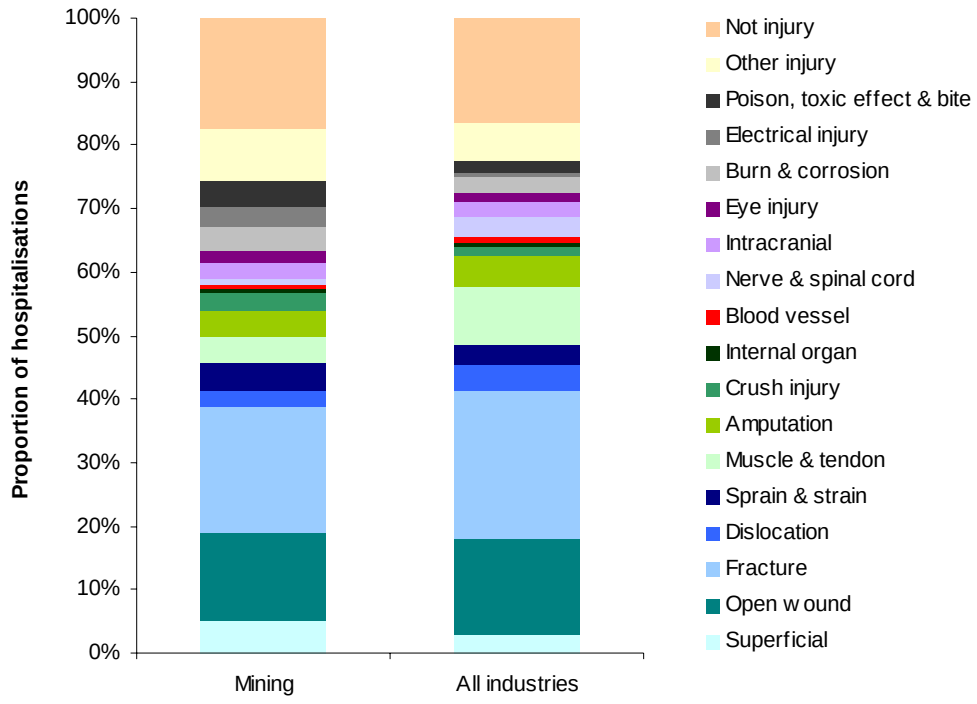


Figure 8.8: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by nature of injury (Principal Diagnosis), Mining industry and all industries

'Not injury' was the most common category among the small number of females hospitalised due to injury whilst working for income in the Mining industry (n=9, 22.5%) with the majority of these due to diseases of the musculoskeletal system and connective tissue (n=5). Poison, toxic effect and bite was more common as a proportion of all hospitalisations, in females (n=7, 17.5%) than in males (n=49, 3.7%) (Table 8.5).

Table 8.5: Hospitalised injury while working for income in the Mining industry, Australia 2002–03 and 2003–04: numbers and proportions of cases by nature of injury (Principal Diagnosis) and sex

Nature	Males (%)	Females (%)	Persons (%)
Superficial	65 (4.9)		
Open wound	188 (14.3)		
Fracture	266 (20.2)		
Dislocation	32 (2.4)		
Sprain & strain	58 (4.4)		
Muscle & tendon	53 (4.0)		
Amputation	57 (4.3)	0 (0.0)	57 (4.2)
Crush injury	37 (2.8)		
Internal organ	9 (0.7)	0 (0.0)	9 (0.7)
Blood vessel	6 (0.5)	0 (0.0)	6 (0.4)
Nerve & spinal cord	16 (1.2)	0 (0.0)	16 (1.2)
Intracranial	33 (2.5)		
Eye injury	25 (1.9)	0 (0.0)	25 (1.8)

Burn & corrosion	49 (3.7)	0 (0.0)	49 (3.6)
Electrical injury	43 (3.3)		
Poison, toxic effect & bite	49 (3.7)	7 (17.5)	56 (4.1)
Other injury	103 (7.8)	7 (17.5)	110 (8.1)
Not injury	225 (17.1)	9 (22.5)	234 (17.3)
Total	**1,314 (100.0)**	**40 (100.0)**	**1,354 (100.0)**

Where cell numbers for males or females are low, the cell number and total are not shown.

The mean length of stay for hospitalised injury whilst working for income in the Mining industry was 2.9 days compared with 3.0 days for all industries. Mining industry related hospitalisations with blood vessel injury and internal organ injury had the longest mean length of stay with 12.5 and 12.3 days, respectively. The shortest mean length of stay was for electrical injury related hospitalisations with 1.0 days (Figure 8.9).

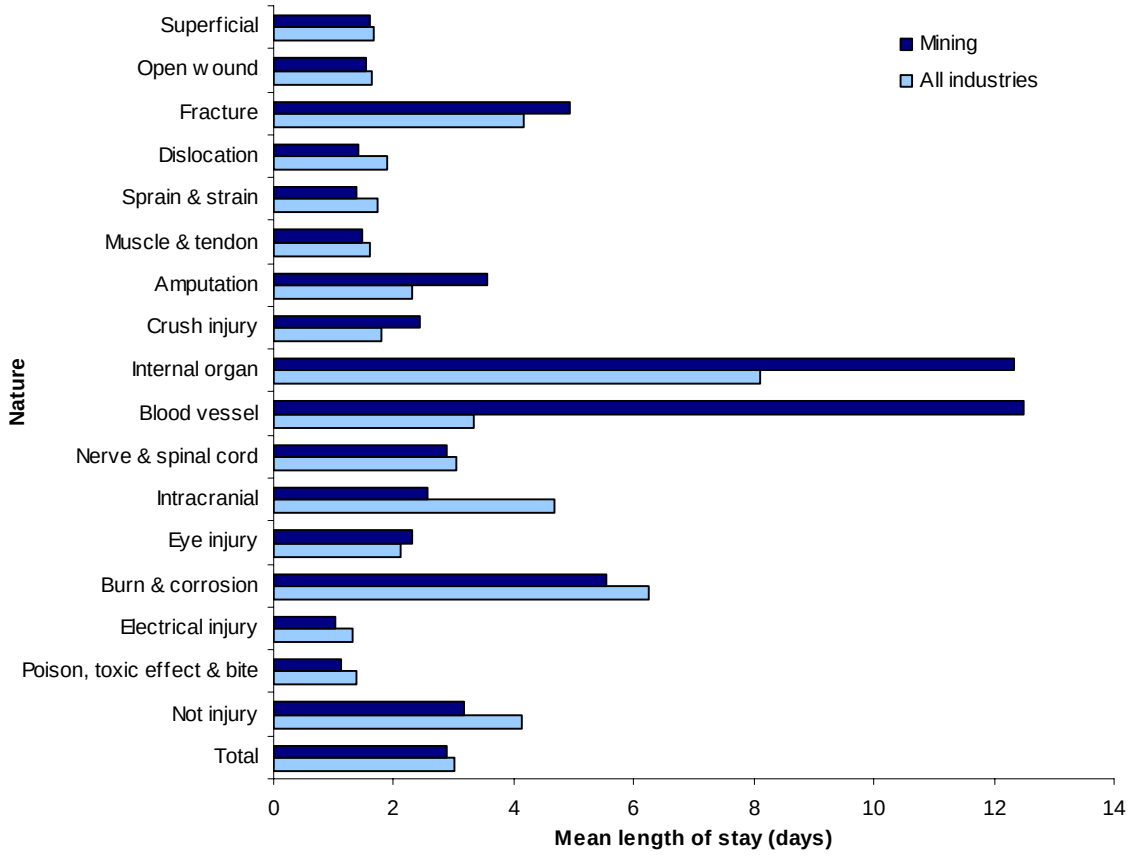


Figure 8.9: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by nature of injury (Principal Diagnosis), Mining industry and all industries

Body region injured (Principal Diagnosis)

The wrist and hand was the most common principal body region injured in persons hospitalised whilst working for income in the Mining industry (n=325, 24.0%). Wrist and hand injury was much more common in males (n=321, 24.4%) than females (n=4, 10.0%). There were 128 admissions with head injury (9.5%) compared with 8.3% for all industries (Figure 8.10).

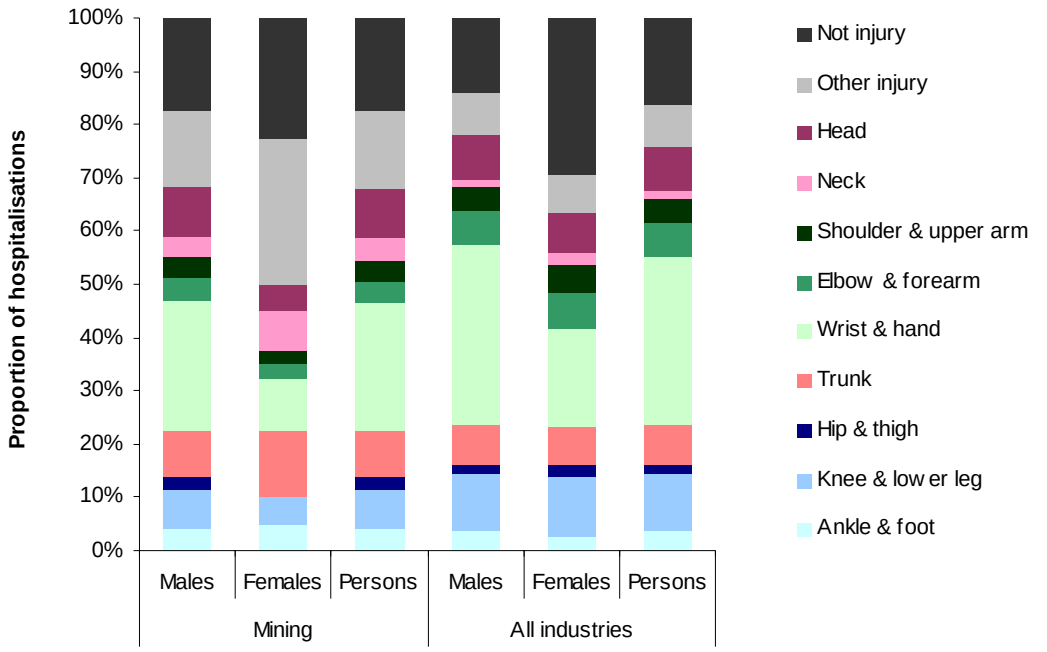


Figure 8.10: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by body region injured, Mining industry and all industries, by sex

In the Mining industry, 24.0% of hospitalisations involved wrist and hand injury. There was little variation with age group in the proportion of wrist and hand injury hospitalisations, the value in the 65 years and over age group (30.0%) being the highest and that for the 35–44 year age group the lowest (21.1%). The proportion of head injury in each age group varied from 4.9% in the 15–19 year age group to 12.9% in the 20–24 year age group (Figure 8.11). These statements and Figure 8.11 exclude the 0–14 year age group, in which only a very small number of cases was involved.

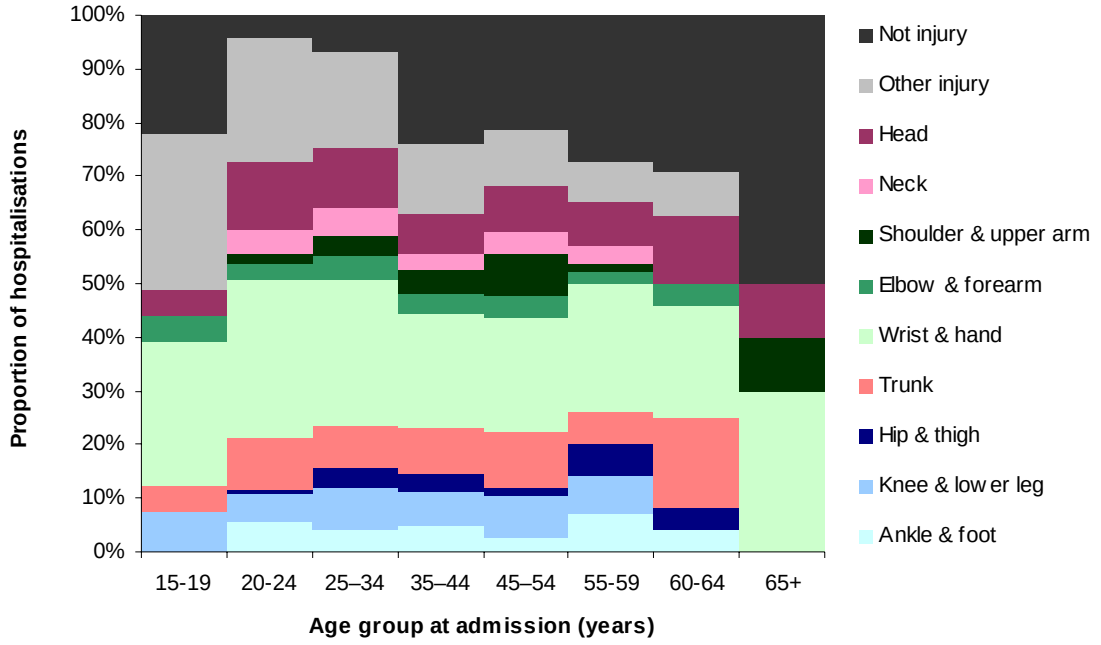


Figure 8.11: Hospitalised injury while working for income in the Mining industry, Australia 2002–03 and 2003–04: proportions of cases by body region injured and age group

The mean length of stay for hospitalisations occurring whilst working for income in the Mining industry was 2.9 days compared with 3.0 days for all industries. Knee and lower leg injury related hospitalisations had the longest mean length of stay with 4.6 days and wrist and hand injury related hospitalisations had the shortest mean length of stay with 1.9 days (Figure 8.12).

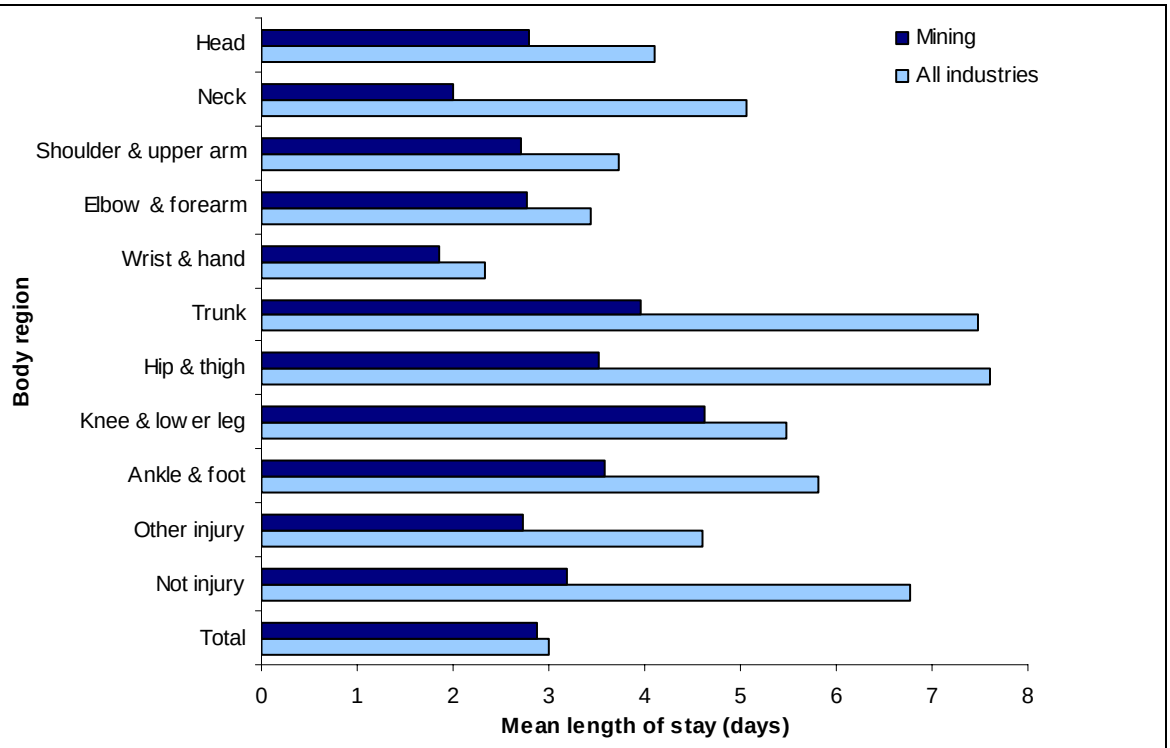


Figure 8.12: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by body region injured (Principal Diagnosis), Mining industry and all industries

Most frequent Principal Diagnoses

Open wound of finger without damage to nail (S610) was the most common principal diagnosis in persons hospitalised whilst working for income in the Mining industry (n=61, 4.5%), followed by effects of electric current (T754) (n=46, 3.4%). Four of the top eleven principal diagnoses involve the wrist and hand (Table 8.6).

Table 8.6: Hospitalised injury while working for income in the Mining industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at most detailed level), by sex

Principal diagnosis (code)	Males (%)	Females (%)	Persons (%)
Open wound of finger without damage to nail (S610)	59 (4.5)		
Effects of electric current (T754)	43 (3.3)		
Traumatic amputation of other single finger (not thumb) (S681)	35 (2.7)	0 (0.0)	35 (2.6)
Fracture of distal phalanx of other finger (not thumb) (S6263)	32 (2.4)	0 (0.0)	32 (2.4)
Care involving use of rehabilitation procedures, unspecified (Z509)	32 (2.4)	0 (0.0)	32 (2.4)
Unspecified injury of abdomen, lower back & pelvis (S399)	25 (1.9)		

Crushing injury of thumb & other finger(s) (S670)	25 (1.9)	0 (0.0)	25 (1.8)
Unspecified injury of head (S099)	23 (1.8)		
Attention to surgical dressings & sutures (Z480)	19 (1.4)	0 (0.0)	19 (1.4)
Cervicalgia (M542)	17 (1.3)	0 (0.0)	17 (1.3)
Sprain & strain of cervical spine (S134)	15 (1.1)		
Other principal diagnosis	989 (75.3)	28 (70.0)	1,017 (75.1)
Total	**1,314 (100.0)**	**40 (100.0)**	**1,354 (100.0)**

Where cell numbers for males or females are low, the cell number and total are not shown.

Fracture at wrist and hand level (S62) was the most common three-character diagnosis grouping in persons hospitalised in the Mining industry (n=107, 7.9%), with all of these in males. Open wound of wrist and hand (S61) was the second most common diagnosis grouping with 95 hospitalisations. Three of the top ten groupings involved the wrist and hand and two involved the head (Table 8.7).

Table 8.7: Hospitalised injury while working for income in the Mining industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at 3-character code level), by sex

Principal diagnosis group (code)	Males (%)	Females (%)	Persons (%)
Fracture at wrist & hand level (S62)	107 (8.1)	0 (0.0)	107 (7.9)
Open wound of wrist & hand (S61)	93 (7.1)		
Dorsalgia (M54)	52 (4.0)		
Traumatic amputation of wrist & hand (S68)	51 (3.9)	0 (0.0)	51 (3.8)
Effects of other external causes* (T75)	44 (3.3)		
Care involving use of rehabilitation procedures (Z50)	46 (3.5)	0 (0.0)	46 (3.4)
Fracture of lower leg, including ankle (S82)	38 (2.9)		
Other & unspecified injuries of the abdomen, lower back & pelvis (S39)	31 (2.4)	4 (10.0)	35 (2.6)
Intracranial injury (S06)	33 (2.5)		
Open wound of head (S01)	32 (2.4)	0 (0.0)	32 (2.4)
Other principal diagnosis	787 (59.9)	27 (67.5)	814 (60.1)
Total	**1,314 (100.0)**	**40 (100.0)**	**1,354 (100.0)**

The category Effects of other external causes includes effects of lightning, drowning and non-fatal submersion, vibration, motion sickness, electric current, gravitation forces and weightlessness.
Where cell numbers for males or females are low, the cell number and total are not shown.

Almost one in four (n=325) of injury hospitalisations whilst working for income in the Mining industry involved the wrist and hand. Of these 95 hospitalisations were classified as open wound of the wrist and hand (S61) and 61 of these were open wound of finger(s) without damage to nail (S610). There were 107 hospitalisations for fracture at wrist and hand level, with fracture of distal phalanx of other finger (not thumb) (S6263) being the most common type with 32 hospitalisations. There were 51 hospitalisations due to traumatic amputation of wrist and hand (S68), with 35 of these due to traumatic amputation of other single finger (not thumb) (S681) (Table 8.8).

Table 8.8: Hospitalised injury while working for income in the Mining industry, Australia 2002–03 and 2003–04: numbers of wrist and hand injury cases by Principal Diagnosis and sex

Principal diagnosis (code)	Males	Females	Persons
Superficial injury of wrist & hand (S60)	9		
Open wound of wrist & hand (S61)	93		
Open wound of finger(s) without damage to nail (S610)	*59*		
Open wound of finger(s) with damage to nail (S611)	*15*	*0*	*15*
Open wound of other parts of wrist & hand (S6188)	*9*	*0*	*9*
Other wound of wrist & hand	*10*	*0*	*10*
Fracture at wrist & hand level (S62)	107	0	107
Fracture of distal phalanx of other finger (not thumb) (S6263)	*32*	*0*	*32*
Fracture of proximal phalanx of other finger (not thumb) (S6261)	*15*	*0*	*15*
Fracture of middle phalanx of other finger (not thumb) (S6262)	*12*	*0*	*12*
Fracture of proximal phalanx of thumb (S6251)	*7*	*0*	*7*
Fracture of distal phalanx of thumb (S6252)	*7*	*0*	*7*
Multiple fractures of fingers (S627)	*7*	*0*	*7*
Fracture of base of other metacarpal bone (not first) (S6231)	*5*	*0*	*5*
Fracture of other metacarpal bone (not first), part unspecified (S6230)	*4*	*0*	*4*
Fracture of phalanx of other finger (not thumb), part unspecified (S6260)	*4*	*0*	*4*
Other fracture at wrist & hand level	*14*	*0*	*14*
Dislocation, sprain & strain of joints & ligaments at wrist & hand level (S63)	6	0	6
Injury of nerves at wrist & hand level (S64)	9	0	9
Injury of muscle & tendon at wrist & hand level (S66)	14		
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	*10*	*0*	*10*
Other injury of muscle & tendon at wrist & hand level	4		
Crushing injury of wrist & hand (S67)	27	0	27
Traumatic amputation of wrist & hand (S68)	51	0	51
Traumatic amputation of other single finger (not thumb) (S681)	*35*	*0*	*35*
Traumatic amputation of two or more fingers alone (S682)	*12*	*0*	*12*
Other traumatic amputation at wrist & hand level	*4*	*0*	*4*
Other & unspecified injuries of wrist & hand	5	0	5
Total injuries to wrist & hand	**321**	**4**	**325**

Where cell numbers for males or females are low, the cell number and total are not shown.

Procedures

Repair of wound of skin and subcutaneous tissue of other site (excluding face and neck), superficial (3002600) was the most common principal procedure performed on persons hospitalised due to injury whilst working for income in the Mining industry (n=86, 6.4%). Most of the top principal procedures involved the skin and musculoskeletal systems (Table 8.9).

Table 8.9: Hospitalised injury while working for income in the Mining industry, Australia 2002–03 and 2003–04: most frequently recorded Principal Procedures, by sex

Principal procedure (code)	Males	Females	Persons
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), superficial (3002600)	85		
Physiotherapy (9555003)	44		
Excisional debridement of deep soft tissue including muscle, tendon, fascia ligaments or nerves (3002300)	38		
Injection into vertebral facet joint (3901300)	25	0	25
Dressing of burn, <10% of body surface area dressed (3001000)	18	0	18
Excisional debridement of skin & subcutaneous tissue (9066500)	17	0	17
CT brain without intravenous contrast (5600100)	15	0	15
Non excisional debridement of skin & subcutaneous tissue (9068601)	15	0	15
Excisional debridement of soft tissue involving bone or cartilage (3002301)	13	0	13
Open reduction of fracture of metacarpus with internal fixation (4734201)	13	0	13
CT spine without intravenous contrast (5621000)	13	0	13
Other principal procedure	1,018	35	1,053
Total	**1,314**	**40**	**1,354**

Where cell numbers for males or females are low, the cell number and total are not shown.

Summary

In the two year study period, 1,354 injury hospitalisations due to injury were recorded as occurring whilst working for income in the Mining industry with 97.0% of these involving males. The largest number of hospitalisations occurred in the 35–44 year age group. Only 29.0% of persons hospitalised in the Mining industry resided in major cities, compared with 58.5% for all industries.

In the Mining industry, 46.3% of hospitalisations occurred due to exposure to inanimate mechanical forces, with struck by thrown, projected or falling object being the most common mechanism (10.3%). Most injury hospitalisations whilst working for income in the Mining industry occurred at a mine or quarry (81.8%).

Fractures accounted for 19.8% of hospitalisations. The wrist and hand was the most common body region injured (24.0%). Fracture of the wrist and hand was the most common diagnosis grouping (7.9%).

9 Health services

This chapter includes the cases of Hospitalised injury while working for income that were further specified as occurring in the Health services sector (ICD–10–AM code U73.07). Summary measures for this set of cases are shown in Table 9.1.

Table 9.1: Hospitalised injury while working for income in the Health services industry, Australia 2002–03 and 2003–04: summary measures

Indicator	
Cases	1,346
Estimated number of workers ('000) * **	946.8
Hospitalisation rate per 100,000 workers per year * **	71.0
Hospitalisation rate per million hours worked * **	0.5

* Workers and working hours refer to the total employed labour force in the study period (ABS 2006a).

** Only includes persons 15+ years.

Background

There are approximately 950,000 workers employed in the Health services industry in Australia (ABS 2006b).

The main injury hazards facing workers in the health industry relate to members of the public (manual handling of patients; assault) and vehicles.

The rate of fatal injury in the Health services industry (2.0 per 100,000 per year from 1989 to 1992; 1.3 per 100,000 per year in 2003–04) is considerably lower than the all-industry rate (5.5 per 100,000 per year from 1989 to 1992; 3.5 per 100,000 per year in 2003–04) (Driscoll et al 2001; ASCC 2006a). However, the rate of non-fatal compensated injury (13.3 per 1,000 per year) is similar to the all-industry average (12.7 per 1,000 per year) (ASCC 2006b).

The most common incident mechanisms resulting in fatal injury of health industry workers in Australia are assault and motor vehicle incidents (Driscoll 2005).

Mechanisms commonly involved in non-fatal injury of Health services workers in Australia are muscular stress while lifting, carrying or handling objects; falls on the same level; and assault (Passfield et al 2003; Bunker 2005; ASCC 2006b).

Age and sex

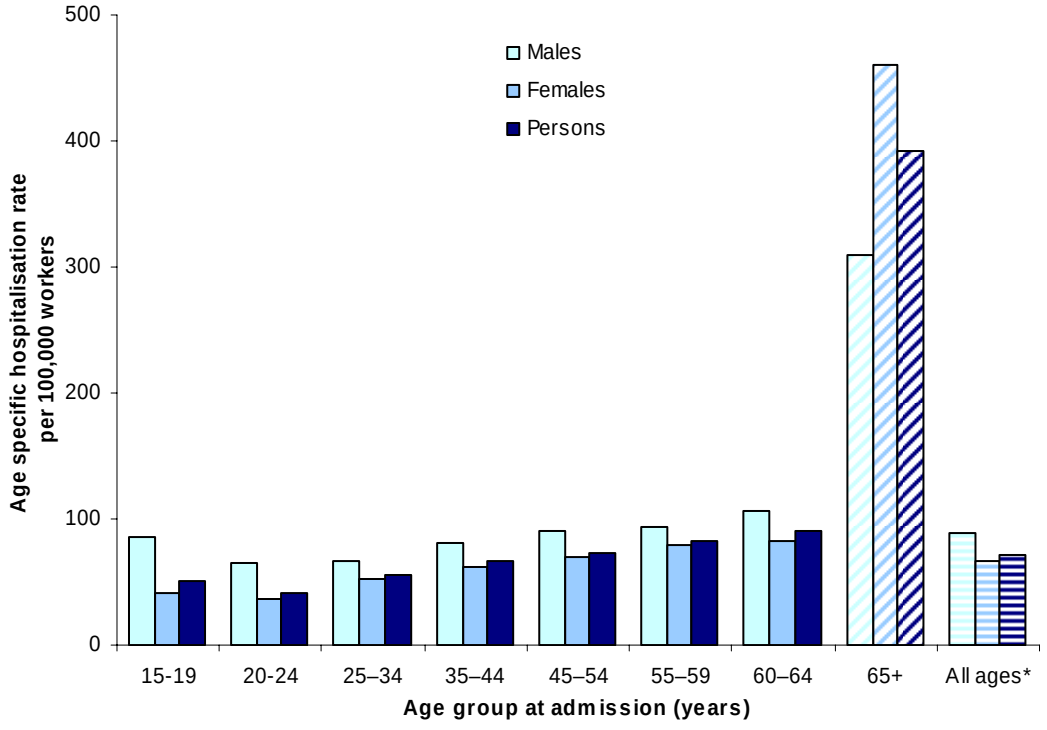
During the two year study period 1,346 injury hospitalisations occurred whilst working for income in the Health services industry, with the majority occurring in females (n=975, 72.4%). The largest number of hospitalisations occurred in the 45–54 year age group with 299 hospitalisations in females and 101 hospitalisations in males (Table 9.2).

Table 9.2: Hospitalised injury while working for income in the Health services industry, Australia 2002–03 and 2003–04: case numbers by age group and sex

Age group at admission (years)	Males	Females	Persons
0–14			
15-19			
20-24	16	46	62
25–34	58	154	212
35–44	90	245	335
45–54	101	299	400
55–59	36	103	139
60–64	24	43	67
65+	38	70	108
All ages	**371**	**975**	**1,346**

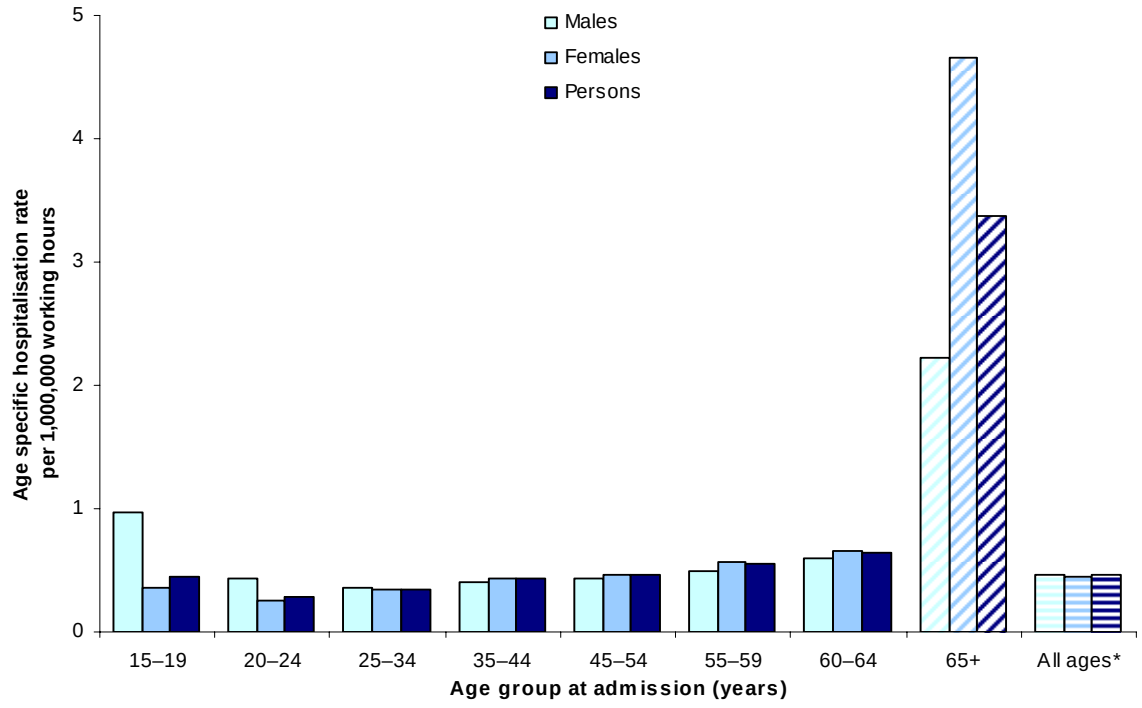
The age specific hospitalisation rate due to injury whilst working for income in the Health services industry was 89.1 for males, 65.9 for females and 71.0 for persons per 100,000 workers (15 years and over). The highest rate occurred in the 65 years and over age group with 309.6, 459.8 and 392.7 hospitalisations per 100,000 workers, for males, females and persons, respectively. Caution is required in the interpretation of rates in the 65 years and over age group as there are small numbers of workers with approximately 6,100 male and 7,600 female workers (ABS 2006a) as well as small numbers of cases (Figure 9.1).

The age specific injury hospitalisation rate per million hours worked for income in the Health services industry was 0.5 for both males and females (15 years and over). The highest rate occurred in the 65 years and over age group with 2.2 for males, 4.7 for females and 3.4 for persons per million hours worked (Figure 9.2).



* Only includes persons 15 + years.

Figure 9.1: Hospitalised injury while working for income in the Health services industry, Australia 2002–03 and 2003–04: average annual rate per 100,000 in the employed labour force, by age group and sex



* Only includes persons 15 + years.

Figure 9.2: Hospitalised injury while working for income in the Health services industry, Australia 2002–03 and 2003–04: rate per million hours worked by the employed labour force, by age group and sex

Remoteness of residence

The profiles of remoteness of residence for the injury hospitalisations in the Health services industry and all industries were very similar. In the Health services industry, 60.5% (n=815) of persons hospitalised resided in major cities compared with 58.5% for all industries (Figure 9.3).

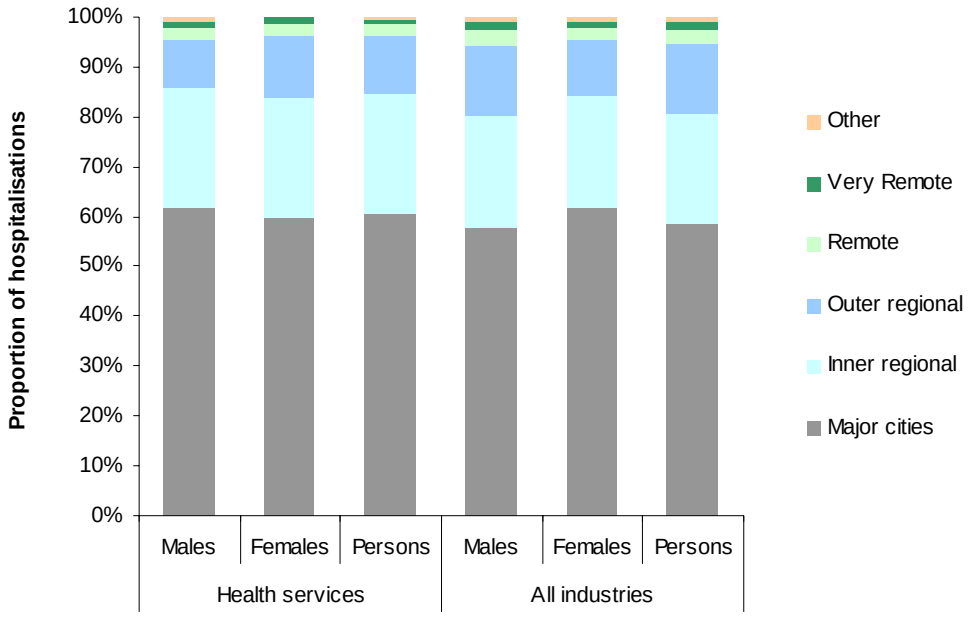


Figure 9.3: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by remoteness zone of usual residence, Health services industry and all industries, by sex

Mechanism of injury

Falls (23.2%), overexertion and strenuous or repetitive movements (19.8%) and exposure to inanimate mechanical forces (15.4%) were the most common mechanism groups among hospitalised injury cases that occurred while working for income in the Health services industry. There were 266 (19.8%) hospitalisations due to overexertion and strenuous or repetitive movements, 63 of these affecting males and 203 females (Figure 9.4).

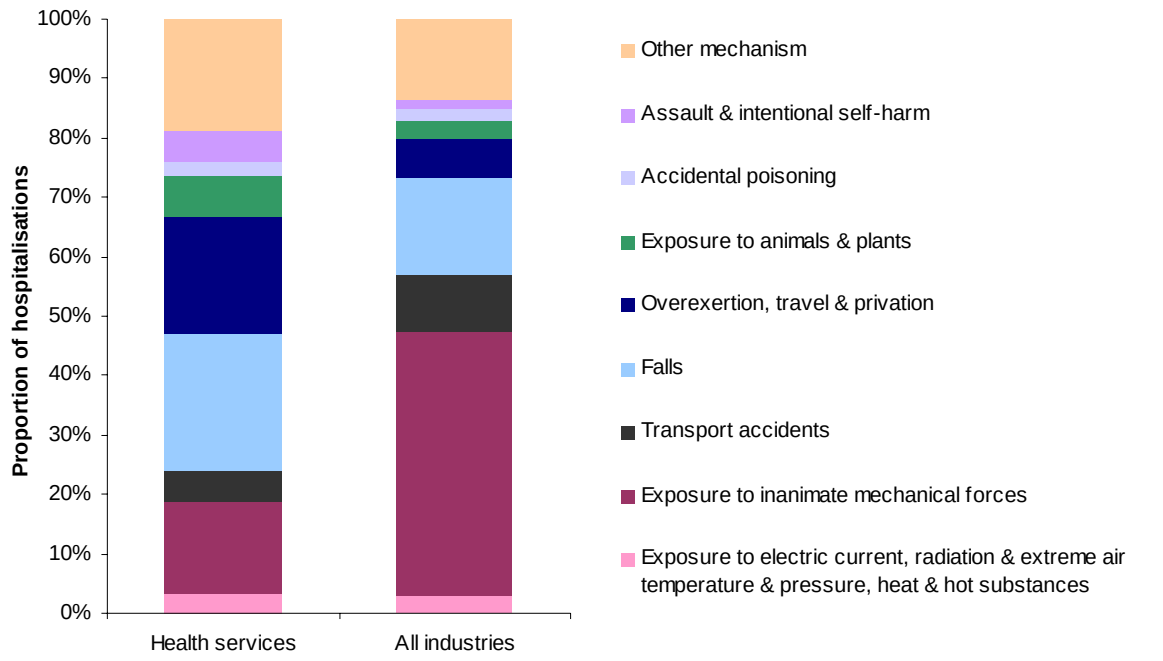


Figure 9.4: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by mechanism, Health services industry and all industries

There were 312 fall related injury hospitalisations (23.2%) in those hospitalised whilst working for income in the Health services industry. There were 67 hospitalisations due to fall on the same level from slipping and 65 hospitalisations due to a fall on the same level from tripping (Table 9.3).

Table 9.3: Hospitalised injury while working for income in the Health services industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was a fall, by specific mechanism and sex

Mechanism	Males	Females	Persons
Fall on same level from slipping	9	58	67
Fall on same level from tripping	7	58	65
Other fall on same level	13	35	48
Fall on & from stairs	8	15	23
Fall involving furniture		13	
Fall on same level from stumbling	0	13	13
Other fall same level from collision or push by person		8	
Other fall from one level to another	2	5	7
Other & unspecified fall	13	52	65
Total for falls	**55**	**257**	**312**

Where cell numbers for males or females are low, the cell number and total are not shown.

There were 207 hospitalisations in the Health services industry due to exposure to inanimate mechanical forces (15.4%), with contact with non-powered hand tool being the most common type (n=52). There were 62 assault related hospitalisations with 71.0% occurring in females. Of these assault related hospitisations, 41 were assault by bodily force (Figure 9.4 and Table 9.4).

Table 9.4: Hospitalised injury while working for income in the Health services industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was exposure to inanimate mechanical forces, by specific mechanism and sex

Mechanism	Males	Females	Persons
Contact with non-powered hand tool	13	39	52
Striking against or struck by other objects	12	30	42
Caught, crushed, jammed or pinched in or between objects	9	17	26
Foreign body entering into or through eye or natural orifice or skin	10	8	18
Struck by thrown, projected or falling object	5	12	17
Contact with knife, sword or dagger	7	10	17
Contact with other & unspecified machinery	6	6	12
Contact with lifting & transmission devices, not elsewhere classified		5	
Contact with sharp glass		5	
Exposure to other & unspecified inanimate mechanical forces	5	6	11
Total for exposure to inanimate forces	**69**	**138**	**207**

Where cell numbers for males or females are low, the cell number and total are not shown.

Place of occurrence

A health service area was the most common place of occurrence for injury hospitalisations whilst working for income in the Health services industry (n=885, 65.8%), with a similar proportion in males (67.1%) as in females (65.2%). Hospitalisations resulting from occurrences at aged care facilities were more common in females (n=119, 12.2%) than in males (n=12, 3.2%) (Figure 9.5).

