

# WORK-RELATED TRAUMATIC INJURY FATALITIES, AUSTRALIA 2006-07



**DECEMBER 2009**



**safe work australia**



**Safe Work Australia**

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INJURY FATALITIES,  
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**December 2009**

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### **Acknowledgement**

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# Foreword

This report is the fourth in a series that estimates the number of workers and bystanders killed each year due to work-related injury by examining three datasets containing relevant, but not comprehensive, information. Because there is no single national data collection system that identifies all work-related injury fatalities, the exact number of people who die in any year as a result of work-related injuries in Australia is currently impossible to establish.

A key source of information currently used to monitor work-related injury fatalities in Australia is the National Data Set for Compensation-based Statistics (NDS). The NDS includes work-related deaths of employees (that is, excluding self-employed workers) for which liability for compensation has been accepted. The NDS includes compensated commuting-related fatalities, but these fatalities are not compensable in all jurisdictions. Bystanders who died as a result of another person's work activity are not included in the NDS.

A second source is the Notified Fatalities Collection (NFC) compiled by Safe Work Australia from notifications of fatalities in accordance with the Occupational Health and Safety (OHS) legislation in each jurisdiction. Jurisdictions do not generally notify commuting fatalities and notification of bystander deaths is not comprehensive.

The third dataset is the National Coroners Information System (NCIS), which contains information on all deaths notified to any Australian coroner.

In addition to these three data sets, media reports sometimes alert the project to additional deaths not identified elsewhere. These deaths tended to result from incidents, including air, rail and maritime incidents, not generally investigated by OHS agencies. All such cases were matched with information in the NCIS to determine work-relatedness.

For further details on these data sources, please see the Explanatory notes.

## Definition of work-related injury

This report covers fatalities resulting from an injury sustained in the course of work activity, commuting to and from work, and as a result of someone else's work activity. Injury is defined as a condition coded to 'External Causes of morbidity and mortality' and 'Injury, poisoning and certain other consequences of external causes' in the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) .

Within scope of this collection are all persons:

- who were fatally injured
- whose injuries resulted from work activity or exposures
- whose injuries occurred in an incident that took place in Australia, Australian territories or territorial waters
- whose death occurred between 1 July 2006 and 30 June 2007, inclusive.

They include all persons killed:

- while working (including unpaid volunteers and Contributing family workers, persons undertaking work experience and defence forces personnel killed within Australia, Australian territories or territorial waters) or travelling for work (Working fatalities)
- travelling to or from work (Commuting fatalities)
- as a result of someone else's work activity (Bystander fatalities).

The collection specifically excludes those who die:

- of iatrogenic injuries — those where the worker died due to medical intervention
- due to natural causes such as heart attacks and strokes (except where a work-related injury was the direct cause of the heart attack or stroke)
- as a result of diseases (such as cancers)
- while working overseas (defence personnel and civilians)
- by self-inflicted injuries (suicide).

## Methodology

All cases within scope as described were extracted from each dataset and compared to identify and remove duplicate and triplicate records.

On the basis of information in the datasets, occasionally amplified by media reports, each individual case was classified as a:

- Working fatality – non road crash
- Working fatality – road crash
- Commuting fatality (travelling to or from work)
- Bystander fatality.

People who die of injuries resulting from someone else's work activity while themselves at work or commuting are classified as Working or Commuting, respectively, rather than as Bystanders.

Commuting and Bystander fatalities are known to be underenumerated. Commuting deaths are not notified under OHS legislation and Bystander deaths only occasionally, so the NFC does not reflect their actual levels. The NDS contributes data on compensated fatalities. Fatalities are only compensable when a dependent of the decedent lodges a claim. Furthermore, Commuter deaths are only compensable in some jurisdictions so they are undercounted in NDS data and Bystander deaths are not compensable through the workers' compensation system. While the NCIS should contain all work-related deaths, the information collected and coded by the coroners' offices is not always adequate to identify cases absent from the other two datasets.

This publication includes time series data showing movements over the 2003–04 to 2006–07 period, including deaths identified since the original data were published.

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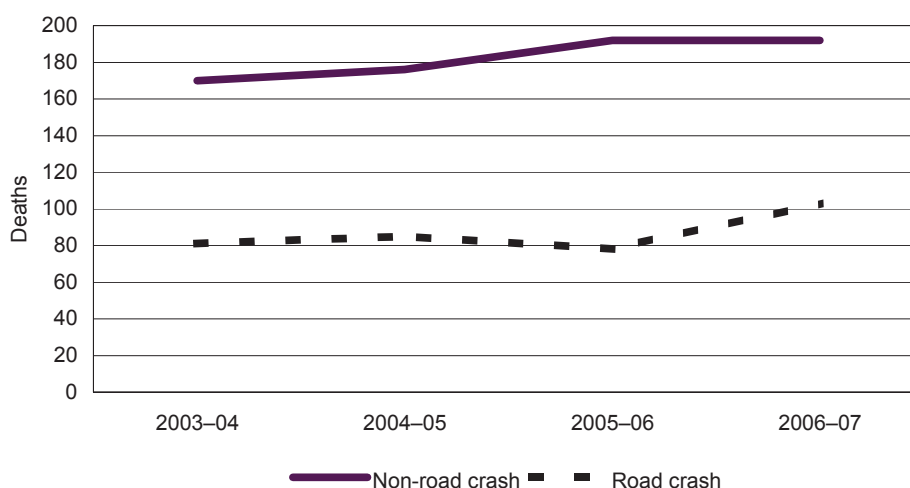


# Summary of findings

Analysis of data derived from workers' compensation claims (NDS), notifications under occupational health and safety legislation (NFC) and coronial data (NCIS) identified a total of 453 work-related traumatic injury fatalities in Australia during 2006–07. In 2006–07, just over half (237) of all work-related injury fatalities resulted from road crashes.

Of the 453 people who died of work-related injuries, 295 (65%) died of injuries sustained while working (Working fatalities), a 9% increase over the previous financial year. As Figure 1 shows, all of the increase since 2005–06 is due to road crashes, which rose by 32% from 78 to 103. The increase is due in part to the inclusion of 7 pedestrians hit by vehicles, who would have counted as non-road crash deaths in 2005–06, among the road crash victims. The rest of the increase may be an artifact of improvements in reporting, more thorough scrutiny of coronial data, an actual increase in road crash working fatalities or some combination of these factors.

**Figure 1 Working fatalities: Road crash and Non-road crash, Australia, 2003–04 to 2006–07**



In relation to the working population, the 295 people who died from injuries sustained at work during 2006–07 represent an overall fatality rate of 2.8 deaths per 100 000 workers (including defence forces personnel as well as the civilian labour force), compared to the rate of 2.7 deaths per 100 000 workers identified in 2005–06.

In addition to the Working fatalities; 93 workers died from an injury sustained while travelling to or from work (Commuting fatalities) and 65 people died of injuries received as a result of someone else's work activity (Bystander fatalities).

Over the period from 2003–04 to 2006–07 the number of deaths from injuries sustained at work increased by 18%. Commuting deaths increased by 7% and Bystander deaths by 117%.

## Working fatalities

Although employment grew over the period from 2003–04 to 2006–07, the overall incidence of fatalities from injuries sustained while working rose from 2.6 deaths

per 100 000 workers in 2003–04 to 2.7 deaths per 100 000 workers in 2004–05 and 2005–06, rising to 2.8 deaths per 100 000 workers in 2006–07.

### Industry of employer

Of the 295 Working fatalities identified in 2006–07, 58% (171) of the workers were employed in three industries: Transport & storage (74); Agriculture, forestry & fishing (45); and Construction (52), a pattern that has persisted over the four years of this series.

One-quarter (74) of all workers who died of injuries sustained while working were employed in the Transport & storage industry. This industry division includes the Road freight transport industry group, which alone accounted for 56 deaths (19%). In the Construction industry, 52 workers died of workplace injuries (18%) and in Agriculture, forestry & fishing, 45 (15%), including 32 (11%) in Agriculture and 7 (2%) in Forestry & logging.

**Table 1 Working fatalities, fatality rate and percent of fatalities by selected industry of employer, Australia, 2006–07**

Industry of employer	Road crash fatalities	Total fatalities	Fatality rate	% of fatalities
Transport & storage	47	74	15.7	25.1%
<i>Road freight transport</i>	41	56	37.6	19.0%
Construction	10	52	5.6	17.6%
Agriculture, forestry & fishing	7	45	12.6	15.3%
<i>Agriculture</i>	7	32	10.4	10.8%
<i>Forestry &amp; logging</i>	0	7	61.8	2.4%
Manufacturing	6	23	2.2	7.8%
Personal & other services	7	15	3.8	5.1%
Retail trade	6	14	0.9	4.7%
Property & business services	5	14	1.1	4.7%
Mining	1	13	9.6	4.4%
Government administration & defence	3	11	2.0	3.7%
Cultural & recreational services	0	10	3.6	3.4%
<i>All other industries</i>	11	24	0.7	8.1%
<b>Total</b>	<b>103</b>	<b>295</b>	<b>2.8</b>	<b>100.0%</b>

\* deaths per 100 000 workers

In terms of fatality rate, 15.7 workers per 100 000 employed in the Transport & storage industry division died of injuries sustained at work, including Road freight transport where the rate was 37.6 deaths per 100 000 workers. In Agriculture, forestry & fishing, there were 12.6 deaths per 100 000 workers, including Forestry & logging, with 61.8 deaths per 100 000 workers, and Agriculture with 10.4 deaths per 100 000 workers. In the Mining industry, there were 9.6 deaths per 100 000 workers and in Construction, 5.6 per 100 000 workers.

Due to the increase in road crash fatalities identified, the fatality rate in Transport & storage increased dramatically in the last year of the series from 13.4 deaths per 100 000 workers in 2005–06 to 15.7 deaths per 100 000 workers in 2006–07 — more than five times the all industries rate in 2006–07. Among workers employed in the Agriculture, forestry & fishing industry the fatality rate decreased from its 2004–05 peak of 18.7 to 12.6 deaths per 100 000 workers in 2006–07.

## Occupation

With 78 fatalities, Road & rail transport drivers accounted for 26% of those who died from injuries sustained while working. This includes 59 Truck drivers, who alone comprised 20% of the total, and 12 Delivery drivers. Another 75 Working fatalities (25%) were Tradespersons & related workers, including 29 Construction tradespersons and 11 Electricians.

The highest fatality rates were among Road & rail transport drivers (25.1 deaths per 100 000 workers), Farmers & farm managers (12.1 deaths per 100 000 workers), Skilled agricultural & horticultural workers (10.3 deaths per 100 000 workers) and Construction tradespersons (8.5 deaths per 100 000 workers).

## Mechanism of injury

Thirty-five percent (103) of all Working fatalities in 2006–07 involved road crashes, including 96 in a *Vehicle accident* and 7 pedestrians struck by vehicles. *Vehicle accident*, including non-road crashes, killed 113 workers (38% of all Working fatalities), while 38 (13%) died from *Falls from a height*, 35 (12%) from *Being hit by moving objects* (including vehicles), and 25 (8%) from *Being hit by falling objects*.

## Breakdown agency of injury

The Breakdown agency directly involved in 18% (53) of the Working fatalities was *Trucks, semi-trailers, lorries*. Other significant Breakdown agencies were *Cars, station wagons, vans or utilities* with 49 (17%); *Traffic & ground surfaces other* (i.e. other than slippery or hazardous) with 11 fatalities (4%); and *Ladders and Tractors, agricultural or otherwise*, each with 9 (3%).

## Sex and age

Of the 295 Working fatalities 23 (8%) were women, who experienced a fatality rate of 0.5 deaths per 100 000 workers. That was barely one-tenth the rate of 4.8 deaths per 100 000 workers for men.

The fatality rate for workers aged 65 years and over (12.5 deaths per 100 000 workers) was more than four times the rate for all workers in 2006–07. The 45–54 and 55–64 year old age groups also experienced above average fatality rates, while the younger age groups were below the overall rate, with workers aged under 25 years experiencing 1.6 deaths per 100 000 workers.

## Commuting fatalities

There were 93 Commuting fatalities identified in 2006–07, representing 0.9 Commuting deaths per 100 000 workers, a 24% decrease from the number identified in 2005–06. Due to the limitations of the data sources, the number of commuting deaths shown in this report is known to be an undercount. Two-thirds (62 of 93) of commuting deaths were identified from compensation data.

In 95% of cases, the deceased was a driver or passenger in a vehicle. Among Commuting fatalities, 20% were women (19 cases), with a fatality rate of 0.4 deaths per 100 000 workers, while the rate for men was 1.3 deaths per 100 000 workers.

As in 2005–06, workers employed in the Manufacturing industry experienced the highest number of commuting deaths (20 deaths) followed by the Construction,

Retail trade and Property & business services industries with 9 fatalities each. Among them, these four industries employed just over half (47) of those who died of injuries sustained while travelling to or from work, as shown in Table 2.

**Table 2 Commuting fatalities, fatality rate and percent of fatalities by selected industry of employer, Australia, 2006–07**

Industry of employer	Fatalities	Fatality rate*	% of fatalities
Manufacturing	20	1.9	21.5%
Construction	9	1.0	9.7%
Retail trade	9	0.6	9.7%
Property & business services	9	0.7	9.7%
<i>All other industries</i>	36	0.6	38.7%
<i>Industry not stated</i>	10	<i>n/a</i>	10.8%
<b>Total</b>	<b>93</b>	<b>0.9</b>	<b>100.0%</b>

\* deaths per 100 000 workers

With respect to occupation, one-third (31) of workers killed commuting were Tradespersons & related workers. Another 15% (14) were Intermediate production & transport workers (including drivers) and 13% (12) were Labourers & related workers.

## Bystander fatalities

In 2006–07, 65 people are known to have died from injuries due to another person's work activity. Bystanders are not covered by workers' compensation, are not notified consistently under OHS legislation in all jurisdictions and are difficult to identify in the NCIS coronial data, resulting in a known undercount of such fatalities.

Because all deaths involving heavy vehicles are scrutinised for work-relatedness, more than half (35) of Bystander deaths resulted from work in the Transport industry, 16 in Road freight transport alone. In all, two-thirds of all Bystander deaths (43) resulted from road crashes.

Of the 65 identified Bystander deaths, 27 (42%) were female and 38 (58%) were male. More than one-fifth (14) of Bystander fatalities were children under the age of 10, 3 of whom drowned.

# 1 Working fatalities

Analysis of the datasets identified 295 fatalities in 2006–07 due to injuries sustained while working. This represents 2.8 deaths per 100 000 workers, an increase of 0.2 deaths per 100 000 workers over the preceding financial year.

## 1.1 Industry

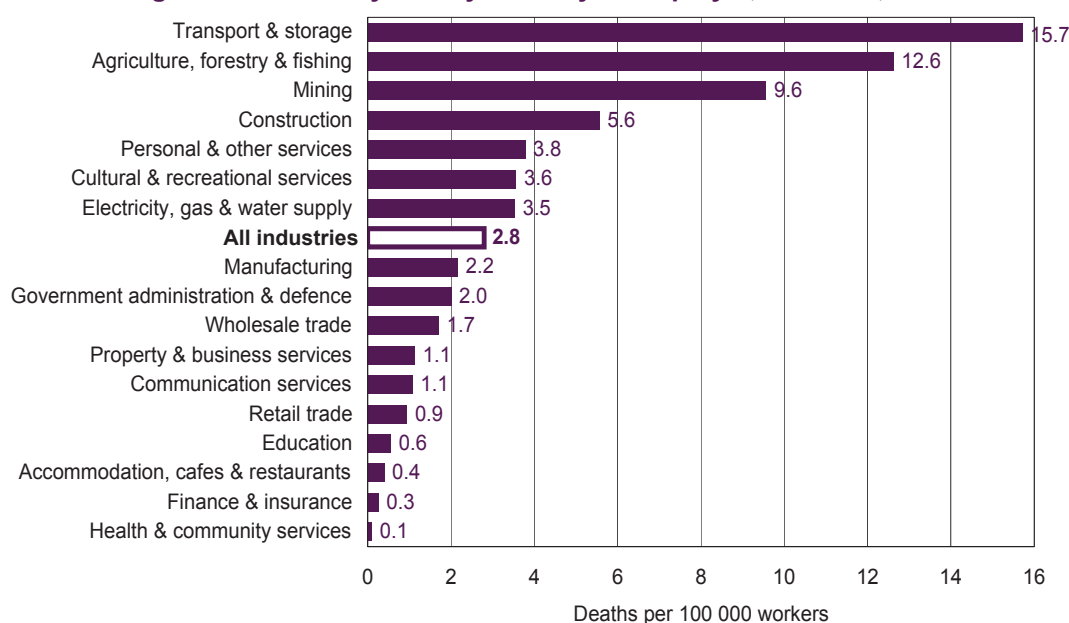
The highest number of Working fatalities occurred among workers employed in the Transport & storage industry (74 deaths), accounting for one-quarter of all Working fatalities. The second and third highest number of Working fatalities occurred in the Construction industry, with 52 fatalities, and in Agriculture, forestry & fishing, with 45. These three industries together accounted for 58% of all Working fatalities.

Figure 2 shows that the Transport & storage and Agriculture, forestry & fishing industries not only had the first and third highest number of fatalities respectively, but also had the two highest fatality rates (15.7 and 12.6 deaths per 100 000 workers respectively). These rates are nearly six and more than four times respectively the fatality rate of 2.8 deaths per 100 000 workers across all industries. Within these two broad industry divisions were underlying groups with higher fatality rates. Of the 74 workers employed in the Transport & storage industry who died of injuries sustained while at work, 56 involved workers in the Road freight transport industry: accounting for 19% of all Working fatalities and giving that industry a fatality rate of 37.6 deaths per 100 000 workers. Within Agriculture, forestry & fishing, 7 of the 45 fatalities occurred among workers employed in Forestry & logging, giving a fatality rate of 61.8 deaths per 100 000 workers.

While the Mining industry recorded a relatively low 13 deaths, the mining workforce is also relatively small. Workers in the mining industry therefore suffered the third highest fatality rate of all industries (9.6 deaths per 100 000 workers).

These data show that 10 of the 17 industry divisions recorded rates below the all industries rate, with workers in 6 of these industries experiencing 5 or fewer Working fatalities in 2006–07.

**Figure 2 Working fatalities: fatality rate by industry of employer, Australia, 2006–07**



Not all Working fatality injuries occur in the employer’s workplace. This is most obviously the case where the employer is a labour hire firm. In 2006–07, however, there were only 3 recorded fatalities coded to an employer in the ‘Contract staff services’ industry, while there were 85 cases where the industry of the decedent’s employer did not match the industry of the workplace where the fatal injury occurred. Of these, 27 were road fatalities that did not involve the Transport industry and therefore could not be assigned to an Industry of workplace. Overall, the Industry of employer matched the Industry of workplace in 71% of cases. Of the 41 workers who died of injuries sustained on a Construction site, for example, 35 (85%) worked for an employer in the Construction industry. Table 3 shows the number of fatalities by Industry of workplace and the proportion with the same Industry of employer

**Table 3 Working fatalities: Number of fatalities by industry of workplace and proportion employed in same industry, Australia, 2006–07**

Industry of workplace	Fatalities	% employed in same industry
Agriculture, forestry & fishing	42	83.3%
Mining	15	80.0%
Manufacturing	21	85.7%
Electricity, gas & water supply	3	33.3%
Construction	41	85.4%
Wholesale trade	6	83.3%
Retail trade	9	77.8%
Accommodation, cafes & restaurants	7	28.6%
Transport & storage	77	85.7%
Communication services	2	100.0%
Property & business services	6	66.7%
Government administration & defence	3	100.0%
Education	4	25.0%
Cultural & recreational services	12	66.7%
Personal & other services	15	60.0%

## 1.2 Changes over time

Table 4 shows the number of Working fatalities due to injuries sustained in road crashes and non-road crash incidents by industry of employer for the four years of the series. The number of Working fatalities has displayed considerable volatility over time, particularly in the smaller industries.

Table 4 also shows that workers in the Agriculture, forestry & fishing; Transport & storage; and Construction industries have contributed the greatest number of Working fatalities over the four-year period. In the 3 years to 2005–06, Agriculture, forestry & fishing workers suffered the highest number of fatalities both overall and from non-road crash incidents, but in 2006–07, Working fatalities among workers in this industry declined, while there was a marked increase in non-road crash fatalities among workers in the Construction industry and in road crash fatalities in Transport & storage. In fact, the increase in road crash fatalities in this industry alone accounts for all of the overall increase between 2005–06 and 2006–07.

**Table 4 Working fatalities by road crash status and industry of employer, Australia, 2003–04 to 2006–07**

Industry of employer	Working fatalities – non-road crash				Working fatalities – road crash			
	2003–04	2004–05	2005–06	2006–07	2003–04	2004–05	2005–06	2006–07
Agriculture, forestry & fishing	56	55	44	38	7	13	11	7
Mining	5	7	12	12	0	1	2	1
Manufacturing	12	13	20	17	4	8	5	6
Electricity, gas & water supply	3	3	4	1	0	0	2	2
Construction	31	19	36	42	4	7	7	10
Wholesale trade	6	5	3	4	4	4	1	4
Retail trade	6	6	7	8	3	4	6	6
Accommodation, cafes & restaurants	2	5	4	2	0	1	1	0
Transport & storage	18	24	26	27	40	32	29	47
Communication services	2	0	0	0	4	0	2	2
Finance & insurance	0	0	1	0	0	0	0	1
Property & business services	10	9	17	9	4	4	3	5
Government administration & defence	1	6	3	8	2	5	1	3
Education	1	1	3	2	3	1	1	2
Health & community services	4	3	1	1	2	1	2	0
Cultural & recreational services	3	7	3	10	0	0	0	0
Personal & other services	10	13	8	8	3	4	5	7
Not stated	0	0	0	3	1	0	0	0
<b>Total</b>	<b>170</b>	<b>176</b>	<b>192</b>	<b>192</b>	<b>81</b>	<b>85</b>	<b>78</b>	<b>103</b>

Between 2003–04 and 2005–06, workers in the Agriculture, forestry & fishing industry also suffered the highest fatality rate each year. In 2006–07, their fatality rate declined, while Transport & storage industry workers experienced an increase in both Working fatalities and fatality rate. The Mining industry had the third highest fatality rates each year, while the Construction industry and the Electricity, gas & water supply industry have also had above average rates. Most of the remaining industries record fatality rates below the average for all industries, as Table 5 shows.