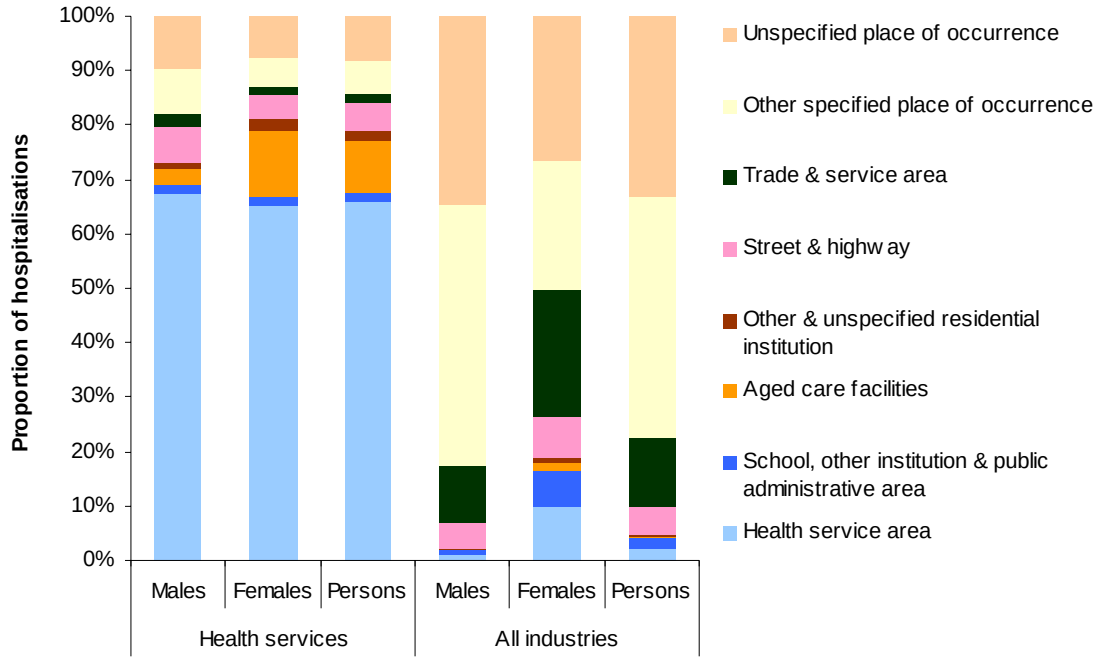


Figure 9.5: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by type of place of occurrence, Health services industry and all industries, by sex

Month of admission

The peak season of admission due to injury whilst working for income in the Health services industry occurred in mid to late winter with the largest number of hospitalisations in July (n=151, 11.2%). The lowest number of admissions occurred in January (n=74, 5.5%) (Figure 9.6).

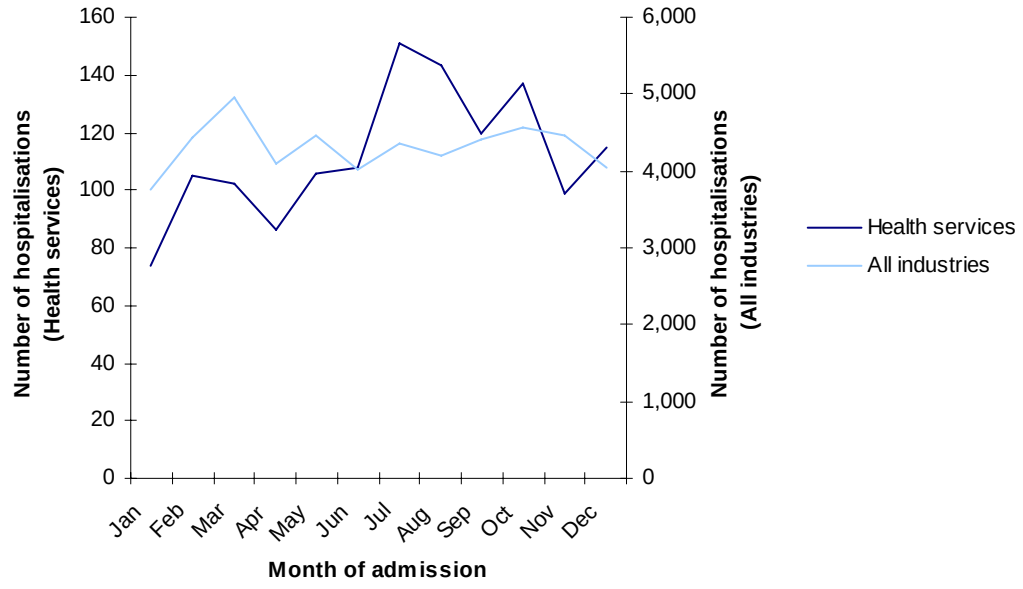


Figure 9.6: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by month of admission to hospital, Health services industry and all industries

Day of admission

In the two year study period, the largest number of hospitalisations whilst working for income in the Health services industry occurred on Wednesdays (n=288, 21.4%) and the lowest number occurred on Saturdays (n=93, 6.9%) and Sundays (n=95, 7.1%) (Figure 9.7).

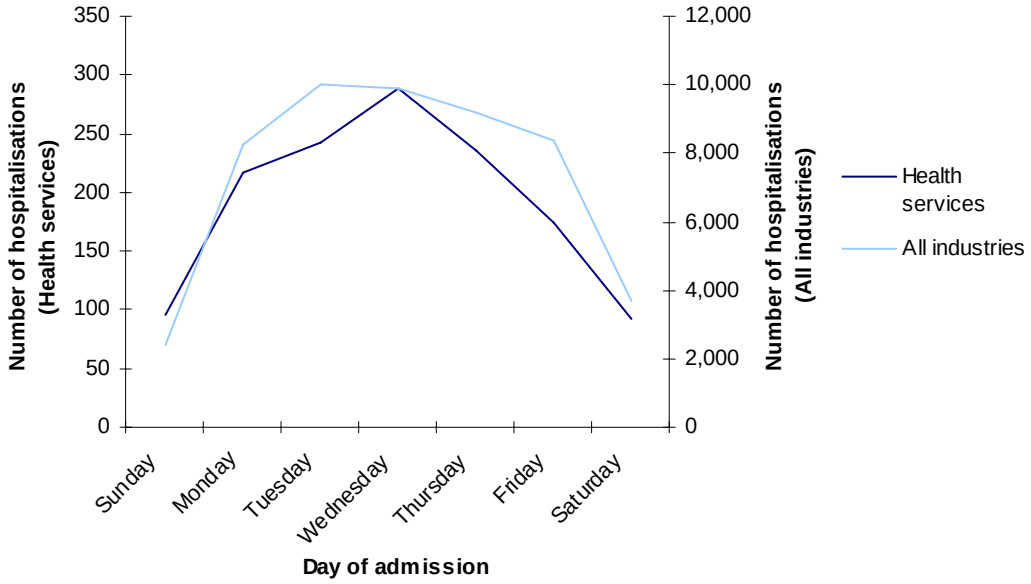


Figure 9.7: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by weekday of admission to hospital, Health services industry and all industries

Nature of injury (Principal Diagnosis)

In the Health services industry, 34.2% (n=460) of hospitalisations due to injury while working for income have principal diagnosis codes from outside the injury chapter of ICD-10-AM, compared with 16.3% for all industries combined. In the Health services industry, these 'not injury' hospitalisations included 223 hospitalisations due to diseases of the musculoskeletal system and connective tissue and 72 due to factors influencing health status and contact with health services. Principal diagnoses of these types were more common for females (n=370, 37.9%) than males (n=90, 24.3%) (Figure 9.8; Table 9.5).

Fractures were the most common injury diagnosis (n=196, 14.6%) in the health industry sector, compared with 23.3% for all industries combined. Sprains and strains were more common in the Health services industry (n=93, 6.9%) than in all industries combined (3.3%). However, muscle and tendon injury was less common (n=67, 5.0%) compared with 9.0% for all industries (Figure 9.8; Table 9.5).

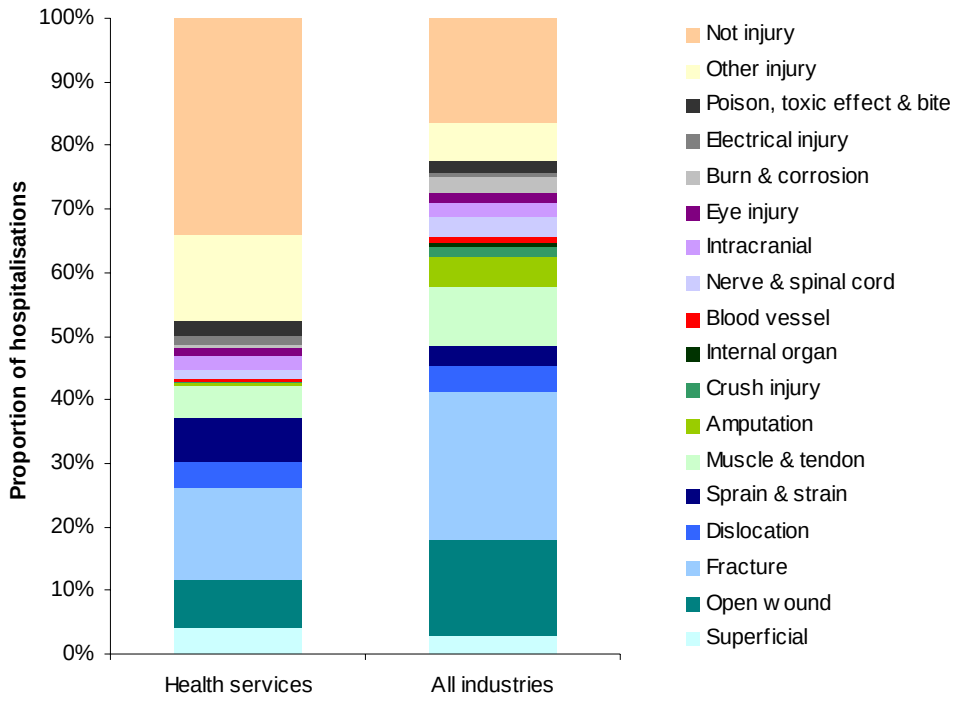


Figure 9.8: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by nature of injury (Principal Diagnosis), Health services industry and all industries

Table 9.5: Hospitalised injury while working for income in the Health services industry, Australia 2002–03 and 2003–04: numbers and proportions of cases by nature of injury (Principal Diagnosis) and sex

Nature	Males (%)	Females (%)	Persons (%)
Superficial	12 (3.2)	42 (4.3)	54 (4.0)
Open wound	34 (9.2)	67 (6.9)	101 (7.5)
Fracture	58 (15.6)	138 (14.2)	196 (14.6)
Dislocation	19 (5.1)	39 (4.0)	58 (4.3)
Sprain & strain	29 (7.8)	64 (6.6)	93 (6.9)
Muscle & tendon	20 (5.4)	47 (4.8)	67 (5.0)
Amputation		4 (0.4)	
Internal organ		0 (0.0)	
Nerve & spinal cord	7 (1.9)	13 (1.3)	20 (1.5)
Intracranial	10 (2.7)	23 (2.4)	33 (2.5)
Eye injury	6 (1.6)	8 (0.8)	14 (1.0)
Burn & corrosion	4 (1.1)	4 (0.4)	8 (0.6)
Electrical injury	10 (2.7)	11 (1.1)	21 (1.6)
Poison, toxic effect & bite	13 (3.5)	14 (1.4)	27 (2.0)
Other injury	58 (15.6)	131 (13.4)	189 (14.0)
Not injury	90 (24.3)	370 (37.9)	460 (34.2)
Total	**371 (100.0)**	**975 (100.0)**	**1,346 (100.0)**

The mean length of stay for Health services industry related injury hospitalisations was 4.7 days compared with 3.0 days for all industries combined. Intracranial injury related hospitalisations had by far the longest mean length of stay (24.2 days). Amputation, foreign body and blood vessel related hospitalisations all had the shortest mean length of stay with 1.0 days (Figure 9.9).

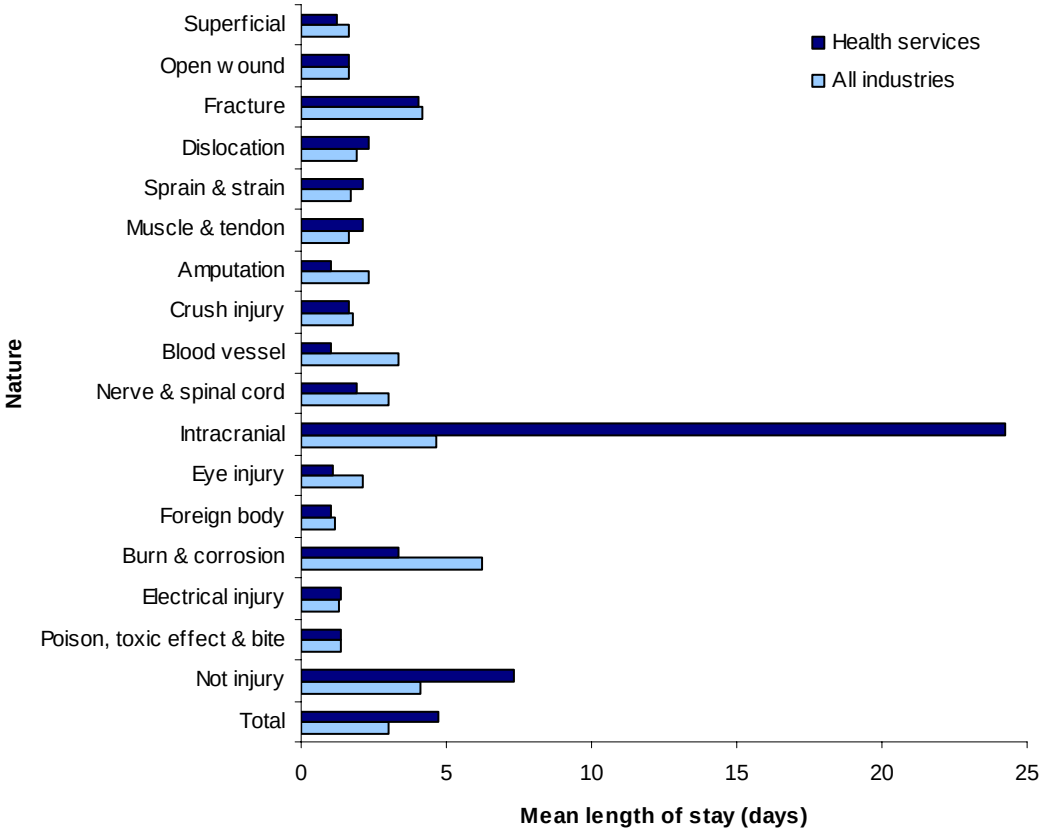


Figure 9.9 Hospitalised injury whilst working for income, Australia, 2002–03 and 2003–04: mean length of stay by nature of injury (Principal Diagnosis), Health services industry and all industries

Body region injured (Principal Diagnosis)

For hospitalisations due to injury whilst working for income in the Health services industry the 'not injury' category was the most common body region injured (n=460, 34.2%) and this was more common in females (n=370, 37.9%) than in males (n=90, 24.3%). The next most common type of hospitalisation was wrist and hand injury (n=171, 12.7%) and this was more common as a proportion in males (n=61, 16.4%) than in females (n=110, 11.3%) (Figure 9.10).

The majority of Health services industry related hospitalisations in the 65 years and over age group has principal diagnosis codes that were not from the Injury and Poisoning chapter of ICD-10-AM (n=58, 53.7%). Wrist and hand injury related hospitalisations were most common, as a proportion of all hospitalisations for the age group, in the 25–34 year age group (n=48, 22.6%). Head injury accounted for 16.1% of admissions in the 20–24 year age group, compared with 8.3% for Health services industry related hospitalisations at all ages. The 0–14 year age group is not shown as small numbers are involved (Figure 9.11).

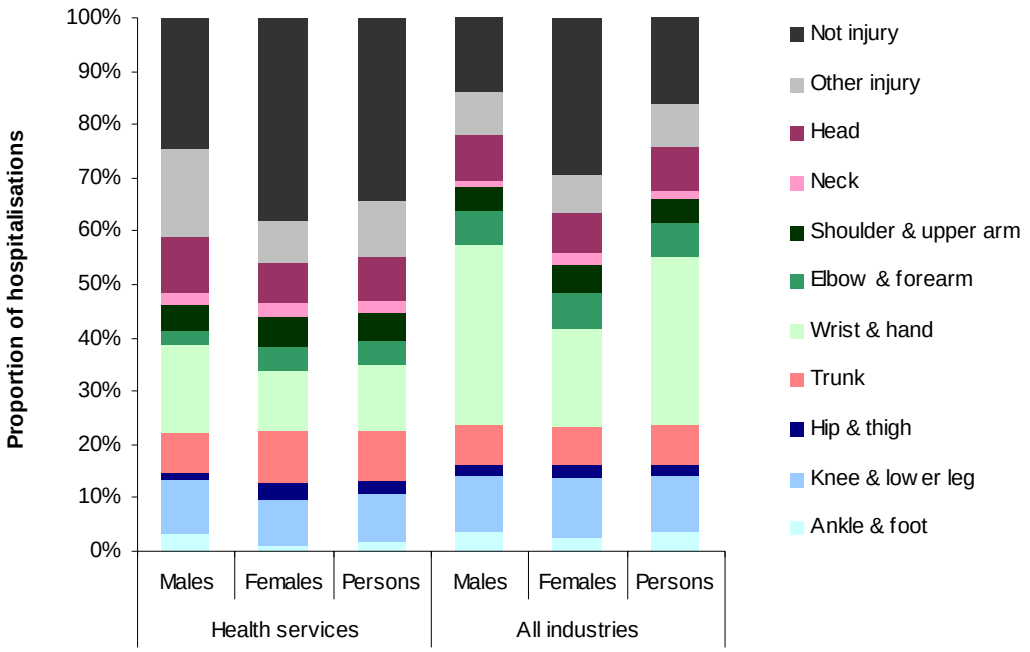


Figure 9.10: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by body region injured, Health services industry and all industries, by sex

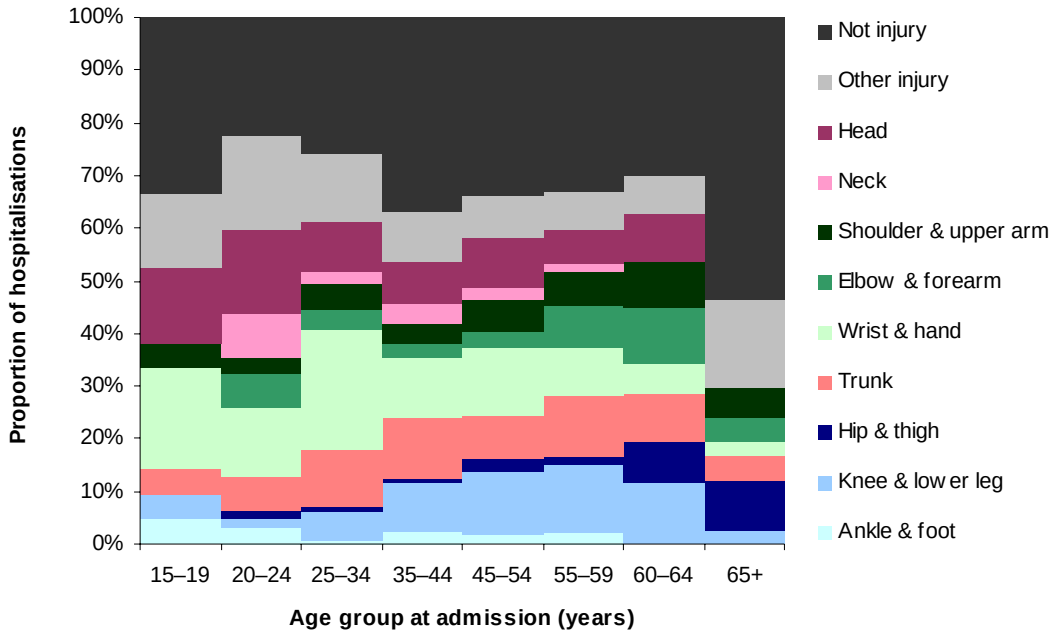


Figure 9.11: Hospitalised injury while working for income in the Health services industry, Australia 2002–03 and 2003–04: proportions of cases by body region injured and age group

The body region injured was related to the mean length of stay. The mean length of stay was longest for hospitalisations where the principal diagnosis was not an injury (7.3 days) and was shortest for wrist and hand injury related hospitalisations (1.4 days) (Figure 9.12).

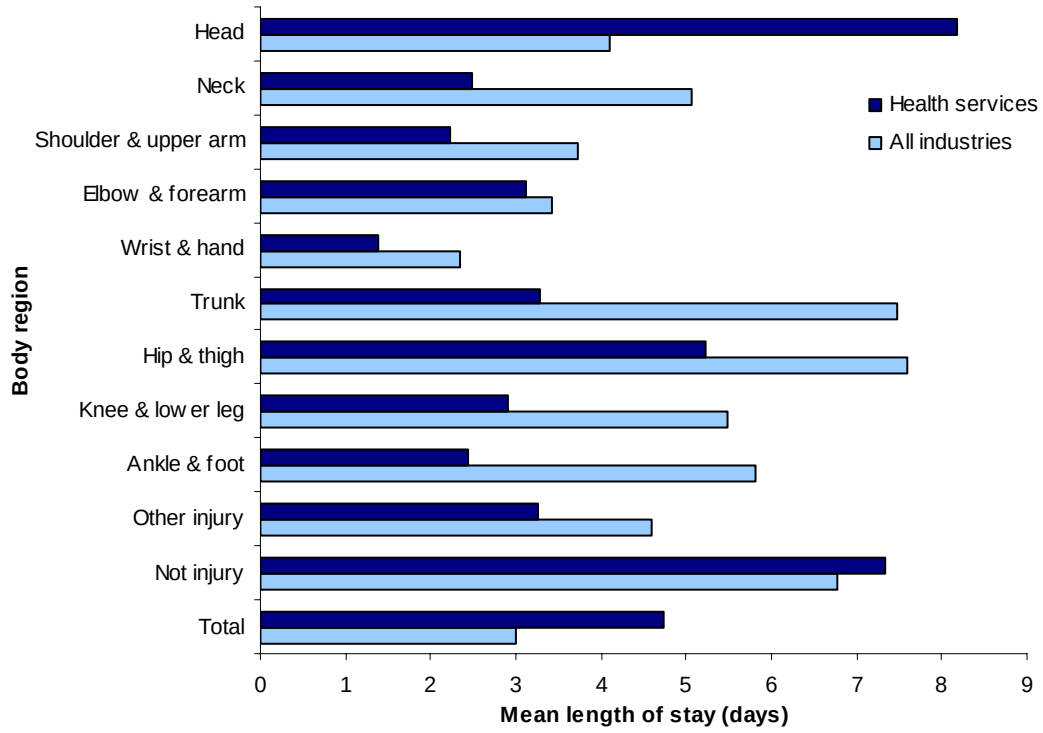


Figure 9.12: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by body region injured (Principal Diagnosis), Health services industry and all industries

Most frequent Principal Diagnoses

The most common principal diagnosis in the Health services industry related hospitalisations was cervicalgia (neck pain), followed by open wound of finger without damage to nail (S610) (n=43, 3.2%) and unspecified injury of abdomen, lower back and pelvis (S399) (n=34, 2.5%). Cervicalgia was more common in females (5.5%) than in males. Low back pain (M545) (n=23, 1.7%) and sprain and strain of other and unspecified parts of lumbar spine and pelvis (S337) (n=20, 1.5%) also occur on the top ten list (Table 9.6).

Several of the top eleven diagnosis groupings listed involve the back, including dorsalgia (M54), dislocation, sprain and strain of joints and ligaments of lumbar spine and pelvis (S33), other (excluding cervical) intervertebral disc disorders (M51) and possibly other and unspecified injuries of the abdomen, lower back and pelvis (S39). These four diagnoses groupings account for 18.9% of hospitalisations (n=255) (Table 9.7).

Table 9.6: Hospitalised injury while working for income in the Health services industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at most detailed level), by sex

Principal diagnosis (code)	Males (%)	Females (%)	Persons (%)
Cervicalgia (M542)		54 (5.5)	
Open wound of finger without damage to nail (S610)	11 (3.0)	32 (3.3)	43 (3.2)
Unspecified injury of abdomen, lower back & pelvis (S399)	6 (1.6)	28 (2.9)	34 (2.5)
Tear of meniscus, current (S832)	14 (3.8)	19 (1.9)	33 (2.5)
Care involving use of other rehabilitation procedures (Z508)	0 (0.0)	29 (3.0)	29 (2.2)
Low back pain (M545)	4 (1.1)	19 (1.9)	23 (1.7)
Injury of tendon of rotator cuff of shoulder (S460)		19 (1.9)	
Effects of electric current (T754)	10 (2.7)	11 (1.1)	21 (1.6)
Unspecified injury of head (S099)	5 (1.3)	15 (1.5)	20 (1.5)
Sprain & strain of other & unspecified parts of lumbar spine & pelvis (S337)	9 (2.4)	11 (1.1)	20 (1.5)
Other principal diagnosis	309 (83.3)	738 (75.7)	1,047 (77.8)
Total	**371 (100.0)**	**975 (100.0)**	**1,346 (100.0)**

Table 9.7: Hospitalised injury while working for income in the Health services industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at 3-character code level), by sex

Principal diagnosis group (code)	Males (%)	Females (%)	Persons (%)
Dorsalgia (M54)	8 (2.2)	123 (12.6)	131 (9.7)
Open wound of wrist & hand (S61)	20 (5.4)	44 (4.5)	64 (4.8)
Dislocation, sprain & strain of joints & ligaments of lumbar spine & pelvis (S33)	13 (3.5)	37 (3.8)	50 (3.7)
Dislocation, sprain & strain of joints & ligaments of the knee(S83)	17 (4.6)	33 (3.4)	50 (3.7)
Fracture of lower leg, including ankle (S82)	13 (3.5)	36 (3.7)	49 (3.6)
Other & unspecified injuries of the abdomen, lower back & pelvis (S39)	8 (2.2)	38 (3.9)	46 (3.4)
Care involving use of rehabilitation procedures (Z50)	3 (0.8)	43 (4.4)	46 (3.4)
Fracture of forearm (S52)	5 (1.3)	39 (4.0)	44 (3.3)
Intracranial injury (S06)	10 (2.7)	23 (2.4)	33 (2.5)
Other (excluding cervical) intervertebral disc disorders (M51)	2 (0.5)	26 (2.7)	28 (2.1)
Injury of muscle & tendon at shoulder & upper arm level (S46)	5 (1.3)	23 (2.4)	28 (2.1)
Other principal diagnosis	267 (72.0)	510 (52.3)	777 (57.7)
Total	**371 (100.0)**	**975 (100.0)**	**1,346 (100.0)**

There were 171 wrist and hand injury related Health services industry related hospitalisations (12.7%). There were 64 hospitalisations for open wound of wrist and hand (S61) and open wound of finger(s) without damage to nail (S610) was the most common diagnosis (n=43). There were 23 hospitalisations for fracture at wrist and hand level (S62), 18 hospitalisations for dislocation, sprain and strain of joints and ligaments at wrist and hand level (S63) and 15 hospitalisations for injury of muscle and tendon at wrist and hand level (S66) (Table 9.8).

Table 9.8: Hospitalised injury while working for income in the Health services industry, Australia 2002–03 and 2003–04: numbers of wrist and hand injury cases by Principal Diagnosis and sex

Principal diagnosis (code)	Males	Females	Persons
Superficial injury of wrist & hand (S60)	4	18	22
Superficial foreign body (splinter) of wrist & hand (S6084)	*4*	*11*	*15*
Other superficial injury of wrist & hand	*0*	*7*	*7*
Open wound of wrist & hand (S61)	20	44	64
Open wound of finger(s) without damage to nail (S610)	*11*	*32*	*43*
Open wound of finger(s) with damage to nail (S611)	*4*	*6*	*10*
Other open wound of wrist & hand	*5*	*6*	*11*
Fracture at wrist & hand level (S62)	17	6	23
Fracture of proximal phalanx of other finger (not thumb) (S6261)	*6*		
Fracture of distal phalanx of other finger (not thumb) (S6263)	*6*		
Other fracture at wrist & hand level	*5*	*4*	*9*
Dislocation, sprain & strain of joints & ligaments at wrist & hand level (S63)		15	
Injury of nerves at wrist & hand level (S64)	5	7	12
Injury of muscle & tendon at wrist & hand level (S66)	8	7	15
Traumatic amputation of wrist & hand (S68)		4	
Other & unspecified injuries of wrist & hand		9	
Total injuries to wrist & hand	**61**	**110**	**171**

Procedures

Among injury hospitalisations occurring whilst working for income in the Health services industry, physiotherapy was the most common principal procedure undertaken (n=107, 7.9%). Three of the top eleven procedures performed involved the back, that is, injection into vertebral facet joint (3901300), injection of anaesthetic agent around paravertebral sacral nerve (1827403) and percutaneous neurotomy for facet joint denervation by radiofrequency (3911800) (Table 9.9).

Table 9.9: Top principal procedures for Health services industry related hospitalisations, by sex, in Australia, 2002–03 and 2003–04

Principal procedure (code)	Males	Females	Persons
Physiotherapy (9555003)	18	89	107
Injection into vertebral facet joint (3901300)		67	
CT brain without intravenous contrast (5600100)	12	29	41
Arthroscopic meniscectomy of knee with debridement, osteoplasty or chondroplasty (4956101)	12	15	27
Injection of anaesthetic agent around paravertebral sacral nerve (1827403)	0	20	20
Percutaneous neurotomy for facet joint denervation by radiofrequency (3911800)		16	
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), superficial (3002600)	11	6	17
CT spine without intravenous contrast (5621000)		13	
Excisional debridement of deep soft tissue including muscle, tendon, fascia ligaments or nerves (3002300)	4	10	14
Arthroscopic decompression of subacromial space & acromioplasty (4895100)		10	
Arthroscopic meniscectomy of knee (4956003)	6	6	12
Other principal procedure	298	694	992
Total	**371**	**975**	**1,346**

Summary

There were 1,346 hospitalisations due to injury while working for income in the Health services industry during the two year study period. In contrast to other industries, most cases (72.4%) involved females. The largest number of admissions occurred in the 45–54 year age group (n=400). The age specific hospitalisation rate peaked in the 65 years and over age group with 392.7 hospitalisations per 100,000 workers (15 years and over). In this industry, 60.5% of hospitalised persons resided in major cities.

Falls accounted for 23.2% of hospitalisations occurring whilst working for income in the Health services industry, with fall on the same level from slipping (n=67) and fall on the same level from tripping (n=65) being most common. A further 19.8% of hospitalisations were due to overexertion and strenuous or repetitive movements.

In 34.2% of hospitalisations, the principal diagnosis was not injury related. Fractures were the most common injury diagnosis (14.6%). Cervicalgia was the most common diagnosis (4.1%) and dorsalgia was the most common diagnosis grouping (9.7%).

10 Government administration and defence

This chapter includes the cases of Hospitalised injury while working for income that were further specified as occurring in the Government administration and defence sector (ICD–10–AM code U73.06). Summary measures for this set of cases are shown in Table 10.1.

Table 10.1: Hospitalised injury while working for income in the Government administration and defence industry, Australia 2002–03 and 2003–04: summary measures

Indicator	
Cases	713
Estimated number of workers ('000) [*,**]	438.1
Hospitalisation rate per 100,000 workers per year [*,**]	80.6
Hospitalisation rate per million hours worked [*,**]	0.5

[*] Workers and working hours refer to the total employed labour force in the study period (ABS 2006a).

[**] Only includes persons 15 + years.

Background

There are approximately 440,000 workers employed in the Government administration and defence industries in Australia (ABS 2006b).

The main hazards facing workers in the Government administration and defence industries are vehicles and, in the defence industry, weapons and events related to physical activity (military training and sport).

The rate of fatal injury in government and defence industry workers (3.2 per 100,000 per year from 1989 to 1992; 1.4 per 100,000 per year in 2003–04) is considerably lower than the all industry rate (5.5 per 100,000 per year from 1989 to 1992; 2.4 per 100,000 per year in 2003–04) (Driscoll et al 2001; ASCC 2006a). The rate of non-fatal compensated injury (8.6 per 1,000 per year) is similarly lower than the all industry average of 12.7 per 1,000 per year (ASCC 2006b). Note that the NHMD code U73.06 includes military personnel, whereas the ASCC database does not. Unfortunately, the ICD–10–AM activity classification does not enable cases in government administration to be distinguished from those in defence.

Motor vehicle incidents are the most common mechanism resulting in fatal injury of government and defence industry workers in Australia (Driscoll 2003). One quarter of recent government administration and defence fatalities involved motor vehicle crashes on public roads (ASCC 2006a).

Mechanisms commonly involved in non-fatal injury of government and defence industry workers in Australia are muscular stress while lifting, carrying or handling objects; and falls on the same level (ASCC 2006b).

Age and sex

In the two year study period, there were 713 hospitalised injuries occurred whilst working for income in the Government administration and defence industry. Of these 563 (79%) occurred in males and 150 (21.0%) in females. The largest number occurred in the 25–34 year age group with 198 hospitalisations (27.8%) (Table 10.2).

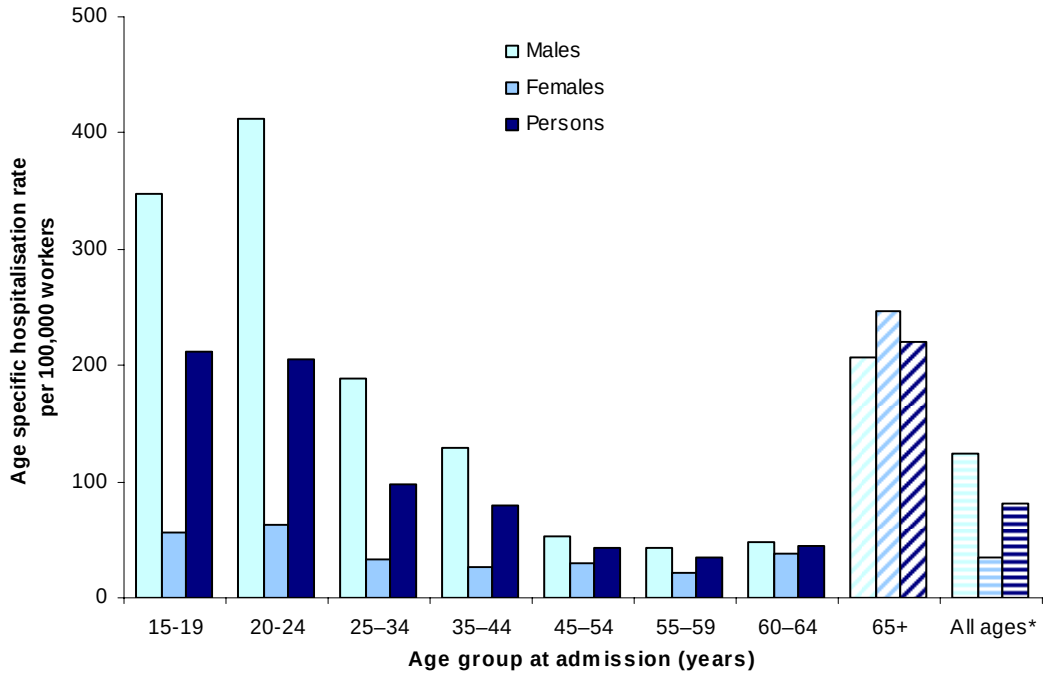
Table 10.2: Hospitalised injury while working for income in the Government administration and defence industry, Australia 2002–03 and 2003–04: case numbers by age group and sex

Age group at admission (years)	Males	Females	Persons
0–14			
15-19	29	4	33
20-24	99	22	121
25–34	159	39	198
35–44	158	31	189
45–54	80	33	113
55–59	19	6	25
60–64			
65+	10	11*	21*
All ages	**563**	**150**	**713**

* Omits 5 of 6 records that appear to be single day readmissions by one person.

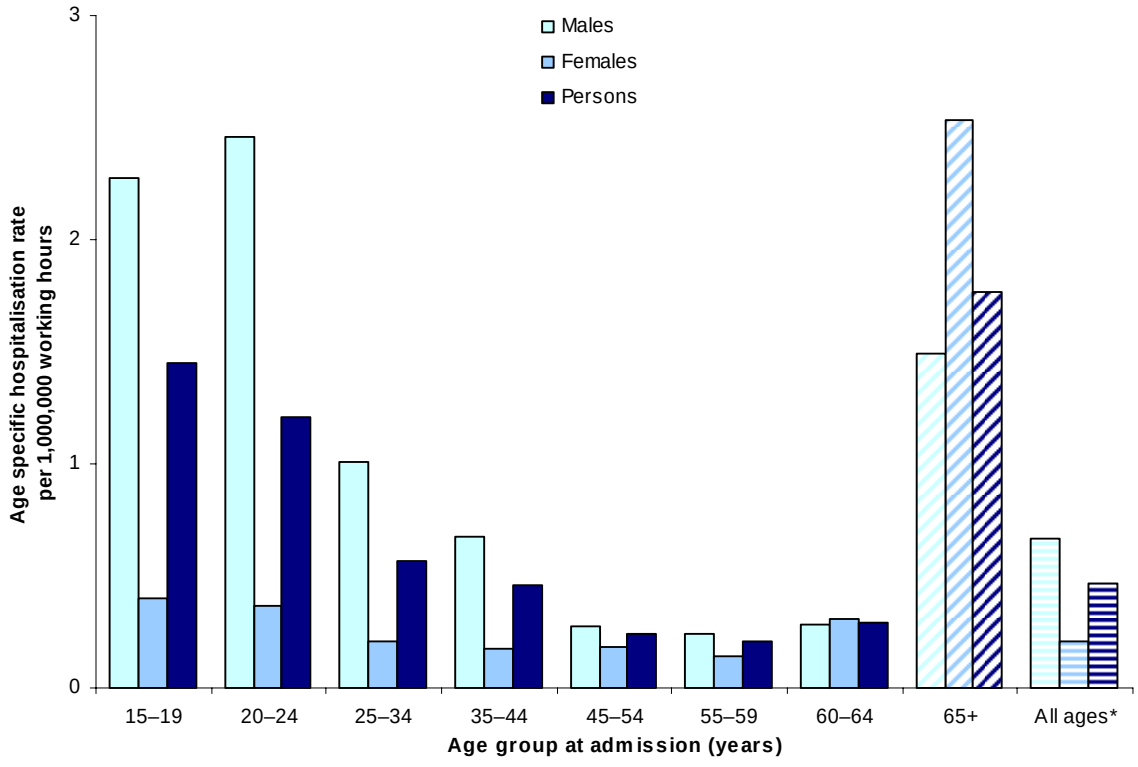
The LFS only includes the civilian work force and this limits the interpretation of rates for the Government administration and defence industry. Additionally, in the 65 years and over age group there are small numbers of workers with estimates of approximately 2,400 male workers and 1,200 female workers (ABS 2006a). The age specific injury hospitalisation rate for the Government administration and defence industry was 123.7 for males, 34.1 for females and 80.6 for persons per 100,000 workers (15 years and over). The highest rate was in the 20–24 year age group for males (412.1 per 100,000 workers) and in the 65 years and over age group for females (247.4 per 100,000 workers) (Figure 10.1).

In the Government administration and defence industry the injury crude hospitalisation rate for all ages (15 years and over) was 0.7 for males, 0.2 for females and 0.5 for persons per million hours worked. For females and persons, the highest hospitalisation rate per million hours worked occurred in the 65 years and over age group with 2.5 for females and 1.8 for persons. The highest rate for males occurred in the 20–24 year age group with 2.5 hospitalisations per million hours worked. (Figure 10.2).



* Only includes persons 15 + years. ** 5 likely readmissions of one 65+ year old female and have been excluded from calculations.

Figure 10.1: Hospitalised injury while working for income in the Government administration and defence industry, Australia 2002–03 and 2003–04: average annual rate per 100,000 in the employed labour force, by age group and sex



* Only includes persons 15 + years.

Figure 10.2: Hospitalised injury while working for income in the Government administration and defence industry, Australia 2002–03 and 2003–04: rate per million hours worked by the employed labour force, by age group and sex

Remoteness of residence

The remoteness of place of usual residence was similar for people hospitalised due to injury while working for income in the Government administration and defence sector and for people injured while working in all industries combined. Almost one third of females (64.7%) and just over half (56.3%) of males hospitalised in the Government administration and defence industry resided in major cities (Figure 10.3).

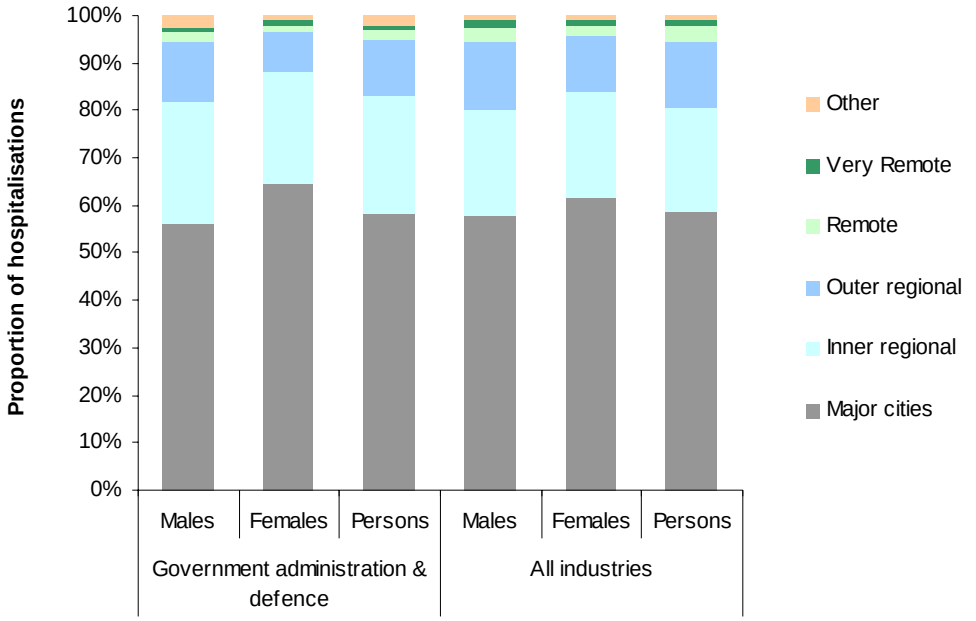


Figure 10.3: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by remoteness zone of usual residence, Government administration and defence industry and all industries, by sex

Mechanism of injury

Falls was the most common mechanism grouping (n=157, 22.1%), followed by other mechanisms of injury (n=146, 20.5%) and transport accidents (n=133, 18.7%) for Government administration and defence industry related injury hospitalisations. Exposure to inanimate forces was much less common than for all industries (n=98, 13.7% compared to 44.3%) (Figure 10.4).

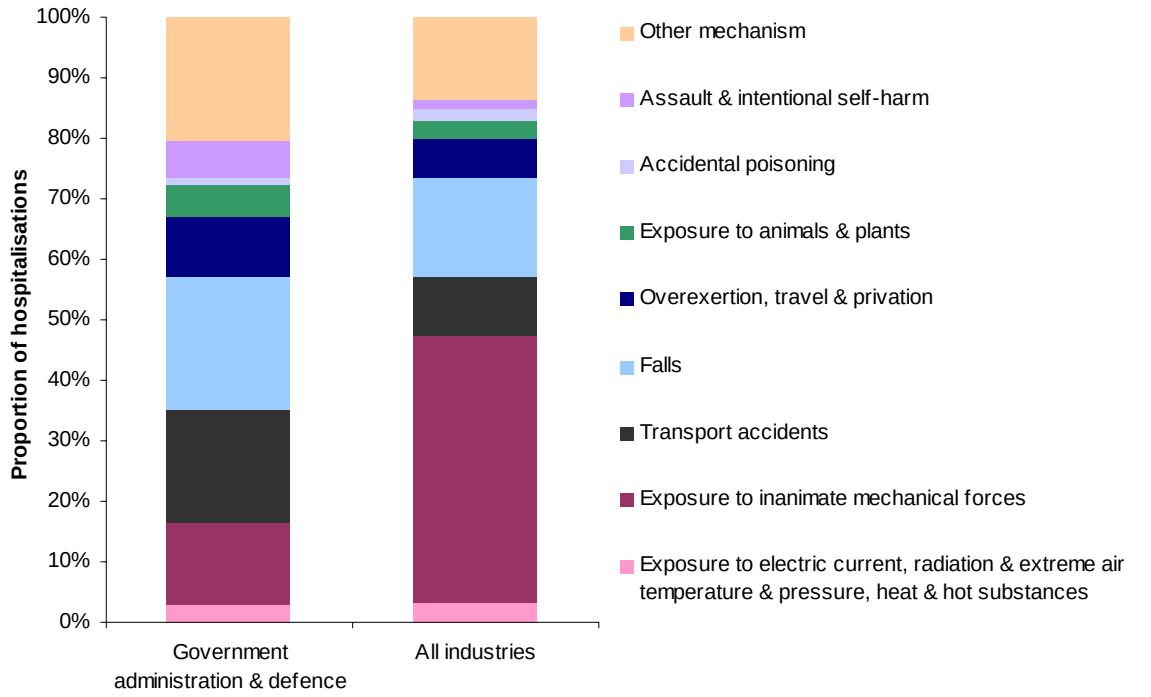


Figure 10.4: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by mechanism, Government administration and defence industry and all industries

Falling was the mechanism for 157 cases of hospitalised injury while working for income in the Government administration and defence sector. Other fall on same level (n=27, 3.8%) was the most common type, followed by fall on and from stairs (n=25, 3.5%) (Table 10.3).

Table 10.3: Hospitalised injury while working for income in the Government administration and defence industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was a fall, by specific mechanism and sex

Mechanism	Males	Females	Persons
Other fall on same level	20	7	27
Fall on & from stairs	9	16	25
Other fall from one level to another	17	4	21
Fall on same level from slipping	9	6	15
Fall on same level from tripping	5	10	15
Fall on & from ladder	9		
Other fall same level from collision or push by person	8		
Fall from, out of or through building or structure	6		
Other & unspecified fall	19	9	28
Total for falls	**102**	**55**	**157**

Where cell numbers for males or females are low, the cell number and total are not shown.

Transport accidents accounted for 133 of the cases in this sector. In males, 31 of these involved a car occupant injured in a transport accident, 23 involved a motorcycle rider injured in a transport accident and 17 involved air and space transport accidents (Table 10.4).

Table 10.4: Hospitalised injury while working for income in the Government administration and defence industry, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was a transport accident, by specific mechanism and sex

Mechanism	Males	Females	Persons
Car occupant injured in transport accident	31	17	48
Car occupant [any] injured in collision with car, pick-up truck or van	*9*	*8*	*17*
Car occupant [any] injured in collision with fixed or stationary object	*4*		
Car occupant [any] injured in non-collision transport accident	*9*		
Car occupant [any] injured in other transport accident	*9*	*6*	*15*
Motorcycle rider injured in transport accident	23		
Driver of motorcycle designed primarily for on-road use injured in traffic collision with car, pick-up truck or van (V2341)	*9*	*0*	*9*
Motorcycle rider [any] injured in non-collision transport accident	*6*		
Motorcycle rider [any] injured in other transport accident	*8*		
Air & space transport accidents	17		
Parachutist injured in air transport accident (V972)	*11*	*0*	*11*
Other air transport accident	*6*		
Other land transport accidents	10	0	10
Pedal cyclist injured in transport accident	8	0	8
Water transport accidents	8	0	8
Occupant of heavy transport vehicle injured in transport accident	6		
Pedestrian injured in transport accident	4		
Occupant of pick-up truck or van injured in transport accident	4	0	4
Total transport accidents	**111**	**22**	**133**

Where cell numbers for males or females are low, the cell number and total are not shown.

Place of occurrence

The categories Other specified place of occurrence (25.4%) and Unspecified place of occurrence (31.8%) were assigned to more than half of the cases of hospitalised injury while working for income in the Government administration and defence industry sectors. In 109 cases, the place of occurrence was street and highway (15.3%). Only 27 cases (3.8%) were recorded as occurring at a Military camp (Figure 10.5). Perhaps this reflects the fact that admissions to hospitals operated by the Australian Defence Forces are out of scope for the NHMD.

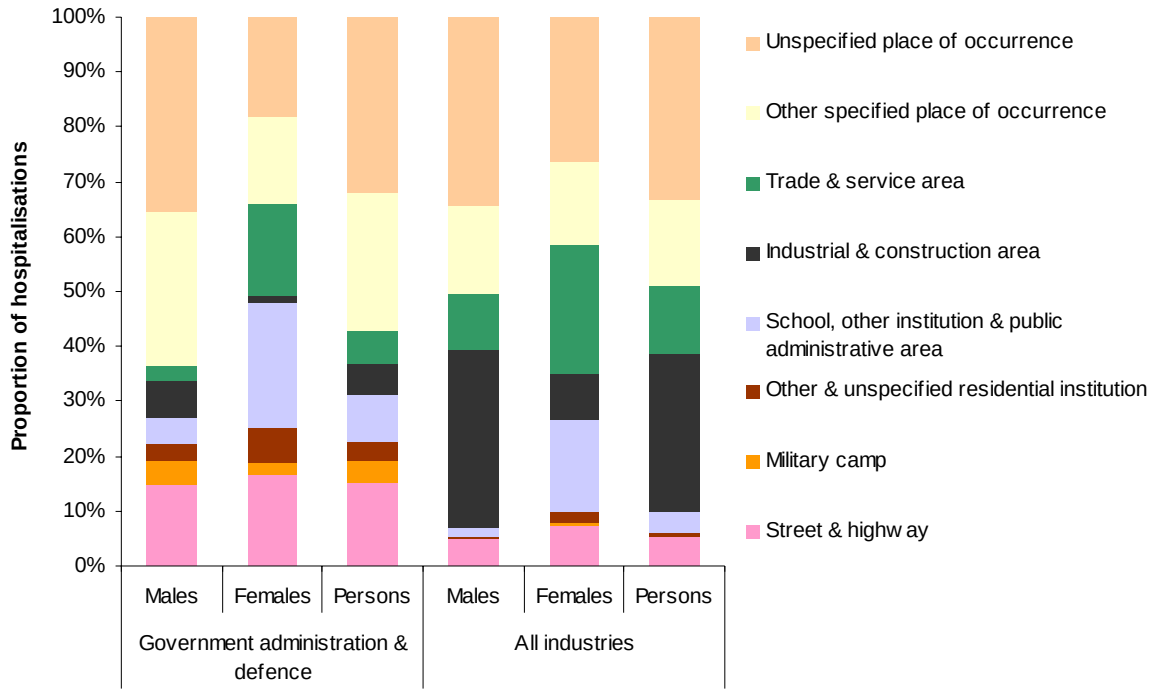


Figure 10.5: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by type of place of occurrence, Government administration and defence industry and all industries, by sex

Month of admission

The highest number of hospital admissions due to injury while working for income in the Government administration and defence sectors occurred in March (n=90, 12.6%) and the lowest number occurred in December (n=39, 5.5%) (Figure 10.6).

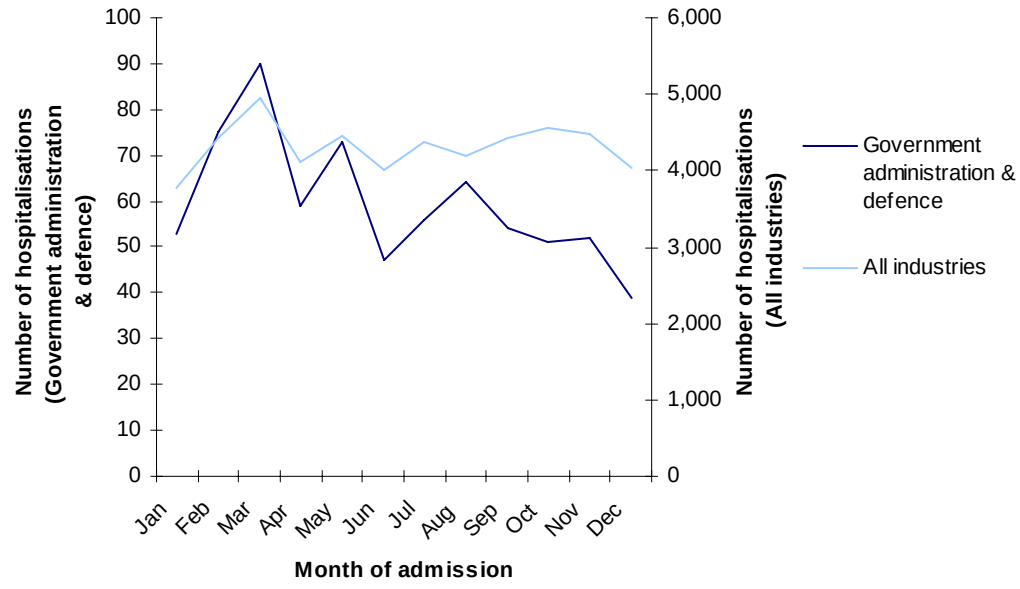


Figure 10.6: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by month of admission to hospital, Government administration and defence industry and all industries

Day of admission

The profile of injury hospitalisations occurring whilst working for income in the Government administration and defence related industry by weekday of admission was very similar to that for all industries. The highest number of Government administration and defence industry related hospitalisations occurred on Thursdays (n=140, 19.6%) and the lowest number occurred on Saturdays and Sundays (both n=48, 6.7%) (Figure 10.7).

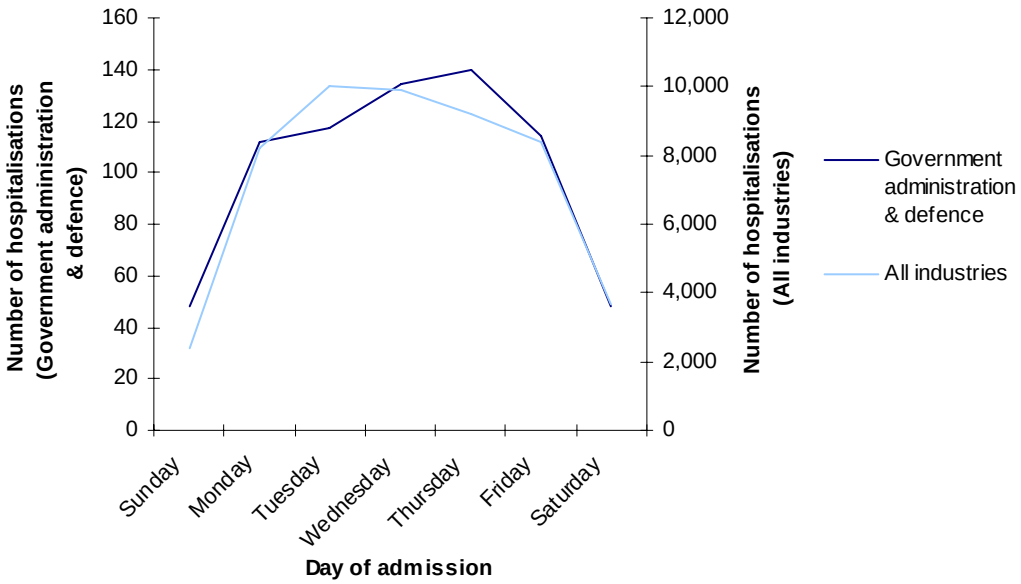


Figure 10.7: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by weekday of admission to hospital, Government administration and defence industry and all industries

Nature of injury (Principal Diagnosis)

Fractures were the most common principal diagnosis for people hospitalised for injury while working for income in the Government administration and defence sector (n=179, 25.1%), compared with 23.3% for all industries combined. Dislocations were proportionately more common in the Government administration and defence sector (n=54, 7.6%) than for all industries combined (4.1%), as were sprain and strain related hospitalisations (n=61, 8.6% compared with 3.3%). Admissions due to open wounds were less common (n=55, 7.7% compared with 15.1%) (Figure 10.8 and Table 10.5).

Hospitalisation due to dislocation and to muscle and tendon injuries were proportionately less frequent in females (5.3% and 3.3% respectively) than in males (8.2% and 8.0% respectively) (Table 10.5).

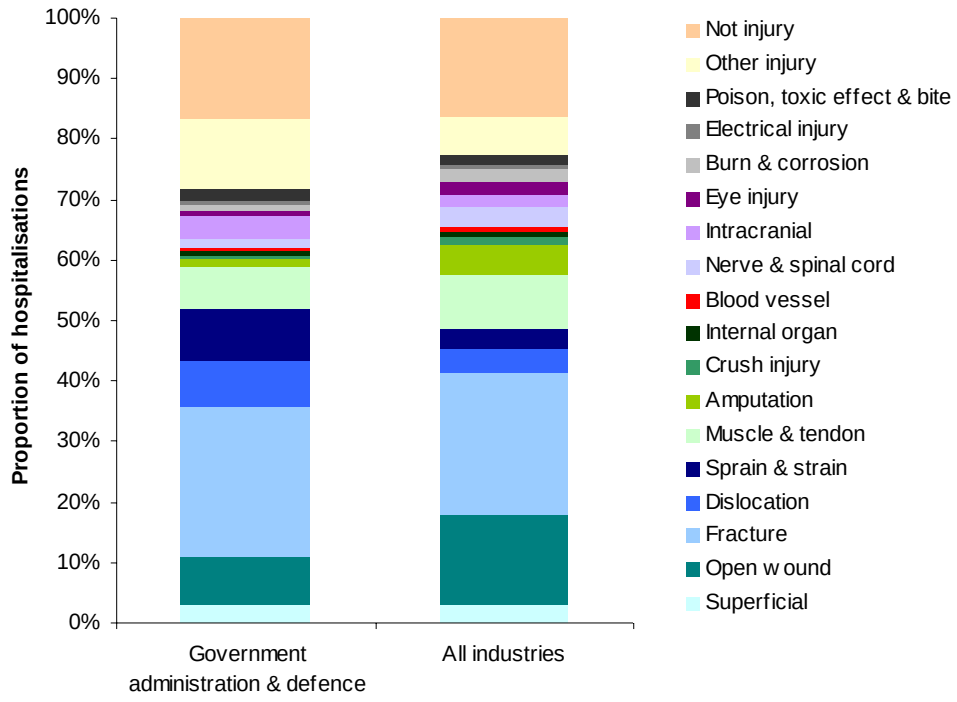


Figure 10.8: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportions of cases by nature of injury (Principal Diagnosis), Government administration and defence industry and all industries

Table 10.5: Hospitalised injury while working for income in the Government administration and defence industry, Australia 2002–03 and 2003–04: numbers and proportions of cases by nature of injury (Principal Diagnosis) and sex

Nature	Males (%)	Females (%)	Persons (%)
Superficial	15 (2.7)	7 (4.7)	22 (3.1)
Open wound	47 (8.3)	8 (5.3)	55 (7.7)
Fracture	146 (25.9)	33 (22.0)	179 (25.1)
Dislocation	46 (8.2)	8 (5.3)	54 (7.6)
Sprain & strain	48 (8.5)	13 (8.7)	61 (8.6)
Muscle & tendon	45 (8.0)	5 (3.3)	50 (7.0)
Amputation	8 (1.4)		
Internal organ	5 (0.9)		
Nerve & spinal cord	10 (1.8)		
Intracranial	19 (3.4)	7 (4.7)	26 (3.6)
Eye injury	7 (1.2)		
Burn & corrosion	7 (1.2)	0 (0.0)	7 (1.0)
Poison, toxic effect & bite	12 (2.1)		
Other injury	72 (12.8)	21 (14.0)	93 (13.0)
Not injury	76 (13.5)	41 (27.3)	117 (16.4)
Total	**563 (100.0)**	**150 (100.0)**	**713 (100.0)**

The mean length of stay for hospitalisations due to injury whilst working for income in the Government administration and defence sectors was 4.2 days, compared with 3.0 days for all industries. Cases where the principal diagnosis was not from the injury chapter of ICD-10-AM had the longest mean length of stay (10.8 days). The shortest mean lengths of stay were for crush injury and electrical injury (1.0 days) (Figure 10.9).

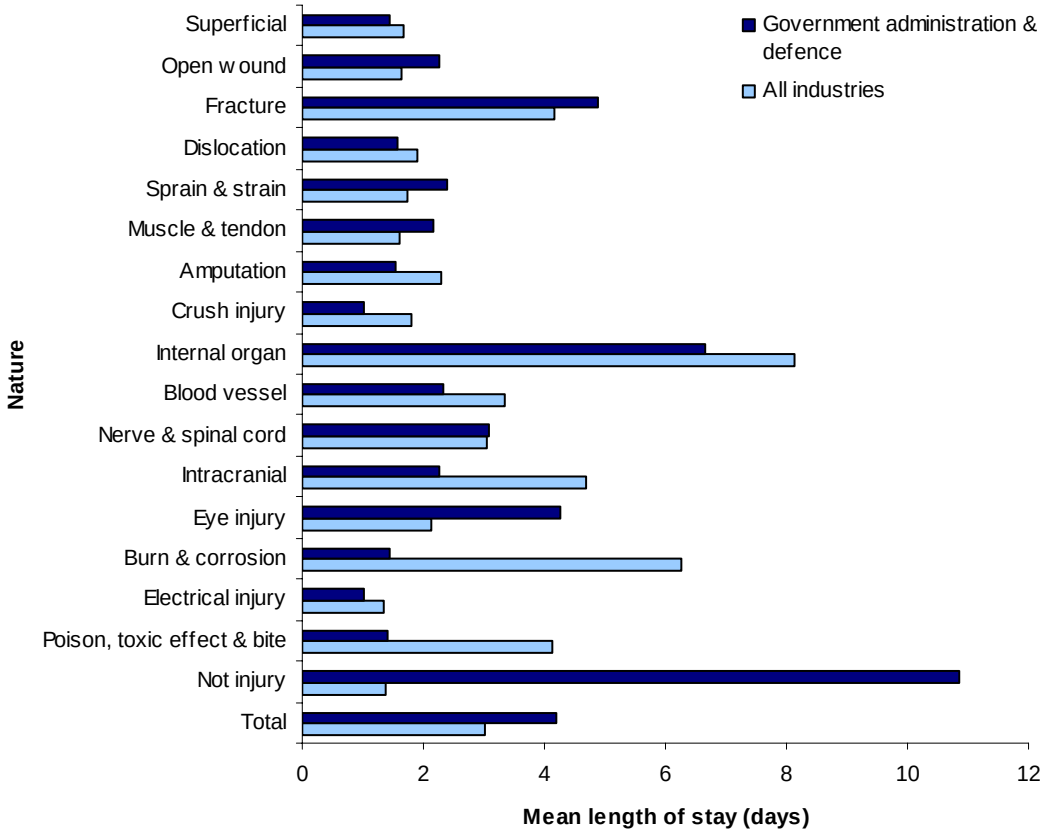


Figure 10.9: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by nature of injury (Principal Diagnosis), Government administration and defence industry and all industries

Body region injured (Principal Diagnosis)

In injury related hospitalisations occurring in males whilst working for income in Government administration and defence, the most common body region injured was the knee and lower leg (n=110, 19.5%), followed by the wrist and hand (n=87, 15.5%). For females, the principal diagnosis was not from the injury chapter of ICD-10-AM in 27.3% of cases (n=41), with knee and lower leg injury hospitalisations the next most common type (n=21, 14.0%). Knee and lower leg injury was the most common type of case for males and females combined (n=131, 18.4%). This profile is noticeably different from that for all industries combined, where hand and wrist was the most commonly injured body region. The difference presumably reflects differences in patterns of duties and activities (Figure 10.10).

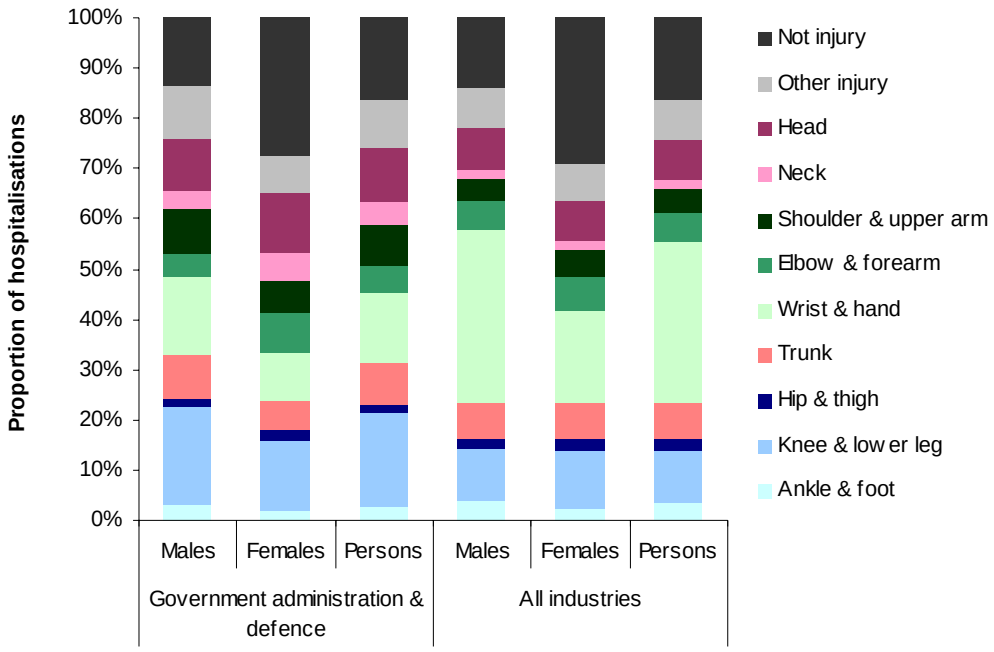


Figure 10.10: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: proportion of cases by body region injured, Government administration and defence industry and all industries, by sex

Knee and lower leg injury admissions were most numerous, as a proportion of all admissions for the age group, in the 60–64 year old age group (27.3%). Hospitalisations where the principal diagnosis was not from the Injury and Poisoning chapter of ICD-10-AM were most numerous, as a proportion of all hospitalisations, in the 65 years and over age group (n=11, 52.4%). Wrist and hand injury peaked in the 25–34 year age group (n=39, 19.7%). The 0–14 year age group is not shown as only small numbers are involved (Figure 10.11).

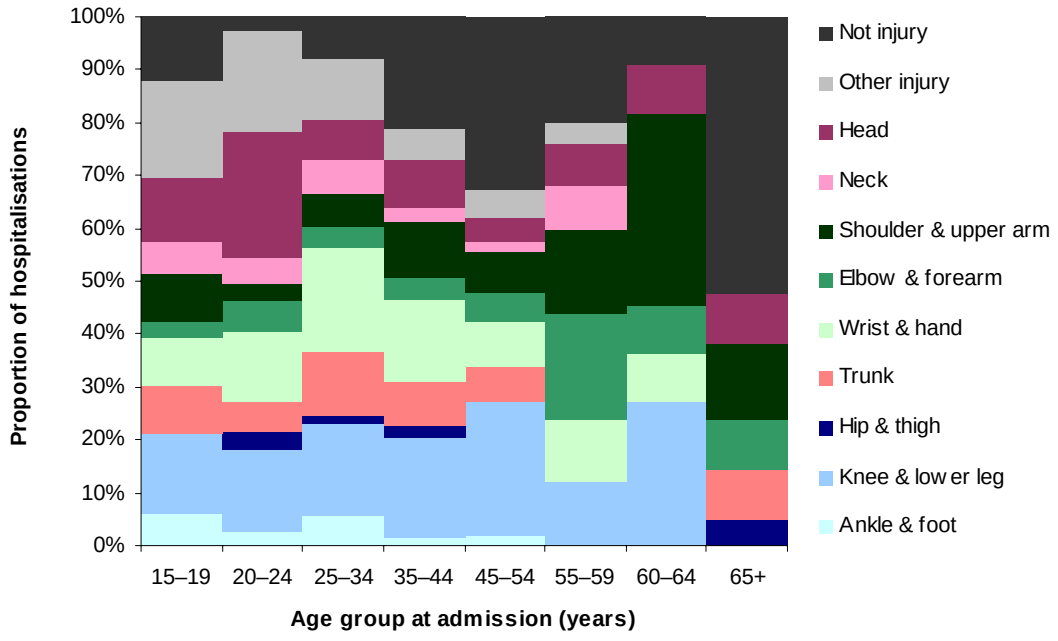


Figure 10.11: Hospitalised injury while working for income in the Government administration and defence industry, Australia 2002–03 and 2003–04: proportions of cases by body region injured and age group

The mean length of stay for Government administration and defence industry related injury hospitalisations was 4.2 days. The longest mean length of stay was for hospitalisations where the principal diagnosis was not an injury, at 10.8 days. The shortest mean length of stay was for elbow and forearm injury related hospitalisations, at 1.5 days (Figure 10.12).

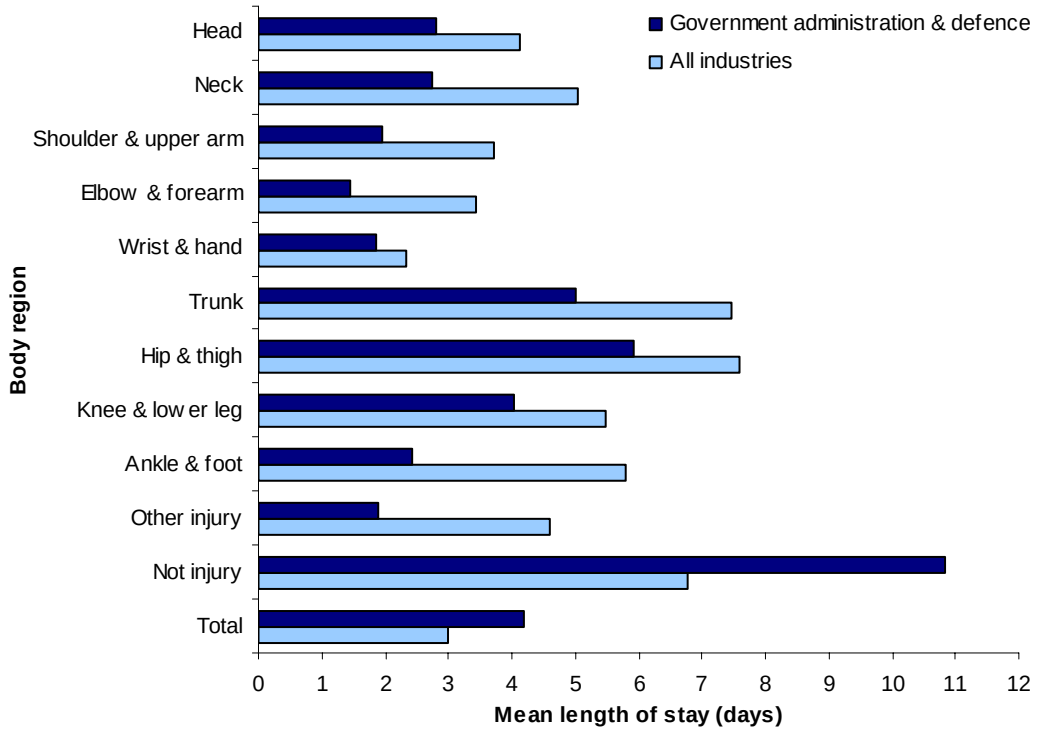


Figure 10.12: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by body region injured (Principal Diagnosis), Government administration and defence industry and all industries

Most frequent Principal Diagnoses

The most frequent two diagnoses for persons hospitalised due to injury in the Government administration and defence sector both involved the knee: tear of meniscus, current (S832) (n=25, 3.5%) and rupture of anterior cruciate ligament (ACL) (S8353). In this industry, 1.4% of hospitalisations were due to heat exhaustion, unspecified (T675), which does not feature in the top diagnosis codes in the other industry groups (Table 10.6)

Table 10.6: Hospitalised injury while working for income in the Government administration and defence industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at most detailed level), by sex

Principal diagnosis (code)	Males (%)	Females (%)	Persons (%)
Tear of meniscus, current (S832)	21 (3.7)	4 (2.7)	25 (3.5)
Rupture of ACL (S8353)	21 (3.7)		
Injury of tendon of rotator cuff of shoulder (S460)	14 (2.5)		
Cervicalgia (M542)	5 (0.9)	11 (7.3)	16 (2.2)
Care involving use of rehabilitation procedures, unspecified (Z509)	14 (2.5)		
Concussion (S0600)	9 (1.6)		
Heat exhaustion, unspecified (T675)	10 (1.8)	0 (0.0)	10 (1.4)
Care involving use of other rehabilitation procedures (Z508)	0 (0.0)	10 (6.7)	10 (1.4)
Open wound of finger without damage to nail (S610)	8 (1.4)		
Loss of consciousness for brief duration (less than 30 minutes) (S0602)	5 (0.9)	4 (2.7)	9 (1.3)
Fracture of distal phalanx of other finger (not thumb) (S6263)	9 (1.6)	0 (0.0)	9 (1.3)
Other principal procedure	447 (79.4)	113 (75.3)	560 (78.5)
Total	**563 (100.0)**	**150 (100.0)**	**713 (100.0)**

Where cell numbers for males or females are low, the cell number and total are not shown.

The most common type of injury hospitalisation in this industry was from dislocation, sprain and strain of joints and ligaments of the knee (S83) (9.1%, n=65). Four of the top ten diagnosis groupings were fractures including fractures of lower leg, wrist and hand, forearm and skull and facial bones (Table 10.7).

Table 10.7: Hospitalised injury while working for income in the Government administration and defence industry, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at 3-character code level), by sex

Principal diagnosis group (code)	Males (%)	Females (%)	Persons (%)
Dislocation, sprain & strain of joints & ligaments of the knee (S83)	55 (9.8)	10 (6.7)	65 (9.1)
Fracture of lower leg, including ankle (S82)	37 (6.6)	10 (6.7)	47 (6.6)
Fracture at wrist & hand level (S62)	32 (5.7)		
Fracture of forearm (S52)	16 (2.8)	11 (7.3)	27 (3.8)
Intracranial injury (S06)	19 (3.4)	7 (4.7)	26 (3.6)
Care involving use of rehabilitation procedures (Z50)	14 (2.5)	12 (8.0)	26 (3.6)
Dorsalgia (M54)	10 (1.8)	14 (9.3)	24 (3.4)
Open wound of wrist & hand (S61)	17 (3.0)	5 (3.3)	22 (3.1)
Injury of muscle & tendon at shoulder & upper arm level (S46)	17 (3.0)	4 (2.7)	21 (2.9)
Fracture of skull & facial bones (S02)	17 (3.0)		
Other principal diagnosis	329 (58.4)	73 (48.7)	402 (56.4)
Total	**563 (100.0)**	**150 (100.0)**	**713 (100.0)**

Where cell numbers for males or females are low, the cell number and total are not shown.

There were 131 hospitalised knee and lower leg injuries in the Government administration and defence sectors. Of these admissions, 65 were due to dislocation, sprain and strain of joints and ligaments of the knee (S83), with 55 in males. In males, tear of meniscus, current (S832) and rupture of ACL (S8353) accounted for 21 admissions each. There were 47 admissions due to fracture of the lower leg (S82) (Table 10.8).

Table 10.8: Hospitalised injury while working for income in the Government administration and defence industry, in Australia, 2002–03 and 2003–04: numbers of knee and lower leg injury cases by Principal Diagnoses and sex

Principal diagnosis (code)	Males	Females	Persons
Open wound of lower leg (S81)	6	0	6
Fracture of lower leg (S82)	37	10	47
Fracture of lateral malleolus (S826)	*7*		
Fracture of upper end of tibia without fracture of fibula (S8218)	*5*	*0*	*5*
Fracture of shaft of tibia with fracture of fibula (any part) (S8221)	*5*		
Fracture of lower end of tibia with fracture of fibula (any part) (S8231)	*5*		
Bimalleolar fracture, ankle (S8281)	*4*		
Other fracture of lower leg	*11*	*5*	*16*
Dislocation, sprain & strain of joints & ligaments of the knee (S83)	55	10	65
Tear of meniscus, current (S832)	*21*	*4*	*25*
Rupture of ACL (complete or partial) (S8353)	*21*		
Injury to multiple structures of the knee (S837)	*5*		
Other dislocation, sprain & strain of joints & ligaments of the knee	*8*		
Injury of muscle & tendon at lower leg level (S86)	5		
Other & unspecified injuries of lower leg (S89)	7		
Total injuries to knee and lower leg	**110**	**21**	**131**

Where cell numbers for males or females are low, the cell number and total are not shown.

Procedures

Among hospitalisations due to injury while working for income in Government administration and defence, physiotherapy was the most common principal procedure (n=32, 4.5%). Three of the top ten procedures involved the knee: arthroscopic meniscectomy of knee with debridement, osteoplasty or chondroplasty (4956101), arthroscopic reconstruction of knee (4953900) and arthroscopic meniscectomy of knee (4956003) (Table 10.9).

Table 10.9: Hospitalised injury while working for income in the Government administration and defence industry, Australia 2002–03 and 2003–04: most frequently recorded Principal Procedures, by sex

Principal procedure (code)	Males	Females	Persons
Physiotherapy (9555003)	17	15	32
CT brain without intravenous contrast (5600100)	18	8	26
Arthroscopic meniscectomy of knee with debridement, osteoplasty or chondroplasty (4956101)	19		
Injection into vertebral facet joint (3901300)	5	12	17
Open reduction of fracture of ankle with internal fixation of diastasis, fibula or malleolus (4760001)	13		
Arthroscopic reconstruction of knee (4953900)	12		
CT spine without intravenous contrast (5621000)	11		
Excisional debridement of deep soft tissue including muscle, tendon, fascia ligaments or nerves (3002300)	9		
Open reduction of fracture of distal radius with internal fixation (4736602)	5	4	9
Arthroscopic meniscectomy of knee (4956003)	7		
Other principal procedure	447	101	548
Total	**563**	**150**	**713**

Summary

There were 713 Government administration and defence industry related hospitalisations in the two-year study period, with 79.0% occurring in males. The highest number of hospitalisations occurred in the 25–34 year age group with 198 hospitalisations. Hospitalisation rates are difficult to interpret as the LFS only includes the civilian labour force, and military hospitals are out of scope for the NHMD. The highest hospitalisation rate (15 years and over) was in the 20–24 year age group for males (412.1 per 100,000 workers) and in the 65 years and over age group for females (247.4 per 100,000 workers).

Falling was the most common mechanism (n=157, 22.1%) with fall on and from stairs most common (n=25).

Fractures accounted for 25.1% of hospitalisations due to injury while working in this sector. The knee and lower leg was the most commonly injured body region (18.4%). Tear of the meniscus was the most frequent principal diagnosis (3.5%), followed by rupture of the ACL. Dislocation, sprain and strain of joints and ligaments of the knee was the most common diagnosis grouping (9.1%).

11 Other specified work for income

This chapter includes the cases of Hospitalised injury while working for income that were further specified as occurring in a range of industries, grouped together in the ICD-10-AM as 'other specified work for income' (ICD–10–AM code U73.08). This is a diverse group that includes:

Accommodation, cafés and restaurants

Activities of religious and political organisations

Child care services

Communication services

Cultural and recreation services

Education

Electricity, gas and water supply

Finance and insurance

Personal services

Property and business services

Public order and safety services

The ICD-10-AM classification does not enable the cases due to these types of activities to be distinguished, so the group is reported as a whole.

It is difficult to assemble appropriate denominators to calculate rates in such a diverse group. Consequently, data in this chapter are presented only as case numbers and proportions. Estimates of the employed labour force for some of the sectors in-scope for this chapter are shown in Figure 11.1. (Data for some of the sectors were not available in the source data.)

Table 11.1: Employed Labour Force, Australia 2002–03 and 2003–04: selected sectors

Sector	Estimated number of workers ('000) * **
Accommodation, cafés & restaurants	461.7
Communication services	172.1
Cultural & recreational services	239.8
Education	683.2
Electricity, Gas and Water Supply	73.8
Finance & insurance	347.2
Personal & other services	374.8
Property & business services	1,102.7

* Using the LFS (ABS 2006a).

** Includes persons 15+ years except communication services and electricity, gas and water supply, which includes persons 15 to 64 years.

Age and sex

During the two-year study period, 10,179 cases of hospitalised injury while working for income were coded to the 'other specified work' category (U73.08) (Table 11.2). This is 19.7% of all recorded cases of hospitalised injury while working for income (Table 2.3).

The majority occurred in males (n=8,231, 80.9%) and the largest number occurred in the 25–34 year age group (n=2,640, 25.9%) (Table 11.2).

Table 11.2: Hospitalised injury while working for income in other specified activities, Australia 2002–03 and 2003–04: case numbers by age group and sex

Age group at admission (years)	Males	Females	Persons
0–14	23	12	35
15-19	544	124	668
20-24	1,114	227	1,341
25–34	2,225	415	2,640
35–44	1,966	417	2,383
45–54	1,474	455	1,929
55–59	470	154	624
60–64	248	76	324
65+	167	68	235
All ages	**8,231**	**1,948**	**10,179**

Remoteness of residence

Cases of hospitalised injury while engaged in Other specified work for income had a similar profile to cases overall with regard to remoteness of residence of hospitalised persons. This is so for both males and females.

In this sector, 63.3% (n=6,443) of persons hospitalised resided in a major city (Figure 11.1).

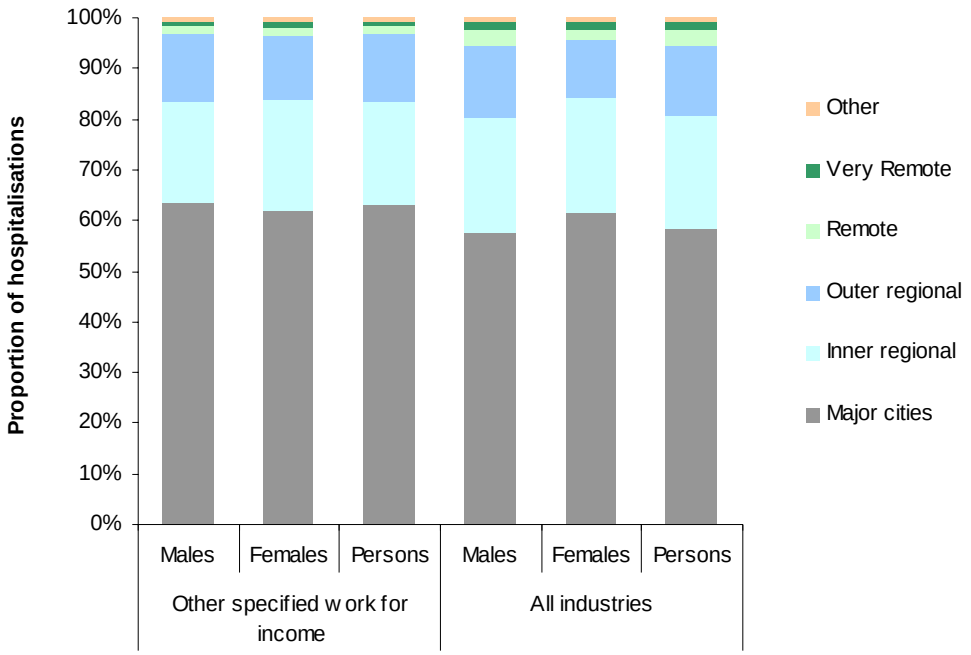


Figure 11.1: Hospitalised injury while working for income, Australia, 2002–03 and 2003–04: proportions of cases by Remoteness of place of residence and sex, Other specified work for income and all industries

Mechanism of injury

Exposure to inanimate mechanical forces was the most common mechanism of injury in persons hospitalised in the Other specified work for income sector (n=4,477, 44.0%), as it was for cases in all industries combined (44.3%). There were 1,904 hospitalisations due to falls (18.7%) (Figure 11.2).