**Table 5 Working fatalities: Fatality rate by industry of employer, Australia, 2003–04 to 2006–07**

Industry of employer	Fatality rate*			
	2003–04	2004–05	2005–06	2006–07
Agriculture, forestry & fishing	16.9	18.7	15.5	12.6
Mining	5.2	7.6	10.8	9.6
Manufacturing	1.5	1.9	2.4	2.2
Electricity, gas & water supply	4.0	3.9	6.9	3.5
Construction	4.5	3.1	4.9	5.6
Wholesale trade	2.2	2.0	0.9	1.7
Retail trade	0.6	0.7	0.9	0.9
Accommodation, cafes & restaurants	0.4	1.2	1.0	0.4
Transport & storage	13.4	12.3	11.9	15.7
Communication services	3.4	0.0	1.1	1.1
Finance & insurance	0.0	0.0	0.3	0.3
Property & business services	1.3	1.2	1.7	1.1
Government administration & defence	0.6	2.2	0.8	2.0
Education	0.6	0.3	0.6	0.6
Health & community services	0.6	0.4	0.3	0.1
Cultural & recreational services	1.3	2.7	1.1	3.6
Personal & other services	3.5	4.4	3.3	3.8
<b>All industries</b>	<b>2.6</b>	<b>2.7</b>	<b>2.7</b>	<b>2.8</b>

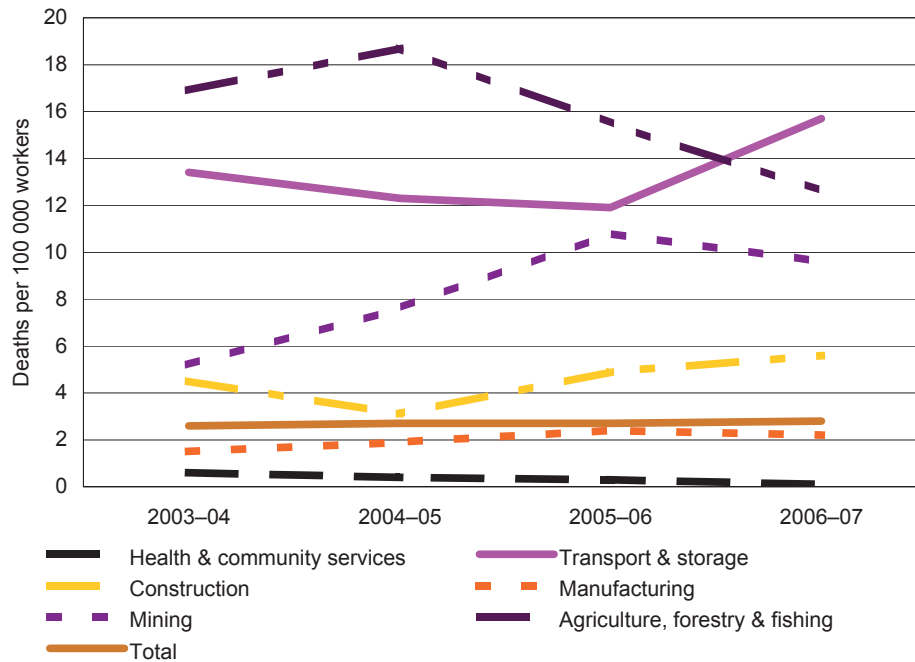
\* deaths per 100 000 workers

The National OHS Strategy 2002–2012 (NOHSC 2002a) identifies five ‘priority industry sectors’ because of their high numbers of workers’ compensation claims and incidence rates:

- Agriculture, forestry & fishing
- Manufacturing
- Construction
- Transport & storage
- Health & community services

Since publication of the Strategy document, the Mining industry has also attracted increased scrutiny. Figure 3 shows trends in fatality rates for these six priority industries. As mentioned earlier, the most significant observation is that the fatality rate in Agriculture, forestry & fishing declined after its 2004–05 peak of 18.7 deaths per 100 000 workers, while Transport & storage experienced a sharp rise in 2006–07 to the highest rate of any industry division. The fatality rate in Mining declined in 2006–07 after rising in the previous years, mostly due to the 5% increase in the mining workforce between 2005–06 and 2006–07, since the number of Mining fatalities only decreased from 14 to 13 that year. While responsible for large numbers of compensable injuries, fatality rates in Manufacturing and Health & community services remained below the total across all industries throughout the four years of the series.

**Figure 3 Working fatalities: Fatality rate by industry of employer – priority industries, Australia, 2003–04 to 2006–07**



### 1.3 Occupation

In 2006–07, one-fifth of all Working fatalities (59) were employed in a single occupation — Truck drivers. At this detailed level of analysis, Delivery drivers experienced the second highest proportion of Working deaths, with 4% of Working fatalities (12 deaths). These two occupations comprised the majority of the 37% of Working fatalities sustained by Intermediate production & transport workers category more generally (109 deaths).

Tradespersons & related workers accounted for a further one-quarter (75) of all Working fatalities. This occupation group includes Skilled agricultural & horticultural workers, 10 of whom died of injuries sustained at work (3% of all Working fatalities); Construction tradespersons (29 deaths; 10%), including Carpentry & joinery tradespersons (8 deaths; 3%); Electrical & electronics tradespersons (12 deaths, including 11 Electricians; 4%); and Mechanical & fabrication engineering tradespersons (12 deaths; 4%), including Metal fitters & machinists (8 deaths; 3%).

Three-quarters of the 32 Managers & administrators who died of injuries sustained at work in 2006–07 (11% of the total) were Farmers & farm managers (24 deaths; 8%), 11 of whom were aged 65 or over.

In relation to the numbers employed in the occupation, Road & rail transport drivers experienced by far the highest fatality rate — 25.1 deaths per 100 000 workers, while the fatality rate for Intermediate production & transport workers more generally was 12.3 deaths per 100 000 workers.

Managers & administrators experienced the third highest fatality rate, 3.8 deaths per 100 000 workers, but for the subcategory of Farmers & farm managers, it was 12.1 deaths per 100 000 workers, the second highest fatality rate among occupation groups at this level. Excluding Farmers & farm managers, the fatality rate for Managers & administrators was 1.2 deaths per 100 000 workers.

Among Tradespersons & related workers, who had an overall fatality rate of 5.7 deaths per 100 000 workers, Skilled agricultural & horticultural workers had the highest fatality rate, 10.3 deaths per 100 000 workers. Table 6 shows the number of fatalities and fatality rates for the nine ASCO Major groups and selected Sub-major groups. As denominators were not available for individual occupations, like Truck drivers or Electricians, it has not been possible to calculate fatality rates at that level.

**Table 6 Working fatalities, proportion and fatality rate by Occupation, Australia, 2006–07**

Occupation	Fatalities	Proportion	Fatality rate*
Intermediate production & transport workers	109	36.9%	12.3
<i>Road &amp; rail transport drivers</i>	78	26.4%	25.1
<i>Intermediate plant operators</i>	11	3.7%	5.7
Tradespersons & related workers	75	25.4%	5.7
<i>Skilled agricultural &amp; horticultural workers</i>	10	3.4%	10.3
<i>Construction tradespersons</i>	29	9.8%	8.5
<i>Electrical &amp; electronics tradespersons</i>	12	4.1%	5.8
<i>Mechanical &amp; fabrication engineering tradespersons</i>	12	4.1%	5.6
Managers & administrators	32	10.8%	3.8
<i>Farmers &amp; farm managers</i>	24	8.1%	12.1
Labourers & related workers	26	8.8%	2.9
Associate professionals	16	5.4%	1.2
Professionals	20	6.8%	1.0
Intermediate clerical, sales & service workers	10	3.4%	0.6
Elementary clerical, sales & service workers	3	1.0%	0.3
Advanced clerical & service workers	0	0.0%	0
<i>Not stated</i>	4	1.4%	n/a
<b>Total</b>	<b>295</b>	<b>100.0%</b>	<b>2.8</b>

\* deaths per 100 000 workers

## 1.4 Road crashes

In 2006–07, road crashes accounted for 35% of deaths from injuries sustained while working (103 of 295), a higher proportion than in the previous 3 years, as shown in Figure 4.

**Figure 4 Working fatalities from road crash injuries, Australia, 2003–04 to 2006–07**

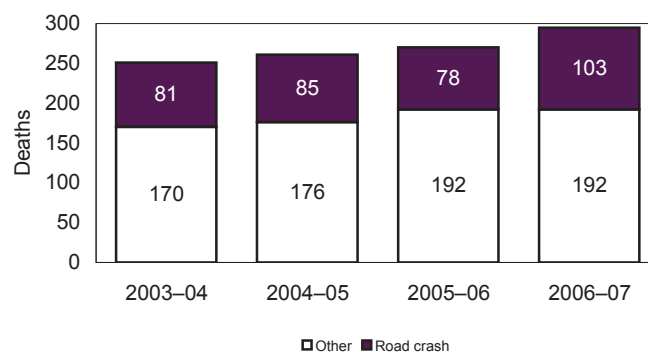


Table 7 shows the total number of Working fatalities by Industry of employer, the number and proportion in each industry caused by Road crashes and the proportion of all road crash-related Working fatalities in each industry.

**Table 7 Working fatalities and proportion due to road crashes by industry of employer, Australia, 2006–07**

Industry of employer	Working fatalities	Road crashes	Road crashes as a proportion of fatalities in industry	Proportion of all road crash working fatalities
Agriculture, forestry & fishing	45	7	15.6%	6.8%
Mining	13	1	7.7%	1.0%
Manufacturing	23	6	26.1%	5.8%
Electricity, gas & water supply*	3	2	66.7%	1.9%
Construction	52	10	19.2%	9.7%
Wholesale trade	8	4	50.0%	3.9%
Retail trade	14	6	42.9%	5.8%
Accommodation, cafes & restaurants*	2	0	0.0%	0.0%
Transport & storage	74	47	63.5%	45.6%
<i>Road freight transport</i>	56	41	73.2%	39.8%
Communication services*	2	2	100.0%	1.9%
Finance & insurance*	1	1	100.0%	1.0%
Property & business services	14	5	35.7%	4.9%
Government administration & defence	11	3	27.3%	2.9%
Education*	4	2	50.0%	1.9%
Health & community services*	1	0	0.0%	0.0%
Cultural & recreational services	10	0	0.0%	0.0%
Personal & other services	15	7	46.7%	6.8%
<i>Not stated</i>	3	0	0.0%	0.0%
<b>Total</b>	<b>295</b>	<b>103</b>	<b>34.9%</b>	<b>100.0%</b>

\* Industries recording 5 or fewer fatalities should be compared with caution

Unsurprisingly, road crashes in the course of work were most prominent in the Transport & storage industry, where they accounted for 64% (47) of the Working fatalities. This industry division contributed 46% of the total number of deaths due to road crashes while working. In the Road freight transport industry in particular, 41 (73%) of the 56 Working fatalities resulted from injuries sustained in Road crashes. This industry group alone suffered 40% of all the Working fatalities resulting from injuries sustained in road crashes.