The 4,477 hospitalisations due to exposure to inanimate mechanical forces are described in more detail in Table 11.3. In 626 cases, the person was caught, crushed, jammed or pinched in or between objects and 549 were due to contact with other & unspecified machinery.

The information available does not provide a specific explanation for the presence in Table 11.3 of some cases with mechanisms that would usually be associated with an industry covered by another chapter (for example, Contact with other and unspecified agricultural machinery). Some of these cases may be explained by the use of this equipment in other industries (Table 11.3).

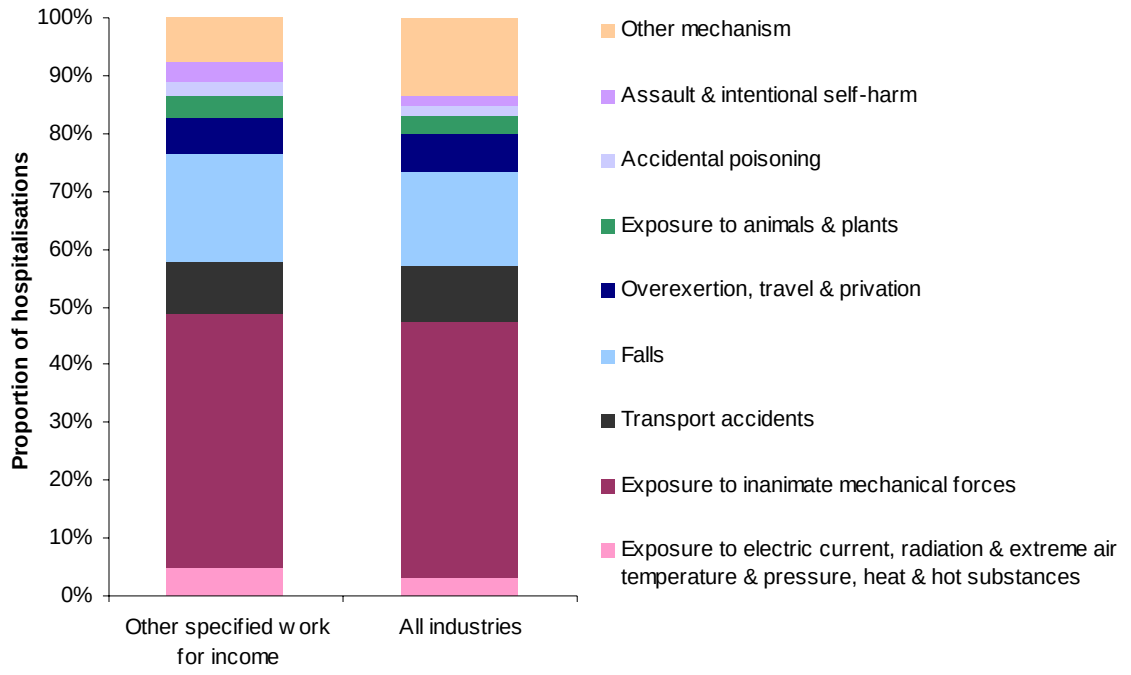


Figure 11.2: Hospitalised injury while working for income, Australia, 2002–03 and 2003–04: proportions of cases by Mechanism, Other specified work for income and all industries.

Table 11.3: Hospitalised injury while working for income in Other specified activities, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was exposure to inanimate mechanical forces, by specific mechanism and sex

Mechanism	Males	Females	Persons
Caught, crushed, jammed or pinched in or between objects	553	73	626
Contact with other & unspecified machinery	493	56	549
Struck by thrown, projected or falling object	414	53	467
Contact with knife, sword or dagger	381	63	444
Contact with other powered hand tools & household machinery	374	21	395
Foreign body or object entering through skin	355	35	390
Striking against or struck by other objects	296	47	343
Contact with sharp glass	170	47	217
Contact with woodworking & forming machinery	176	6	182
Contact with non-powered hand tool	140	17	157
Contact with metalworking machinery	112		
Contact with lifting & transmission devices, not elsewhere classified	106	5	111
Foreign body entering into or through eye or natural orifice	66	9	75
Explosion of other materials	36		
Contact with powered lawnmower	21		
Contact with earthmoving, scraping & other excavating machinery	23		
Striking against or struck by sports equipment	9	13	22
Exposure to high pressure jet	15	0	15

Contact with other & unspecified agricultural machinery	12		
Explosion & rupture of gas cylinder	11	0	11
Contact with other specified equipment towed or powered by tractor	9		
Contact with mining & earth drilling machinery	8	0	8
Explosion & rupture of other specified pressurised devices	7		
Explosion & rupture of pressurised tyre, pipe or hose	6	0	6
Handgun discharge	6	0	6
Discharge from other & unspecified firearms	5		
Discharge of firework	5	0	5
Contact with harvesting machinery	4	0	4
Exposure to other & unspecified inanimate mechanical forces	190	17	207
Total for exposure to inanimate mechanical forces	**4,003**	**474**	**4,477**

Where cell numbers for males or females are low, the cell number and total are not shown.

Falls were the second most frequently reported mechanism for cases in this group (n=1,904). Of these, fall on and from ladder (n=319, 3.1%) and other fall from one level to another (n=272, 2.7%) were the most common types (Table 11.4).

Table 11.4: Hospitalised injury while working for income in Other specified activities, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was a fall, by specific mechanism and sex

Mechanism	Males	Females	Persons
Fall on & from ladder	289	30	319
Other fall from one level to another	251	21	272
Fall on same level from slipping	106	120	226
Other fall on same level	126	68	194
Fall on & from stairs	84	106	190
Fall on same level from tripping	91	96	187
Fall from, out of or through building or structure	115	15	130
Fall involving furniture	13	45	58
Fall on & from scaffolding	29	0	29
Other fall same level from collision or push by person	15	13	28
Fall on same level from stumbling	15	9	24
Fall from tree	23		
Fall from cliff	5		
Fall involving playground equipment	0	4	4
Other & unspecified fall	114	98	212
Total for falls	**1,276**	**628**	**1,904**

Where cell numbers for males or females are low, the cell number and total are not shown.

Place of occurrence

In this sector, 26.8% of cases recorded as occurring had an unspecified place of occurrence (n=2,730). There were 917 (n=9.0%) hospitalisations resulting from incidents at a factory or plant and 1,120 (11.0%) resulting from incidents at another industrial and construction area (Figure 11.3).

The profile of place of occurrence differs somewhat from that for work-related hospitalised injury cases in all industries combined. Relatively more frequent among cases during Other specified work for income were injuries at hospitality venues ('café, hotel & restaurant') for males and females, and in streets and highways (females).

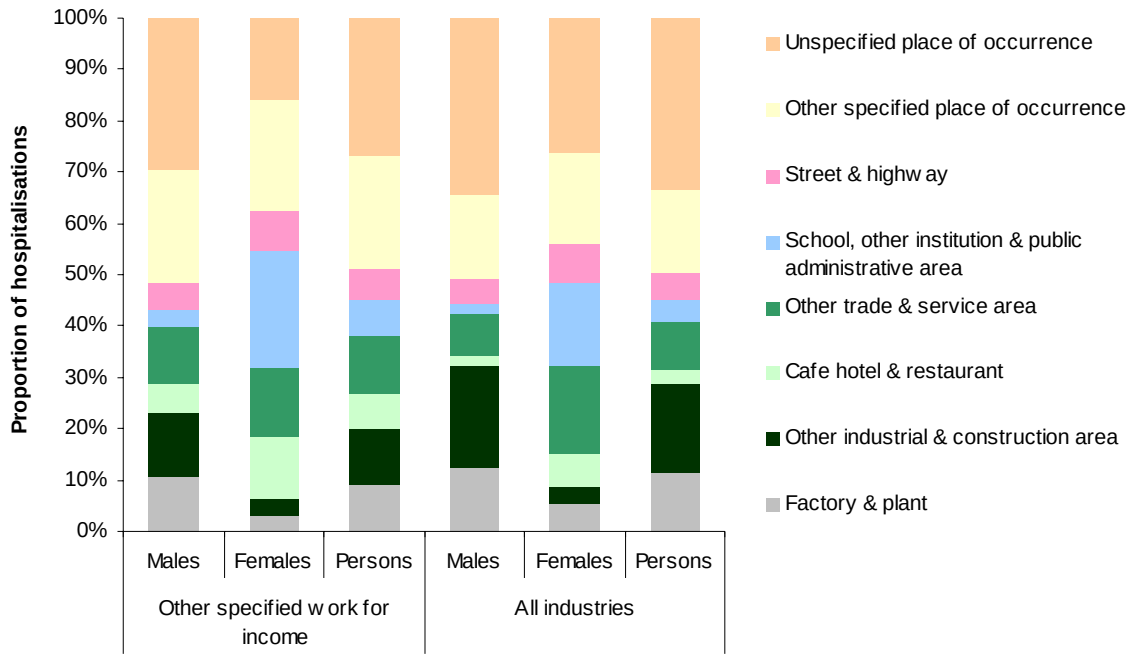


Figure 11.3: Hospitalised injury while working for income, Australia, 2002–03 and 2003–04: proportions of cases by Place of occurrence and sex, Other specified work for income and all industries

Month of admission

For the two year period, Other specified work for income related hospitalisations were relatively evenly spread across the year with a peak in March (n=925, 9.1%) and a dip in January (n=776, 7.6%) (Figure 11.4). This pattern is similar to that for cases of injury while working for income overall.

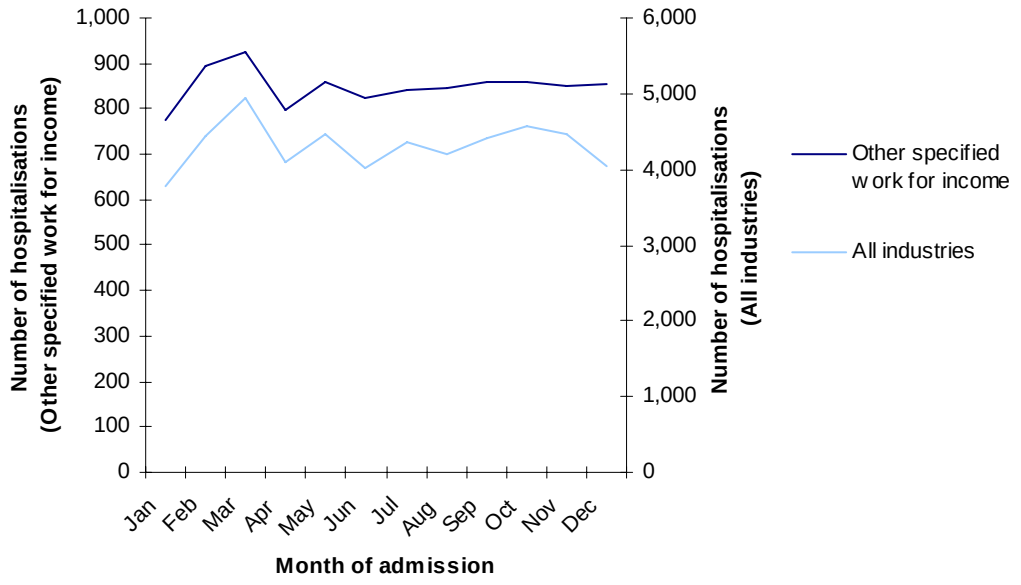


Figure 11.4: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by month of admission to hospital, Other specified work for income and all industries

Day of admission

Variation of case numbers by weekday of admission to hospital was similar for this category and for all cases of injury while working for income (Figure 11.5). The largest number of Other specified work for income related hospitalisations occurred on Wednesdays (n=1,852, 18.2%) and the lowest number occurred on Sundays (n=558, 5.5%).

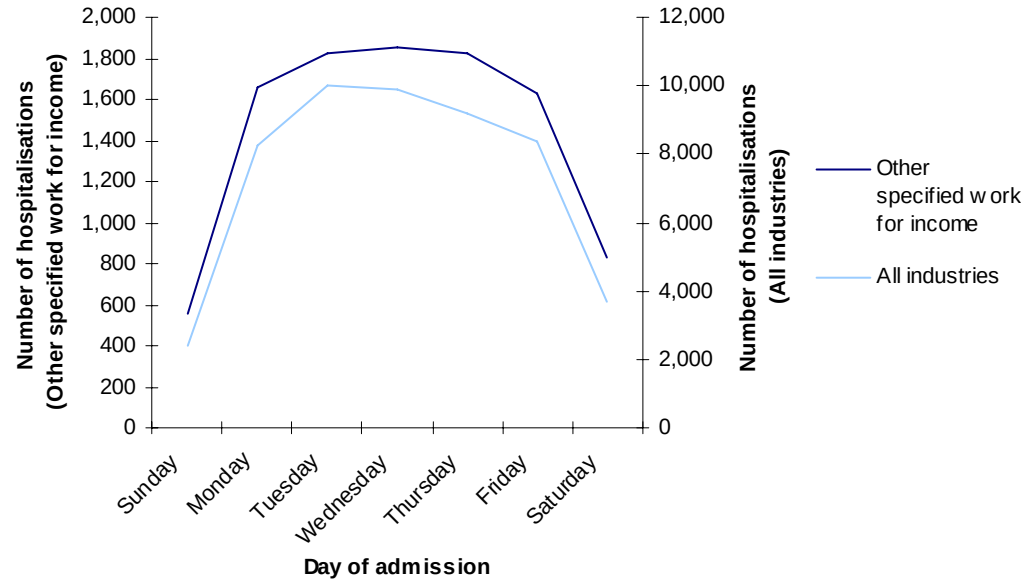


Figure 11.5: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: number of cases by weekday of admission to hospital, Other specified work for income and all industries

Nature of injury (Principal Diagnosis)

Hospitalised injury while working for income in Other specified activities had a similar profile in regard to type of diagnosis to that seen overall. Fractures were the most common type of hospitalisation in persons hospitalised in the Other specified work for income group (n=2,554, 25.1%), compared with 23.3% for all industries (Figure 11.6).

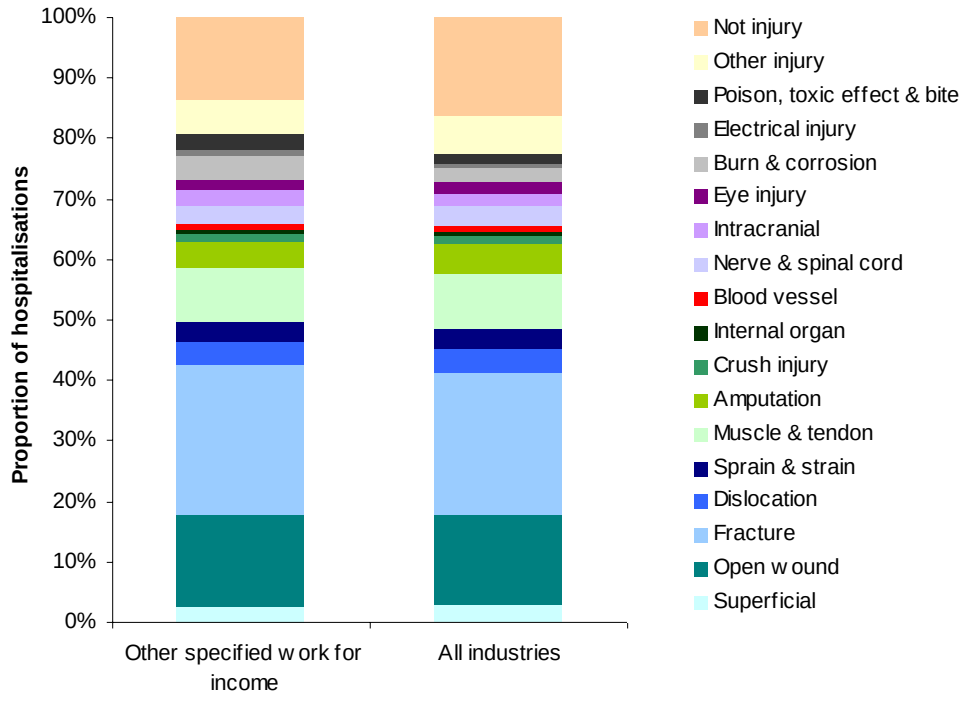


Figure 11.6: Hospitalised injury while working for income, Australia, 2002–03 and 2003–04: proportions of cases by nature of injury (Principal Diagnosis), Other specified work for income and all industries 4

Hospitalisations for open wounds were more common in males (n=1,348 16.4%) than in females (n=190, 9.8%), as were muscle and tendon related hospitalisations (9.9% compared with 5.4%) and amputation related hospitalisations (5.1% compared with 1.7%). Hospitalisations that were not injury related were more common, as a proportion of all hospitalisations, in females than males (22.4% compared with 11.3%). Overall, there were 538 hospitalisations due to factors influencing health status and contact with health services and 412 hospitalisations due to diseases of the musculoskeletal system and connective tissue (Table 11.5).

Table 11.5: Hospitalised injury while working for income Other specified activities, Australia 2002–03 and 2003–04: numbers and proportions of cases by nature of injury (Principal Diagnosis) and sex

Nature	Males (%)	Females (%)	Persons (%)
Superficial	222 (2.7)	46 (2.4)	268 (2.6)
Open wound	1,348 (16.4)	190 (9.8)	1,538 (15.1)
Fracture	2,077 (25.2)	477 (24.5)	2,554 (25.1)
Dislocation	275 (3.3)	93 (4.8)	368 (3.6)
Sprain & strain	225 (2.7)	88 (4.5)	313 (3.1)
Muscle & tendon	814 (9.9)	105 (5.4)	919 (9.0)
Amputation	416 (5.1)	33 (1.7)	449 (4.4)
Crush injury	108 (1.3)	10 (0.5)	118 (1.2)
Internal organ	58 (0.7)	14 (0.7)	72 (0.7)
Blood vessel	91 (1.1)	13 (0.7)	104 (1.0)
Nerve & spinal cord	243 (3.0)	63 (3.2)	306 (3.0)
Intracranial	204 (2.5)	65 (3.3)	269 (2.6)
Eye injury	166 (2.0)	11 (0.6)	177 (1.7)
Burn & corrosion	326 (4.0)	58 (3.0)	384 (3.8)
Electrical injury	82 (1.0)	20 (1.0)	102 (1.0)
Poison, toxic effect & bite	226 (2.7)	55 (2.8)	281 (2.8)
Other injury	420 (5.1)	171 (8.8)	591 (5.8)
Not injury	930 (11.3)	436 (22.4)	1,366 (13.4)
Total	**8,231 (100.0)**	**1,948 (100.0)**	**10,179 (100.0)**

The mean length of stay for cases resulting from injury while engaged in Other specified work for income was 3.1 days, compared with 3.0 days for cases in all industries combined (Figure 11.7). The longest mean length of stay was for internal organ injuries (7.7 days) and the shortest mean lengths of stay were for superficial injury and electrical injury (1.3 days each).

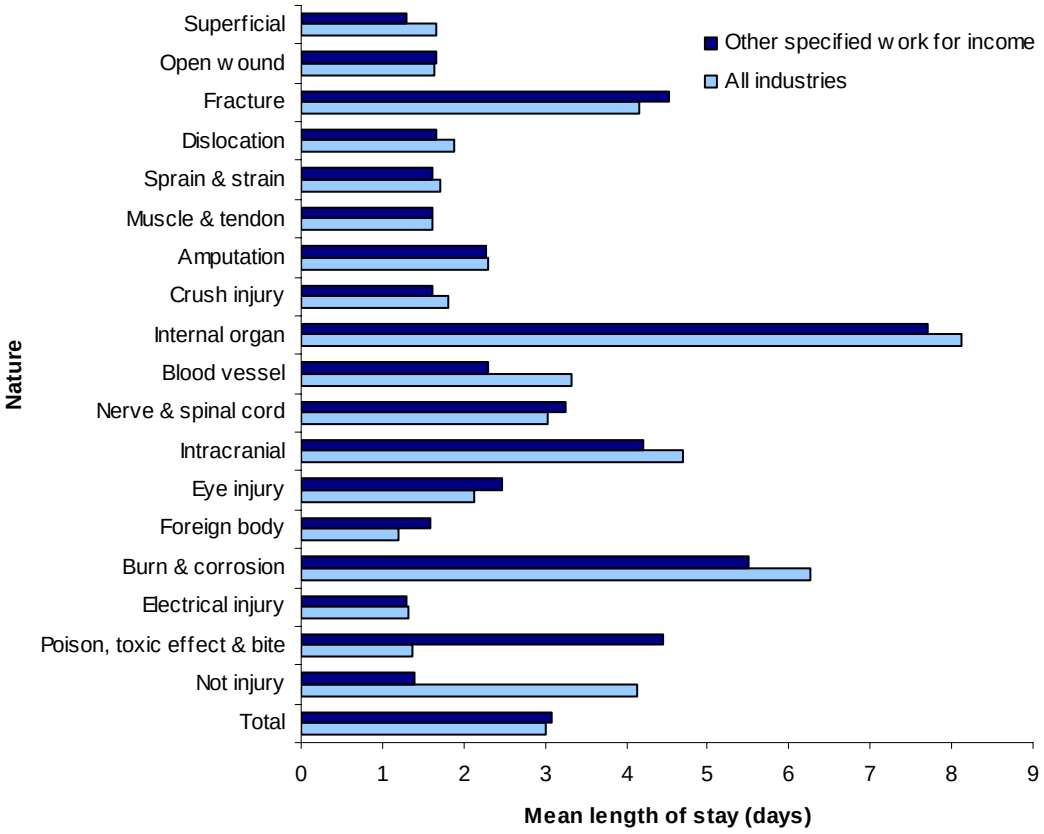


Figure 11.7: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by nature of injury (Principal Diagnosis), Other specified work for income and all industries

Body region injured (Principal Diagnosis)

In this sector, 31.9% of cases of hospitalised injury in Other specified work for income involved wrist and hand injury (n=3,251). This was most common in the 25–34 year age group (n=907, 34.4%) in terms of gross numbers but as a proportion of all hospitalisations for the age group, it was most common in the 15–19 year age group (n=312, 46.7%). Wrist and hand injury was more common in males (n=2,891, 35.1%) than in females (n=360, 18.5%) (Figures 11.8 and 11.9).

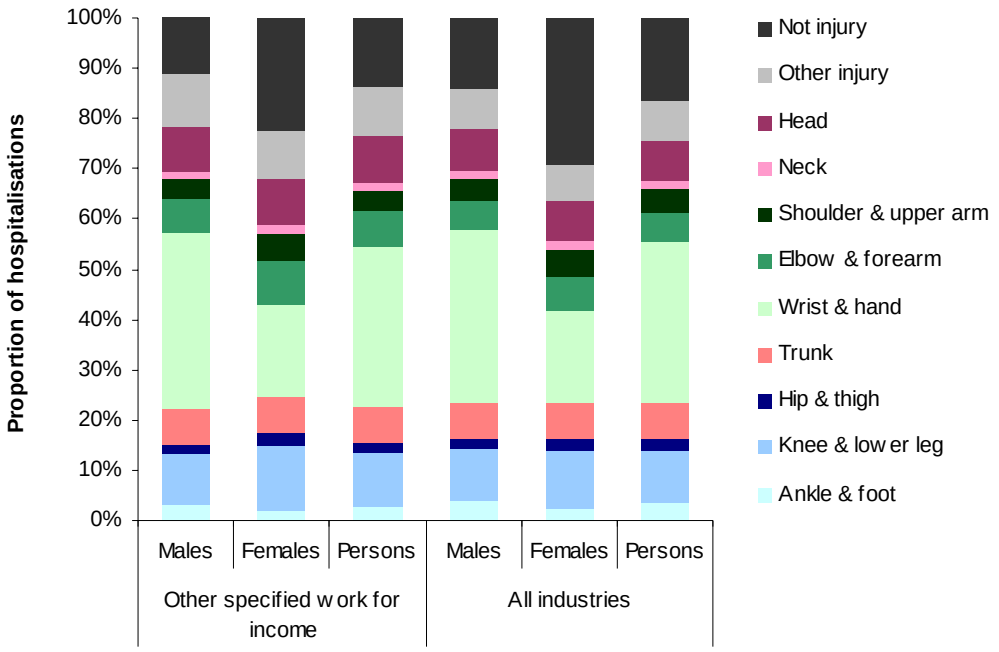


Figure 11.8: Hospitalised injury while working for income, Australia, 2002–03 and 2003–04: proportions of cases by Body region injured and sex, Other specified work for income and all industries

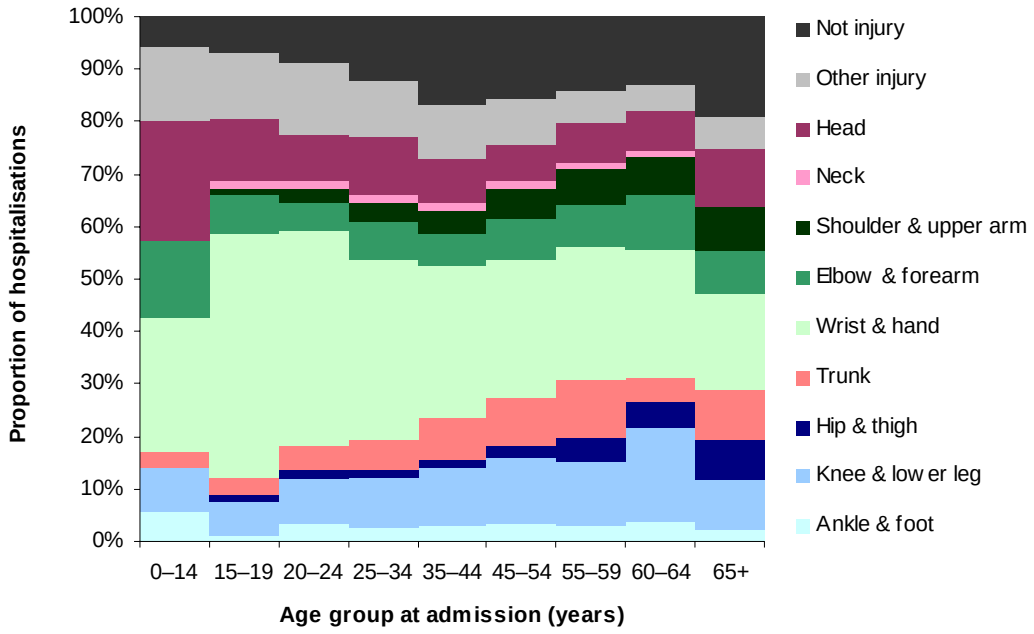


Figure 11.9: Hospitalised injury while working for income in Other specified activities, Australia 2002–03 and 2003–04: proportions of cases by body region injured and age group

The mean length of stay for injury while engaged in Other specified work for income was 3.1 days, with the longest mean length of stay of 8.1 days for hip and thigh injury hospitalisations and the shortest mean length of stay of 1.5 days for wrist and hand injuries (Figure 11.10).

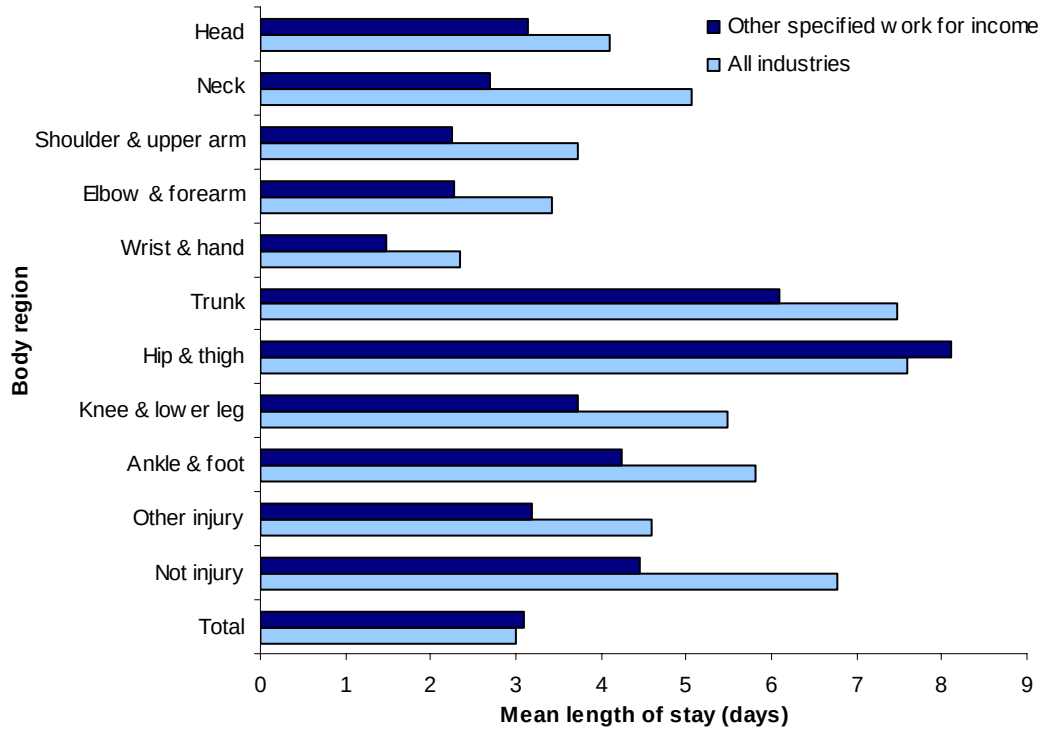


Figure 11.10: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: mean length of stay by Body region injured (Principal Diagnosis), Other specified work for income and all industries

Most frequent Principal Diagnoses

Seven of the ten most frequent principal diagnoses among cases of hospitalised injury while working for income in Other specified work for income involved wrist and hand injury, with open wound of finger without damage to nail (S610) (n=510, 5.0%) being most common (Table 11.6).

Table 11.6: Hospitalised injury while working for income in Other specified activities, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at most detailed level), by sex

Principal diagnosis (code)	Males (%)	Females (%)	Persons (%)
Open wound of finger without damage to nail (S610)	446 (5.4)	64 (3.3)	510 (5.0)
Care involving use of other rehabilitation procedures (Z508)	242 (2.9)	128 (6.6)	370 (3.6)
Traumatic amputation of other single finger (not thumb) (S681)	281 (3.4)	21 (1.1)	302 (3.0)
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	228 (2.8)	23 (1.2)	251 (2.5)
Fracture of distal phalanx of other finger (not thumb) (S6263)	231 (2.8)	18 (0.9)	249 (2.4)
Open wound of finger(s) or thumb with damage to nail (S611)	185 (2.2)	16 (0.8)	201 (2.0)

Tear of meniscus, current (S832)	127 (1.5)	42 (2.2)	169 (1.7)
Open wound of other parts of wrist & hand including palm (S6188)	132 (1.6)	18 (0.9)	150 (1.5)
Injury of digital nerve of other finger (not thumb) (S644)	105 (1.3)	27 (1.4)	132 (1.3)
Fracture of lower end of radius with dorsal angulation (Colles' fracture) (S5251)	62 (0.8)	49 (2.5)	111 (1.1)
Other principal diagnosis	6,192 (75.2)	1,542 (79.2)	7,734 (76.0)
Total	**8,231 (100.0)**	**1,948 (100.0)**	**10,179 (100.0)**

When considered in terms of three-character ICD-10-AM codes, five of the ten most frequent diagnosis groupings for cases considered in this chapter involved the wrist and hand, with open wound of wrist and hand (S61) (n=945, 9.3%) being the most common (Table 11.7).

Table 11.7: Hospitalised injury while working for income in Other specified activities, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at 3-character code level), by sex

Principal diagnosis group (code)	Males (%)	Females (%)	Persons (%)
Open wound of wrist & hand (S61)	838 (10.2)	107 (5.5)	945 (9.3)
Fracture at wrist & hand level (S62)	673 (8.2)	56 (2.9)	729 (7.2)
Injury of muscle & tendon at wrist & hand level (S66)	492 (6.0)	51 (2.6)	543 (5.3)
Fracture of lower leg, including ankle (S82)	374 (4.5)	132 (6.8)	506 (5.0)
Care involving use of rehabilitation procedures (Z50)	317 (3.9)	151 (7.6)	468 (4.6)
Traumatic amputation of wrist & hand (S68)	412 (5.0)	32 (1.6)	444 (4.4)
Fracture of forearm (S52)	286 (3.5)	134 (6.9)	420 (4.1)
Dislocation, sprain & strain of joints & ligaments of the knee(S83)	208 (2.5)	76 (3.9)	284 (2.8)
Intracranial injury (S06)	204 (2.5)	65 (3.3)	269 (2.6)
Injury of nerves at wrist & hand level (S64)	201 (2.4)	54 (2.8)	255 (2.5)
Other principal diagnosis	4,226 (51.3)	1,090 (56.0)	5,316 (52.2)
Total	**8,231 (100.0)**	**1,948 (100.0)**	**10,179 (100.0)**

There were 3,251 wrist and hand injury related hospitalisations among cases of hospitalised injury while working for income in Other specified activities. There were 945 hospitalisations due to open wound of wrist and hand (S61), with open wound of finger(s) without damage to nail (S610) (n=510) and open wound of finger(s) with damage to nail (S611) (n=201) being most common. There were 729 hospitalisations due to fracture of the wrist and hand, with fracture of distal phalanx of other finger (not thumb) (S6263) (n=249) and fracture of proximal phalanx of other finger (not thumb) (S6261) (n=99) being most common. There were 255 hospitalisations due to injury of nerves at wrist and hand level. There were 543 hospitalisations due to injury of muscle and tendon at wrist and hand level (S66), with injury of extensor muscle and tendon of other finger (not thumb) at wrist and hand level (S663) being the most common type (n=251) (Table 11.8).

Table 11.8: Hospitalised injury while working for income in Other specified activities, Australia 2002–03 and 2003–04: numbers of wrist and hand injury cases by Principal Diagnosis and sex

Principal diagnosis (code)	Males	Females	Persons
Superficial injury of wrist & hand (S60)	52	5	57
Superficial foreign body (splinter) of wrist & hand (S6084)	*37*		
Abrasion of wrist & hand (S6081)	*4*	*0*	*4*
Other superficial injury of wrist & hand	*11*		
Open wound of wrist & hand (S61)	838	107	945
Open wound of finger(s) without damage to nail (S610)	*446*	*64*	*510*
Open wound of finger(s) with damage to nail (S611)	*185*	*16*	*201*
Open wound of other parts of wrist & hand (S6188)	*132*	*18*	*150*
Open wound of other parts of wrist & hand, part unspecified (S619)	*69*	*9*	*78*
S617	*6*	*0*	*6*
Fracture at wrist & hand level (S62)	673	56	729
Fracture of distal phalanx of other finger (not thumb) (S6263)	*231*	*18*	*249*
Fracture of proximal phalanx of other finger (not thumb) (S6261)	*91*	*8*	*99*
Fracture of middle phalanx of other finger (not thumb) (S6262)	*60*	*12*	*72*
Fracture of distal phalanx of thumb (S6252)	*60*		
Fracture of shaft of other (excluding first) metacarpal bone (S6232)	*37*		
Fracture of other (excluding first) metacarpal bone(s), part unspecified (S6230)	*28*		
Fracture of proximal phalanx of thumb (S6251)	*29*		
Fracture of phalanx of other finger (not thumb), part unspecified (S6260)	*20*		
Fracture of neck of other (excluding first) metacarpal bone(s) (S6233)	*19*	*0*	*19*
Fracture of base of first metacarpal (S6221)	*18*	*0*	*18*
Fracture of base of other (excluding first) metacarpal bone(s) (S6231)	*17*		
Fracture of navicular (scaphoid) bone (S620)	*11*		
Multiple fractures of metacarpal bones (S624)	*11*	*0*	*11*
Fracture of head of other metacarpal bone (not first) (S6234)	*7*		
Multiple fractures of fingers (S627)	*9*	*0*	*9*
Fracture of thumb, part unspecified (S6250)	*7*	*0*	*7*
Fracture of first metacarpal bone, part unspecified (S6220)	*5*	*0*	*5*
Other fracture at wrist & hand level	*13*		
Dislocation, sprain & strain of joints & ligaments at wrist & hand level (S63)	57	20	77
Sprain & strain of other parts of wrist (S6358)	*24*	*10*	*34*
Dislocation of metacarpophalangeal joint (S6311)	*6*		
Dislocation of interphalangeal joint of finger (S6312)	*4*		
Dislocation of finger, part unspecified (S6310)	*6*	*0*	*6*
Other dislocation, sprain & strain of joints & ligaments at wrist & hand level	*17*	*5*	*22*

Injury of nerves at wrist & hand level (S64)	201	54	255
Injury of digital nerve of other finger (not thumb) (S644)	*105*	*27*	*132*
Injury of radial nerve at wrist & hand level (S642)	*33*	*6*	*39*
Injury of digital nerve of thumb (S643)	*27*	*10*	*37*
Injury of ulnar nerve at wrist & hand level (S640)	*22*	*5*	*27*
Injury of median nerve at wrist & hand level (S641)	*9*		
Other injury of nerves at wrist & hand level	*5*		
Injury of blood vessels at wrist & hand level (S65)	66	12	78
Injury of blood vessels of other finger (excluding thumb) (S655)	*36*	*7*	*43*
Injury of radial artery at wrist & hand level (S651)	*12*	*4*	*16*
Injury of blood vessel(s) of thumb (S654)	*9*	*0*	*9*
Injury of ulnar artery at wrist & hand level (S650)	*5*		
Other injury of blood vessels at wrist & hand level	*4*		
Injury of muscle & tendon at wrist & hand level (S66)	492	51	543
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	*228*	*23*	*251*
Injury of flexor muscle & tendon of other finger (not thumb) at wrist & hand level (S661)	*93*	*14*	*107*
Injury of extensor muscle & tendon of thumb at wrist & hand level (S662)	*92*	*8*	*100*
Injury of long flexor muscle & tendon of thumb at wrist & hand level (S660)	*19*	*0*	*19*
Injury of other muscles & tendons at wrist & hand level (S668)	*16*		
Injury of multiple flexor muscles & tendons at wrist & hand level (S666)	*15*		
Injury of multiple extensor muscles & tendons at wrist & hand level (S667)	*16*	*0*	*16*
Other injury of muscle & tendon at wrist & hand level	*13*		
Crushing injury of wrist & hand (S67)	72	9	81
Crushing injury of thumb & other fingers (S670)	*63*	*4*	*67*
Crushing injury of other & unspecified parts of wrist & hand (S678)	*9*	*5*	*14*
Traumatic amputation of wrist & hand (S68)	412	32	444
Traumatic amputation of other single finger (not thumb) (S681)	*281*	*21*	*302*
Traumatic amputation of thumb (S680)	*74*	*4*	*78*
Other traumatic amputation at wrist & hand level	*57*	*7*	*64*
Other & unspecified injuries of wrist & hand (S69)	28	14	42
Total injuries to wrist & hand	**2,891**	**360**	**3,251**

Procedures

Physiotherapy was the most common principal procedure in persons hospitalised due to injury during Other specified work for income (n=674, 6.6%), as it was for injury while working for income overall (Table 2.14). Most of the principal procedures in the list of the eleven most frequent involved the skin and musculoskeletal systems (Table 11.9).

Table 11.9: Hospitalised injury while working for income in Other specified activities, Australia 2002–03 and 2003–04: most frequently recorded Principal Procedures, by sex

Principal procedure (code)	Males	Females	Persons
Physiotherapy (9555003)	463	211	674
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), superficial (3002600)	383	54	437
Excisional debridement of deep soft tissue including muscle, tendon, fascia ligaments or nerves (3002300)	335	35	370
Primary repair of extensor tendon of hand (4642000)	313	27	340
CT brain without intravenous contrast (5600100)	175	53	228
Primary repair of nerve (3930000)	163	38	201
Excisional debridement of skin & subcutaneous tissue (9066500)	157	18	175
Primary repair of nail or nail bed (4648600)	158	12	170
Arthroscopic meniscectomy of knee with debridement, osteoplasty or chondroplasty (4956101)	99	31	130
CT spine without intravenous contrast (5621000)	97	24	121
Primary repair to flexor tendon of hand, distal to A1 pulley (4643200)	98	19	117
Other principal procedure	5,790	1,426	7,216
Total	**8,231**	**1,948**	**10,179**

Summary

A diverse group of cases, arising in diverse industries, is included in the Other specified work for income group. It includes cases arising in these sectors: accommodation, cafés and restaurants; activities of religious and political organisations; property and business services; public order and safety services; cultural and recreation services; electricity, gas and water supply; child care services; communication services; finance and insurance; personal services and education.

The group includes 10,179 hospitalisations, with 80.9% occurring in males. The largest number of hospitalisations occurred in the 25–34 year age group (n=2,640).

Exposure to inanimate mechanical forces was the most common mechanism of injury (44.0%) with contact with other and unspecified machinery (n=482) and caught, crushed jammed or pinched in or between objected (n=626) being the most common types.

Fractures were the most common injury type (25.1%). The wrist and hand was the most common principal body region injured (31.9%). Open wound of the finger without damage to the nail was the most common principal diagnosis (5.0%) and open wound of the wrist and hand was the most common principal diagnosis grouping (9.3%).

12 Hospitalised injury while engaged in unpaid work

This chapter includes the cases of Hospitalised injury that were coded as occurring while engaged in types of work other than working for income (ICD–10–AM code U73.1). In this chapter, these activities are referred to as 'unpaid work'. These are relevant in that volunteer workers are likely to be included in this category.

This diverse group is specified in the ICD-10-AM as including:

> Domestic duties such as caring for children and relatives; cleaning; cooking; gardening; household maintenance
>
> Duties for which one would not normally gain an income
>
> Learning activities, for example attending school session or lesson
>
> Undergoing education

The boundary between unpaid work and other activities is not sharp. Another category in the ICD-10-AM Activity classification is for injury while *resting sleeping, eating or engaging in other vital activities*. It is not always clear whether a person injured at their place of residence was engaged in activities codable as unpaid work, or not. Similar uncertainty often surrounds the purpose of a journey during which a transport crash occurs (i.e. was the person doing the domestic duty of household shopping, or engaged in recreation, or some other activity?).

Hospitalised injury while engaged in unpaid work in a family business or on a farm should be coded to ICD-10-AM category U73.1, but might sometimes be coded to category U73.0, while working for income. This could occur when the nature of the activity is one that leads people recording information about the case to assume that income would be paid for the sort of activity described.

Background

There are parallels between the types of work included in this chapter for which the individual does not normally gain an income (for example gardening, cleaning, child minding and car maintenance) and similar activities in the paid workforce. These activities frequently happen in the home (Driscoll et al 2003).

Driscoll et al. (2003) reviewed unintentional fatal injuries resulting from unpaid work in the home. His study found that 83% of such deaths were in males. Home repairs had the highest rate of fatal injury per million persons per year per hour of activity with 49. Overall the rate of home duties related fatal injuries was about 5.5 fatal injuries per million persons per year.

As noted, the boundary between paid and unpaid work is not always distinct - a person helping in the family shop or on the family farm may or may not be receiving formal payment.

The type of work undertaken by volunteers and paid workers can be similar (eg volunteer fire fighters). It is unclear whether volunteer work has been coded to Other (i.e.

unpaid) types of work (U73.1) or to another industry group (eg to Public order and safety in Other specified work for income (U73.08) in the case of volunteer fire fighters).

There is little information on injuries to volunteers in Australia. The Centre for Disease Control and Prevention reviewed fatal injuries among volunteers in the United States from 1993–2002. There were 501 deaths with 185 of these being fire fighters, 35 in non-construction labourers and 24 in pilots and navigators. When activity at time of death is reviewed, 100 deaths occurred whilst driving a motor vehicle and 76 whilst fire fighting. Overall, 87% of victims were male. The death rate for volunteers was 3.2 per 100,000 full time equivalent population (Centre for Disease Control and Prevention (CDC) 2005).

Note that while these two studies refer to fatalities, hospitalised cases are described in this chapter.

Age and sex

There were 27,921 hospitalisations due to injury while engaged in Unpaid work with 57.7% occurring in males (n=16,115). The highest number occurred in the 65 years and over age group (n=10,625, 38.1%) (Table 12.1). This is much higher than the equivalent proportion of cases while working for income (n=1,470; 2.8% (Table 2.2). Compared to injury while working for income, the proportion of cases at ages less than 15 years is relatively large (4.7% for unpaid work compared with 0.3% for cases while working for income).

Table 12.1: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: case numbers by age group and sex

Age group at admission (years)	Males	Females	Persons
0–14	845	457	1,302
15-19	674	237	911
20-24	754	289	1,043
25–34	1,945	857	2,802
35–44	2,481	1,093	3,574
45–54	2,612	1,248	3,860
55–59	1,221	745	1,966
60–64	1,144	694	1,838
65+	4,439	6,186	10,625
All ages	**16,115**	**11,806**	**27,921**

Remoteness of residence

Males and females hospitalised due to injury while engaged in Unpaid work had similar profiles with regard to remoteness zone of residence. In this group, 60.5% (n=9,757) of males and 62.8% (n=7,414) of females were recorded as usually residing in a major city (Figure 12.1).

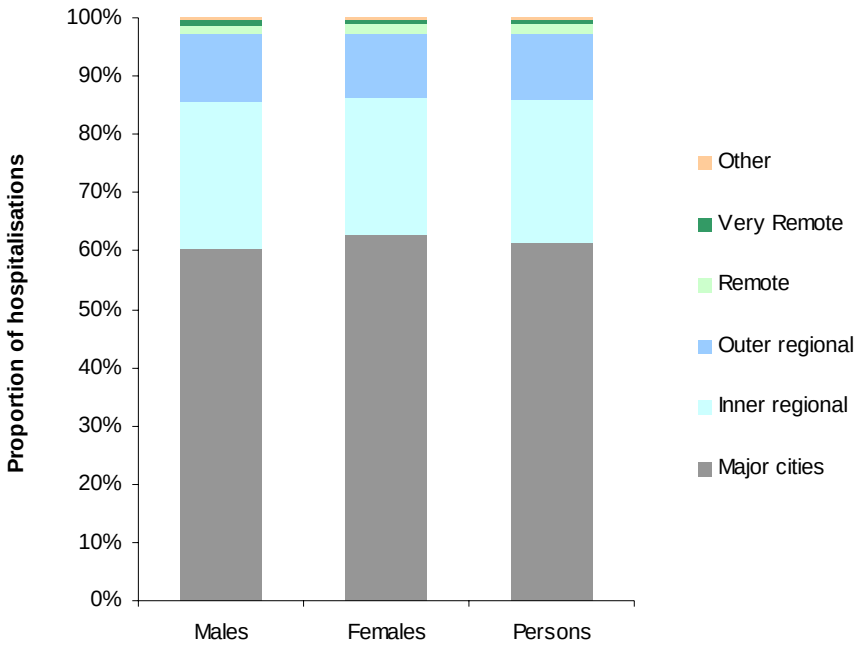


Figure 12.1: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: proportions of cases by Remoteness of residence and sex

Mechanism of injury

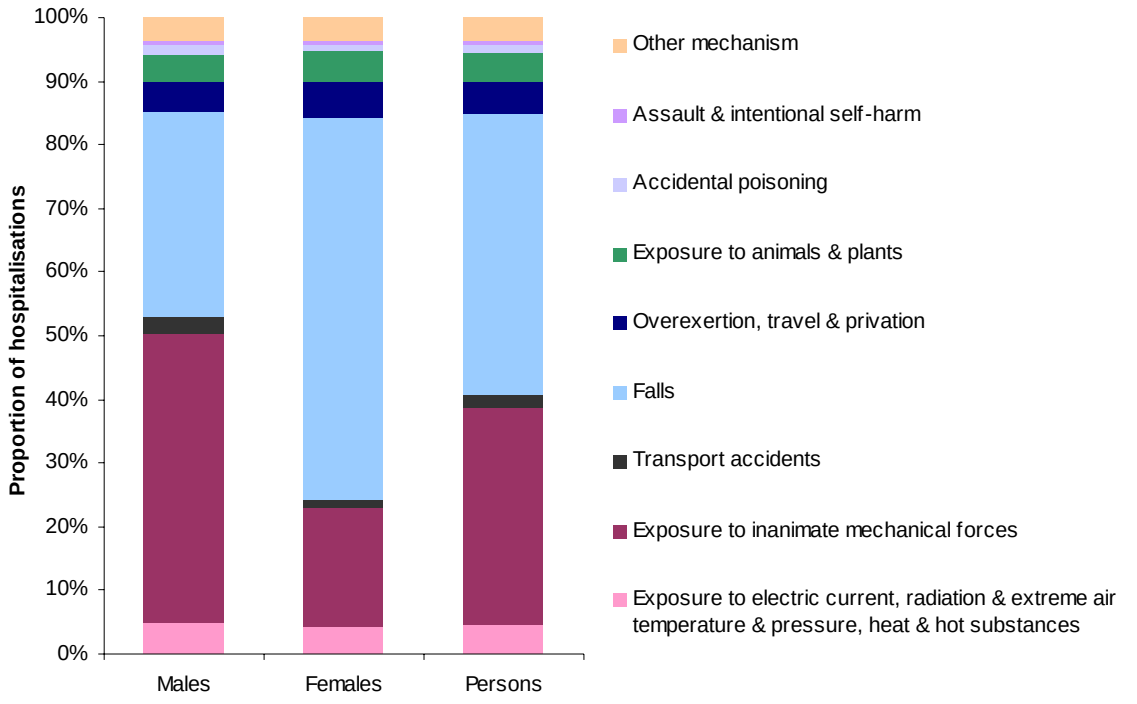


Figure 12.2: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: proportions of cases by Mechanism and sex

For males, the most common mechanism of hospitalised injury while engaged in Unpaid work was exposure to inanimate mechanical forces (n=7,328, 45.5%), followed by falls

(n=5,178, 32.1%). For females the most common mechanism was falls (n=7,106, 60.2%), followed by exposure to inanimate mechanical forces (18.8%) (Figure 12.2).

There were 12,284 fall related hospitalisations recorded as occurring due to injury while engaged in Unpaid work. The most common type of fall was fall on same level from tripping (n=2,484, 8.9%) and fall on and from a ladder (n=1,943, 7.0%) (Table 12.2).

There were 9,550 hospitalisations due to exposure to inanimate mechanical forces. The most common mechanisms were contact with other powered hand tools and household machinery (n=1,544) and contact with knife, sword or dagger (n=1,228) (Table 12.3).

Table 12.2: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: case numbers where mechanism was a fall, by specific mechanism and sex

Mechanism	Males	Females	Persons
Fall on same level from tripping	593	1,891	2,484
Fall on & from ladder	1,515	428	1,943
Other fall on same level	589	1,355	1,944
Fall on same level from slipping	347	1,174	1,521
Fall from, out of or through building or structure	606	90	696
Fall on same level from stumbling	191	454	645
Fall on & from stairs	199	389	588
Fall involving furniture	177	403	580
Other fall from one level to another	298	166	464
Fall from tree	167	12	179
Fall involving playground equipment	54	45	99
Fall on & from scaffolding	66		
Other fall same level from collision or push by person	30	23	53
Fall from cliff	12	9	21
Fall involving wheelchair	7	6	13
Dive or jump into water with injury not drowning or submersion	4	5	9
Fall involving ice-skates, skis, roller skates or skateboards	5		
Other & unspecified fall	318	653	971
Total for falls	**5,178**	**7,106**	**12,284**

Table 12.3: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: case numbers where mechanism was exposure to inanimate mechanical forces, by specific mechanism and sex

Mechanism	Males	Females	Persons
Contact with other powered hand tools & household machinery	1,406	138	1,544
Contact with knife, sword or dagger	685	543	1,228
Foreign body or object entering through skin	774	314	1,088
Struck by thrown, projected or falling object	687	162	849
Contact with non-powered hand tool	569	161	730
Contact with woodworking & forming machinery	691	16	707
Contact with powered lawnmower	476	138	614
Contact with sharp glass	338	256	594
Striking against or struck by other objects	351	188	539
Caught, crushed, jammed or pinched in or between objects	350	107	457
Contact with other & unspecified machinery	247	25	272
Foreign body entering into or through eye or natural orifice	223	40	263
Contact with metalworking machinery	143	4	147
Contact with other & unspecified agricultural machinery	49	6	55
Explosion of other materials	43	11	54
Contact with lifting & transmission devices, not elsewhere classified	44		
Explosion & rupture of gas cylinder	21		
Contact with earthmoving, scraping & other excavating machinery	21		
Striking against or struck by sports equipment	5	14	19
Explosion & rupture of other specified pressurised devices	9		
Contact with other specified equipment towed or powered by tractor	8		
Discharge of firearm	8	0	8
Contact with grain auger, elevator & conveyor	6		
Contact with harvesting machinery	5	0	5
Explosion & rupture of boiler	4		
Contact with mining & earth drilling machinery	4	0	4
Exposure to other & unspecified inanimate mechanical forces	161	87	248
Total for exposure to inanimate mechanical forces	**7,328**	**2,222**	**9,550**

Place of occurrence

The majority of admissions for injury during Unpaid work occurred in the home (n=18,570, 66.5%). This proportion was higher for females (n=8,985, 76.1%) than for males (n=9,585, 59.5%) (Figure 12.3).

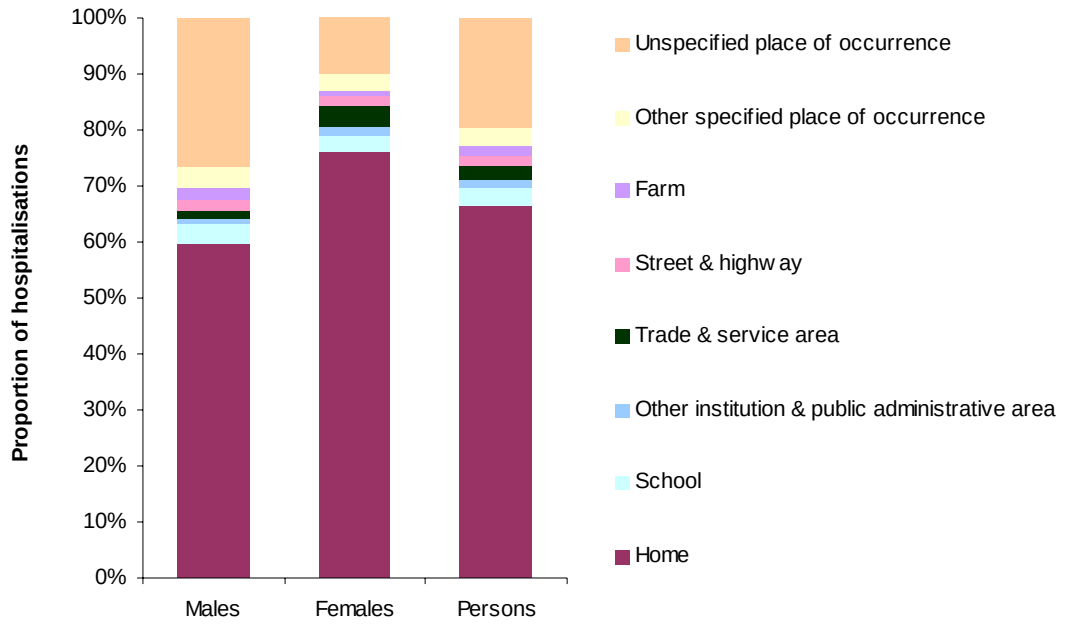


Figure 12.3: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: proportions of cases by Place of occurrence and sex

Month of admission

There was a relatively even distribution of admissions due to injury during Unpaid work by month of year, with evidence of some seasonality (lower case counts in winter months). The largest number of cases occurred in March (n=2,524, 9.0%) and the lowest number occurred in August (n=2,051, 7.3%) (Figure 12.4).

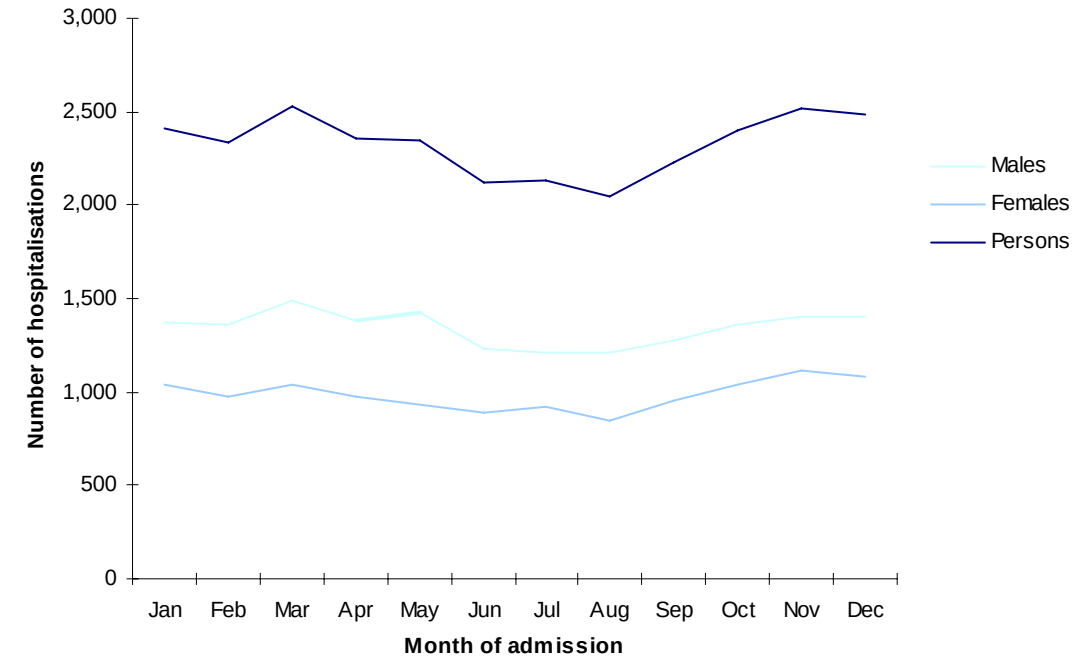


Figure 12.4: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: proportions of cases by Month of admission and sex

Day of admission

There was very little variation between weekdays in the number of admissions due to injury while engaged in Unpaid work. The highest number of Unpaid work related hospitalisations occurred on Mondays (n=4,282, 15.3%) and the lowest number occurred on Sundays (n=3,551, 12.7%) (Figure 12.5). The apparent peak on Mondays might partly be due to admission after the weekend of cases that occurred during the weekend.

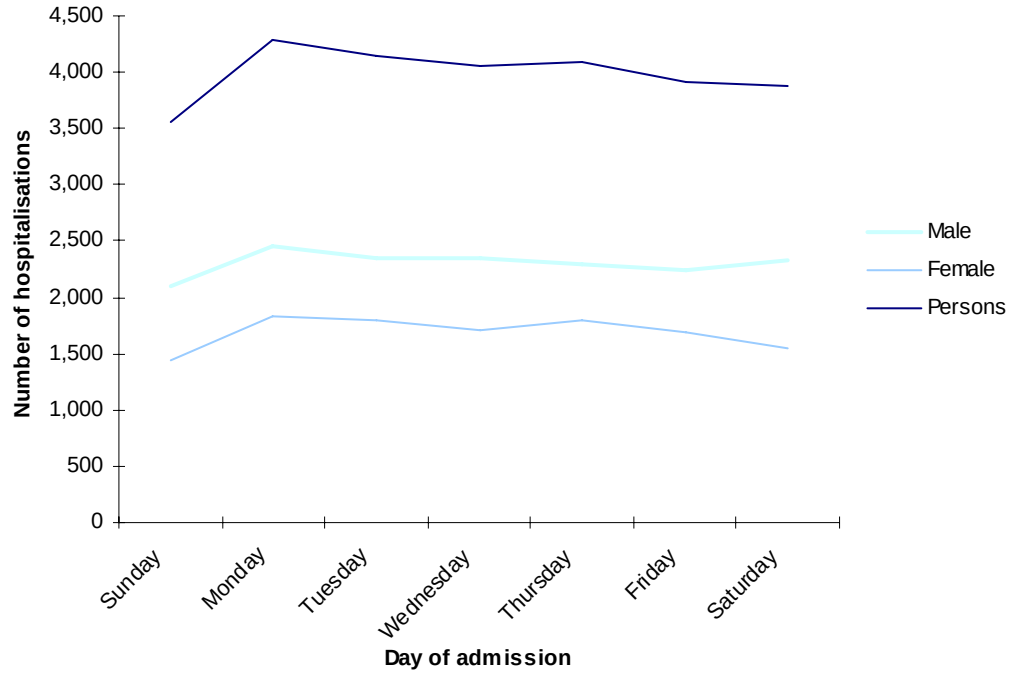


Figure 12.5: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: proportions of cases by Weekday of admission and sex

Nature of injury (Principal Diagnosis)

Among cases admitted to hospital due to injury while engaged in Unpaid work, fractures were the most common Principal Diagnosis, accounting for 43.0% of hospitalisations in females (n=5,082), 29.5% of hospitalisations in males (n=4,751) and 35.2% of hospitalisations overall (n=9,833). In this category, 14.5% of hospitalisations were due to open wounds (n=4,060) (Table 12.4).

Table 12.4: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: case numbers and proportions, by nature of injury (Principal Diagnosis) and sex

Nature	Males (%)	Females (%)	Persons (%)
Superficial	554 (3.4)	454 (3.8)	1,008 (3.6)
Open wound	2,702 (16.8)	1,358 (11.5)	4,060 (14.5)
Fracture	4,751 (29.5)	5,082 (43.0)	9,833 (35.2)
Dislocation	370 (2.3)	360 (3.0)	730 (2.6)
Sprain & strain	257 (1.6)	264 (2.2)	521 (1.9)
Muscle & tendon	1,574 (9.8)	487 (4.1)	2,061 (7.4)
Amputation	845 (5.2)	140 (1.2)	985 (3.5)
Crush injury	79 (0.5)	13 (0.1)	92 (0.3)
Internal organ	136 (0.8)	38 (0.3)	174 (0.6)
Blood vessel	200 (1.2)	56 (0.5)	256 (0.9)
Nerve & spinal cord	502 (3.1)	267 (2.3)	769 (2.8)
Intracranial	396 (2.5)	183 (1.6)	579 (2.1)
Eye injury	367 (2.3)	77 (0.7)	444 (1.6)
Foreign body	33 (0.2)	23 (0.2)	56 (0.2)
Burn & corrosion	706 (4.4)	408 (3.5)	1,114 (4.0)
Electrical injury	59 (0.4)	30 (0.3)	89 (0.3)
Poison, toxic effect & bite	398 (2.5)	292 (2.5)	690 (2.5)
Other injury	749 (4.6)	686 (5.8)	1,435 (5.1)
Not injury	1,437 (8.9)	1,588 (13.5)	3,025 (10.8)
Total	**16,115 (100.0)**	**11,806 (100.0)**	**27,921 (100.0)**

The mean length of stay for hospitalisations due to injury in Unpaid work was 5.4 days. The longest mean length of stay was for hospitalisations that had a Principal Diagnosis code from outside the 'Injury and Poisoning' chapter of the ICD-10-AM, with 10.9 days for males, 16.8 days for females and 14.0 days overall. The shortest mean length of stay was for cases where the main diagnosis was in the category 'poison, toxic effect and bite' (1.3 days) (Figure 12.6).

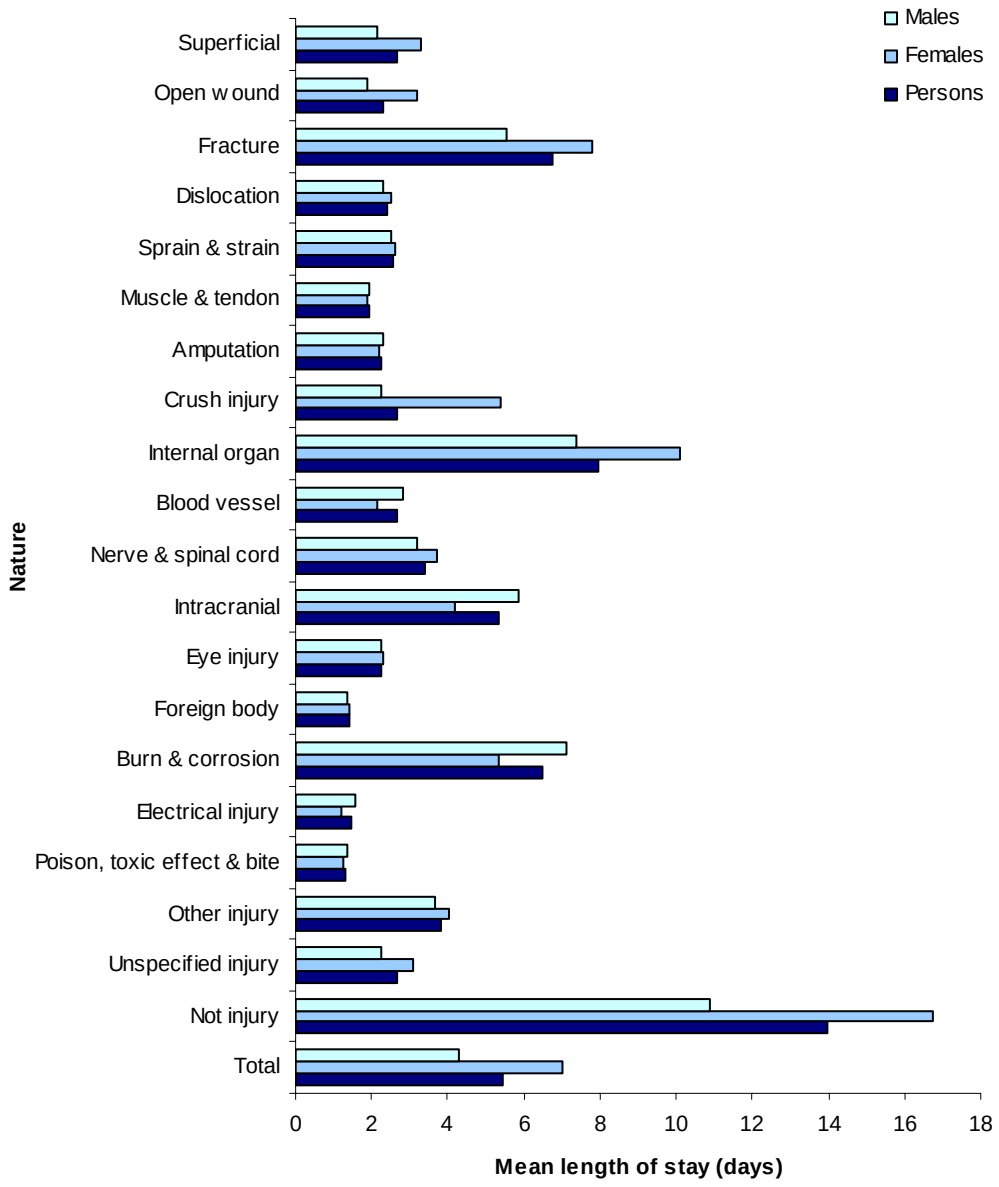


Figure 12.6: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: mean length of stay, by nature of injury (Principal Diagnosis) and sex

Body region injured (Principal Diagnosis)

Wrist and hand injury hospitalisations were the most common type of hospitalisation in persons hospitalised due to injury while engaged in Unpaid work (n=6,738, 24.1%) with these being more common in males (n=5,077, 31.5%) than in females (n=1,661, 14.1%). More hip and thigh injury hospitalisations occurred in females (n=1,680, 14.2%) than in males (n=899, 5.6%), with 2,579 (9.2%) hospitalisations overall (Figure 12.7).

The proportion of wrist and hand injuries is a little lower than that seen in cases while working for income, and the proportion of hip and thigh injuries is higher. This possibly reflects the higher proportion of the older population in this category.

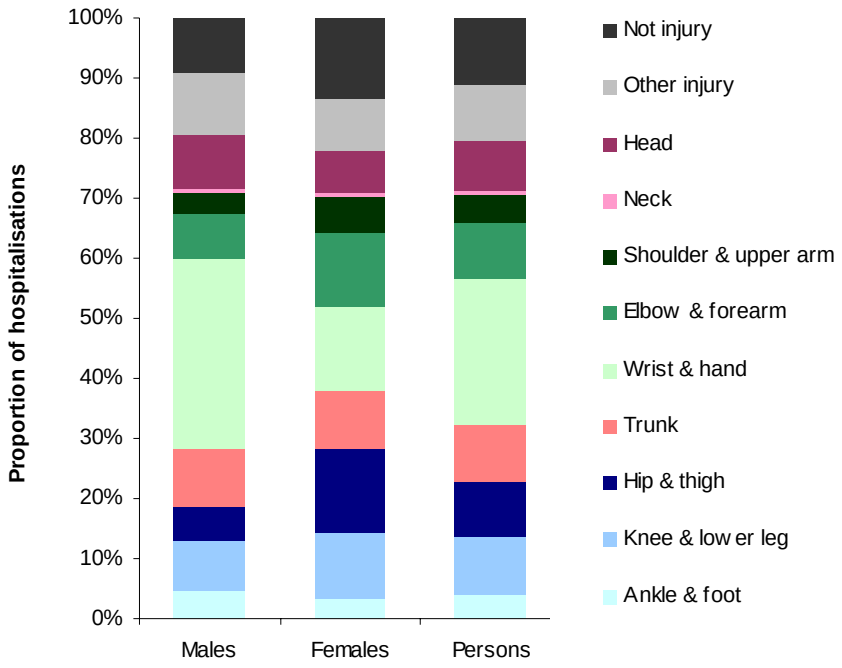


Figure 12.7: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: proportion of cases by body region injured (Principal Diagnosis) and sex

The number of wrist and hand injury hospitalisations peaked in the 35–44 year age group (n=1,359, 38.0%), and the proportion was largest for the age group 20–24 years (44.2%). Hip and thigh injury hospitalisations comprised a small proportion of hospitalisations (1.2% to 1.8%) for age groups until the 45–54 year group, in which the proportion is (2.8%). The proportion of hip and thigh injuries increases in each older age group, to a proportion of 19.8% in the 65 years and over age group. Elbow and forearm injury (n=304, 23.3%) and head injury (n=196, 15.1%) were both highest, as a proportion of all hospitalisations for the age group, in the 0–14 year age group (Figure 12.8).

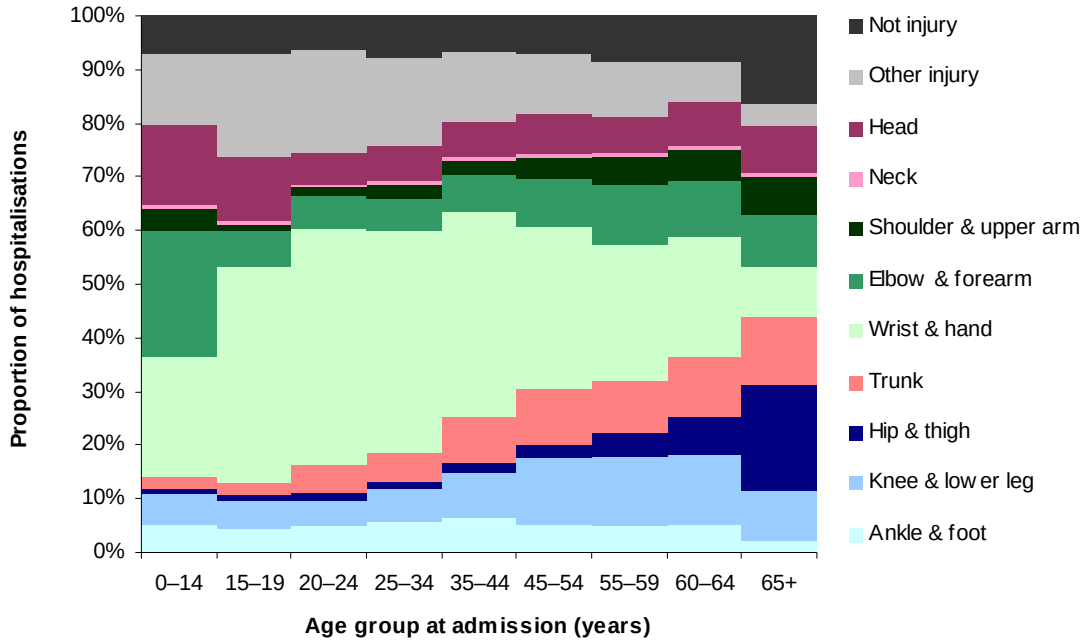


Figure 12.8: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: proportion of cases by body region injured (Principal Diagnosis) and age group

The mean length of stay for hospitalisations due to injury during Unpaid work was 5.4 days, with the longest mean length of stay for cases coded outside the injury chapter of the ICD-10-AM (14.0 days) and the shortest mean length of stay for wrist and hand injury hospitalisations (1.7 days) (Figure 12.9).

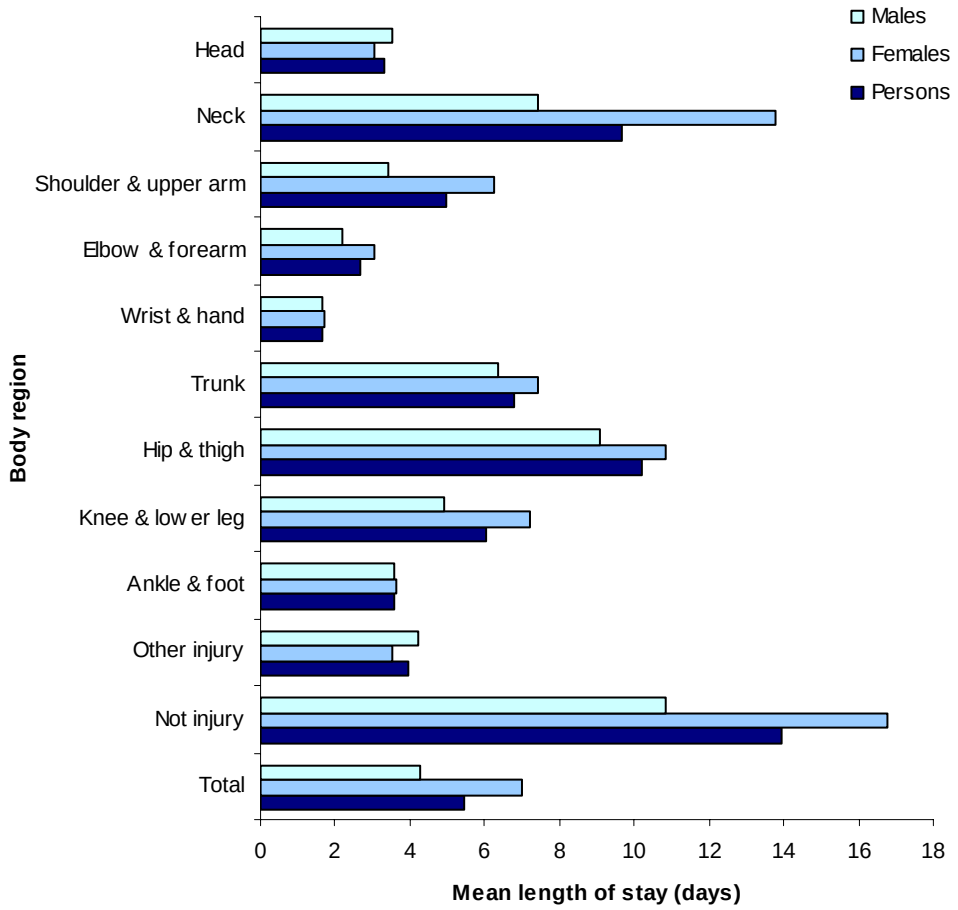


Figure 12.9: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: mean length of stay, by body region injured (Principal Diagnosis) and sex

Most frequent Principal Diagnoses

Open wound of finger without damage to nail (S610) was the most common diagnosis in persons hospitalised due to injury while engaged in Unpaid work (n=1,106, 4.0%). Six of the ten most frequent diagnoses in persons hospitalised due to Unpaid work wrist and hand injury diagnoses and two involved the fractures of the femoral neck (Table 12.5).

Table 12.5: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at most detailed level), by sex

Principal diagnosis (code)	Males (%)	Females (%)	Persons (%)
Open wound of finger without damage to nail (S610)	761 (4.7)	345 (2.9)	1,106 (4.0)
Fracture of lower end of radius with dorsal angulation (Colles' fracture) (S5251)	203 (1.3)	607 (5.1)	810 (2.9)
Care involving use of rehabilitation procedures, unspecified (Z509)	211 (1.3)	430 (3.6)	641 (2.3)
Fracture of subcapital section of femur (S7203)	128 (0.8)	468 (4.0)	596 (2.1)
Traumatic amputation of other single finger (not thumb) (S681)	485 (3.0)	94 (0.8)	579 (2.1)
Fracture of intertrochanteric section of femur (S7211)	150 (0.9)	396 (3.4)	546 (2.0)
Injury of extensor muscles & tendon of other finger (not thumb) at wrist & hand level (S663)	412 (2.6)	111 (0.9)	523 (1.9)
Fracture of distal phalanx of other finger (not thumb) (S6263)	420 (2.6)	83 (0.7)	503 (1.8)
Open wound of other parts of wrist & hand including palm (S6188)	271 (1.7)	100 (0.8)	371 (1.3)
Injury of digital nerve of other finger (not thumb) (S644)	231 (1.4)	137 (1.2)	368 (1.3)
Other principal procedure	12,843 (79.7)	9,035 (76.5)	21,878 (78.4)
Total	**16,115 (100.0)**	**11,806 (100.0)**	**27,921 (100.0)**

Three diagnosis groupings occurred in very similar numbers of hospitalisations due to injury while engaged in Unpaid work: fracture of forearm (S52) (n=1,994, 7.1%), open wound of wrist and hand (S61) (n=1,989, 7.1%) and fracture of femur (S72) (n=1,987, 7.1%) (Table 12.6).

Table 12.6: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at three-character level), by sex

Principal diagnosis group (code)	Males (%)	Females (%)	Persons (%)
Fracture of forearm (S52)	721 (4.5)	1,273 (10.8)	1,994 (7.1)
Open wound of wrist & hand (S61)	1,409 (8.7)	580 (4.9)	1,989 (7.1)
Fracture of femur (S72)	575 (3.6)	1,412 (12.0)	1,987 (7.1)
Fracture of lower leg, including ankle (S82)	629 (3.9)	793 (6.7)	1,422 (5.1)
Injury of muscle & tendon at wrist & hand level (S66)	1,024 (6.4)	307 (2.6)	1,331 (4.8)
Fracture at wrist & hand level (S62)	1,007 (6.2)	209 (1.8)	1,216 (4.4)
Traumatic amputation of wrist & hand (S68)	796 (4.9)	125 (1.1)	921 (3.3)
Fracture of shoulder & upper arm (S42)	324 (2.0)	501 (4.2)	825 (3.0)
Fracture of lumbar spine & pelvis (S32)	369 (2.3)	406 (3.4)	775 (2.8)
Care involving use of rehabilitation procedures (Z50)	270 (1.7)	505 (4.3)	775 (2.8)
Other principal diagnosis	8,991 (55.8)	5,695 (48.2)	14,686 (52.6)
Total	**16,115 (100.0)**	**11,806 (100.0)**	**27,921 (100.0)**

6,738 cases of hospitalised injury during Unpaid work were for wrist and hand injury. There were 1,989 hospitalisations due to open wound of the wrist and hand with open wound of finger(s) without damage to nail (S610) being the most common type (n=1,106, 4.0%). There were 1,216 wrist and hand fracture hospitalisations with fracture of distal phalanx of other finger (not thumb) (S6263) (n=503), fracture of middle phalanx of other finger (not thumb) (S6262) (n=136) and fracture of proximal phalanx of other finger (not thumb) (S6261) (n=124) being the most common types. There were 658 hospitalisations due to injury of nerves at wrist and hand level, with injury of digital nerve of other finger (not thumb) (S644) (n=368) and injury of digital nerve of thumb (S643) (n=107) being the predominant types. There were 1,331 hospitalisations due to injury of muscle and tendon at wrist and hand level, with injury of extensor muscle and tendon of other finger (not thumb) at wrist and hand level (S663) (n=523) and injury of flexor muscle and tendon of other finger (not thumb) at wrist and hand level (S661) (n=319) being most common. There were 921 hospitalisations due to traumatic amputation at wrist and hand level with traumatic amputation of other single finger (not thumb) (S681) (n=579), being most common (Table 12.7).