In the Construction industry, 10 workers died of road crash-related injuries, as did 7 workers employed in Personal & other services and 7 in Agriculture, forestry & fishing. In addition to the 103 Working fatalities in crashes on public roads, in 2006–07, there were 6 deaths in aircraft incidents, 9 involving trucks not on public roads, 8 from tractor incidents, and 7 involving cars or utilities not on public roads. Some of these deaths occurred on agricultural properties.

## 1.5 State/territory of death

As in the three previous years, the largest number of Working fatalities in 2006–07 occurred in the most populous state, New South Wales, which accounted for 101 deaths, 34% of the total. Victoria experienced a sharp rise in Working fatalities, from 43 in 2005–06 to 66 in 2006–07, exceeding Queensland, where 62 workers died of injuries sustained at work in 2006–07. Western Australia saw Working fatalities nearly double from 19 in 2005–06 to 37 in 2006–07. In South

Australia, in contrast, there was a decrease from 23 fatalities to 12, while in the Northern Territory, the number of fatalities decreased from 9 to 3. There were small rises in the other jurisdictions, Tasmania (from 9 to 12) and the Australian Capital Territory (from 1 to 2). Table 8 shows movements in total Working fatalities and Working fatalities not due to road crashes over the four years of the series by state or territory of death.

**Table 8 Working fatalities by road crash status and state/territory of death, Australia, 2003–04 to 2006–07**

State/territory of death	2003–04		2004–05		2005–06		2006–07	
	Non-road crash	Total	Non-road crash	Total	Non-road crash	Total	Non-road crash	Total
New South Wales	41	74	48	81	69	99	65	101
Victoria	32	56	40	57	26	43	38	66
Queensland	44	51	43	62	46	67	41	62
South Australia	16	19	9	13	20	23	10	12
Western Australia	24	33	22	30	17	19	26	37
Tasmania	6	8	7	10	6	9	10	12
Northern Territory	6	9	5	6	7	9	1	3
Australian Capital Territory	1	1	2	2	1	1	1	2
<b>Australia</b>	<b>170</b>	<b>251</b>	<b>176</b>	<b>261</b>	<b>192</b>	<b>270</b>	<b>192</b>	<b>295</b>

Fatality rates in 2006-07 ranged from 1.0 death per 100 000 workers in the Australian Capital Territory to 5.4 in Tasmania, but due to the small number of fatalities in the less populous jurisdictions, these rates can vary considerably from year to year. Among the larger states, Victoria's fatality rate increased from 1.7 to 2.6 deaths per 100 000 workers but remains below the national average of 2.8, while the New South Wales rate of 3.0 deaths per 100 000 workers, the same rate as in 2005–06, remained above the average. Queensland's and Western Australia's rates, at 2.9 and 3.4 deaths per 100 000 workers, respectively, were also above the average.

**Table 9 Working fatality rate by state/territory, Australia, 2003–04 to 2006–07**

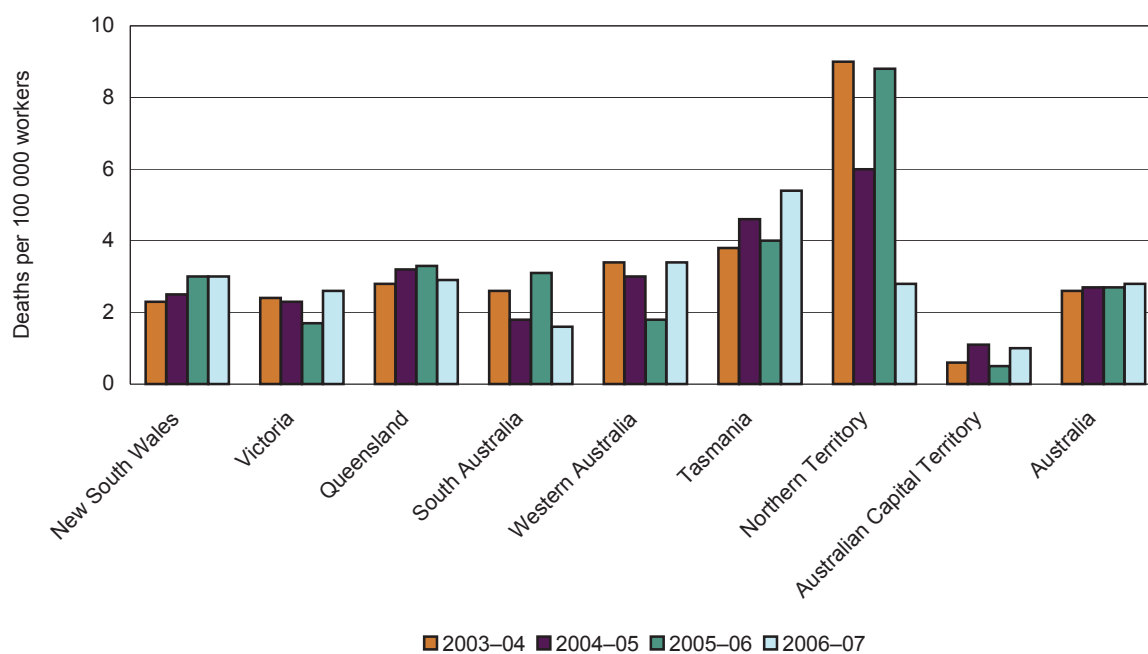
State/territory of death	2003–04	2004–05	2005–06	2006–07
New South Wales	2.3	2.5	3.0	3.0
Victoria	2.4	2.3	1.7	2.6
Queensland	2.8	3.2	3.3	2.9
South Australia	2.6	1.8	3.1	1.6
Western Australia	3.4	3.0	1.8	3.4
Tasmania	3.8	4.6	4.0	5.4
Northern Territory	9.0	6.0	8.8	2.8
Australian Capital Territory	0.6	1.1	0.5	1.0
<b>Australia</b>	<b>2.6</b>	<b>2.7</b>	<b>2.7</b>	<b>2.8</b>

\* deaths per 100 000 workers

Figure 5 shows that over the first three years of this series, workers in the Northern Territory experienced the highest fatality rates, but in 2006–07, the rate fell dramatically to equal the national average of 2.8 deaths per 100 000 workers. Tasmania's fatality rate has also historically been high and increased from 4.0 deaths per 100 000 workers in 2005–06 to 5.4 in 2006–07. The Australian Capital Territory has experienced the lowest rates over the period and remains the lowest despite rising to 1.0 deaths per 100 000 workers in 2006–07. Among the more populous jurisdictions, Victoria's fatality rate increased to its highest level over the period of 2.6 deaths per 100 000 workers and Western Australia also rose from 1.8 deaths per 100 000 workers in 2005–06 to 3.4 in 2006–07.

Between 2005–06 and 2006–07, the fatality rate for New South Wales remained at 3.0 deaths per 100 000 workers while the rate for South Australia dropped from 3.1 deaths per 100 000 workers to 1.6, its lowest rate so far. Queensland has experienced less volatility over the period, but the fatality rate there fell from 3.3 to 2.9 deaths per 100 000 workers in 2006–07.

**Figure 5 Working fatality rate by state/territory of death, Australia, 2003–04 to 2006–07**



## 1.6 Age and sex

Of the 295 Working fatalities that occurred in 2006–07, 23 (8%) of the decedents were women, while nearly 12 times as many (272) were men. Table 10 shows the distribution of Working fatalities by age group and sex.

**Table 10 Working fatalities by age group and sex, Australia, 2006–07**

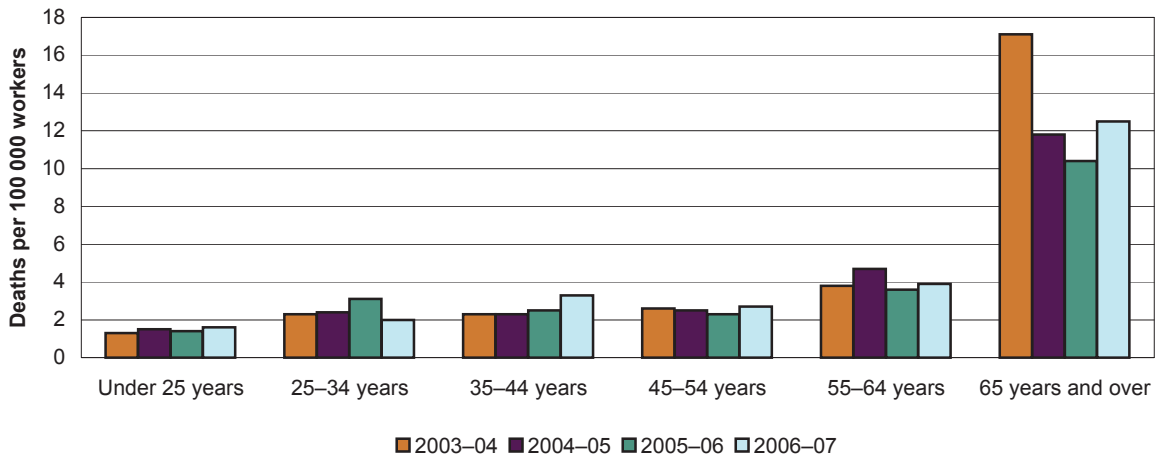
Age group	Women	Men	Total	Proportion	Fatality Rate*
Under 25 years	4	26	30	10.2%	1.6
25–34 years	5	40	45	15.3%	2.0
35–44 years	2	77	79	26.8%	3.3
45–54 years	7	55	62	21.0%	2.7
55–64 years	4	47	51	17.3%	3.9
65 years and over	1	27	28	9.5%	12.5
<b>Total</b>	<b>23</b>	<b>272</b>	<b>295</b>	<b>100.0%</b>	<b>2.8</b>

\* deaths per 100 000 workers

Just over one-quarter of all Working fatalities, the highest proportion, were of workers aged 35–44 years. Although there were few deaths among workers in the oldest age group, because of the relatively small number of workers aged 65 and over they had by far the highest fatality rate (12.5 deaths per 100 000 workers) of any age group — more than three times that of the next group, those aged 55–64 (3.9 deaths per 100 000 workers). Nearly one-third (9) of Working fatalities in the 65 years and over age group were in the Agriculture industry.

As Figure 6 shows, although the small number of workers in the oldest age group leads to considerable volatility in fatality rates, they have consistently experienced much higher rates than younger workers. The youngest age group has retained the lowest rates over the four year series. In 2006–07, the rate for the 25–34 year old age group declined from 3.1 to 2.0 deaths per 100 000 workers employed, while among the 35–44 year old age group, the rate increased from 2.5 to 3.3 deaths per 100 000 workers.