Table 12.7: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: numbers of wrist and hand injury cases by Principal Diagnosis and sex

Principal diagnosis (code)	Males	Females	Persons
Superficial injury of wrist & hand (S60)	149	108	257
Superficial foreign body (splinter) of wrist & hand (S6084)	*110*	*76*	*186*
Insect bite of wrist & hand (S6083)	*19*	*14*	*33*
Other superficial injury of wrist & hand	*20*	*18*	*38*
Open wound of wrist & hand (S61)	1,409	580	1,989
Open wound of finger(s) without damage to nail (S610)	*761*	*345*	*1,106*
Open wound of other parts of wrist & hand (S6188)	*271*	*100*	*371*
Open wound of finger(s) with damage to nail (S611)	*241*	*85*	*326*
Open wound of other parts of wrist & hand, part unspecified (S619)	*122*	*45*	*167*
Other open wound of wrist & hand	*14*	*5*	*19*
Fracture at wrist & hand level (S62)	1,007	209	1,216
Fracture of distal phalanx of other finger (not thumb) (S6263)	*420*	*83*	*503*
Fracture of middle phalanx of other finger (not thumb) (S6262)	*109*	*27*	*136*
Fracture of proximal phalanx of other finger (not thumb) (S6261)	*93*	*31*	*124*
Fracture of distal phalanx of thumb (S6252)	*103*	*4*	*107*
Fracture of proximal phalanx of thumb (S6251)	*51*	*6*	*57*
Fracture of shaft of other metacarpal bone (not first) (S6232)	*49*	*6*	*55*
Multiple fractures of fingers (S627)	*27*	*5*	*32*
Fracture of base of other metacarpal bone (not first) (S6231)	*24*	*8*	*32*
Fracture of other metacarpal bone (not first), part unspecified (S6230)	*21*	*4*	*25*
Fracture of base of first metacarpal bone (S6221)	*21*		
Fracture of neck of other metacarpal bone (not first) (S6233)	*18*	*5*	*23*
Fracture of phalanx of other finger (not thumb), part unspecified (S6260)	*17*	*4*	*21*
Fracture of scaphoid bone of hand (S620)	*7*	*7*	*14*

Fracture of head of other metacarpal bone (not first) (S6234)	*10*		
Fracture of thumb, part unspecified (S6250)	*7*		
Fracture of hamate bone (S6217)	*4*		
Multiple fractures of metacarpal bones (S624)	*5*	*0*	*5*
Other fracture at wrist & hand level	21	12	33
Dislocation, sprain & strain of joints & ligaments at wrist & hand level (S63)	55	22	77
Dislocation of interphalangeal joint of finger (S6312)	*18*	*6*	*24*
Dislocation of metacarpophalangeal joint (S6311)	*6*	*4*	*10*
Dislocation of finger, part unspecified (S6310)	*5*		
Sprain & strain of wrist, part unspecified (S6350)	*5*		
Sprain & strain of interphalangeal (joint), hand (S6362)	*4*		
Other dislocation, sprain & strain of joints & ligaments at wrist & hand level	*17*	*6*	*23*
Injury of nerves at wrist & hand level (S64)	418	240	658
Injury of digital nerve of other finger (not thumb) (S644)	*231*	*137*	*368*
Injury of digital nerve of thumb (S643)	*67*	*40*	*107*
Injury of radial nerve at wrist & hand level (S642)	*60*	*20*	*80*
Injury of ulnar nerve at wrist & hand level (S640)	*37*	*30*	*67*
Injury of median nerve at wrist & hand level (S641)	*10*	*7*	*17*
Other injury of nerves at wrist & hand level	*13*	*6*	*19*
Injury of blood vessels at wrist & hand level (S65)	144	48	192
Injury of blood vessels of other finger (excluding thumb) (S655)	*69*	*29*	*98*
Injury of ulnar artery at wrist & hand level (S650)	*24*	*7*	*31*
Injury of radial artery at wrist & hand level (S651)	*25*		
Injury of blood vessel(s) of thumb (S654)	*13*		
Other injury of blood vessels at wrist & hand level	*13*	*6*	*19*
Injury of muscle & tendon at wrist & hand level (S66)	1,024	307	1,331
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	*412*	*111*	*523*
Injury of flexor muscle & tendon of other finger (not thumb) at wrist & hand level (S661)	*210*	*109*	*319*
Injury of extensor muscle & tendon of thumb at wrist & hand level (S662)	*215*	*48*	*263*
Injury of long flexor muscle & tendon of thumb at wrist & hand level (S660)	*45*	*9*	*54*
Injury of multiple extensor muscles & tendons at wrist & hand level (S667)	*50*		
Injury of other muscles & tendons at wrist & hand level (S668)	*35*	*11*	*46*
Injury of multiple flexor muscles & tendons at wrist & hand level (S666)	*28*	*10*	*38*
Other injury of muscle & tendon at wrist & hand level	*29*		
Crushing injury of wrist & hand (S67)	44	8	52
Traumatic amputation of wrist & hand (S68)	796	125	921
Traumatic amputation of other single finger (not thumb) (S681)	*485*	*94*	*579*

Traumatic amputation of thumb (S680)	*172*	*12*	*184*
Traumatic amputation of two or more fingers alone (S682)	*134*	*19*	*153*
Other traumatic amputation at wrist & hand level	*5*	*0*	*5*
Other & unspecified injuries of wrist & hand (S69)	31	14	45
Total injuries to wrist & hand	**5,077**	**1,661**	**6,738**

Procedures

Physiotherapy was the most common principal procedure performed on persons hospitalised due to injury while engaged in Unpaid work (n=2,111, 7.6%). Most of the top ten procedures involve the skin and musculoskeletal systems (Table 12.8).

Table 12.8: Hospitalised injury while engaged in unpaid work, Australia 2002–03 and 2003–04: most frequently recorded Principal Procedures, by sex

Principal procedure (code)	Males	Females	Persons
Physiotherapy (9555003)	903	1,208	2,111
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), superficial (3002600)	624	366	990
CT brain without intravenous contrast (5600100)	447	337	784
Excisional debridement of deep soft tissue including muscle, tendon, fascial ligaments or nerves (3002300)	579	191	770
Primary repair of extensor tendon of hand (4642000)	601	149	750
Closed reduction of fracture of distal radius (4736300)	225	525	750
Internal fixation of fracture of trochanteric or subcapital femur (4751900)	195	483	678
Primary repair of nerve (3930000)	366	215	581
Occupational therapy (9555002)	174	247	421
Removal of foreign body from skin & subcutaneous tissue with incision (3006400)	289	122	411
Other principal procedure	11,712	7,963	19,675
Total	**16,115**	**11,806**	**27,921**

Deaths

During the two year study period, 189 deaths in hospitals occurred among people recorded as having been injured while engaged in Unpaid work. 85.7% (n=162) of these were deaths of persons aged 65 years and older. Of the 189 deaths, 116 (61.4%) were of males and 73 (38.6%) of females. More than three-quarters (76%) were recorded as occurring at home, and 75% as involving a fall. Principal diagnoses were injuries of the hip and lower limb in 31% (male 23%, female 44%) and head injuries in 19% (male 25%, female 10%)

These numbers do not include deaths due to injury while engaged in Unpaid work that occurred too soon after injury for admission to a hospital to occur, or deaths that occurred after discharge from hospital.

Summary

Unpaid work is a heterogenous group. It includes: domestic duties such as caring for children and relatives, cleaning, cooking, gardening and household maintenance; duties for which one would not normally gain an income; learning activities, eg attending school session or lesson and undergoing education.

During the two-year study period, 27,921 hospitalisations were recorded as being due to injury while engaged in Unpaid work, 57.7% occurring in males.

Compared with hospitalised injury while working for income, cases occurring in Unpaid work were more likely to be young (4.7% under 15 years, compared with 0.3% for cases while working for income) or old (38.1% aged 65 years or older, compared with 2.8% for cases while working for income). The largest number of hospitalisations was in the 65 years and over age group (n=10,625).

In this group, 44.0% of hospitalisations occurred due to falls, with fall on same level from tripping being most common (n=2,484). In addition, 34.2% of hospitalisations occurred due to exposure to inanimate mechanical forces with contact with other powered hand tools and household machinery being most common (n=1,544). Overall, 66.5% of cases occurred at home.

In this group, 35.2% of admissions were due to fractures and 14.5% due to open wounds. Wrist and hand injury hospitalisations were the most common type of hospitalisation (24.1%). Open wound of the finger without damage to the nail was the most common principal diagnosis (4.0%). Fracture of the forearm and open wound of the wrist and hand were the most common principal diagnosis groupings (7.1% each).

It should be noted that this group contains a higher proportion of the ageing population. This is reflected in the data: two-thirds of the injuries in this category occur in the home and falls are more common in this group resulting in fractures of the femur or forearm.

13 Injury hospitalisation funded by workers' compensation

This chapter includes all hospitalisations in Australia that ended during the two year period to 30 June 2004, include at least one diagnosis code for injury (ICD-10-AM S00-T79) or at least one External Cause code (ICD-10-AM V01-V98), did not follow transfer from another acute care hospital, and were recorded as having Workers' Compensation as the expected funding source for the episode in hospital. (Case selection is described further in Chapter 1 and Appendix 1.)

Overall, 146,575 hospital separations during 2002–03 and 2003–04 were recorded in the NHMD as having workers' compensation as the expected source of payment (AIHW 2004; AIHW 2005). This chapter reports the subset of these in which there is any diagnosis code from ICD-10-AM Chapter 19 (Injury and Poisoning) or any External Cause code (n=53,420). These are referred to here as *injury hospitalisation funded by workers' compensation*.

The sub-set of NHMD records described in this chapter overlaps considerably with the cases of *hospitalised injury while working for income*, which are described in chapters 2 to 11: 31,559 (59.1%) of the 53,420 cases of injury hospitalisation funded by workers' compensation are also included in the previous chapters. This chapter also includes many injury cases that did not have an ICD-10-AM industry code (U73.0 or U73.1) assigned to them, and so could not be included in the earlier chapters (n=21,861).

Background

Many workers are covered by workers' compensation provisions, which are designed to ensure payment of healthcare costs and loss of income in the event of work related injury or disease.

The National Dataset for Compensation-based Statistics (NDS) only includes cases that resulted in five or more working days off work, permanent disability or death. It excludes most self employed persons because, in Australia, they are not usually covered by workers' compensation (DEWR 2006). It also excludes military personnel. Another difference between the NDS and the NHMD is that the former is reported by year the claim was accepted, and the latter is framed in terms of date of hospitalisation.

In 2003–04 there were 137,550 new workers' compensation cases meeting the inclusion criteria of the NDS and in 2002–03 there were 134,480. A small proportion of the cases are fatalities. These case counts correspond to annual incidence rates of 2.3 and 2.5 work related compensated fatalities per 100,000 Australian employees in 2003–04 and 2002–03, respectively (DEWR 2006; DEWR 2006).

Some 20% of all cases in 2003–04 occurred in the Manufacturing industry (27,940 accepted claims), 12% in the Health and community services industry and 10% each in both the Construction industry and Retail trade industry (DEWR 2006). In 2002–03, 21% of cases occurred in the Manufacturing industry, 12% in the Health and community services industry, 10% in the Retail trade industry and 9% in the Construction industry (DEWR 2006).

In 2003–04 both the Manufacturing industry and Transport and storage industry had the highest frequency of workers' compensation cases, with 16 cases per million hours worked, followed by both the Agriculture, forestry and fishing industry and Construction industry each with 15 cases per million hours worked. The frequency rate for all industries was 10 workers' compensation cases per million hours worked (DEWR 2006).

Age and sex

The NHMD records 53,420 cases of injury hospitalisation funded by workers' compensation during the two year study period. Most were males (n=43,846, 82.1%). The largest number of cases was in the 35–44 year age group (n=13,087, 24.5%) (Table 13.1).

Table 13.1: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: case numbers by age group and sex

Age group at admission (years)	Males	Females	Persons
0–14	26	6	32
15-19	2,854	467	3,321
20-24	5,416	854	6,270
25–34	11,244	1,759	13,003
35–44	10,727	2,360	13,087
45–54	8,488	2,626	11,114
55–59	2,908	940	3,848
60–64	1,518	386	1,904
65+	665	176	841
All ages	**43,846**	**9,574**	**53,420**

Of the 53,420 cases of injury hospitalisation funded by workers' compensation, 9,408 have no activity code assigned to them and 9,519 have the code meaning unspecified activity (U73.9) (Table 13.2). Of the cases of injury hospitalisation funded by workers' compensation to which an activity code for a specified activity was assigned (i.e. U50-U73.8), 89% were assigned activity codes meaning injury while working for income (U73.00 to U73.09).

Conversely, 59.5% of cases of hospitalised injury while working for income (U73.0) also had a code indicating that workers' compensation was the expected source of payment for the episode in hospital (Table 13.3).

The proportion of hospitalisations expected to be paid for by workers' compensation varied with the industry. The highest proportion was for the Manufacturing industry with 73.1% of all hospitalisations with the U73.02 code also having a workers' compensation code. Only 35% of Agriculture, forestry and fishing related hospitalisations had a workers' compensation code. This disparity is partly because workers' compensation schemes in Australia do not include all workers (self-employed people are usually not covered). Only 2% of hospital stays for injury occurring whilst engaged in Other types of work (U73.1; i.e. unpaid) had a code indicating workers' compensation as the expected source of payment.

Table 13.2: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: case numbers and proportions by first ICD-10-AM activity code and sex

Activity code	Males (%)	Females (%)	Persons (%)
While engaged in sports or leisure (U50–U72)	505 (1.2)	166 (1.7)	671 (1.3)
Agriculture, forestry & fishing (U73.00)	1,576 (3.6)	193 (2.0)	1,769 (3.3)
Mining (U73.01)	922 (2.1)	22 (0.2)	944 (1.8)
Manufacturing (U73.02)	2,846 (6.5)	225 (2.4)	3,071 (5.7)
Construction (U73.03)	3,030 (6.9)	34 (0.4)	3,064 (5.7)
Wholesale & retail trade (U73.04)	1,666 (3.8)	587 (6.1)	2,253 (4.2)
Transport & storage (U73.05)	1,418 (3.2)	59 (0.6)	1,477 (2.8)
Government administration & defence (U73.06)	213 (0.5)	65 (0.7)	278 (0.5)
Health services (U73.07)	180 (0.4)	453 (4.7)	633 (1.2)
Other specified work for income (U73.08)	4,955 (11.3)	1,119 (11.7)	6,074 (11.4)
While working for income, unspecified (U73.09)	9,592 (21.9)	1,653 (17.3)	11,245 (21.1)
While engaged in Other types of work (U73.1)	646 (1.5)	105 (1.1)	751 (1.4)
While resting, sleeping, eating or engaging in other vital activities (U73.2)	99 (0.2)	47 (0.5)	146 (0.3)
Other specified activity (U73.8)	1,653 (3.8)	464 (4.8)	2,117 (4.0)
Unspecified activity (U73.9)	7,538 (17.2)	1,981 (20.7)	9,519 (17.8)
No activity code	7,007 (16.0)	2,401 (25.1)	9,408 (17.6)
Not coded		0 (0.0)	
Total	**43,846 (100.0)**	**9,574 (100.0)**	**53,420 (100.0)**

Table 13.3: Work-related injury hospitalisations by industry sector and sex: proportions of cases with workers' compensation as the expected funding source, in Australia, 2002–03 and 2003–04

Proportion of total industry hospitalisations that are workers' compensation	Males	Females	Persons
Agriculture, forestry & fishing (U73.00)	34.9%	35.9%	35.0%
Mining (U73.01)	70.2%	55.0%	69.7%
Manufacturing (U73.02)	73.7%	66.6%	73.1%
Construction (U73.03)	55.3%	64.2%	55.4%
Wholesale & retail trade (U73.04)	67.0%	55.7%	63.6%
Transport & storage (U73.05)	58.4%	39.6%	57.3%
Government administration & defence (U73.06)	37.8%	43.3%	39.0%
Health services (U73.07)	48.5%	46.5%	47.0%
Other specified work for income (U73.08)	60.2%	57.4%	59.7%
While working for income, unspecified (U73.09)	65.8%	61.0%	65.1%
While engaged in Other types of work (U73.1)	4.0%	0.9%	2.7%
All industries (U73.0)	60.2%	55.4%	59.5%

Table 13.4 compares three groups of cases: hospitalised injury while working for income (i.e. cases with activity code U73.0) that (1) did and (2) did not have a code indicating that workers' compensation was the expected source of payment, and (3) cases expected to be paid by workers' compensation code but not assigned activity code as working for income (U73.0).

The three groups were similar in demographic terms. However, the third group was more likely than the others to have a Principal Diagnosis code that was not from the ICD-10-AM Injury and Poisoning chapter (Musculoskeletal conditions and rehabilitation were common diagnosis codes in this group) and the mean length of stay is longer than for the other two groups (Table 13.4).

Table 13.4: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: summary measures

	Recorded as injury while working for income (U73.0)		Expected source of payment = workers' compensation but not recorded as injury while working for income (U73.0)
	Expected source of payment		
	Workers' compensation	Not workers' compensation	
Cases	30,808	20,969	22,612
Proportion male	85.7%	83.1%	77.2%
Mean age (years)	37.0	40.1	39.9
Proportion residing in major cities	48.1%	49.3%	48.9%
Proportion where mechanism was exposure to inanimate mechanical forces	39.6%	34.4%	10.3%
Proportion with Principal Diagnosis code from ICD-10-AM 'injury & poisoning' chapter (S00-T98)	84.3%	82.8%	63.2%
Proportion of fracture admissions	23.4%	23.1%	17.6%
Proportion wrist & hand injury admission	35.3%	26.3%	16.9%
Mean length of stay (days)	2.9	3.2	4.5

Cases are assigned to columns in Table 13.5 in the same way as in Table 13.4. The rows in Table 13.5 show Principal Diagnosis, grouped at the level of ICD-10-AM chapters.

As shown in Tables 13.4 and 13.5, 84.3%, 82.8% and 63.2% of cases in the three groups represented by the table columns have Principal Diagnosis codes from the ICD-10-AM chapter 'Injury and Poisoning'. Of the remaining cases, most have Principal Diagnosis codes from two other Chapters: Diseases of the musculoskeletal system & connective tissue (42%, 44% and 59%, respectively) and Factors influencing health status & contact with Health services (40%, 17% and 12%, respectively) (Table 13.5).

19 cases for which worker's compensation was the expected source of payment had a principal diagnosis referring to a condition related to 'Pregnancy, childbirth and the puerperium'. The majority (n=14) were in the 20-34 year age group. Most Additional diagnoses recorded for these cases were injury related. Most had a short length of stay (13 cases had a length of stay of one day). These are likely to be cases in which work-related injury was sustained by a pregnant woman.

Table 13.5: Injury hospitalisation funded by Workers' Compensation and hospitalised injury while working for income, Australia 2002–03 and 2003–04: case numbers and proportions by expected source of funding, occurrence while working for income and ICD-10-AM chapter of Principal Diagnosis

Disease or injury category (ICD–10–AM chapter)	Recorded as injury while working for income (U73.0)		Expected source of payment = workers' compensation but not recorded as injury while working for income (U73.0)
	Expected source of payment		
	Workers' compensation	Not workers' compensation	
Certain infectious & parasitic diseases (I)	8 (0.0)	25 (0.1)	12 (0.1)
Neoplasms (II)	8 (0.0)	22 (0.1)	70 (0.3)
Diseases of blood & blood-forming organs & certain disorders involving the immune mechanism (III)	4 (0.0)	12 (0.1)	16 (0.1)
Endocrine, nutritional & metabolic disorders (IV)	9 (0.0)	39 (0.2)	27 (0.1)
Mental & behavioural disorders (V)	31 (0.1)	136 (0.6)	596 (2.6)
Diseases of the nervous system (VI)	94 (0.3)	110 (0.5)	330 (1.5)
Disease of the eye & adnexa (VII)	31 (0.1)	51 (0.2)	66 (0.3)
Diseases of the ear & mastoid process (VIII)		5 (0.0)	6 (0.0)
Diseases of the circulatory system (IX)	39 (0.1)	94 (0.4)	156 (0.7)
Diseases of the respiratory system (X)	32 (0.1)	70 (0.3)	93 (0.4)
Diseases of the digestive system (XI)	259 (0.8)	152 (0.7)	360 (1.6)
Diseases of the skin & subcutaneous tissue (XII)	271 (0.9)	340 (1.6)	394 (1.7)
Diseases of the musculoskeletal system & connective tissue (XIII)	2,030 (6.6)	1,585 (7.6)	4,880 (21.6)
Diseases of the genitourinary system (XIV)	11 (0.0)	50 (0.2)	76 (0.3)
Pregnancy, childbirth & the puerperium (XV)	7 (0.0)	71 (0.3)	12 (0.1)
Certain conditions originating in the perinatal period (XVI)	0 (0.0)		0 (0.0)
Congenital malformations, deformations & chromosomal abnormalities (XVII)			5 (0.0)
Symptoms, signs & abnormal clinical & laboratory findings, not elsewhere classified (XVIII)	86 (0.3)	241 (1.1)	181 (0.8)
Injury, poisoning & certain other consequences of external causes (XIX)	25,962 (84.3)	17,362 (82.8)	14,298 (63.2)
Factors influencing health status & contact with Health services (XXI)	1,924 (6.2)	601 (2.9)	1,034 (4.6)
Total	**30,808 (100.0)**	**20,969 (100.0)**	**22,612 (100.0)**

Where cell numbers are low, the cell number is not shown.

Cases included in the *Diseases of the musculoskeletal system & connective tissue* row of Table 13.5 are shown in more detail in Table 13.6. Dorsopathies (i.e. conditions of the back) were the most common type of musculoskeletal condition for all three groups of cases , followed by arthropathies (i.e. joint conditions) (Table 13.6).

Table 13.6: Injury hospitalisation funded by Workers' Compensation and hospitalised injury while working for income, Australia 2002–03 and 2003–04: cases where Principal Diagnosis is 'diseases of the musculoskeletal system and connective tissue' by expected source of funding, occurrence while working for income and Principal Diagnosis

	Recorded as injury while working for income (U73.0)		Expected source of payment = workers' compensation but not recorded as injury while working for income (U73.0)
	Expected source of payment		
	Workers' compensation	Not workers' compensation	
Arthropathies	586	287	1,212
Infectious arthropathies	*12*	*17*	*22*
Inflammatory polyarthropathies	*7*	*9*	*23*
Arthrosis	*101*	*43*	*338*
Other joint disorders	*466*	*218*	*829*
Dorsopathies	963	1,105	1,545
Deforming dorsopathies	*5*	*7*	*24*
Spondylopathies	*50*	*15*	*116*
Other dorsopathies	*908*	*1,083*	*1,405*
Soft tissue disorders	353	158	747
Disorders of muscles	*6*	*7*	*21*
Disorders of synovium & tendon	*99*	*21*	*187*
Other soft tissue disorders	*248*	*130*	*539*
Osteopathies & chondropathies	122	31	1,144
Other disorders of the musculoskeletal system & connective tissue	6	4	232
Total	**2,030**	**1,585**	**4,880**

Remoteness of residence

There was a similar profile with regard to remoteness zone of residence for males and females hospitalised due to injury funded by workers' compensations. Overall, 61.1% of males (n=26,777) and 64.5% of females (n=6,175) resided in major cities (Figure 13.1).

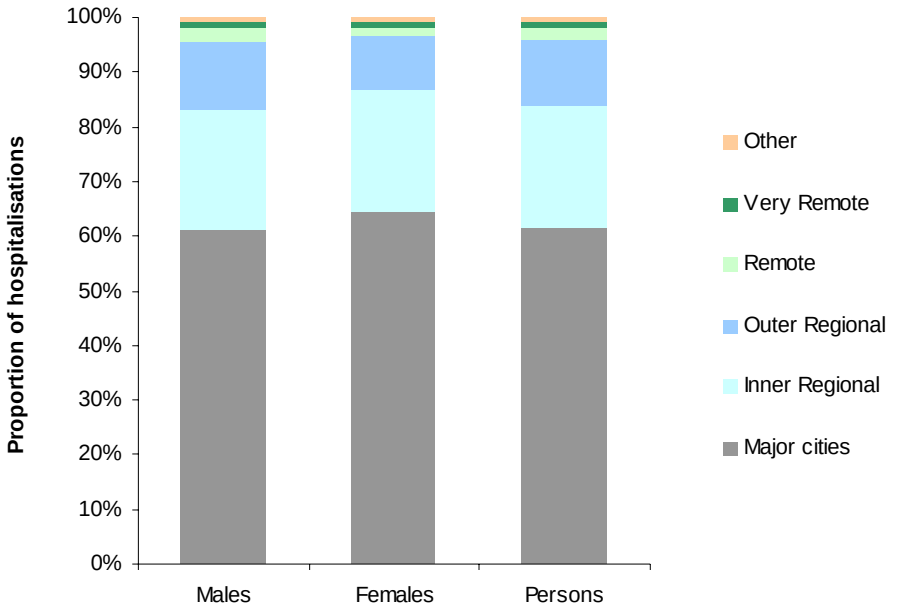


Figure 13.1: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: case proportions by Remoteness of residence and sex

Mechanism of injury

Other and unspecified mechanisms was the most common mechanism with 35.1% of injury hospitalisations funded by workers' compensation. For males, exposure to inanimate mechanical forces was the most common specified mechanism grouping (n=16,018, 36.5%) and for females falls was most common (n=1,725, 18.0%). Overall, excluding other and unspecified mechanisms, exposure to inanimate forces was most common (n=17,450, 32.7%), followed by falls (n=6,252, 11.7%) (Figure 13.2).

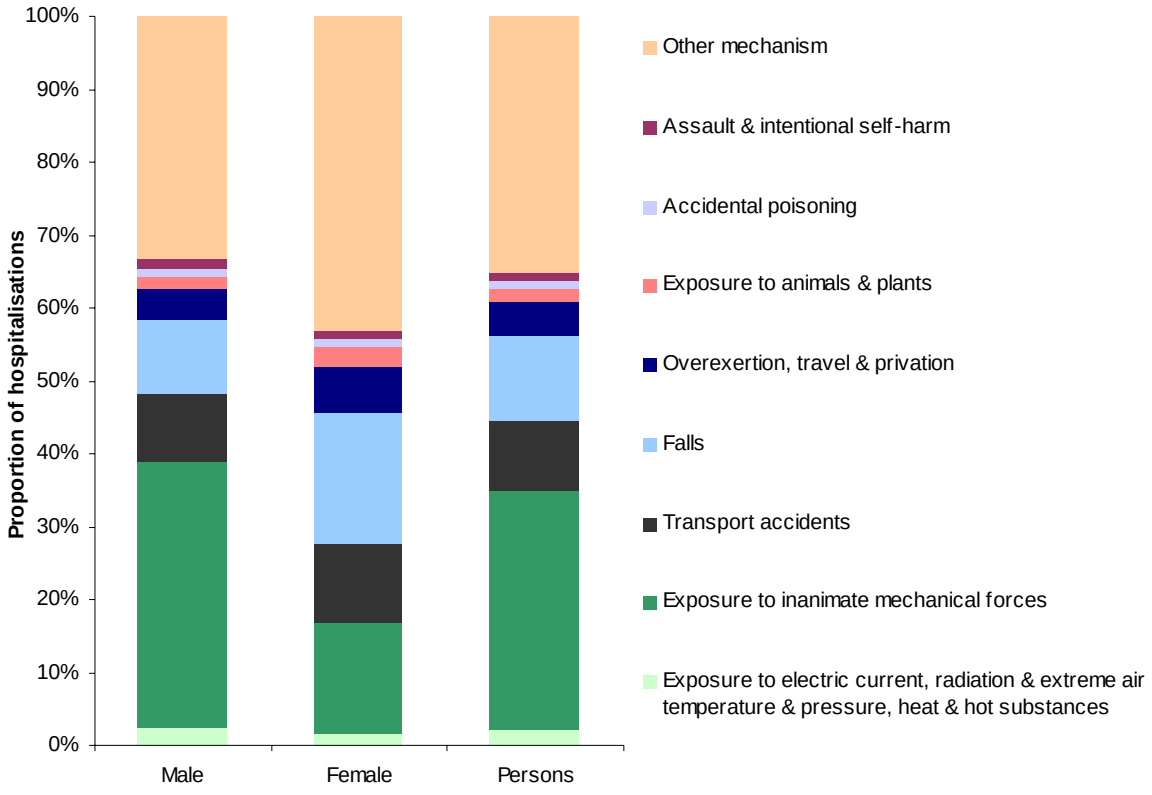


Figure 13.2: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: case proportions by Mechanism of injury and sex

The 17,450 cases of hospitalised injury funded by workers' compensation that were due to exposure to inanimate mechanical forces are described in Table 13.7. The categories caught, crushed, jammed or pinched in or between objects (n=2,523) and contact with other and unspecified machinery (n=2,159) were the most common types (Table 13.7).

For 6,252 cases in this set, the mechanism of injury was a fall. Other fall from one level to another (n=1,084) was the most common type of fall in persons requiring hospitalisation, followed by fall on and from a ladder (n=872) (Table 13.8).

Table 13.7: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was exposure to inanimate mechanical forces, by sex

Mechanism	Males	Females	Persons
Caught, crushed, jammed or pinched in or between objects	2,328	195	2,523
Contact with other & unspecified machinery	1,912	247	2,159
Struck by thrown, projected or falling object	1,871	154	2,025
Contact with other powered hand tools & household machinery	1,562	86	1,648
Foreign body or object entering through skin	1,416	107	1,523
Contact with knife, sword or dagger	1,135	167	1,302
Striking against or struck by other objects	1,047	109	1,156
Contact with woodworking & forming machinery	886	18	904
Contact with sharp glass	503	118	621
Contact with lifting & transmission devices, not elsewhere classified	587	31	618
Contact with metalworking machinery	561	11	572
Contact with non-powered hand tool	509	59	568
Foreign body entering into or through eye or natural orifice	214	8	222
Contact with other & unspecified agricultural machinery	112	10	122
Contact with mining & earth drilling machinery	119	0	119
Contact with earthmoving, scraping & other excavating machinery	107	0	107
Explosion of other materials	92	4	96
Striking against or struck by sports equipment	32	25	57
Contact with powered lawnmower	38		
Exposure to high pressure jet	34	0	34
Contact with harvesting machinery	27		
Explosion & rupture of gas cylinder	27		
Contact with grain auger, elevator & conveyor	26	0	26
Explosion & rupture of pressurised tyre, pipe or hose	26	0	26
Contact with other specified equipment towed or powered by tractor	14		
Explosion & rupture of other specified pressurised devices	14		
Discharge from other & unspecified firearms	13	0	13
Contact with hay baler & haying implements	9		
Handgun discharge	8	0	8
Contact with equipment towed or powered by tractor: posthole digger	6		
Discharge of firework	7	0	7
Exposure to other & unspecified inanimate mechanical forces	776	73	849
Total for exposure to inanimate mechanical forces	**16,018**	**1,432**	**17,450**

Where cell numbers for males or females are low, the cell number and total are not shown.

Table 13.8: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: case numbers where mechanism of injury was a fall, by sex

Mechanism	Males	Females	Persons
Other fall from one level to another	1,000	84	1,084
Fall on & from ladder	796	76	872
Fall on same level from slipping	423	365	788
Fall on same level from tripping	337	272	609
Fall on & from stairs	271	263	534
Fall from, out of or through building or structure	467	11	478
Other fall on same level	274	132	406
Fall on & from scaffolding	185	0	185
Fall involving furniture	34	62	96
Fall on same level from stumbling	45	33	78
Other fall same level from collision or push by person	47	18	65
Fall from tree	31		
Fall from cliff	17		
Fall involving ice-skates, skis, roller skates or skateboards	13	6	19
Fall involving wheelchair	8		
Other & unspecified fall	579	394	973
Total for falls	**4,527**	**1,725**	**6,252**

Where cell numbers for males or females are low, the cell number and total are not shown.

Place of occurrence

Almost half (43.2%) of injury hospitalisations funded by workers' compensation had an unspecified place of occurrence (n=23,087). Factory and plant was the most common specified place of occurrence for male cases (n=4,514, 10.3%), with a health service area being second (n=*3,655*, *8.3*%). For females a health service area was the most common (n=1,561, 16.3%), followed by street and highway (n=899, 9.4%) (Table 13.9).

The profile of places of occurrence differed from that seen for hospitalised injury while working for income (Table 2.6). For example, farm was the place of occurrence for 6.1% of cases while working for income, and 2.3% of cases where workers' compensation was the expected source of payment. Health services areas showed the reverse: 2.4% and 9.8%, respectively. The proportion of cases in factories and plants was more similar in the two sets of cases: 11.4% and 9.1%.

Table 13.9: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: case numbers and proportions by Place of occurrence and sex

Place of occurrence	Males (%)	Females (%)	Persons (%)
Industrial & construction area	10,419 (23.8)	547 (5.7)	10,966 (20.5)
Factory & plant	*4,514* (10.3)	*358* (3.7)	*4,872* (9.1)
Construction area	*1,517* (3.5)	*9* (0.1)	*1,526* (2.9)
Mine & quarry	*895* (2.0)	*19* (0.2)	*914* (1.7)
Shipyard	*133* (0.3)		
Oil & gas extraction	*61* (0.1)		
Demolition site	*46* (0.1)	*0* (0.0)	*46* (0.1)
Power station	*33* (0.1)	*0* (0.0)	*33* (0.1)
Other specified industrial & construction area	*1,220* (2.8)	*83* (0.9)	*1,303* (2.4)
Unspecified industrial & construction area	*2,000* (4.6)	*74* (0.8)	*2,074* (3.9)
School, other institution & public administrative area	3,992 (9.1)	2,003 (20.9)	5,995 (11.2)
Health service area	*3,655 (8.3)*	*1,561 (16.3)*	*5,216 (9.8)*
School	*233 (0.5)*	*342 (3.6)*	*575 (1.1)*
Other specified institution & public administrative area	*104 (0.2)*	*100 (1.0)*	*204 (0.4)*
Trade & service area	3,141 (7.2)	1,297 (13.5)	4,438 (8.3)
Shop & store	*844* (1.9)	*437* (4.6)	*1,281* (2.4)
Cafe hotel & restaurant	*558* (1.3)	*363* (3.8)	*921* (1.7)
Commercial garage	*278* (0.6)	*18* (0.2)	*296* (0.6)
Office building	*65* (0.1)	*92* (1.0)	*157* (0.3)
Other specified trade & service area	*880* (2.0)	*218* (2.3)	*1,098* (2.1)
Unspecified trade & service area	*516* (1.2)	*169* (1.8)	*685* (1.3)
Street & highway	2,789 (6.4)	899 (9.4)	3,688 (6.9)
Roadway	*2,390* (5.5)	*739* (7.7)	*3,129* (5.9)
Sidewalk	*99* (0.2)	*71* (0.7)	*170* (0.3)
Cycleway	*4* (0.0)	*0* (0.0)	*4* (0.0)
Other specified public highway, street, road	*78* (0.2)	*30* (0.3)	*108* (0.2)
Unspecified public highway, street, road	*218* (0.5)	*59* (0.6)	*277* (0.5)
Farm	1,057 (2.4)	170 (1.8)	1,227 (2.3)
Home	703 (1.6)	233 (2.4)	936 (1.8)
Sports & athletics area	476 (1.1)	172 (1.8)	648 (1.2)
Residential institution	85 (0.2)	113 (1.2)	198 (0.4)
Aged care facilities	*12* (0.0)	*82* (0.9)	*94* (0.2)
Prison or Juvenile detention centre	*46* (0.1)	*17* (0.2)	*63* (0.1)
Military camp	*8* (0.0)		
Other & unspecified residential institution	*19* (0.0)		
Other specified place of occurrence	1,881 (4.3)	356 (3.7)	2,237 (4.2)

Large area of water	*190* (0.4)	*21* (0.2)	*211* (0.4)
Beach	*30* (0.1)	*8* (0.1)	*38* (0.1)
Stream of water	*22* (0.1)	*5* (0.1)	*27* (0.1)
Area of still water	*8* (0.0)		
Forest	*78* (0.2)	*7* (0.1)	*85* (0.2)
Desert	*5* (0.0)		
Other specified countryside	*46* (0.1)	*10* (0.1)	*56* (0.1)
Parking lot	*26* (0.1)	*19* (0.2)	*45* (0.1)
Other specified place of occurrence	*1,476* (3.4)	*283* (3.0)	*1,759* (3.3)
Unspecified	19,303 (44.0)	3,784 (39.5)	23,087 (43.2)
Unspecified place of occurrence	18,147 (41.4)	3,441 (35.9)	21,588 (40.4)
No place code	1,156 (2.6)	343 (3.6)	1,499 (2.8)
Total	**43,846 (100.0)**	**9,574 (100.0)**	**53,420 (100.0)**

Month of admission

The highest number of hospitalised cases of injury funded by workers' compensation occurred in March for males (n=4,261, 9.7%), females (n=873, 9.1%) and overall (n=5,134, 9.6%). The lowest number of admissions occurred in January for males (n=3,053, 7.0%), females (n=702, 7.3%) and overall (n=3,755, 7.0%). However, there was a relatively even spread throughout the year (Figure 13.3).

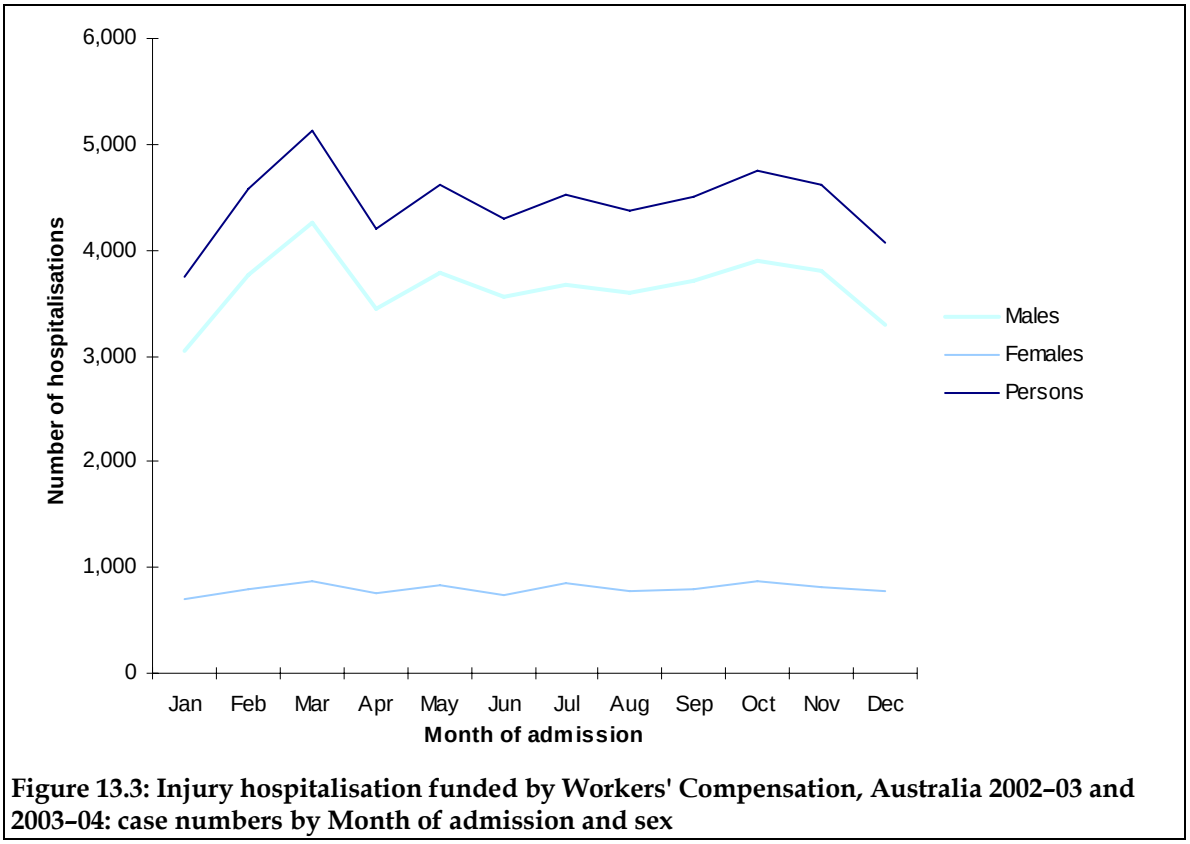


Figure 13.3: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: case numbers by Month of admission and sex

Day of admission

There was a similar profile for males and females with regard to weekday of admission. For both males and females the highest number of hospitalisations occurred on Tuesdays (n=8,778, 20.0% and n=2,113, 22.1%, respectively). The lowest number of hospitalisations occurred on Sundays for both males (n=1,389, 3.2%) and females (n=343, 3.6%) (Figure 13.4).

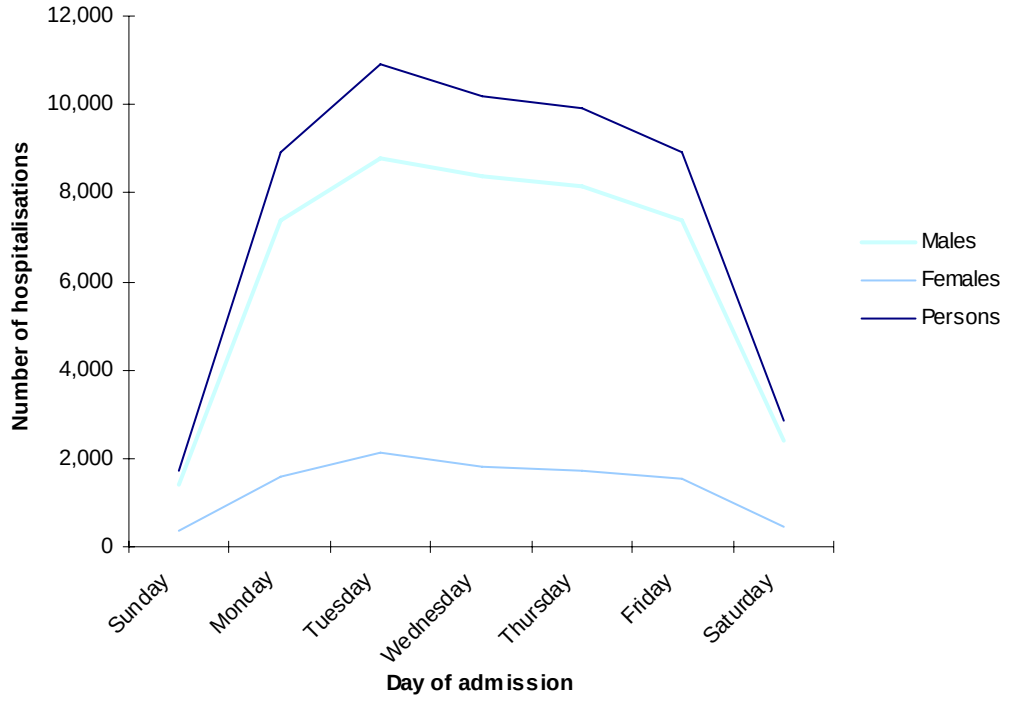


Figure 13.4: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: case numbers by Weekday of admission and sex

Nature of injury (Principal Diagnosis)

As shown in Table 13.5, many cases funded by workers' compensation and satisfying the inclusion criteria for this chapter have a Principal Diagnosis that is not from the Injury and Poisoning chapter of ICD-10-AM. These are shown as 'not injury' in Table 13.10, though most of the reasons for admission are related to injuries. Diseases of the musculoskeletal system and connective tissue accounted for 4841 (11.0%) hospitalisations in males and 2069 (21.6%) hospitalisations in females.