**Figure 6 Working fatality rate by age group, Australia, 2003–04 to 2006–07**

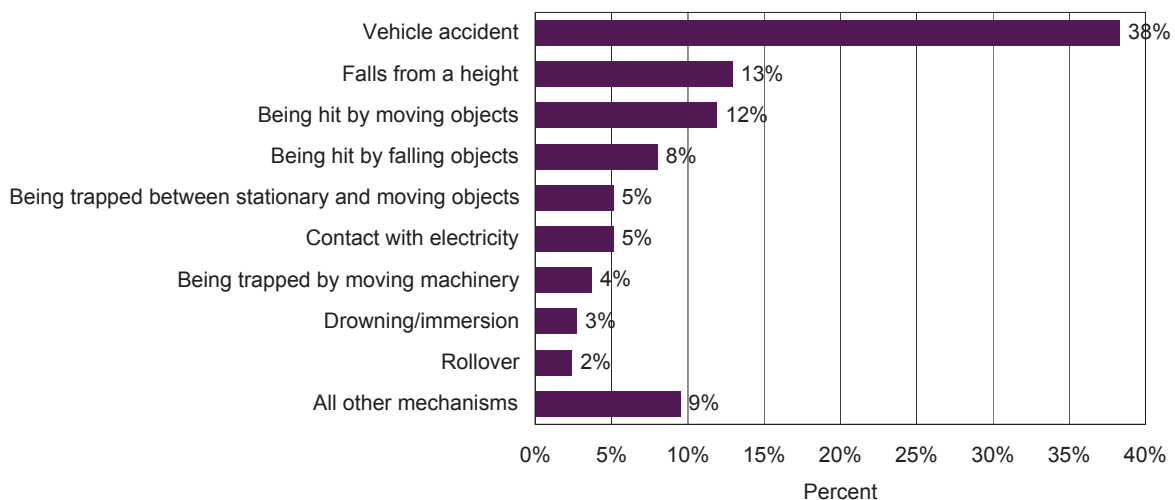


## 1.7 Mechanism of injury

In 38% (113) of Working fatalities in 2006–07, *Vehicle accident* was the mechanism involved, including 96 on public roads. In the classification of Mechanism of injury, the category *Vehicle accident* excludes the 19 pedestrians struck by moving vehicles, which fall into the category *Being hit by moving objects*, and the 7 rollovers of tractors, all-terrain vehicles, forklift trucks and mobile construction machinery, which are coded to a separate *Rollover* category.

*Falls from a height* were the second most common mechanism of fatal injuries at work, killing 38 workers in 2006–07, of whom 17 worked in the Construction industry. Figure 7 shows the proportions killed by the most significant mechanisms.

**Figure 7 Working fatalities: distribution by Mechanism of injury, Australia, 2006–07**



## 1.8 Agency and Breakdown agency

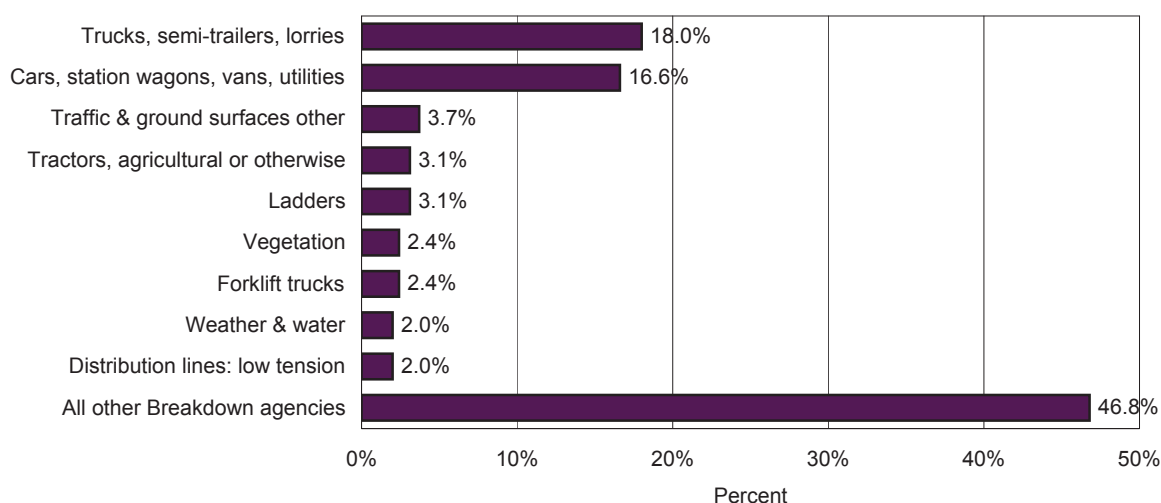
The Agency of injury specifies ‘the object, substance or circumstance which was the direct cause of the most serious injury’. Breakdown agency identifies ‘the object, substance or circumstance that was principally involved in, or most closely associated with, the breakdown event’, which is ‘the point at which things started to go wrong and which ultimately led to the most serious injury’. So, in a road crash where the vehicle skids on a patch of ice and the driver is thrown clear of the vehicle on impact, striking a tree, the Breakdown agency would be coded as *Wet, oily, or icy traffic and ground surfaces*, while the Agency would be coded to *Vegetation*, the code used for trees. In this scenario, neither the Breakdown agency nor the Agency is the vehicle itself. In practice, almost all cases involving vehicles code either the Agency or the Breakdown agency, or both, to the vehicle. Because the breakdown event is where intervention is likely to have the greatest preventative impact, Breakdown agency is considered a more useful guide to policy and action than Agency, which is associated simply with the most direct and immediate cause of death

Figure 8 shows that 53 Working fatalities (18%) involved *Trucks, semi-trailers & lorries* as Breakdown agency and *Cars, station wagons, vans or utilities* contributed another 49 fatalities (17%) as Breakdown agency. *Passenger aircraft* were involved in 5 fatalities as Breakdown agency, and watercraft in 5.

*Environmental agencies* contributed to 40 deaths (14%) as Breakdown agency. The *Outdoor environment* categories in particular, including weather, ground, road conditions, trees, fences, buildings and other structures, were the Breakdown agency involved in 34 deaths.

The Agency of injury classification lacks a category specifically for vehicles. If we define vehicles as just those transport conveyances coded to the Road, Rail, Air, Water and Other transport categories of the classification, 138 Worker fatalities (47%) involved vehicles as either Agency or Breakdown agency. This definition of vehicle excludes ‘lifting plant’ like cranes and forklift trucks, as well as ‘mobile plant’ including tractors, bulldozers, backhoes, etc.

**Figure 8 Working fatalities: distribution by Breakdown agency, Australia, 2006–07**



## 1.9 Nature of injury

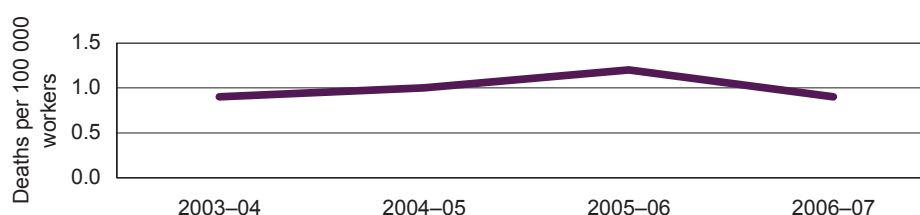
One-third of all Working fatalities (98) were attributed to *Multiple injuries*. The next most common cause was *Intercranial injury*, which was responsible for 72 of the deaths (24%). An *Internal injury of chest, abdomen & pelvis* killed 41 (14%) and 16 workers (5%) died of *Electrocution*.

# 2 Commuting fatalities

Analysis of the datasets identified 93 workers, 19 female and 74 male, who died travelling to or from work, a decrease of 24% from the 123 Commuting deaths identified in 2005–06. Unsurprisingly, 98% (91 of the 93) of the Commuting fatalities involved a road crash. This represents 0.9 Commuting deaths per 100 000 workers in 2006–07, also a significant decrease from the 1.2 deaths per 100 000 workers recorded the previous year.

Figure 9 shows the trend in Commuting fatality rates over the 4 years of the series.

**Figure 9 Commuting fatality rate, Australia, 2003–04 to 2006–07**



## 2.1 Industry of employer

In 2006–07, at least one person employed in each industry division except Finance & insurance died while travelling to or from work.

**Table 11 Commuting deaths and fatality rate by industry of employer, Australia, 2006–07**

Industry of employer	Deaths	Fatality Rate*
Agriculture, forestry & fishing	5	1.4
Mining	3	2.2
Manufacturing	20	1.9
Electricity, gas & water supply	1	1.2
Construction	9	1.0
Wholesale trade	1	0.2
Retail trade	9	0.6
Accommodation, cafes & restaurants	6	1.2
Transport & storage	8	1.7
Communication services	1	0.5
Finance & Insurance	0	0.0
Property & business services	9	0.7
Government administration & defence	1	0.2
Education	3	0.4
Health & community services	5	0.5
Cultural & recreational services	1	0.4
Personal & other services	1	0.3
<i>Not stated</i>	10	<i>n/a</i>
<b>Total</b>	<b>93</b>	<b>0.9</b>

\* deaths per 100 000 workers

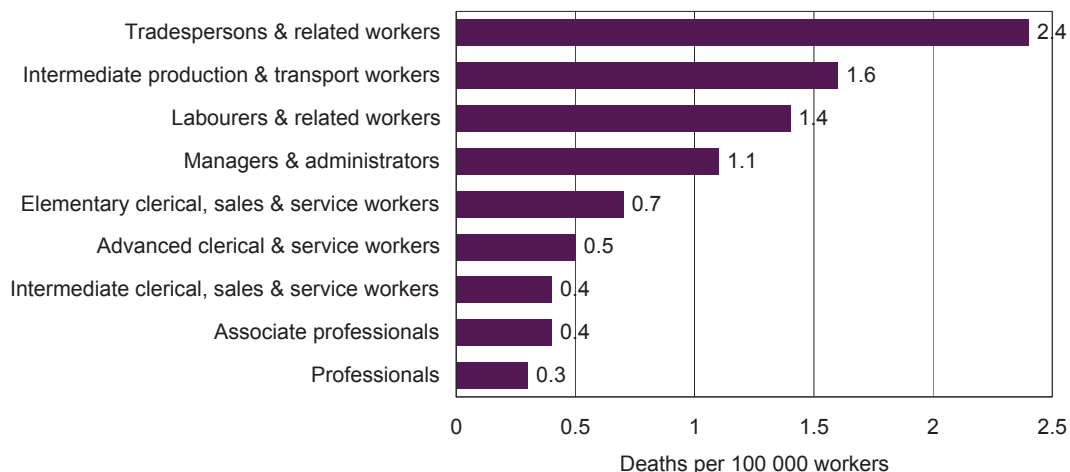
As in 2005–06, the highest number of Commuting deaths was among those working for employers in the Manufacturing industry (20 deaths; 22% of all Commuting fatalities). In the Construction industry 9 workers died of injuries sustained while commuting in 2006–07, as was the case in the Property & business services and Retail trade industries (10% of the total each), while 8 commuters (9%) were killed in Transport & storage.

Table 11 shows that while 3 people employed in Mining died commuting, the relatively small number of persons employed in this industry resulted in the highest fatality rate of 2.2 Commuting deaths per 100 000 workers, more than twice the Australian rate of 0.9 Commuting deaths per 100 000 workers but a marked reduction from the 3.1 deaths per 100 000 Mining workers recorded in 2005–06. Workers in the Agriculture, forestry & fishing industry, 5 of whom died commuting, also experienced a relatively high fatality rate of 1.4 deaths per 100 000 workers. In comparison, the industries employing the largest numbers killed while commuting — Manufacturing, Property & business services, Retail trade, Construction and Transport & storage — had fatality rates of 1.9, 0.7, 0.6, 1.0 and 1.7, respectively.

## 2.2 Occupation

Tradespersons & related workers suffered 31 Commuting deaths in 2006–07, more than twice as many as the 14 among Intermediate production & transport workers. As Figure 10 shows, these Occupation groups also experienced the highest fatality rates, 2.4 and 1.6 deaths per 100 000 workers, respectively.

**Figure 10 Commuting fatality rate by occupation, Australia, 2006–07**



## 2.3 State/territory of death

Table 12 shows the number of Commuting fatalities and the fatality rate for each state and territory, along with the proportion occurring in each state/territory. Queensland recorded the largest number (40) of Commuting deaths in 2006–07, accounting for 43% of the national total. There were no commuting deaths in the ACT. As mentioned earlier, there is a known undercount of Commuting fatalities in Victoria, Western Australia, South Australia, Tasmania and the Northern Territory where they are not compensable and are therefore absent from the NDS dataset.

**Table 12 Commuting fatalities: proportion and fatality rate by state/territory of death, Australia, 2006–07**

State/territory	Fatalities	Proportion	Fatality rate*
Queensland	40	43.0%	1.9
Northern Territory	2	2.2%	1.9
<b>Australia</b>	<b>93</b>	<b>100.0%</b>	<b>0.9</b>
Tasmania	2	2.2%	0.9
New South Wales	26	28.0%	0.8
Victoria	16	17.2%	0.6
Western Australia	6	6.5%	0.6
South Australia	1	1.1%	0.1
Australian Capital Territory	0	0.0%	0.0

\* deaths per 100 000 workers

Taking the working population into account, the highest fatality rate for commuting fatalities in 2006–07 was in Queensland and the Northern Territory, each with 1.9 Commuting deaths per 100 000 workers, compared to the national average of 0.9. With the exception of Queensland, Western Australia and the Australian Capital Territory, where the rates remained steady, fatality rates decreased in all jurisdictions.

## 2.4 Age and sex

In 2006–07, 26 workers aged under 25 years died while commuting. This youngest group also sustained the highest fatality rate — 1.4 deaths per 100 000 workers, while workers in the 25-34 year old age group also had an above average fatality rate of 1.1 per 100 000 workers.

Table 13 shows the commuting deaths by age group and sex.

**Table 13 Commuting fatalities: sex and fatality rate by age group, Australia, 2006–07**

Age group	Females	Males	Total	Fatality rate*
Under 25 years	6	20	26	1.4
25-34 years	1	23	24	1.1
35-44 years	3	15	18	0.7
45-54 years	4	12	16	0.7
55-64 years	4	4	8	0.6
65 years and over	1	0	1	0.4
<b>All ages</b>	<b>19</b>	<b>74</b>	<b>93</b>	<b>0.9</b>

\* deaths per 100 000 workers

## 2.5 Mechanism and Agency of injury

With the exception of one incident of *Drowning*, all Commuting fatalities in 2006–07 arose from either a *Vehicle accident* (88 deaths — 95% of all Commuting deaths) or *Being hit by moving objects*, the Mechanism that includes pedestrians hit by moving vehicles. All of these deaths involved vehicles, although they were only coded as Agency or Breakdown agency or both in 83 cases. *Cars, station wagons, vans, utilities* were the Agency in 52 cases (56%), *Trucks, semi-trailers, lorries* in 10 cases (11%), and *Motorcycles and sidecars, scooters, trailbikes* in 4 (4%).



# 3 Bystander fatalities

In 2006–07, 65 people died from injuries due to another person’s work activity, an increase of 59% over the 41 Bystander fatalities reported for 2005–06. As discussed, because Bystander deaths are not compensable and therefore absent from the NDS dataset, and because notification under the various jurisdictions’ OHS legislation is inconsistent, the number of Bystander deaths is almost certainly an undercount. Apart from these notifications, the only clearly identifiable Bystander deaths are those involving heavy vehicles, based on the assumption that a heavy vehicle driver driving a heavy vehicle is at work. Since such fatalities only count as Bystander deaths where available documentation shows the driver of the heavy vehicle to be at fault, some Bystander deaths will be missed. Year on year fluctuations in Bystander fatalities may be an artefact of variations in notification procedures or the treatment of records of heavy vehicle collisions and may not provide an accurate guide to real changes in the risk of work activity to bystanders. In 2006–07, 10 of the Bystander fatalities resulted from a single rail crash.

## 3.1 Industry of workplace

Because Bystander fatalities are by definition unrelated to the decedent’s own work activity, Industry of employer does not apply. Instead Industry of workplace has been used to identify industries presenting greater risks to members of the public. It is worth noting, however, that based on available documentation, this is not always straightforward to determine. Furthermore, in 12 cases where Bystanders died in Road crashes it proved impossible to determine the Industry of workplace as they did not result directly from the activity of a worker in the Road transport industry. As there is no basis on which to attribute these to a workplace, they have been assigned a supplementary code for Road. There is no relevant denominator for calculating fatality rates for Bystanders.

**Table 14 Bystander deaths by industry of workplace, Australia, 2006–07**

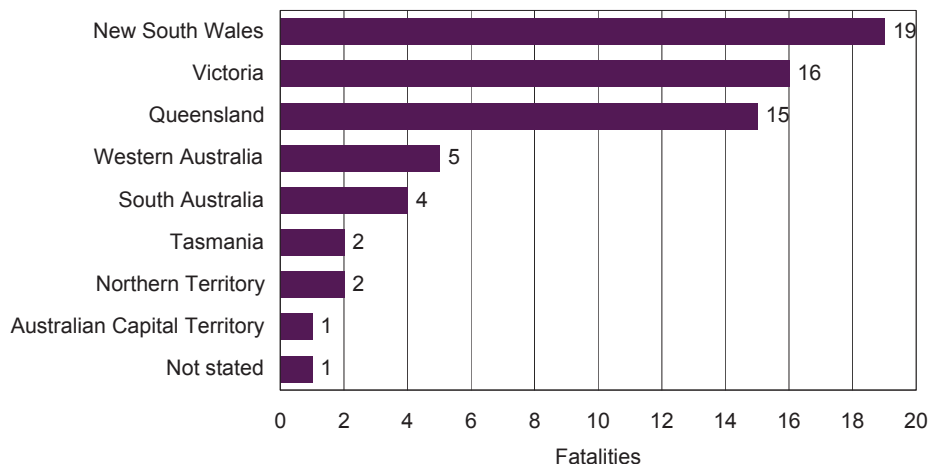
Industry of workplace	Deaths
Transport & storage	35
<i>Road freight transport</i>	16
<i>Rail transport</i>	11
<i>Water transport</i>	6
Personal & other services	4
Cultural & recreational services	3
Agriculture, forestry & fishing	2
Electricity, gas & water supply	2
Education	2
Mining	1
Retail trade	1
Accommodation, cafes & restaurants	1
Communication services	1
Health & community services	1
<i>Road</i>	12
<b>Total</b>	<b>65</b>

Table 14 shows that 35 of the 65 Bystander deaths (54%) occurred in workplaces associated with the Transport & storage industry, including 16 in Road freight transport, 11 in Rail transport and 6 in Water transport. This is due in part to the NCIS data extraction including all incidents involving heavy vehicles.

### 3.2 State/territory of death

As Figure 11 shows, the three most populous states accounted for 50 (77%) of the 65 Bystander fatalities. In New South Wales 19 people died as bystanders; in Victoria, 16, and in Queensland, 15.

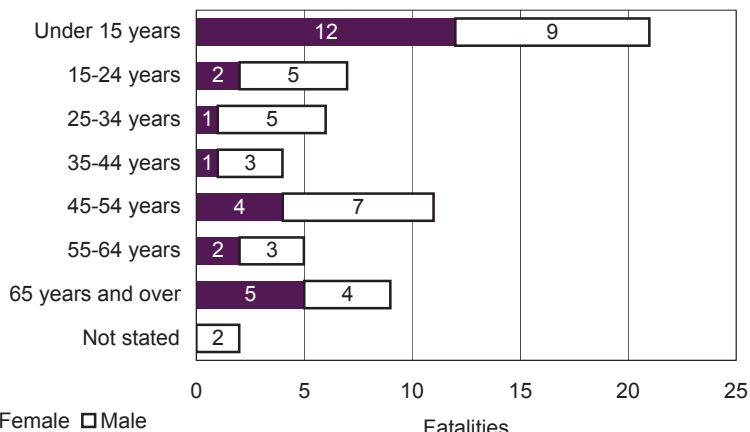
**Figure 11 Bystander fatalities: state/territory, Australia, 2006–07**



### 3.3 Age and sex

Of the 65 Bystander fatalities in 2006–07, 21 (32%) were children under the age of 15 years. Among the 14 children aged under 10 years, 6 were killed in a *Vehicle accident* and 3 by *Being hit by moving objects*, where the moving object was a vehicle or mobile machinery. Another 3 children drowned. Deaths of children on farms has been identified as a particular concern. In 2006–07, 2 children, aged 2 and 3, died as bystanders at workplaces associated with the Agriculture industry, 1 fewer than in 2005–06.

**Figure 12 Bystander fatalities: age and sex, Australia, 2006–07**



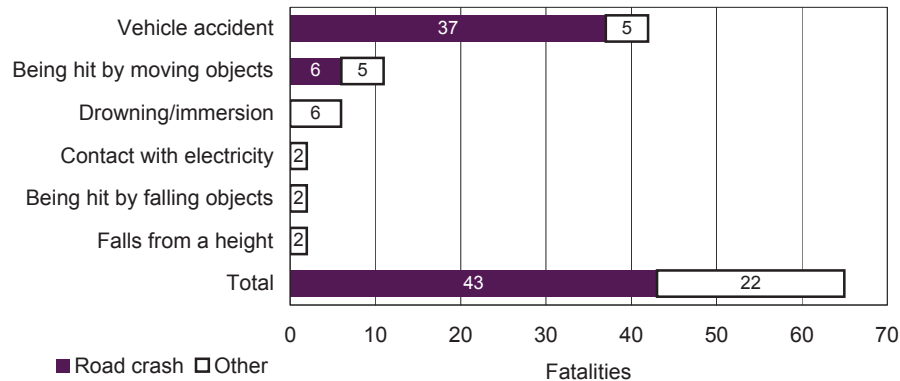
At the other end of the age range, 9 bystanders were aged 65 years and over, 8 of whom died in road crashes and 1 in a boat collision.

### 3.4 Mechanism of injury

Figure 13 shows that just under two-thirds (65%) of the Bystander fatalities (42) were due to a *Vehicle accident* and another 11 (17%) to *Being hit by moving objects*, all of which involved vehicles or mobile machinery. Of the 53 fatalities arising from these two Mechanisms, 43 were in Road crashes.

*Drowning incidents* killed six bystanders; *Falls from a height*, *Contact with electricity* and *Being hit by falling objects* each accounted for 2 bystander deaths.