Fractures were next most common grouping with 9,342 (21.3%) male and 1,867 (19.5%) female hospitalisations. Muscle and tendon injury and amputations were more common in males (8.7% and 4.3%, respectively) than in females (4.7% and 1.4%, respectively) (Table 13.10).

Table 13.10: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: case numbers and proportions by Nature of injury and sex

Nature	Males (%)	Females (%)	Persons (%)
Superficial	1,113 (2.5)	244 (2.5)	1,357 (2.5)
Open wound	5,661 (12.9)	561 (5.9)	6,222 (11.6)
Fracture	9,342 (21.3)	1,867 (19.5)	11,209 (21.0)
Dislocation	1,654 (3.8)	387 (4.0)	2,041 (3.8)
Sprain & strain	1,350 (3.1)	415 (4.3)	1,765 (3.3)
Muscle & tendon	3,832 (8.7)	449 (4.7)	4,281 (8.0)
Amputation	1,896 (4.3)	138 (1.4)	2,034 (3.8)
Crush injury	638 (1.5)	48 (0.5)	686 (1.3)
Internal organ	295 (0.7)	33 (0.3)	328 (0.6)
Blood vessel	374 (0.9)	33 (0.3)	407 (0.8)
Nerve & spinal cord	1,239 (2.8)	218 (2.3)	1,457 (2.7)
Intracranial	666 (1.5)	159 (1.7)	825 (1.5)
Eye injury	558 (1.3)	49 (0.5)	607 (1.1)
Burn & corrosion	845 (1.9)	121 (1.3)	966 (1.8)
Poison, toxic effect & bite	480 (1.1)	125 (1.3)	605 (1.1)
Electrical injury	233 (0.5)	49 (0.5)	282 (0.5)
Other injury	4,099 (9.3)	1,089 (11.4)	5,188 (9.7)
Not injury	9,571 (21.8)	3,589 (37.5)	13,160 (24.6)
Total	**43,846 (100.0)**	**9,574 (100.0)**	**53,420 (100.0)**

Internal organ injury related hospitalisations had the longest mean length of stay with 22.3 days for females, 10.5 days overall and 9.2 days for males. (Note that a small number of cases underlies the large mean length of stay for females with internal organ injuries.) Foreign body and electrical injury had the shortest mean length of stay overall with 1.3 days each (Figure 13.5).

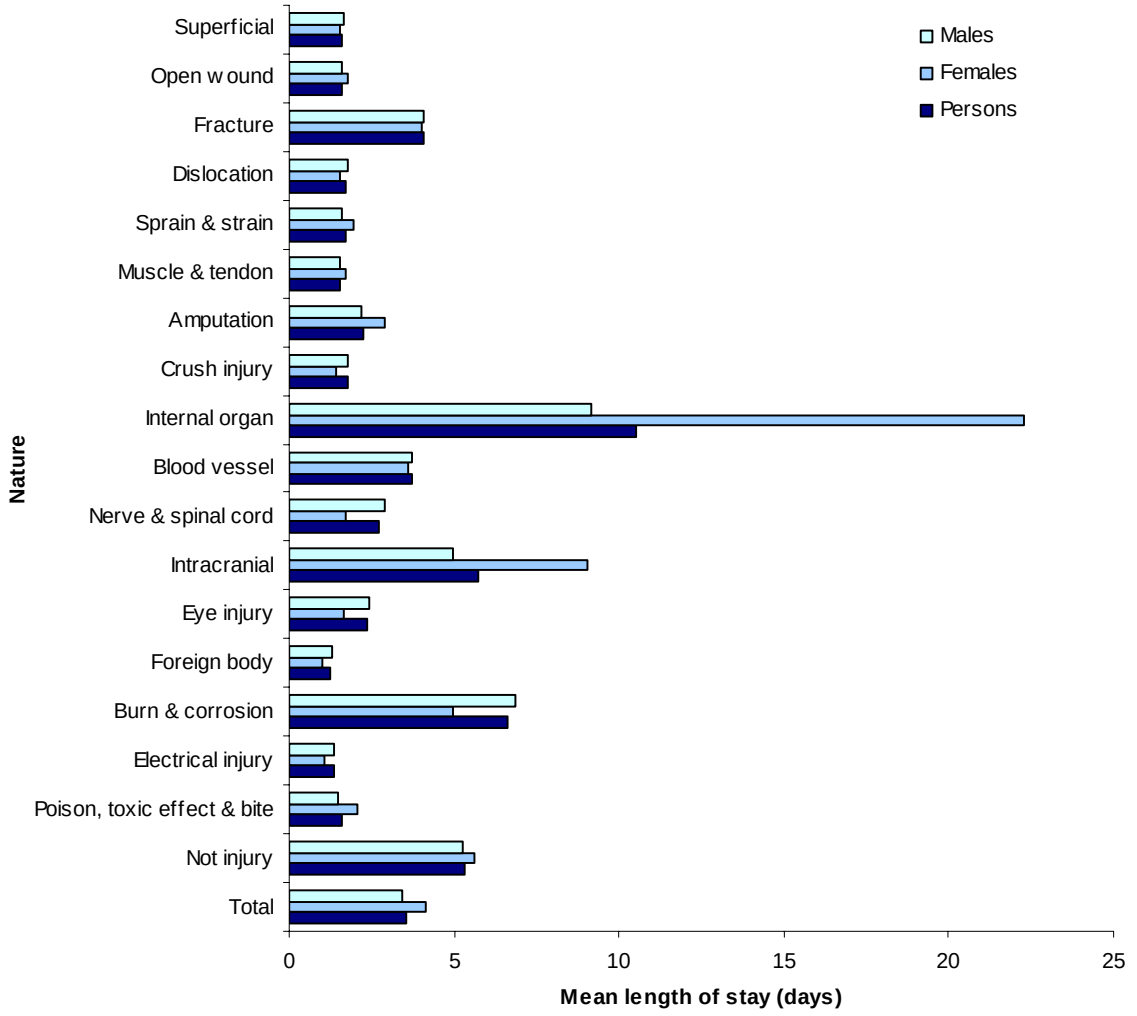


Figure 13.5 Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: mean length of stay by nature of injury (Principal Diagnosis) and sex

Body region injured (Principal Diagnosis)

Wrist and hand injury hospitalisations were the most common type of hospitalisation for workers' compensation related hospitalisations for males and all persons with 13,271 male hospitalisations (30.3%) and 14,692 all persons hospitalisations (27.5%). Hospitalisations that were due to diagnoses coded outside the Injury and Poisoning chapter were the most common type of hospitalisations in females (n=3,589, 37.5%), followed by wrist and hand injury hospitalisations (n=1,421, 14.8%) (Figure 13.6).

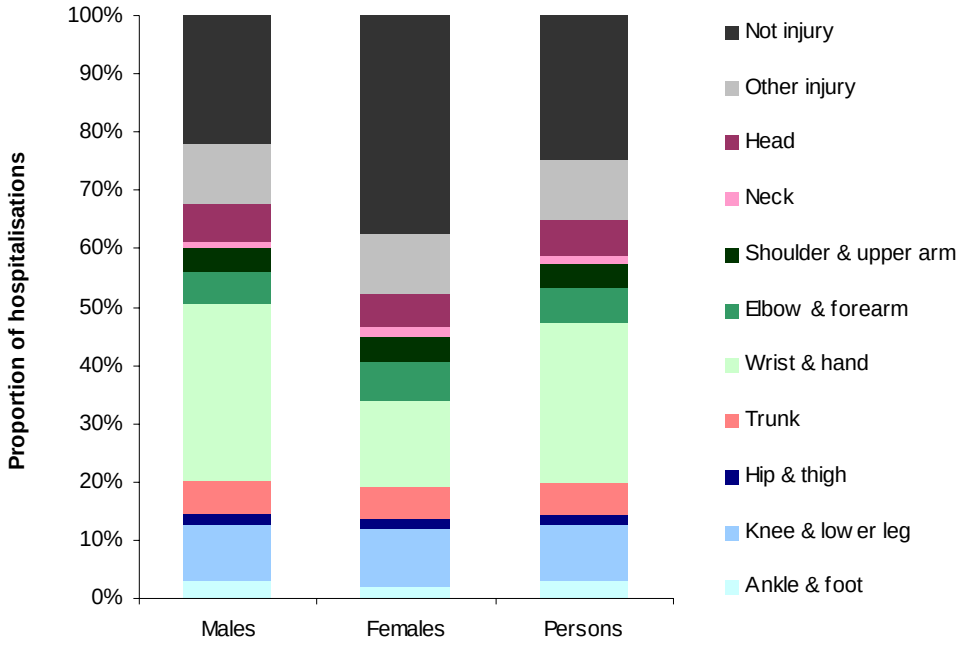


Figure 13.6: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: case proportions by body region of injury and sex

There was a relatively steady increase with age in the proportion of cases assigned Principal Diagnosis codes from outside the injury and poisoning chapter. As noted above, these are most often musculoskeletal conditions and episodes for rehabilitation after injury. This category was largest, as a proportion of all admissions for the age group, in the 65 years and over age group with 36.7% (n=309). The largest number of wrist and hand injuries was in the 25–34 year age group (n=4,000, 30.8%). However, as a proportion of all hospitalisations for the age group the peak was in the 15–19 year age group (n=1,529, 46.0%), with a steady decrease in proportion with increasing age to a minimum of 12.4% in the 65 years and over age group (n=104) (Figure 13.7).

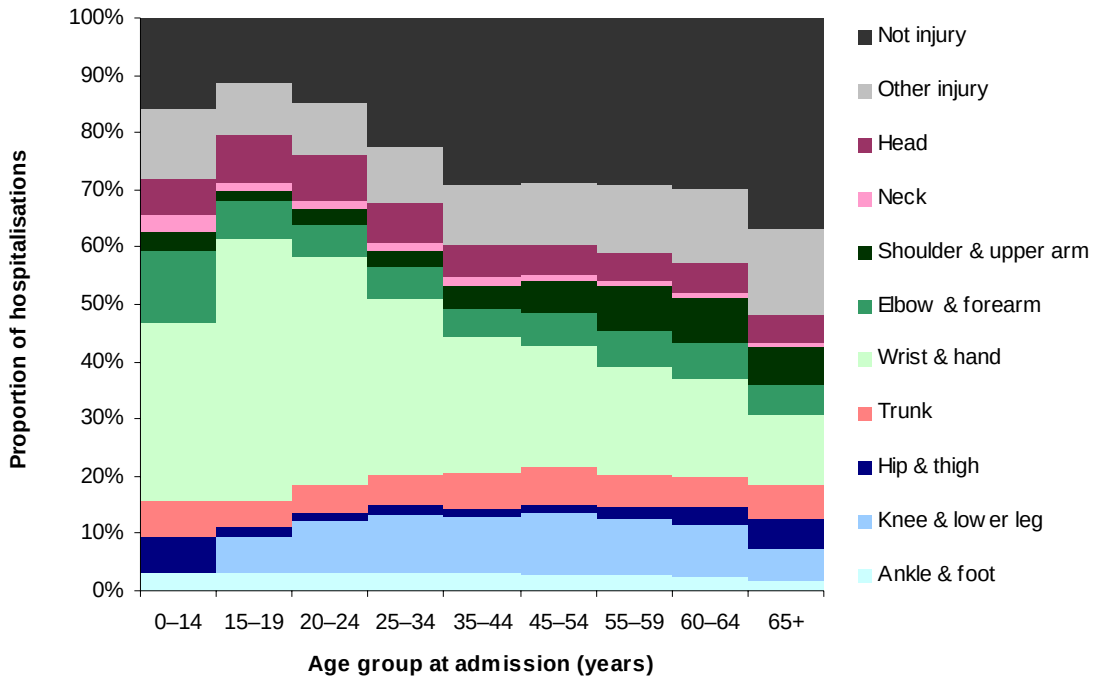


Figure 13.7: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: case proportions by body region of injury and age group

For males, females and overall, wrist and hand injury related hospitalisations had the shortest mean length of stay with 1.5, 1.4 and 1.5 days, respectively. For males the longest mean length of stay was for trunk injury related hospitalisations (5.9 days), whereas for females and overall the longest mean length of stay was for hip and thigh injuries (7.0 and 6.0 days, respectively) (Figure 13.8).

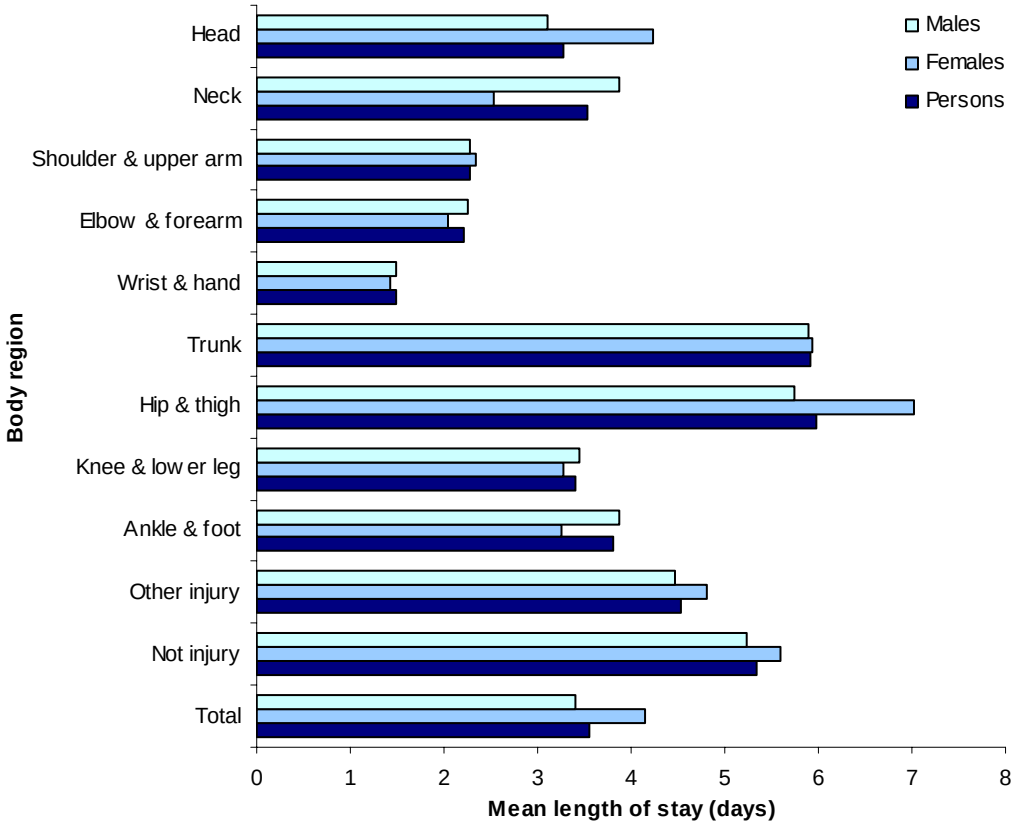


Figure 13.8: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: mean length of stay by body region of injury (Principal Diagnosis) and sex

Most frequent Principal Diagnoses

Open wound of finger without damage to nail (S610) was the most common diagnosis in persons hospitalised with workers' compensation (n=2,049, 3.8%). Six of the top ten diagnoses involved the wrist and hand (Table 13.11).

Table 13.11: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at most detailed level), by sex

Principal diagnosis (code)	Males (%)	Females (%)	Persons (%)
Open wound of finger without damage to nail (S610)	1,829 (4.2)	220 (2.3)	2,049 (3.8)
Care involving use of other rehabilitation procedures (Z508)	1,386 (3.2)	544 (5.7)	1,930 (3.6)
Traumatic amputation of other single finger (not thumb) (S681)	1,292 (2.9)	107 (1.1)	1,399 (2.6)
Fracture of distal phalanx of other finger (not thumb) (S6263)	1,126 (2.6)	93 (1.0)	1,219 (2.3)
Tear of meniscus, current (S832)	874 (2.0)	188 (2.0)	1,062 (2.0)
Open wound of finger(s) or thumb with damage to nail (S611)	928 (2.1)	91 (1.0)	1,019 (1.9)
Injury of extensor muscles & tendon of other finger (not thumb) at wrist & hand level (S663)	946 (2.2)	66 (0.7)	1,012 (1.9)
Low back pain (M545)	650 (1.5)	325 (3.4)	975 (1.8)
Wound infection following a procedure (T8141)	606 (1.4)	106 (1.1)	712 (1.3)
Injury of digital nerve of other finger (not thumb) (S644)	522 (1.2)	102 (1.1)	624 (1.2)
Other principal diagnosis	33,687 (76.8)	7,732 (80.8)	41,419 (77.5)
Total	**43,846 (100.0)**	**9,574 (100.0)**	**53,420 (100.0)**

Open wound of wrist and hand (S61) (n=3,951, 7.4%) and fracture at wrist and hand level (S62) (n=3,454, 6.5%) were the two most common diagnosis groupings in persons hospitalised with workers' compensation. Five of the top ten diagnosis groupings involved the wrist and hand (Table 13.12).

Table 13.12: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: numbers and proportions of the most frequent Principal Diagnoses (at three-character level), by sex

Principal diagnosis group (code)	Males (%)	Females (%)	Persons (%)
Open wound of wrist & hand (S61)	3,572 (8.1)	379 (4.0)	3,951 (7.4)
Fracture at wrist & hand level (S62)	3,175 (7.2)	279 (2.9)	3,454 (6.5)
Care involving use of rehabilitation procedures (Z50)	1,788 (4.1)	677 (7.1)	2,465 (4.6)
Injury of muscle & tendon at wrist & hand level (S66)	2,070 (4.7)	170 (1.8)	2,240 (4.2)
Fracture of lower leg, including ankle (S82)	1,593 (3.6)	419 (4.4)	2,012 (3.8)
Traumatic amputation of wrist & hand (S68)	1,845 (4.2)	136 (1.4)	1,981 (3.7)
Dislocation, sprain & strain of joints & ligaments of the knee(S83)	1,585 (3.6)	379 (4.0)	1,964 (3.7)
Fracture of forearm (S52)	1,267 (2.9)	521 (5.4)	1,788 (3.3)
Dorsalgia (M54)	1,007 (2.3)	562 (5.9)	1,569 (2.9)
Injury of nerves at wrist & hand level (S64)	1,012 (2.3)	184 (1.9)	1,196 (2.2)
Other principal diagnosis	24,932 (56.9)	5,868 (61.3)	30,800 (57.7)
Total	**43,846 (100.0)**	**9,574 (100.0)**	**53,420 (100.0)**

In this category, 27.5% (n=14,692) of hospitalised injury cases had a Principal Diagnosis of injury of the wrist and hand, of which 3,951 involved an open wound of the wrist and hand (S61), with open wound of finger(s) without damage to nail (S610) (n=2,049, 3.8%) and open wound of finger(s) with damage to nail (S611) (n=1,019, 1.9%) being the most common specific diagnosis codes. There were 3,454 hospitalisations due to fracture at wrist and hand level (S62) with fracture of distal phalanx of other finger (not thumb) (S6263) (n=1,219, 2.3%) being most common.

In this group, 1,196 cases involved injury of nerves at the level of the wrist and hand (S64) including 624 hospitalisations due to the specific category *injury of digital nerve of other finger (not thumb)* (S644), 177 due to injury of radial nerve at wrist and hand level (S642) and 176 due to injury of digital nerve of thumb (S643). There were 2,240 hospitalised injuries funded by workers' compensation involving injury of muscle and tendon at wrist and hand level (S66), with 1,012 of these due to injury of extensor muscle and tendon of other finger (not thumb) at wrist and hand level (S663). The group also includes 1,981 hospitalisations due to traumatic amputation of wrist and hand (S68), with *traumatic amputation of other single finger (not thumb)* (S681) (n=1,399) being most common (Table 13.13).

Table 13.13: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: numbers of wrist and hand injury cases by Principal Diagnosis and sex

Principal diagnosis (code)	Males	Females	Persons
Superficial injury of wrist & hand (S60)	293	62	355
Superficial foreign body (splinter) of wrist & hand (S6084)	*235*	*41*	*276*
Contusion of finger(s) with damage to nail (S601)	*13*		
Contusion of finger(s) without damage to nail (S600)	*9*		
Contusion of other parts of wrist & hand (S602)	*6*	*5*	*11*
Abrasion of wrist & hand (S6081)	*8*		
Insect bite of wrist & hand (S6083)	*6*		
Other superficial injury of wrist & hand	*16*	*6*	*22*
Open wound of wrist & hand (S61)	3,572	379	3,951
Open wound of finger(s) without damage to nail (S610)	*1,829*	*220*	*2,049*
Open wound of finger(s) with damage to nail (S611)	*928*	*91*	*1,019*
Open wound of other parts of wrist & hand (S6188)	*502*	*43*	*545*
Other open wound to wrist & hand	*313*	*25*	*338*
Fracture at wrist & hand level (S62)	3,175	279	3,454
Fracture of distal phalanx of other finger (not thumb) (S6263)	*1,126*	*93*	*1,219*
Fracture of proximal phalanx of other finger (not thumb) (S6261)	*358*	*43*	*401*
Fracture of middle phalanx of other finger (not thumb) (S6262)	*311*	*33*	*344*
Fracture of distal phalanx of thumb (S6252)	*253*	*13*	*266*
Fracture of other (excluding first) metacarpal bone(s), part unspecified (S6230)	*159*	*18*	*177*
Fracture of proximal phalanx of thumb (S6251)	*138*	*12*	*150*
Fracture of phalanx of other finger (not thumb), part unspecified (S6260)	*129*	*11*	*140*
Fracture of shaft of other (excluding first) metacarpal bone (S6232)	*121*	*9*	*130*

Fracture of navicular (scaphoid) bone (S620)	*100*	*5*	*105*
Fracture of base of first metacarpal (S6221)	*76*		
Fracture of base of other (excluding first) metacarpal bone(s) (S6231)	*70*	*8*	*78*
Fracture of neck of other (excluding first) metacarpal bone(s) (S6233)	*53*	*5*	*58*
Fracture of thumb, part unspecified (S6250)	*51*		
Multiple fractures of fingers (S627)	*44*	*4*	*48*
Multiple fractures of metacarpal bones (S624)	*39*	*4*	*43*
Fracture of other & unspecified parts of wrist & hand (S628)	*38*	*4*	*42*
Fracture of head of other metacarpal bone (not first) (S6234)	*31*	*4*	*35*
Fracture of first metacarpal bone, part unspecified (S6220)	*27*		
Fracture of shaft of first metacarpal bone (S6222)	*12*	*0*	*12*
Fracture of carpal bone, unspecified (S6210)	*7*		
Fracture of neck of first metacarpal bone (S6223)	*5*		
Fracture of triquetral bone of wrist (S6212)	*5*		
Fracture of trapezium bone (S6214)	*5*		
Fracture of hamate bone (S6217)	*6*	*0*	*6*
Other fracture at wrist & hand level	*11*		
Dislocation, sprain & strain of joints & ligaments at wrist & hand level (S63)	343	103	446
Sprain & strain of other parts of wrist (S6358)	*58*	*34*	*92*
Dislocation of interphalangeal joint of finger (S6312)	*44*	*4*	*48*
Sprain & strain of metacarpophalangeal joint (S6361)	*35*	*9*	*44*
Traumatic rupture of ligament of finger at metacarpophalangeal & interphalangeal joint(s) (S634)	*32*	*11*	*43*
Sprain & strain of wrist, part unspecified (S6350)	*27*	*13*	*40*
Traumatic rupture of ligament of wrist & carpus (S633)	*33*	*5*	*38*
Dislocation of metacarpophalangeal (joint) (S6311)	*19*	*7*	*26*
Sprain & strain of interphalangeal (joint), hand (S6362)	*13*	*4*	*17*
Dislocation of other part of wrist (S6308)	*15*	*0*	*15*
Dislocation of carpometacarpal (joint) (S6304)	*12*		
Dislocation of finger, part unspecified (S6310)	*13*		
Sprain & strain of finger(s), part unspecified (S6360)	*8*		
Sprain & strain of other & unspecified parts of hand (S637)	*6*		
Sprain & strain of carpal (joint) (S6351)	*6*		
Dislocation of radioulnar (joint) distal (S6301)	*4*		
Sprain & strain of radiocarpal (joint) (ligament) (S6352)	*5*	*0*	*5*
Sprain & strain of other parts of finger (S6368)	*5*	*0*	*5*
Other dislocation, sprain & strain of joints & ligaments at wrist & hand level	*8*	*5*	*13*
Injury of nerves at wrist & hand level (S64)	1,012	184	1,196
Injury of digital nerve of other finger (not thumb) (S644)	*522*	*102*	*624*
Injury of radial nerve at wrist & hand level (S642)	*156*	*21*	*177*
Injury of digital nerve of thumb (S643)	*149*	*27*	*176*

Injury of ulnar nerve at wrist & hand level (S640)	*117*	*17*	*134*
Injury of median nerve at wrist & hand level (S641)	*41*	*10*	*51*
Other injury of nerves at wrist & hand level	*27*	*7*	*34*
Injury of blood vessels at wrist & hand level (S65)	252	30	282
Injury of blood vessels of other finger (excluding thumb) (S655)	*118*	*18*	*136*
Injury of radial artery at wrist & hand level (S651)	*45*	*6*	*51*
Injury of ulnar artery at wrist & hand level (S650)	*36*		
Injury of blood vessel(s) of thumb (S654)	*29*		
Other injury of blood vessels at wrist & hand level	*24*	*4*	*28*
Injury of muscle & tendon at wrist & hand level (S66)	2,070	170	2,240
Injury of extensor muscle & tendon of other finger (not thumb) at wrist & hand level (S663)	*946*	*66*	*1,012*
Injury of flexor muscle & tendon of other finger (not thumb) at wrist & hand level (S661)	*397*	*40*	*437*
Injury of extensor muscle & tendon of thumb at wrist & hand level (S662)	*371*	*28*	*399*
Injury of long flexor muscle & tendon of thumb at wrist & hand level (S660)	*85*	*9*	*94*
Injury of multiple extensor muscles & tendons at wrist & hand level (S667)	*71*	*4*	*75*
Injury of multiple flexor muscles & tendons at wrist & hand level (S666)	*56*	*9*	*65*
Other injury of muscle & tendon at wrist & hand level	*144*	*14*	*158*
Crushing injury of wrist & hand (S67)	495	37	532
Crushing injury of thumb & other fingers(s) (S670)	*428*	*28*	*456*
Crushing injury of other & unspecified parts of wrist & hand (S678)	*67*	*9*	*76*
Traumatic amputation of wrist & hand (S68)	1,845	136	1,981
Traumatic amputation of other single finger (not thumb) (S681)	*1,292*	*107*	*1,399*
Traumatic amputation of thumb (S680)	*305*	*14*	*319*
Traumatic amputation of two or more fingers alone (S682)	*236*	*13*	*249*
Traumatic amputation of hand at wrist level (S684)	*6*		
Other traumatic amputation at wrist & hand level	*12*		
Other & unspecified injuries of wrist & hand (S69)	*214*	*41*	*255*
Total injuries to wrist & hand	**13,271**	**1,421**	**14,692**

Procedures

Physiotherapy was the most common principal procedure for workers' compensation related hospitalisations (n=3,367, 6.3%). Most of the top ten procedures involve the skin and musculoskeletal systems (Table 13.14).

Table 13.14: Injury hospitalisation funded by Workers' Compensation, Australia 2002–03 and 2003–04: most frequently recorded Principal Procedures, by sex

Principal procedure (code)	Males	Females	Persons
Physiotherapy (9555003)	2,493	874	3,367
Excisional debridement of deep soft tissue including muscle, tendon, fascial ligaments or nerves (3002300)	2,262	226	2,488
Primary repair of extensor tendon of hand (4642000)	1,294	81	1,375
Repair of wound of skin & subcutaneous tissue of other site (excluding face & neck), superficial (3002600)	1,020	110	1,130
Arthroscopic meniscectomy of knee with debridement, osteoplasty or chondroplasty (4956101)	783	184	967
Primary repair of nerve (3930000)	762	117	879
Excisional debridement of skin & subcutaneous tissue (9066500)	735	53	788
Primary repair of nail or nail bed (4648600)	692	71	763
CT brain without intravenous contrast (5600100)	528	137	665
Removal of foreign body from skin & subcutaneous tissue with incision (3006400)	539	67	606
Other principal procedure	32,738	7,654	40,392
Total	43,846	9,574	53,420

Summary

During the two years ending 30 June 2004, 53,420 cases of hospitalised injury occurred in which the expected source of funding was workers' compensation. Of these, 82.1% were males, and the largest number of hospitalisations was in the 35–44 year age group.

Many of the cases involving an injury and marked as expected to be paid by workers' compensation did not have an activity code for injury while working for income. It is not clear why this occurred.

For this group 32.7% of hospitalisations were due to exposure to inanimate mechanical forces, with *caught, crushed, jammed or pinched in or between objects* being the most common type (n=2,523).

Almost one-quarter of cases in this group (24.6%) had a Principal Diagnosis code that is not from the Injury and Poisoning chapter of the ICD-10-AM. Musculoskeletal conditions of the back and joints accounted for many of these. Fractures were the next most common type of Principal Diagnosis (21.0%). The wrist and hand injury was the most common body region involved (n=14,692; 27.5%). Open wound of the finger without damage to the nail was the most common specific diagnosis (3.8%).

14 Hospital inpatient data as a source of information on work-related injuries

Overview

Work related injury is often preventable but common and costly and thus is of major social concern and subject to much preventive effort. The National Occupational Health and Safety Strategy 2002–2012 aims for 'Australian workplaces free from death, injury and disease' (ASCC 2005, page iv).

A small but important proportion of work-related injuries result in admission to a hospital. Hospitalised work-related injuries have not been the subject of much analysis in Australia to date. A previous report concluded that there was potential value in analysis of this source (NOHSC 2004b). A national collection of data on nearly all cases admitted to hospitals in Australia (the NHMD) provides the basis for quantifying and describing these cases.

This report uses data from the NHMD referring to cases of admitted patient care that ended during the two year period from 1 July 2002 to 30 June 2004. Three sets of injury cases were analysed. Inclusion criteria are described in detail in Chapters 1 and 15. The sets are:

(1) Hospitalised injury while working for income (n=51,777)

(2) Hospitalised injury while engaged in unpaid work (n=27,921) and

(3) Injury hospitalisation funded by Workers' Compensation (n=53,420).

The records selected according to these criteria have been analysed. The findings are presented in Chapters 2 to 11 (Set 1), 12 (Set 2) and 13 (Set 3). A summary of findings is provided at the end of each of these chapters.

The analysis of NHMD data presented in this report shows that this data source identified more than 25,000 cases per year of hospitalised injury while working for income in Australia during 2002–03 and 2003–04. The annual number of cases based on selection of injury hospitalisations expected to be funded by workers' compensation was similar. Incomplete overlap was found between the sets of cases selected in these two ways, indicating that the total number of work-related injury cases admitted to hospital is somewhat higher than either of these separate estimates.

In comparison, the number of workers' compensation claims meeting the criteria for inclusion in the national compilation of workers' compensation data (accepted new claim resulting in one work-week or longer of time off) in the study period averaged about 136,000 per year (ASCC 2006b).

While hospitalised work-related injury cases are considerably less numerous than compensated cases, they are far from inconsequential in terms of numbers and severity. The types of conditions that result in hospitalisation include some that present a threat to life, and many with potential to have lasting adverse consequences. For example, during

the two years studied the main reason for admission was amputation (most often of part of the hand) in 2,460 cases, intracranial injury in 1,169 cases and injury of nerves or spinal cord in 1,565 cases (Table 2.7).

NHMD data provide insights into aspects of the injurious consequences of work in Australia that go beyond what can be provided by other data sources. The source is, however, far from being perfect for this purpose. Most of the remainder of this chapter focuses on three aspects of the utility of the NHMD for studies of work-related injury: case selection, case information, and potential ways in which hospital data could be enhanced to strengthen its value for future studies of this topic. It ends with a section drawing conclusions about the role of hospital inpatient data as a source of information on work-related injuries in Australia.

Case selection

Nearly all cases of inpatient hospital care are included in the NHMD. The issue for this project was the availability in the NHMD dataset of variables that would allow identification of the subset of these cases that meet a definition of work-related injury.

As described in Chapter 1, two NHMD variables were used for this purpose: Activity when injured (which includes the categories 'while working for income' and 'while engaged in other types of work') and 'Funding source for hospital patient' (which includes the category ‘Workers' Compensation’).

The cases selected by means of these NHMD items have characteristics that suggest that, in general, they do represent work-related cases. For example, the age distribution of these cases is similar that of the employed workforce (i.e. few aged less than 15 years or older than 64 years) and different from that of hospitalised injury cases in general (in which large proportions of cases are in these more extreme age groups). For the selected cases, there was also internal coherence with place of occurrence (eg, the majority of injuries flagged as occurring during the activity of work for income in the Manufacturing industry were also flagged as occurring at a factory or plant). Day of admission also showed a plausible distribution, with few admissions occurring on Sundays and most on weekdays. The available evidence does not enable us to be sure that the selection criteria included no cases that were not work-related, but our impression following analysis of the cases is that any such cases are a small proportion of those included.

It is more likely that an important number of work-related injury cases were omitted by the selection criteria. The most specific basis for this concern is the large proportion of injury cases in the NHMD that were assigned the Activity when injured value meaning "Unspecified activity" (U73.9).

Overall, 54% of cases assigned any Activity code were assigned the 'Unspecified' value. This proportion was only slightly lower for working-age cases (i.e. 15 to 64 years; 50%).

There are some signs that work-related injuries were more likely to be assigned an appropriate Activity code than other cases. For example, certain external cause codes refer to events that are likely to be work-related (e.g. Occupant of heavy transport vehicle [V60-V69], or occupant of a special industrial, agricultural or construction vehicle V83, V84 or V85). Among cases with these external cause codes, the proportion with unspecified activity codes was lower (26%) than for all cases (54%) and the proportion with Activity = 'while working for income' was relatively high (59%).

However, nearly 18% of cases selected as work-related on the basis of having workers' compensation as the expected source of funding had been assigned Unspecified activity (Table 13.2). Incomplete coding of work-related cases seems to be the most likely explanation for this incongruity.

The completeness of inclusion of work-related cases cannot be determined reliably solely on the basis of internal analysis of the NHMD data. Direct assessment of a sample of hospital records would provide a better basis. The contents of the sampled records could be assessed for evidence that the cases are work-related. The results of this assessment could than be compared with the original coding of the cases, as stated in the NHMD.

A project in progress at the time of writing is designed to do this. The topic of the project is the quality of external cause coding of Australian hospital inpatient records, a wider scope than identification of work-related cases†. Anticipated findings of this project would make a useful contribution to assessing the quality of work-related injury cases selection in the NHMD. They can be expected to have two types of implications. The first is that the findings can be expected to enable better interpretation of the data presented in this and other reports based on the NHMD, by providing evidence on the completeness of ascertainment of work-related injury cases. The second implication is that the findings can be expected to be a useful guide to future work to improve the utility of the NHMD as a basis for studying work-related injuries: is there a need for changes or improvements in collection or coding, and what are these?

Case information

Cases identified in the NHMD as being work-related injuries can be analysed in terms of data items available in this collection. The main items used for this report were: activity when injured, age, sex, place of usual residence, principal diagnosis, external cause of injury, type of place of injury, date of admission, procedures performed and duration of stay in hospital. This information was sufficient to enable production of a usefully detailed description of identified cases of hospitalised work-related injury.

A novel aspect of this project is that it describes hospitalised injury while working for income in terms of the industry sector in which the cases arose. This was possible because the version of the ICD-10-AM classification introduced on 1 July 2002 includes an expansion of the "while working for income" category of the "Activity when injured" classification. The new classification allows hospitalised injury while working for income to be further specified into eight specific industry sectors and two residual categories.

This industry information is a useful addition to the NHMD. It has allowed analysis of the subsets of cases related to eight industry sectors, including all of the sectors nominated for priority attention under the National Occupational Health and Safety Strategy.

This industry information is, however, frustratingly limited. First, industry was unspecified for one-third of the cases of hospitalised injury while working for income (Table 2.3). Second, the available categories are quite broad, restricting the potential for analysis of cases in specific industries.

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† McKenzie K, Waller GS, Walker S, Harrison JH, Henley GI, McClure RJ. Developing and Enhancing the Quality of National Injury-Related Hospital Morbidity Data. ARC Linkage Project LP0454849

The information item most obviously lacking from the NHMD for occupational health and safety purposes is the occupation of the injured person. Occupation tends to be a better guide to exposure to hazards than is industry. For example, office-based staff are likely to have similar exposure to injury hazards whatever the industry in which they work. However an occupation such as miner, forester, or rigger tends to carry high risks, which are only partly revealed by industry-specific data, such as are available from the NHMD, and would be shown more clearly using data on occupation.

Other limitations of the information available in the NHMD are less specific to occupational health and safety. They include: the lack of information on the geographical location of the person when injured, the lack of a good method to enable data to be analysed in terms of injured persons (as distinct from episodes of hospital care), the lack of a text description of the events leading to injury and the lack of information on the health and well-being of the injured person (at discharge and, ideally, at later times).

Potential developments

Four areas of potential are identified here for obtaining further information relevant to occupational health and safety from Australian hospital inpatient data.

- Validation and (if necessary) enhancement of case selection
- Validation and (if necessary) enhancement of exiting data items
- Addition of items to the NHMD
- Use of linked hospital data

The first three of these points flow from the discussion above. It is uncertain how complete the data ascertainment was for this project, and some aspects of the data suggest that substantial under-ascertainment may have occurred.

Similarly, the discussion above highlights current limitations of the Activity data item. In particular, the high proportion of cases assigned to 'Unspecified' type of work for income limits the value of this potentially important item.

The NHMD is a good tool for describing work-related hospitalisations, and provides detail on demographics, place of occurrence, mechanism and the injury sustained. Currently ICD–10–AM specifies eight industries, however, it would be beneficial if there was also specification of industries in line with the LFS: Accommodation, cafés and restaurants; Communication services; Electricity, gas and water supply; Finance and insurance; Property and business services; Education; Cultural and recreational services; and Personal and other services; which are all currently included in the Other specified work for income category (ABS 2006a).

The value of the database would be improved substantially if information was obtained on occupation. Coding according to the major groups in the Australian Standard Classification of Occupations (ASCO)‡ would be a useful step. ASCO groups are: managers and administrators; professionals; associate professionals; tradespersons and

‡ Or the similar Major Groups of ASCO's replacement, the Australian and New Zealand Classification of Occupations (ABS & Statistics NZ (2006) Australian and New Zealand Standard Classification of Occupations, First Edition ABS cat. No 1220.0)

related workers; advanced clerical and service workers; intermediate clerical, sales and service workers; intermediate production and transport workers; elementary clerical, sales and service workers; and labourers and related workers (ABS 1997).

Data linkage is an approach that has potential to increase the value of existing data sources, such as the NHMD. Data custodians and institutional ethics committees are cautious about the purposes for and arrangements under which they will allow linkage, but methods have been developed that have been acceptable and effective, and developments are underway that are likely to increase their use and to produce a national infrastructure for health data linkage. For the purpose of measurement and description of work-related injury, types of linkage warranting consideration are:

- Linkage of workers' compensation system data to hospitalisation data to:

  show which cases are hospitalised

  cross-validate case inclusion (particularly using the NHMD funding source item), and

  enable further analysis of hospital data, by also using data items only available in workers' compensation records (e.g. occupation).

- Internal linkage of hospital data to:

  reduce multiple counting of readmitted and transferred cases, and

  to improve understanding of sequences of hospital treatment for work injury, and their cost.

- Linkage of both sources to mortality data to:

  better understand which work-related injuries result in death, and

  overcome potential disparities between data sources in the identification of fatal cases as being work-related.

Hospital inpatient data in relation to other sources

It is widely acknowledged that effective prevention of work-related injury requires good data to measure the problem, to guide the setting of priorities and to monitor change over time. National, state and territory agencies collect and report on work injury data. The main source is data from workers' compensation systems, compiled at the national level into the National Dataset for Compensation-based Statistics (NDS). This source is very useful, but it has weaknesses. For example, it only provides information for the section of the workforce covered by workers' compensation schemes. In some sectors, such as agriculture, this proportion is low.

Until recent years, few other sources were available. Large and comprehensive occasional studies were conducted to obtain estimates of work-related fatal injuries (Driscoll et all 2001).

Now, however, a wider range of sources is available. Notable among these are the National Coroners Information System (NCIS), the Notified Fatalities (NF) collection the recent ABS survey of work-related injuries survey and the source used for this project, the NHMD (ASCC 2006a, ABS 2006d, AIHW 2004).