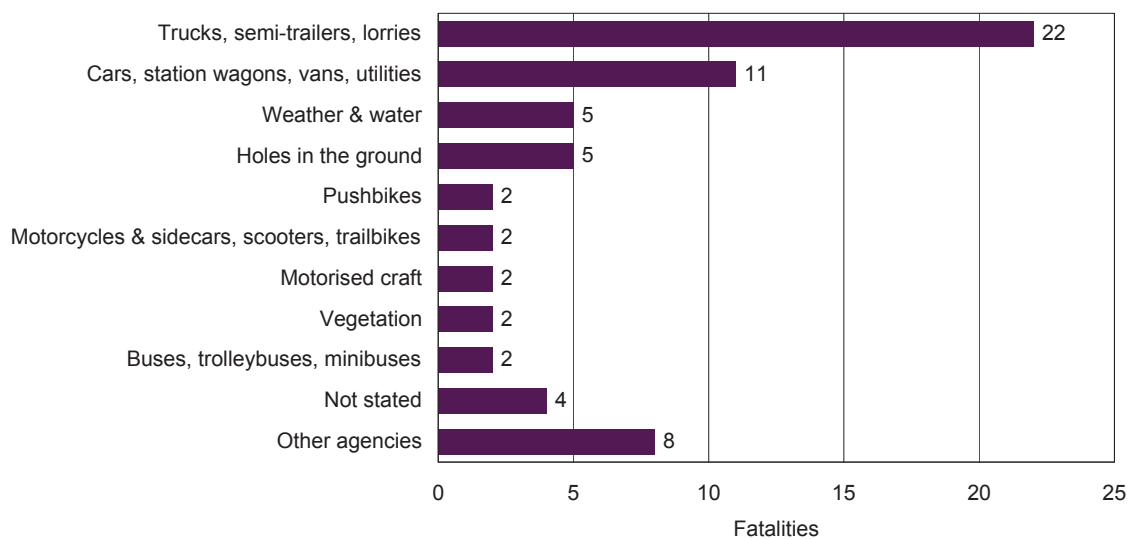
**Figure 13 Bystander fatalities: mechanism of injury by Road crash, Australia, 2006–07**



### 3.5 Breakdown agency of injury

As Figure 14 shows, 41 of the 65 Bystander fatalities (63%) involved some form of vehicle as Breakdown agency. *Trucks, semi-trailers, lorries* in particular accounted for 22 of the deaths, more than one-third of the total, while *Cars, station wagons, vans, utilities* were the Breakdown agency in another 11 incidents.

**Figure 14 Bystander fatalities: breakdown agency of injury, Australia, 2006–07**





# Explanatory Notes

## 1 Inclusions

This report covers fatalities due to work-related injuries and explicitly excludes deaths attributable to disease and other natural causes. Injury is defined as a condition coded to 'External Causes of morbidity and mortality' and 'Injury, poisoning and certain other consequences of external causes' in the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) .

Among conditions specifically included as injuries are those arising from poisonous plants and animals, environmental conditions (e.g. frostbite), allergic reactions, and embolisms. Heart attacks and strokes are regarded as natural causes, but where available information shows that a work-related injury directly triggers a fatal heart attack or stroke, the fatality is included.

### Working fatalities

All cases identified of persons who die of injuries sustained while they are working are included in this report. For this purpose, 'working' includes travelling from one workplace to another. So a tradesperson or professional killed driving from one job or client to the next counts as a Working fatality rather than a Commuting fatality. Similarly, a worker killed in an air crash on their way to a conference would be a Working fatality.

People killed while travelling for work purposes in a light vehicle are difficult to identify unless compensated, and self-employed workers are not covered by workers' compensation. Few work-related road traffic fatalities are notified by the OHS jurisdictions to the Notified Fatalities Collection (NFC) because they are generally investigated by the police. Unless the accident involves a heavy vehicle, it is unlikely to be identifiable as a Working fatality among coronial records. These factors contribute to an undercount of Working fatalities from road crashes.

### Commuting fatalities

Work-related injury fatalities also include deaths from injuries sustained while commuting to or from work, whether or not the worker was covered by workers' compensation. Fatal commuting incidents are only included in this publication where sufficient information is available to identify them with confidence. While the National Coroners Information System (NCIS) would have records for most deaths involving vehicles, specific details of the reasons for travel are seldom available, making it difficult to identify a fatality decisively as a Commuting fatality from coronial records alone.

The only jurisdictions that compensate Commuting injuries are

- New South Wales (with some restrictions)
- Queensland (with some restrictions)
- the Northern Territory (unless it involved a motor vehicle which would be covered by Motor Accident Compensation Act)
- the Australian Capital Territory (if the employer provided transport for the purpose of transporting employees and was driven by or at the direction of the employer, or travelling between a workplace and a place of treatment for a work-related injury)
- Comcare (up to March 2007)
- Seacare.

Jurisdictions that do not cover commuting claims are Victoria, South Australia (unless there was a real and substantial connection between the employment and the accident), Western Australia and Tasmania. Furthermore, fatalities are only compensable where there is a dependent to lodge a claim, regardless of jurisdiction.

Commuting deaths, moreover, are not generally notifiable under OHS legislation.

These factors contribute to an unquantifiable undercount of Commuting deaths in this publication.

### **Bystander fatalities**

In this collection, work-related injury fatalities are defined to include deaths resulting from the work activity of another person. These deaths are classified as Bystanders. Bystanders are persons such as visitors to a workplace, or persons, including children, who suffer fatal injuries as a result of someone else's work activity or work factors (including work factors that persist outside working hours).

Included are bystanders who received fatal injuries connected with the travel of a 'working' vehicle (for example, a truck, commuting vehicle or police vehicle). But if the driver of the working vehicle did not contribute to the fatal accident then the death of the other party does not count as a bystander in this publication. Where a car veers into the path of a truck and the car driver is killed, for instance, the car driver would not be considered a bystander.

There are many difficulties in identifying these deaths as they are not compensable under workers' compensation legislation in any jurisdiction and therefore out of scope of the National Data Set for Compensation-based Statistics (NDS). Notifications depend on the OHS legislation of the jurisdiction, and they are only identified in the coronial database when sufficiently detailed information on the circumstances of all parties to the death is available. Most of the Bystander deaths in this report were identified by examining NCIS records involving heavy vehicles, so Bystander deaths resulting from collisions involving cars, vans and utilities engaged in work activity that NCIS does not code as work-related are unlikely to have been identified.

Estimates of Bystander fatalities in this collection should therefore be regarded as underenumerated by an unknown amount.

### **Deaths resulting from criminal activity**

Persons sustaining fatal injuries at work or while commuting as a result of someone else's criminal activity are included in this collection, but those dying of injuries received while carrying out criminal activity are out of scope. Otherwise uninvolved persons fatally injured in an incident involving both criminals and law enforcement officers, security officers, etc. are included as Bystanders.

## **2 Exclusions**

### **Deaths due to natural causes**

Natural causes include heart attacks, strokes and diseases.

## Deaths due to complications of surgical and medical care

Although patients who die as a result of medical negligence or malpractice are in principle Bystander fatalities, such iatrogenic injuries are specifically excluded from this collection.

## Suicide

The scope of this project excludes deaths resulting from self-harm because it is difficult to assess the extent of any connection between work and a decision to take one's own life, even when detailed information is available.

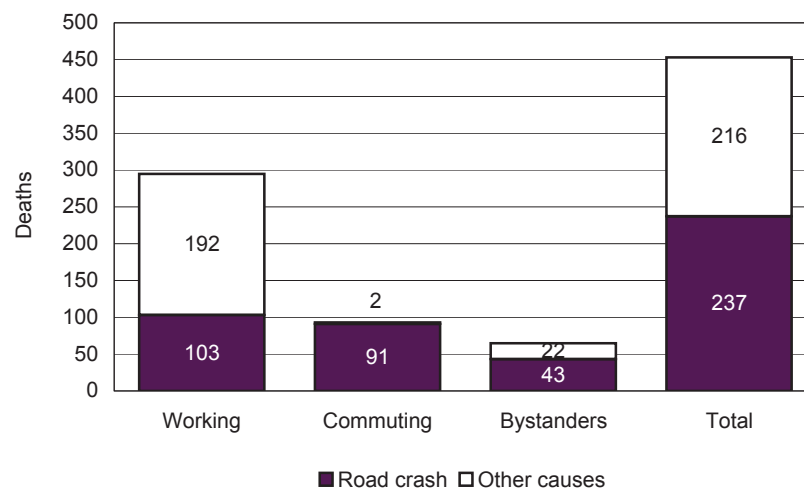
## Deaths of persons undertaking criminal activity

As mentioned, work-related injury fatalities exclude deaths of persons fatally injured while undertaking criminal activities.

### 3 Road crashes

As Figure 15 shows, road crashes are a major cause of work-related fatality in all three categories of activity, accounting for just over half (52%) of all fatalities reported in this study — 237 out of the total of 453.

**Figure 15 Work-related injury fatalities: contribution of road crashes by activity, Australia, 2006–07**



Nevertheless, work-related road crash fatalities in all three categories are likely to be underenumerated for the reasons discussed on pages 25 and 26.

In this year's report, unlike in the 2005–06 report, pedestrians hit by vehicles on public roads are included among road crashes. If these had been excluded, there would have been a total of 16 fewer road crash fatalities: 7 fewer Working fatalities, 3 fewer Commuting fatalities and 6 fewer Bystander fatalities.

### 4 Data sources

This study has used information from three datasets: the NDS, the NFC and the NCIS. Each of these datasets has limitations, so all three datasets contribute to estimating the number of work-related deaths occurring each year.

## The National Data Set for Compensation-based Statistics (NDS)

The NDS is currently the most comprehensive source of compensation-related OHS data in Australia. The scope of the NDS is all accepted workers' compensation claims made by or for an employee (other than an employee of the defence forces) and which involved a death, a permanent incapacity, or a temporary incapacity for which payments were made.

The NDS is compiled annually by Safe Work Australia from data supplied by the state, territory and Australian Government workers' compensation authorities.

The strengths of the NDS are that it:

- is Australia's most comprehensive source of compensation-based OHS data
- usually codes Industry of employer accurately
- is supported by several classification systems, including the Australian and New Zealand Standard Industrial Classification (ANZSIC), the Australian Standard Classification of Occupations (ASCO) and the Safe Work Australia Type of Occurrence Classification System (TOOCS)
- independently assesses work-relatedness.

The weaknesses of the NDS are that:

- workers' compensation is only available to employees (see Glossary entry for the definition of employee), so the NDS does not provide good coverage of deaths in the Agriculture, forestry & fishing and Construction industries where a significant proportion of workers is self-employed. Table 14 shows the percentage of workers in each industry classified as Employees
- many work-related injury fatalities are not compensable because there are no dependants to lodge a claim
- only Comcare and New South Wales NDS records provide the date of death in the 2006–07 dataset, although jurisdictions are progressively introducing this data item
- only jurisdictions where commuting injuries are compensable (Australian Capital Territory, Comcare, New South Wales and Queensland) provide data on Commuting fatalities
- bystander deaths are not compensable in any jurisdiction and are therefore out of scope of the NDS collection
- narratives are not provided
- coding of Mechanism, Agency, Breakdown agency, Nature of injury, Bodily location, Occupation and Industry of workplace may not be complete or accurate
- age and date of birth may not be accurate
- names are not provided.