Each of these sources has strengths and limitations, described in reports based on these sources and elsewhere. Broadly, fatal work-related injuries can be studied using NCIS, NF and the NDS (ASCC 2006a). The NDS is also useful for studying non-fatal work-

related injuries, though with important limitations concerning case inclusion, notably restriction to the part of the workforce covered by workers' compensation schemes and restriction of the nationally compiled file to cases that resulted in a week or more of time off work.

A strength of the ABS survey of work-related injuries is its broad scope: the case definition includes work-related injuries irrespective of workers' compensation coverage or claim, and cases with minor or brief consequences as well as those with greater impact. Another virtue of this survey is the inclusion of items on a wide range of factors that are, or might be, related to risk of occupational injury. Noteworthy limitations of this source are those of most sample surveys. First, although the number of respondents was large, the survey has limited power to describe serious injuries, because only a small proportion of respondents had recently experienced such an injury. Second, the survey reports the uncorroborated responses of the sampled individuals.

NHMD data on hospitalised work-related injuries has a distinctive set of strengths and limitations. Strengths include these characteristics:

- Information on the nature of injury is detailed and likely to be reliable. This information has been abstracted by professional coders from records in which it was recorded by clinicians.
- Nearly all cases of hospitalised injury in Australia are included in the NHMD.
- This source focuses on serious work-related injuries. Admission to a hospital implies that injury was assessed as being substantial. Admitted cases are likely to include the great majority of survived "high threat to life" injuries. These are cases in which types of injury occurred which are often fatal, though not always. While recovery from many injuries is good, some result in ongoing pain, disability or loss of function. Admitted injuries are also likely to include many of the cases that will have persisting consequences.

Important limitations of this source are that:

- Identification of work-related cases may not be complete. Published validation of the most important data item for case selection ('activity when injured') is not yet available. However, a study presently in progress is likely to provide some information on this.
- The source provides limited information on factors related to the occurrence of injury. Broad industry sectors are distinguished, but information is not available on specific industries, and no information is available on occupations or other characteristics of work (eg. employment arrangements, hours of work, shift-work, tasks).

The conclusion of this study is that the Australian hospital inpatient injury data collection is a useful source of information about work-related injuries in Australia. It is especially valuable as a source of information on serious injuries, with special strength concerning the nature of the injuries sustained. Further investigation on the validation of the completeness of ascertainment of "work-relatedness" has the greatest potential to improve the utility of hospital inpatient data a source for information on work-related injuries.

Appendix 1: Data issues

Data sources and selection criteria

Case data were obtained from the National Hospital Morbidity Database, compiled by the Australian Institute of Health and Welfare (AIHW) using data supplied by health authorities in each state and territory under a national agreement to supply certain information (specified in the National Minimum Dataset for Admitted Patient Care) on patients admitted to hospitals. The collection now records about seven million episodes of inpatient care are provided by hospitals in Australia each year (AIHW, 2005).

The collection includes all public-sector hospitals except "those not within the jurisdiction of a state or territory health authority (for example, hospitals operated by the Australian Defence Force or correctional authorities) and hospitals located in offshore territories" (AIHW, 2006) and nearly all private hospitals. Further information about the NHMD can be found in annual reports (AIHW 2004; AIHW 2005) and an evaluation report (AIHW 2006).

'Injury' cases in the NHMD can be defined in many ways. This study included records satisfying a fairly broad definition: the presence anywhere in the record of any diagnosis code from Chapter 19 of the ICD-10-AM (Injury, poisoning and certain other consequences of external causes), or any code from ICD-10-AM Chapter 20 (External causes of morbidity and mortality).

The unit of observation of the NHMD is episodes of care, each ending with 'separation' – the event that occurs at the end of an episode of care in hospital. This is usually discharge home, but is sometimes transfer to another health care facility or death. This report studied separations that occurred during the two year period 1 July 2002 to 30 June 2004, the period during which coding of diagnoses, external causes and procedures was according to the third edition of the Australian clinical modification of the 10th revision of the International Classification of Diseases (ICD-10-AM) (NCCH 2002a and b). An advantage of this edition of the classification for this project is that it introduced a set of codes to enable recording of the industry sector of a person injured while working for income.

Because the unit of observation is episodes of care, the number of separations is larger than the number of persons represented in the collection. This is because some conditions result in more than one episode in hospital. The NHMD does not provide an ideal way to avoid this potential over-counting of cases. This report used an approximate method, in which records that meet selection criteria and are inward transfers from another acute care hospital are omitted from case counts (though not from counts of bed-days occupied).

Three subsets of NHMD records that meet the criteria stated above have been used in this report. These are the records where:

(1) The first "Activity at the time of injury" = U73.0 (While working for income). (n=51,777)

(2) The first "Activity at the time of injury" = U73.1 (While engaged in other types of work). (n=27,921)

(3) "Funding source for hospital patient" = 4 (Workers' compensation). (n=53,420).

Table A1.1 shows case numbers in the three sets. The number of cases in Set 1 or Set 3 is 74,389.

Table A1.1: Record numbers in three analysis sets

	Expected source of payment		Totals
Activity when injured	Workers' compensation (Set 3)	Other	
While working for income (Set 1)	30,808	20,969*	51,777
While engaged in other types of work (Set 2)	751	27,170	27,921
..Other or unspecified activity	21,861	0	21,861
Total	53,420	48,139	101,559

* Excludes one case with a truncated Activity code.

Case set (1) is the subject of Chapters 2 to 11. Chapter 2 includes all cases in the set. Each of chapters 3 to 11 includes the records in case set (1) that have a particular value of the 'industry' extension of Activity code U73.0. For example, Chapter 3 (Construction) describes the records in case set (1) with U73.00 as the first activity code. Note that 17,280 (33%) of the records in case set (1) had code U73.09, "While working for income, unspecified". These are included in Chapter 2, but could not be assigned to an industry chapter.

Case set (2) is the subject of Chapter 12, and Case set (3) is the subject of Chapter 13.

Records in the NHMD can be assigned more than one 'Activity when injured' code, although this is not done very often. We have selected records for inclusion in sets one and two on the basis of the first-mentioned 'Activity when injured' code in each record. Note that there are 103 case records in which U73.0 occurs, but not as the first Activity code. Of these, n=65 (63%) are U73.8 (other specified work for income) or U73.9 (Unspecified work for income). These cases have not been included in the 'While working for income' set.

A small number of records were found which were very likely to be multiple re-admissions and which had not been excluded by the approximate method described above. In the Transport and storage industry subset were 25 records that probably referred to one (or perhaps two) female aged 65 years and over, who was admitted 23 times. In the Government administration and defence industry subset were six records that were likely due to one female aged 65 years who was readmitted five times. These readmissions have been excluded in the calculation of hospitalisation rates. These cases had a rehabilitation code attributed to them.

Recoding of diagnosis data

In the NHMD, Principal Diagnosis is coded according to the ICD-10-AM. For some aspects of reporting, it was necessary to aggregate the detailed ICD-10–AM codes. The aggregations shown in the report as Nature of injury and Body part injured are specified in Tables 16.1 and 16.2.

Labour force survey (LFS)

Data from the ABS LFS were used to obtain estimates of the size of the working population, overall and by industry sector, and to provide denominators for the calculation of age- and sex-specific rates of hospitalised injury while working for income, in units of cases per 100,000 workers per year and cases per million hours worked.

The LFS is designed to provide estimates of the Australian population aged 15 years and older, in terms of their participation in the civilian labour force. It is a large, ongoing multistage stratified household survey, including about 30,000 dwellings and 0.45% of the population, in a rolling sample. It includes "all persons aged 15 years and over except members of the permanent defence forces, certain diplomatic personnel of overseas governments customarily excluded from census and estimated population counts, overseas residents in Australia, and members of non-Australian defence forces (and their dependants) stationed in Australia." Survey results are adjusted according to population benchmarks. Results are released each month.

Information about the survey, sources of error and its reliability are available in ABS papers including the series "Labour Force Australia" (ABS cat. no. 6202.0), Labour Statistics: Concepts, Sources and Methods (ABS cat. no. 6102.0.55.001) and Information Paper: Labour Force Survey Standard Errors (ABS cat no. 6298.0) (ABS 2003; ABS 2006b; ABS 2007).

The study used LFS estimates for eight quarterly points during the study period, obtained from detailed data available in electronic form (ABS 2006c). It used values referring to the total employed labour force from the eight quarterly values provided for the period August 2002 to May 2004, inclusive. From these the study calculated age-, sex- and industry-specific values of mean total employed labour force, and total hours worked by the employed labour force during the two year study period. The hours worked values stated in the LFS tables used are per week. Hours were calculated for the two year study period as the mean of the values from the eight surveys divided by 7 (to obtain average total hours worked per day) and multiplied by 365.25 (approximate days per year) then by 2 (two year study period). This method is a widely used approximation (Baker & von Sanden 2006).

For a few categories of interest having small estimated values, LFS values were not reported by the ABS for some of the eight quarters. In these instances, available values were combined in a way that that allowed for having fewer than eight.

Since the labour force is defined as excluding persons aged less than 15 years, cases in this age range were excluded when calculating rates.

There are some differences between the industry categories specified in LFS and those available in the Activity classification of ICD–10–AM. The correspondences used in this report are summarised in Table A1.2. For the calculation of rates, Wholesale and retail trade have been combined.

Table A1.2: Comparison of industry categories for the Labour Force Survey and ICD–10–AM, 3rd edition

Labour Force Survey	ICD–10–AM
Agriculture, forestry & fishing	Agriculture, forestry & fishing
Mining	Mining
Manufacturing	Manufacturing
Construction	Construction
Wholesale trade	Wholesale & retail trade
Retail trade	
Transport & storage	Transport & storage
Government administration & defence	Government administration & defence
Health & community services	Health services
	Other specified work for income
Accommodation, cafés & restaurants	*Accommodation, cafés & restaurants*
Communication services	*Communication services*
Electricity, gas & water supply	*Electricity, gas & water supply*
Finance & insurance	*Finance & insurance*
Property & business services	*Property & business services*
Education	*Education*
Cultural & recreational services	*Cultural & recreational services*
Personal & other services	*Personal & services*
	Public order & safety services
	Activities of religious & political organisations
	Child care services
	Unspecified working for income

Remoteness zones

Remoteness zones in NHMD data refer to the place of usual residence of the person admitted to hospital. The remoteness zones reported here are as specified in the ABS Australian Standard Geographical Classification. Remoteness is defined in a manner based on the Accessibility/Remoteness Index of Australia (ARIA), which was developed for the Commonwealth Department of Heath and Aged Care by the National Key Centre For Social Applications of GIS (GISCA), Adelaide University. According to this method, Remoteness is an index applicable to any point in Australia, based on road distance from urban centres of five sizes. The ABS has provided tables that specify the proportion of the population of each Statistical Local Area in Australia whose place of residence is in each of five ranges of the remoteness index. These are:

- Major cities (ARIA index value 0 to 0.2)
- Inner regional (ARIA index value >0.2 and ≤2.4)

- Outer regional (ARIA index value >2.4 and ≤5.92)
- Remote (ARIA index value of >5.92 and ≤10.53)
- Very remote (ARIA index value of >10.53)

These tables were used to assign each record in the NHMD to one of the five zones. This was done using the derived SLA value in the NHMD (see Place of Residence in Table A1.3). For SLAs in which more than one remoteness zone is represented, cases were assigned to one or another of the relevant zones probabilistically, in proportion to the resident population of that SLA.

Suppression of small cell counts

Where the small number of cases would produce counts of 1, 2 or 3 in tables, these have been suppressed, to protect confidentiality and because small numbers are subject to fluctuations due to chance effects. Other values have been suppressed where this was necessary to prevent calculation of the suppressed values in the table.

A suppressed value can be determined from other values if it is the only unreported value in a table row or column, and marginal totals are present. This situation has been managed in one of two ways. In some instances, further values have been suppressed, to achieve a minimum of two blank cells per row and column. The additional suppressed values are usually 4 or larger, but are sometimes 0. Doing this sometimes forced a choice between suppressing values in a totals column (e.g. Persons) or in a more specific column (e.g. Males). In this circumstance, we have opted to retain the more specific value. The second method was to combine a row containing a single suppressed value with another row, usually 'Other specified'.

Calculation of rates

Denominators for rates were obtained from the LFS (see above). Except where stated otherwise, rates are age-specific or crude rates. Rates described as 'age-adjusted' or 'standardised' have been adjusted by the direct method using as the reference the age-distribution of persons in the Australian employed labour force in the study period. The labour force values used for this purpose were calculated from quarterly age-specific values for the Total Employed Labour Force obtained from ABS detailed quarterly labour force statistics (ABS 2006c). The quarterly values used were for August 2002 to May 2004, inclusive.

Data quality

The NHMD has been assessed as including "(e)ssentially all public hospitals and the large majority of private hospital" for the collection years 2002–03 and 2003–04 (AIHW, 2006). Out of scope are "Public sector hospitals that are not included are those not within the jurisdiction of a state or territory health authority (for example, hospitals operated by the Australian Defence Force or correctional authorities) and hospitals located in offshore territories" (AIHW, 2006). Comparison of NHMD with an ABS survey series (Private Health Establishments) suggests that the private hospitals not included in the NHMD

accounted for 1.8% of all private hospital cases ("separations") in 2002–03 and the same in 2003–04 (AIHW, 2006).

Selection of cases in the NHMD depended on the NHMD items "Activity when injured", "Funding source for hospital patient" and "Mode of separation". Case analysis mainly made use of the NHMD items sex, age, principal diagnosis, external cause of injury, dates of admission and separation, length of stay and principal procedure. Calculation of rates made use of estimates of the Employed Civilian Labour-Force from the Australian LFS data and of the Estimated Resident Population, both from the ABS.

The quality of coding of hospitals separations records is the subject of hospital-level and other audits and evaluations, which are generally not published. A national audit has been published of the extent to which data supplied by states and territories for inclusion in the NHMD comply with the specifications of the National Minimum Data Set (NMDS) for Admitted Patient Care, as stated in the National Health Data Dictionary (AIHW 2006). The audit covers the three-year period 2001–02 to 2003–04. The audit also assessed some other aspects of data quality, chiefly on the basis of internal evidence from the data.

The findings of the audit concerning the NMDS items used in this project are summarised in Table A1.3, focussing on the assessments for the years 2002–03 and 2003–04. Most of the items used appear to be of adequate quality or better, in terms of the aspects assessed in the audit. The noteworthy exception is "activity when injured". For the purposes of the current project, the relevant finding of the audit is that while about 99.5% of records for which an activity code was required had one, about half of the code values mean "unspecified activity". Some of the "unspecified" cases could be work-related.

It should be noted that published evaluations of the reliability of coding in the NHMD for the period of this project are not available. A project is in progress to recode a sample of hospital records of injury cases that separated in 2003-04 from hospitals in four jurisdictions[§].

Table A1.3: Findings of compliance evaluation concerning NHMD data items used in this project

Item	Summary of findings
Activity when injured	Only required for separations for which a diagnosis of injury or poisoning was reported. An activity code should accompany an External causes code. This did not occur for 0.6% of relevant cases in 2002-03 and for 0.4% of relevant cases in 2003-04 (chiefly NSW). About half of the reported cases were for "unspecified activity" (50.4% in 2002-03; 51.8% in 2003-04). This was higher for private hospitals (59.0% and 60.3%) than for public hospitals (48.5%, 50.1%). SA data for 2003-04 were provided after mapping forward to ICD-10-AM (edition 4). A small number of NSW Activity codes for 2002-03 were not coded according to ICD-10-AM (edition 3). NT did not supply Activity codes for private cases in 2003-04. Conclusion: "The quality of the data element Activity when injured is poor for all states and territories and for both sectors, with no trend indicating improvement." "The very high proportion of Unspecified activity indicates that this information may not be recorded well in the source medical records."
Age	Derived from date of birth. This item was found to be of very good quality.

§ McKenzie K, Waller GS, Walker S, Harrison JH, Henley GI, McClure RJ. Developing and Enhancing the Quality of National Injury-Related Hospital Morbidity Data. ARC Linkage Project LP0454849

Date of admission	Essentially complete and of a high standard.
Date of separation	"This data element was provided consistently well by each state and territory for each collection year."
External cause of injury	SA data for 2003-04 were provided after mapping forward to ICD-10-AM (edition 4). "The NHDD and the second and third editions of ICD-10-AM specify that an External cause code must be used in conjunction with a diagnosis code for injury or poisoning (in the range S00–T98) and may be used with other disease codes." For "2002–03 New South Wales did not provide an External cause for … 11,185 (5.7%) separations…, with the majority of these occurring in public hospitals. For 2003–04, the number of New South Wales separations that were missing an External cause had decreased to 1,175 separations (0.6%), with most of the improvement having been in the public sector." "Other states and territories that similarly did not provide External cause appropriately for all separations were Victoria across both sectors for all collection years; South Australia for the private sector for all collection years; Tasmania and the Australian Capital Territory across both sectors for 2001–02 and for the private sector for 2002–03 and 2003–04; and the Northern Territory in the public sector for both 2001–02 and 2002–03 and across both sectors in 2003–04." "The quality of this data element has improved over the 3-year collection period, with the proportion of separations (with a diagnosis of injury or poisoning) for which an external cause was missing decreasing from 3.9% in 2001–02 to 1.3% in 2003–04."
Funding source for hospital patient	This item means the "Expected principal source of funds for an admitted patient episode or non-admitted patient service event." One of the coding alternatives provided is "workers' compensation". "The data domain for Funding source allows for a value of Not known to be recorded. The use of this unspecified code was low in the study period: 0.3% in 2002-03 and <0.1% in 2003-04. "The quality of this data element has improved to be very good in 2003–04."
Length of stay	Derived from dates of admission and discharge, both of which were found to be of good quality
Mode of admission	The NHDD definition and domain values were used by all states and territories. New South Wales, Victoria and Western Australia mapped the data collected at the jurisdiction level to conform to the NHDD domain values. Mode of admission had the value "unknown" for 0.2% of separations in 2002-03 and 0.5% in 2003-04. "The quality of this data element was very good for all states and territories except Tasmania and the private hospital in the Northern Territory…"
Mode of separation	"The provision of this data element has remained very good over the 3-year collection period. However, there are variations between states and territories in the use of some of the domain values." (see AIHW 2006 for details).
Place of occurrence	The NHDD and ICD-10-AM second and third editions specify that a Place of occurrence code should accompany an External cause code in the range V01–Y89. SA data for 2003-04 were provided after mapping forward to ICD-10-AM (edition 4). For 2003–04, the Northern Territory was unable to provide Place of occurrence for the private sector. Otherwise, compliance was high, noteworthy non-provision being limited to 1.0% (2002-03) and 0.3% (2003-04) of NSW separations, and 16.4% of public hospital separations in NT in 2002-03. In about 30% of separations for which a Place

	code was supplied, the reported value means "unspecified place". "The high use of the code Unspecified place indicates a need for more thorough documentation of external cause data."
Place of residence	The NHMD provides data on Statistical Local Area SLAs of residence, from which ASGC Remoteness zone of residence is derived. The NMDS for Admitted Patient Care requires provision of the data as SLAs, and most jurisdictions supplied all or nearly all data as such. One jurisdiction supplied all data as postcodes, and some jurisdictions supplied some data in this form. Where parts of a postcode or SLA correspond to different Remoteness zones, cases with this postcode or SLA were assigned to one or other of the zones probabilistically, using population-based concordances supplied by the ABS. Due to this mapping, Remoteness zone data "for individual separations may not be accurate. However, the overall distribution of separations by geographical area is considered useful."
Principal diagnosis	SA data for 2003-04 were provided after mapping forward to ICD-10-AM (edition 4). A diagnosis code was lacking for about 0.1% of private hospital separations in Victoria in 2002-03 and 2003-04, and 0.1% of public hospital separations in NSW in 2003-04. "Nationally, the quality of this data element is considered to be very good and has shown a slight improvement over the 3-year collection period."
Principal procedure	SA data for 2003-04 were provided after mapping forward to ICD-10-AM (edition 4). About 20% of reported separations include no procedure code. While some inpatient episodes do not involve any separations (i.e. a null report is correct) some of these cases might represent non-reporting. "The quality of this data element was not able to be determined."
Sex	"This data element was provided at a high standard by all states and territories for each collection year."

Quoted text is excerpted from (AIHW 2006).

Appendix 2: Diagnosis recodes

Table A2.1: ICD–10–AM recodes for nature of injury (principal diagnosis)

Nature of injury	ICD–10–AM codes
Superficial	S00, S10, S20, S30, S40, S50, S60, S70, S80, S90, T00, T090, T110, T130, T140
Open wound	S01, S11, S21, S31, S41, S51, S61, S71, S81, S91, T01, T091, T111, T131, T141
Fracture	S020, S021, S022, S023, S024, S026, S027, S028, S029, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, T142
Dislocation	S130, S131, S132, S133, S430, S431, S432, S433, S830, S831, S832, S833, S930, S931, S932, S933, S330, S331, S332, S333, S334, S630, S631, S632, S633, S634, S030, S031, S033, S230, S231, S232, S530, S531, S730
Sprain & strain	S134, S135, S136, S934, S935, S936, S434, S435, S436, S437, S834, S835, S836, S837, S335, S336, S337, S635, S636, S637, S034, S035, S233, S234, S235, S532, S533, S534, S731, T092, T112, T132, T143, T03
Muscle & tendon	S16, S46, S56, S66, S76, S86, S96, S091, S290, S390, T064, T095, T115, T135, T146
Amputation	S08, S18, S48, S58, S68, S78, S88, S98, T05, S281, S382, S383, T096, T116, T136
Crush injury	S07, S17, S47, S57, S67, S77, S87, S97, T04, S280, S380, S381, T147
Internal organ	S26, S27, S36, S37, S396, T065
Blood vessel	S15, S25, S35, S45, S55, S65, S75, S85, S95, S090, T114, T134, T145
Nerve & spinal cord	S04, S14, S24, S34, S44, S54, S64, S74, S84, S94, T060, T061, T062, T093, T094, T113, T133, T144
Intracranial	S06
Eye injury	S05, T15, T26
Burn & corrosion	T20, T21, T22, T23, T24, T25, T27, T28, T29, T30, T31
Electrical injury	T754
Poison, toxic effect & bite	T36, T37, T38, T39, T4, T5, T60, T61, T62, T63, T64, T65
Foreign body	T16, T17, T18, T19
Other injury	S025, S032, T71, S092, S097– S099, S197– S199, S297– S299, S397– S399, S49, S59, S69, S79, S89, S99, T068, T07, T098, T099, T118, T119, T138, T139, T148, T149, T33– T35, T66– T70, T79, T8, T90– T97, T73, T74, T750–T753, T758, T78, T980–T983
Not injury	Diag1 not S or T

Table A2.2: ICD–10–AM recodes for body region

Body region	ICD–10–AM codes
Head	S0
Neck	S1
Trunk	S2, S3
Shoulder & upper arm	S4
Elbow & forearm	S5
Wrist & hand	S6
Hip & thigh	S7
Knee & lower leg	S8
Ankle & foot	S9
Other injury	T0–T9
Not injury	Diag1 not S or T

Appendix 3: Summary data tables

Table A3.1: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: Summary measures by age group, males

	Age group at admission (years)									
	0–14	15-19	20-24	25–34	35–44	45–54	55–59	60–64	65+	All ages*
Cases (2 years):										
Construction	..	405	740	1,460	1326	978	309	171	..	5,476
Agriculture, forestry & fishing	32	333	501	906	947	820	347	239	395	4,520
Manufacturing	5	357	541	1,024	939	641	217	100	37	3,861
Wholesale & retail trade	5	285	441	688	469	382	121	57	39	2,487
Transport & storage	4	57	121	564	678	623	217	115	51	2,430
Mining	..	39	132	345	417	266	81	24	..	1,314
Health services	..	7	16	58	90	101	36	24	38	371
Government administration & defence	..	29	99	159	158	80	19	8	10	563
Other specified work for income	23	544	1,114	2,225	1,966	1,474	470	248	167	8,231
Unspecified working for income	20	912	1,720	3,609	3614	2914	1,029	495	255	14,568
All industries (U73.0)	93	2,968	5,425	11,038	10,604	8279	2,846	1481	1,087	43,821
Estimated number of workers ('000):†										
Construction	NA	37.0	79.2	173.9	162.0	131.2	42.8	22.1	7.5	655.6
Agriculture, forestry & fishing	NA	14.3	19.1	48.7	51.3	53.7	25.8	21.2	27.5	261.7
Manufacturing	NA	35.6	73.2	200.1	211.0	174.2	64.2	31.3	10.1	799.6
Wholesale & retail trade	NA	160.6	140.2	220.9	204.7	163.9	64.8	33.9	15.2	1,004.1
Transport & storage	NA	6.5	18.1	62.6	92.3	86.6	31.8	16.2	6.7	320.7
Mining	NA	1.1	4.6	20.0	28.1	19.8	5.5	2.1	0.5	81.2
Health services	NA	4.1	12.2	43.1	55.5	56.1	19.3	11.3	6.1	207.7

Government administration & defence	NA	4.2	12.0	42.3	61.3	74.8	21.9	8.3	2.4	227.2
All industries (U73.0)	NA	335.4	527.5	1,374.7	1,280.7	1,134.5	410.3	211.9	111.5	5,386.4
Mean annual hours worked ('000): †										
Construction	NA	68,154.8	157,375.6	370,666.5	356,488.3	286,907.8	90,514.0	41,764.2	12,916.8	1,384,788.0
Agriculture, forestry & fishing	NA	23,164.6	40,905.1	120,285.1	137,579.3	141,683.7	67,115.2	49,371.4	57,047.3	637,151.8
Manufacturing	NA	61,306.9	144,151.6	421,948.8	462,190.2	381,837.4	131,425.6	61,691.2	15,601.3	1,680,153.0
Wholesale & retail trade	NA	153,458.8	236,490.4	466,942.8	467,610.4	376,280.7	146,487.4	70,549.5	23,959.6	1,941,779.7
Transport & storage	NA	9,815.0	35,459.7	138,871.1	210,028.0	197,467.7	67,890.2	30,780.3	10,422.5	700,734.5
Mining	NA	2,346.9	11,093.9	47,153.3	68,015.0	46,656.5	13,226.0	4,888.4	992.7	194,372.8
Health services	NA	3,601.2	18,657.2	81,776.0	110,026.3	115,351.4	36,447.5	20,000.1	8,516.1	394,375.8
Government administration & defence	NA	6,362.0	20,157.3	78,693.0	117,029.4	144,233.1	39,683.8	13,958.3	3,354.7	423,471.5
All industries (U73.0)	NA	406,351.1	955,174.4	2,917,317.6	2,849,237.6	2,521,227.5	872,793.6	416,491.3	180,781.8	11,119,374.9
Age specific rate per 100,000 workers: †										
Construction	NA	547.9	467.1	419.9	409.2	372.9	360.7	387.3	571.4	417.5
Agriculture, forestry & fishing	NA	1,164.3	1,309.8	930.2	923.0	763.0	672.8	564.3	717.2	857.6
Manufacturing	NA	501.1	369.6	255.9	222.5	184.0	169.0	159.8	183.9	241.1
Wholesale & retail trade	NA	88.8	157.2	155.7	114.6	116.6	93.3	84.1	128.7	123.6
Transport & storage	NA	441.9	334.5	450.6	367.4	359.6	340.9	355.2	382.7	378.2
Mining	NA	1,835.3	1,442.6	864.1	741.3	670.4	736.4	568.0	NA	808.7
Health services	NA	85.9	65.5	67.3	81.1	90.1	93.3	106.1	309.6	89.1
Government administration & defence	NA	348.3	412.1	187.9	129.0	53.5	43.3	48.2	206.2	123.7
All industries (U73.0)	NA	442.4	514.2	401.5	414.0	364.9	346.8	349.5	487.7	405.9
Age specific rate per million hours	NA	3.0	2.4	2.0	1.9	1.7	1.7	2.0	3.3	2.0

worked: [†] *Construction*										
Agriculture, forestry & fishing	NA	7.2	6.1	3.8	3.4	2.9	2.6	2.4	3.5	3.5
Manufacturing	NA	2.9	1.9	1.2	1.0	0.8	0.8	0.8	1.2	1.1
Wholesale & retail trade	NA	0.9	0.9	0.7	0.5	0.5	0.4	0.4	0.8	0.6
Transport & storage	NA	2.9	1.7	2.0	1.6	1.6	1.6	1.9	2.4	1.7
Mining	NA	8.3	5.9	3.7	3.1	2.9	3.1	2.5	4.5	3.4
Health services	NA	1.0	0.4	0.4	0.4	0.4	0.5	0.6	2.2	0.5
Government administration & defence	NA	2.3	2.5	1.0	0.7	0.3	0.2	0.3	1.5	0.7
All industries (U73.0)	NA	3.7	2.8	1.9	1.9	1.6	1.6	1.8	3.0	2.0

[†] Using the LFS (ABS 2006a).
[*] All ages are included for the cases but when the LFS is used this only includes males 15+ years.

Table A3.2: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: Summary measures by age group, females

	Age group at admission (years)									
	0–14	15-19	20-24	25–34	35–44	45–54	55–59	60–64	65+	All ages*
Cases (2 years):										
Construction	0	..	..	7	25	..	..	0	..	53
Agriculture, forestry & fishing	5	60	70	83	107	97	52	23	40	537
Manufacturing	..	17	21	71	94	100	21	5	..	338
Wholesale & retail trade	..	117	169	194	234	206	75	..	34	1,054
Transport & storage	..	4	..	37	21	28	9	..	17‡	126‡
Mining	..	..	8	10	14	..	..	0	..	40
Health services	..	..	46	154	245	299	103	43	70	975
Government administration & defence	..	4	22	39	31	33	6	..	6‡	145‡
Other specified work for income	12	124	227	415	417	455	154	76	68	1,948
Unspecified working for income	12	125	231	513	632	694	295	101	109	2,712
All industries (U73.0)	37	468	802	1,523	1,820	1,922	723	278	383	7,956
Estimated number of workers ('000):†										
Construction	NA	2.7	7.0	20.3	29.5	22.0	6.6	2.8	1.1	91.8
Agriculture, forestry & fishing	NA	5.7	4.4	16.7	26.4	28.3	13.6	10.2	9.1	114.3
Manufacturing	NA	8.4	23.2	70.3	85.5	73.9	21.3	8.0	2.0	292.6
Wholesale & retail trade	NA	127.7	12.3	169.0	165.6	149.6	44.1	17.6	6.2	879.7
Transport & storage	NA	2.5	11.7	30.9	25.4	19.4	6.8	2.3	0.7	99.6
Mining	NA	0.2	1.3	4.1	3.1	1.5	0.4	0.3	0.1	10.5
Health services	NA	16.7	62.5	148.7	196.5	216.2	65.2	25.8	7.6	739.1

Government administration & defence	NA	3.6	17.4	58.8	58.3	54.2	13.4	3.9	1.2	210.9
All industries (U73.0)	NA	343.8	475.6	1,081.0	1,028.5	968.8	282.3	115.2	43.9	4,339.1
Mean annual hours worked ('000): †										
Construction	NA	3,502.8	12,222.7	24,301.2	33,683.4	24,959.0	7,327.2	2,340.4	617.1	108,953.8
Agriculture, forestry & fishing	NA	7,415.1	6,853.0	22,680.1	40,682.0	45,886.7	22,909.7	14,246.1	11,350.1	172,022.8
Manufacturing	NA	11,449.0	41,004.1	124,217.5	145,223.4	124,987.9	37,152.6	11,670.3	1,894.7	497,599.5
Wholesale & retail trade	NA	156,438.3	174,332.8	262,197.8	249,002.2	238,975.0	66,225.8	23,021.0	7,137.0	1,177,330.0
Transport & storage	NA	4,359.9	21,867.0	52,754.0	39,326.1	31,695.6	10,089.3	2,980.8	663.7	163,736.4
Mining	NA	447.1	2,651.5	8,664.9	6,272.1	2,773.2	894.0	183.7	31.1	21,917.5
Health services	NA	19,936.7	93,250.9	226,274.3	278,347.1	323,804.9	90,715.2	32,667.8	7,516.0	1,072,512.9
Government administration & defence	NA	5,024.3	29,874.0	95,426.4	90,615.5	91,049.0	21,182.6	4,895.6	1,183.8	339,251.0
All industries (U73.0)	NA	320,534.9	735,867.9	1,752,365.8	1,558,546.5	1,566,254.6	430,282.1	153,193.0	46,367.8	6,563,412.7
Age specific rate per 100,000 workers: †										
Construction	NA	18.3	21.5	17.3	42.4	20.5	38.0	0.0	137.9	28.9
Agriculture, forestry & fishing	NA	527.5	802.3	248.3	202.5	171.5	191.4	112.7	221.0	232.7
Manufacturing	NA	101.5	45.2	50.5	55.0	67.7	49.2	31.2	176.1	57.4
Wholesale & retail trade	NA	29.3	66.2	57.4	70.6	68.8	85.0	68.3	275.9	59.8
Transport & storage	NA	79.2	21.4	59.9	41.4	72.2	66.1	64.5	1283.0	62.2
Mining	NA	454.5	313.7	120.8	223.1	32.5	342.9	0.0	500.0	185.3
Health services	NA	42.0	36.8	51.8	62.4	69.1	79.0	83.3	459.8	65.9
Government administration & defence	NA	55.6	63.2	33.2	26.6	30.4	22.3	38.5	247.4	34.1
All industries (U73.0)	NA	68.1	84.3	70.4	88.5	99.2	128.1	120.7	436.0	91.3
Age specific rate per million hours	NA	0.1	0.1	0.1	0.4	0.2	0.3	0.0	2.4	0.2

worked: [†] *Construction*										
Agriculture, forestry & fishing	NA	4.0	5.1	1.8	1.3	1.1	1.1	0.8	1.8	1.5
Manufacturing	NA	0.7	0.3	0.3	0.3	0.4	0.3	0.2	1.8	0.3
Wholesale & retail trade	NA	0.4	0.5	0.4	0.5	0.4	0.6	0.5	2.4	0.4
Transport & storage	NA	0.5	0.1	0.4	0.3	0.4	0.4	0.5	12.8	0.4
Mining	NA	2.2	1.5	0.6	1.1	0.2	1.7	0.0	16.1	0.9
Health services	NA	0.4	0.2	0.3	0.4	0.5	0.6	0.7	4.7	0.5
Government administration & defence	NA	0.4	0.4	0.2	0.2	0.2	0.1	0.3	2.5	0.2
All industries (U73.0)	NA	0.7	0.5	0.4	0.6	0.6	0.8	0.9	4.1	0.6

[†] Using the LFS (ABS 2006a).
[‡] There were 25 transport and storage industry records that were likely one 65+ year old female who were readmitted 23 times for single day stays. There were 6 Government administration and defence industry records that were likely one 65+ year old female who was readmitted 5 times for single day stays. These readmissions have not been included in the calculations of hospitalisation rates for the transport and storage industry and the Government administration and defence industry.
[*] All ages are included for the cases but when the LFS is used this only includes females 15+ years.

Table A3.3: Hospitalised injury while working for income, Australia 2002–03 and 2003–04: Summary measures by age group, persons

	Age group at admission (years)									
	0–14	15-19	20-24	25–34	35–44	45–54	55–59	60–64	65+	All ages*
Cases (2 years):										
Construction	..	406	743	1,467	1,351	987	314	171	89	5,529
Agriculture, forestry & fishing	37	393	571	989	1,054	917	399	262	435	5,057
Manufacturing	7	374	562	1,095	1,033	741	238	105	44	4,199
Wholesale & retail trade	6	402	610	882	703	588	196	81	73	3,541
Transport & storage	6	61	126	601	699	651	226	118	68‡	2,556‡
Mining	..	41	140	355	431	267	84	24	10	1,354
Health services	..	21	62	212	335	400	139	67	108	1,346
Government administration & defence	..	33	121	198	189	113	25	11	16‡	708‡
Other specified work for income	35	668	1,341	2,640	2,383	1,929	624	324	235	10,179
Unspecified working for income	32	1,037	1,951	4,122	4,246	3,608	1,324	596	364	17,280
All industries (U73.0)	130	3,436	6,227	12,561	12,424	10,201	3,569	1,759	1,470	51,777
Estimated number of workers ('000):†										
Construction	NA	39.7	86.2	194.1	191.5	153.1	49.4	24.8	8.6	747.5
Agriculture, forestry & fishing	NA	20.0	23.5	65.4	77.7	82.0	39.4	31.4	36.6	376.0
Manufacturing	NA	44.0	96.4	270.4	296.4	248.1	85.5	39.3	12.1	1,092.2
Wholesale & retail trade	NA	360.5	267.9	389.9	370.3	313.5	109.0	51.5	21.3	1,883.8
Transport & storage	NA	9.0	29.8	93.5	117.6	106.0	38.6	18.5	7.3	420.3
Mining	NA	1.3	5.9	24.1	31.3	21.4	5.9	2.4	0.6	88.5
Health services	NA	20.7	74.7	191.8	252.0	272.3	84.5	37.1	13.8	946.8

Government administration & defence	NA	7.8	29.4	101.1	119.6	129.0	35.4	12.2	3.6	438.1
All industries (U73.0)	NA	679.2	1,003.2	2,455.7	2,309.2	2,103.2	692.6	327.1	155.4	9,725.5
Mean annual hours worked ('000): †										
Construction	NA	71,657.6	169,598.3	394,967.6	390,171.7	311,866.8	97,841.1	44,104.6	13,533.9	1,493,741.8
Agriculture, forestry & fishing	NA	30,579.7	47,758.1	142,965.2	178,261.3	187,570.5	90,024.9	63,617.6	68,397.3	809,174.6
Manufacturing	NA	72,756.0	185,155.7	546,166.3	607,413.7	506,825.3	168,578.2	73,361.4	17,496.0	2,177,752.6
Wholesale & retail trade	NA	309,897.1	410,823.2	729,140.7	716,612.7	615,255.8	212,713.2	93,570.5	31,096.6	3,119,109.6
Transport & storage	NA	14,175.0	57,326.7	191,625.1	249,354.1	229,163.2	77,979.5	33,761.1	11,086.1	864,470.8
Mining	NA	2,794.0	13,745.4	55,818.2	74,287.1	49,429.7	14,120.0	5,072.1	1,023.8	216,290.3
Health services	NA	23,537.8	111,908.1	308,050.3	388,373.4	439,156.3	127,162.7	52,667.9	16,032.2	1,466,888.7
Government administration & defence	NA	11,386.3	50,031.3	174,119.3	207,644.9	235,282.0	60,866.4	18,853.8	4,538.5	762,722.6
All industries (U73.0)	NA	726,886.0	1,691,042.3	4,669,683.4	4,407,784.2	4,087,482.1	1,303,075.7	569,684.3	227,149.6	17,682,787.6
Age specific rate per 100,000 workers: †										
Construction	NA	39.7	86.2	194.1	191.5	153.1	49.4	24.8	8.6	747.5
Agriculture, forestry & fishing	NA	20.0	23.5	65.4	77.7	82.0	39.4	31.4	36.6	376.0
Manufacturing	NA	44.0	96.4	270.4	296.4	248.1	85.5	39.3	12.1	1,092.2
Wholesale & retail trade	NA	360.5	267.9	389.9	370.3	313.5	109.0	51.5	21.3	1,883.8
Transport & storage	NA	9.0	29.8	93.5	117.6	106.0	38.6	18.5	7.3	420.3
Mining	NA	NA	5.9	24.1	31.3	21.4	5.9	NA	NA	88.5
Health services	NA	20.7	74.7	191.8	252.0	272.3	84.5	37.1	13.8	946.8
Government administration & defence	NA	7.8	29.4	101.1	119.6	129.0	35.4	12.2	3.6	438.1
All industries (U73.0)	NA	679.2	1,003.2	2,455.7	2,309.2	2,103.2	692.6	327.1	155.4	9,725.5
Age specific rate per million hours	NA	2.8	2.2	1.9	1.7	1.6	1.6	1.9	3.3	1.9

worked: [†] *Construction*										
Agriculture, forestry & fishing	NA	6.4	6.0	3.5	3.0	2.4	2.2	2.1	3.2	3.1
Manufacturing	NA	2.6	1.5	1.0	0.9	0.7	0.7	0.7	1.3	1.0
Wholesale & retail trade	NA	0.6	0.7	0.6	0.5	0.5	0.5	0.4	1.2	0.6
Transport & storage	NA	2.2	1.1	1.6	1.4	1.4	1.4	1.7	3.1	1.5
Mining	NA	7.3	5.1	3.2	2.9	2.7	3.0	2.4	4.9	3.1
Health services	NA	0.4	0.3	0.3	0.4	0.5	0.5	0.6	3.4	0.5
Government administration & defence	NA	1.4	1.2	0.6	0.5	0.2	0.2	0.3	1.8	0.5
All industries (U73.0)	NA	3.6	2.7	1.3	1.4	1.2	2.0	2.3	3.2	1.5

[†] Using the LFS (ABS 2006a).
[‡] There were 25 transport and storage industry records that were likely two 65+ year old females who were readmitted 23 times for single day stays. There were 6 Government administration and defence industry records that were likely one 65+ year old female who was readmitted 5 times for single day stays. These readmissions have not been included in the calculations of hospitalisation rates for the transport and storage industry and the Government administration and defence industry.
[*] All ages are included for the cases but when the LFS is used this only includes persons 15+ years.

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