As NDS data comprise workers' compensation claims of employees, industries with low proportions of employees are not well covered. It is unsurprising, therefore, that the NDS captured only 29% of the Working fatalities in the Agriculture, forestry & fishing industry, since only 51% of workers in that industry are employees, as shown in Table 15. While the available information does not include Status in employment data for each deceased worker, 24 of the 45 Working fatalities in this industry were coded to the Occupation Farmers & farm managers and were probably self-employed.

**Table 15 Proportion of Employees by industry of employer, Australia, 2006–07**

<b>Industry of employer</b>	<b>Percentage of employees</b>
Agriculture, Forestry and Fishing	51%
<i>Agriculture</i>	48%
<i>Forestry and Logging</i>	92%
Mining	98%
Manufacturing	94%
Electricity, Gas and Water Supply	98%
Construction	71%
Wholesale Trade	93%
Retail Trade	90%
Accommodation, Cafes and Restaurants	93%
Transport and Storage	87%
<i>Road Transport</i>	77%
<i>Road Freight Transport</i>	82%
Communication Services	91%
Finance and Insurance	95%
Property and Business Services	84%
Government Administration and Defence	100%
Education	96%
Health and Community Services	95%
Cultural and Recreational Services	83%
Personal and Other Services	80%

### **Notified Fatalities Collection (NFC)**

Since 1 July 2003, Safe Work Australia has maintained a database of work-related injury fatalities notified to OHS authorities in each jurisdiction under their OHS legislation. There are thirteen OHS jurisdictions in Australia that report to SWA:

- each of the eight states and territories
- the Commonwealth (Comcare)
- the mining sector in New South Wales, Queensland and Western Australia
- the National Offshore Petroleum Safety Authority (NOPSA).

The strengths of the NFC are that:

- it captures fatalities not covered by NDS such as self-employed contract workers and bystanders
- it provides a brief narrative account of the circumstances of the fatality.

The weaknesses of the NFC are that:

- data are only available from 2003-04 onwards
- limited information is available at the time of notification
- there is limited coverage of transport-related deaths because these deaths are notified to and investigated by the Police, road traffic authority or, in the case of plane crashes and marine deaths, by Commonwealth agencies
- it tends to capture work-related deaths only when they occur shortly after the injury.

### **National Coroners Information System (NCIS)**

The NCIS was officially launched in July 2000 and is a national internet-based data storage and retrieval system of coronial cases in Australia. The NCIS holds information on all fatalities referred to a coroner in Australia. The coroners' findings, police reports, autopsy reports and toxicology reports may also be

available. The NCIS contains a work-relatedness data item coded by the staff of the individual state and territory coroners' offices.

Each state and territory in Australia has a licence agreement with the Victorian Institute of Forensic Medicine (VIFM) permitting the transfer of coronial information for storage and dissemination via the NCIS. Coronial clerks enter the data into local case management systems, which are regularly uploaded to the NCIS.

The strengths of the NCIS are that:

- the scope of the collection includes all deaths reported to an Australian coroner regardless of compensation status or work arrangement
- when available, attachments to records, including police narratives and coronial findings, may shed light on the causes and circumstances surrounding a fatal incident
- there is a work-relatedness assessment against standard criteria
- relevant data items are coded to International Classification of Diseases version 10 (ICD-10-AM).

The weaknesses of the NCIS include:

- work-relatedness coding may not coincide with the details of the case, where available
- access to records for open cases is restricted in some jurisdictions
- crucial data items, including name, date of birth and date of death, as well as documentation, may be missing in records for open cases and even some closed cases
- coronial findings and police reports may be missing or uninformative
- identification of bystander deaths may not be possible where accompanying documentation is absent or uninformative, especially for road-related fatalities.

### **The coding of work-relatedness in the NCIS**

NCIS records are not always correctly coded for work-relatedness. Certain types of incidents, including some road crashes, may therefore be miscoded as not work-related. Another factor is that the work-related flag may not be finalised until the case is closed.

### **Summary of dataset characteristics**

Table 16 summarises the main characteristics of the selected datasets (NDS, NFC and NCIS) pertinent to their use for estimating the number of persons fatally injured in work-related incidents in Australia.

**Table 16 Selected characteristics of the NDS, NFC and NCIS datasets**

Characteristic	NDS	NFC	NCIS
<b>Type of dataset</b>	Administrative	Administrative	Administrative
<b>Work-relatedness</b>	Yes	Yes	Yes
<b>State/territory</b>	workers' compensation jurisdiction	OHS jurisdiction	state/territory of coronial inquiry – (usually state/territory of death)
<b>Industry coding</b>	ANZSIC 1993 (coded by jurisdictions)	ANZSIC 1993 (coded by jurisdictions or Safe Work Australia)	ANZSIC 1993 (coded by Safe Work Australia)
<b>Occupation coding</b>	ASCO 2 <sup>nd</sup> edition (coded by jurisdictions)	ASCO 2 <sup>nd</sup> edition (coded by jurisdictions or Safe Work Australia)	ASCO 2 <sup>nd</sup> edition (coded by Safe Work Australia)
<b>TOOCS coding</b>	Yes	Yes (coded by jurisdictions or Safe Work Australia)	Yes (coded by Safe Work Australia)
<b>Scope</b>	Compensated work-related injury fatalities only, i.e. excludes self-employed persons	All notified fatalities	All deaths reported to an Australian coroner
<b>Availability of data</b>	1997–98 to current	2003–04 to current	July 2000 to current (January 2001 for Queensland)
<b>Inclusion of bystanders</b>	No	Yes but limited	Yes but not always identifiable
<b>Inclusion of commuting deaths</b>	NSW, Qld, ACT and limited in NT	Occasionally	Yes but not always identifiable
<b>Timeliness</b>	Data available 18 months after period	Data available 6 months after period	Data available 6 to 18 months after period
<b>Narrative</b>	No text description of the incident circumstances	Brief description of the incident circumstances may be included	Police narrative, autopsy report, toxicology report and coroner's finding may be available once the case is closed. Some information may be available for open cases.

Figure 16 shows that despite the increase in the number of identified work-related deaths over the four years of this series, the proportion of cases each dataset contributed remained relatively stable over the period. Specifically, the NCIS has consistently held identifiable records for about 95% of all work-related injury fatalities, while just over half were identified in the NDS and about 35% in the NFC.

**Figure 16 Dataset contribution, 2003–04 to 2006–07**

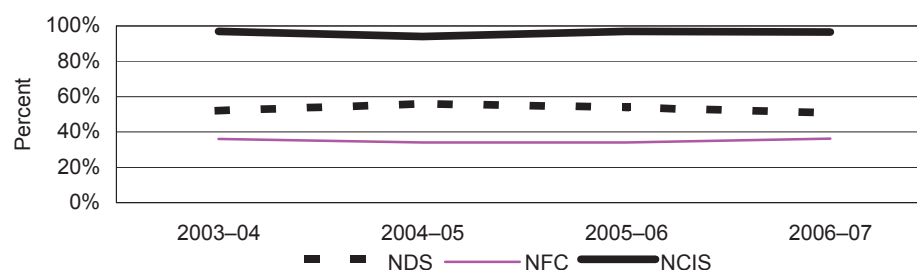


Table 17 shows the actual number of records and the proportion of the total contributed by each dataset over the four years of the series.

**Table 17 Work-related injury fatalities and proportion by activity and dataset, Australia, 2003–04 to 2006–07**

	Number of fatalities				Proportions			
	2003–04	2004–05	2005–06	2006–07	2003–04	2004–05	2005–06	2006–07
<b>Working fatalities</b>								
NDS	137	152	156	168	55%	58%	58%	57%
NFC	120	124	136	148	48%	48%	50%	50%
NCIS	244	249	267	282	97%	95%	99%	96%
<b>Total Working fatalities</b>	<b>251</b>	<b>261</b>	<b>270</b>	<b>295</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Commuting fatalities</b>								
NDS	54	81	79	62	62%	79%	64%	67%
NFC	0	1	1	1	0%	1%	1%	1%
NCIS	84	95	117	91	97%	92%	95%	98%
<b>Total Commuting fatalities</b>	<b>87</b>	<b>103</b>	<b>123</b>	<b>93</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Bystander fatalities</b>								
NDS	0	0	0	0	0%	0%	0%	0%
NFC	11	14	9	15	37%	28%	22%	23%
NCIS	30	47	40	64	100%	94%	98%	98%
<b>Total Bystander fatalities</b>	<b>30</b>	<b>50</b>	<b>41</b>	<b>65</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>All work-related injury fatalities</b>								
NDS	191	233	235	230	52%	56%	54%	51%
NFC	131	139	146	164	36%	34%	34%	36%
NCIS	358	391	424	437	97%	94%	97%	96%
<b>Total work-related injury fatalities</b>	<b>368</b>	<b>414</b>	<b>434</b>	<b>453</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Of the 453 work-related injury fatalities enumerated in this report, records for 77 (17%) were identified in all 3 datasets. Another 139 (31%) were found only in NCIS records, 14 (3%) only in the NDS, and 4 (1%) only in the NFC.

### Coverage of Road crashes

Road crashes were involved in over half of the identified work-related injury fatalities in 2006–07. The 3 datasets perform quite differently in capturing these. The NCIS captured 230 of the 237 fatalities involving Road crashes, while the NDS captured 134 (57%) and the NFC only 16 (7%). This is partly because of the differences in coverage. Nearly 98% of Commuting fatalities involved Road crashes and the NFC does not usually include commuting fatalities. The NFC underenumerates Road crashes because they are usually investigated by the police rather than OHS authorities. Two-thirds of all Bystander fatalities, which are out of scope of the NDS, involved Road crashes.

### Coverage of Working fatalities

Table 18 shows the proportion of working deaths in each industry captured by each dataset in 2006–07. The NCIS captured all deaths in 9 of the 17 ANZSIC industry divisions, as well as all 3 cases where the industry of employer was unstated. Although the proportion captured in Education was only 75%, it is worth noting that this represents 3 of the 4 cases. Apart from 2 cases in Agriculture, forestry & fishing, 2 in Construction and 4 in Transport & storage, the NCIS

captured all cases or all but one in every industry. These deaths may involve police investigations, which must be completed before the coroner investigates the death.

**Table 18 Proportion of Working fatalities by dataset by Industry of employer, Australia, 2006–07**

Industry of employer	NCIS	NDS	NFC
Agriculture, forestry & fishing	95.6%	28.9%	55.6%
Mining	100.0%	61.5%	100.0%
Manufacturing	100.0%	87.0%	65.2%
Electricity, gas & water supply	100.0%	66.7%	33.3%
Construction	96.2%	46.2%	63.5%
Wholesale trade	87.5%	87.5%	37.5%
Retail trade	100.0%	71.4%	50.0%
Accommodation, cafes & restaurants	100.0%	100.0%	50.0%
Transport & storage	94.6%	60.8%	28.4%
Communication services	100.0%	100.0%	0.0%
Finance & insurance	100.0%	100.0%	0.0%
Property & business services	100.0%	71.4%	42.9%
Government administration & defence	90.9%	72.7%	54.5%
Education	75.0%	75.0%	50.0%
Health & community services	100.0%	0.0%	0.0%
Cultural & recreational services	90.0%	20.0%	70.0%
Personal & other services	93.3%	73.3%	46.7%
<i>Not stated</i>	<i>100.0%</i>	<i>0.0%</i>	<i>33.3%</i>
<b>Total</b>	<b>95.6%</b>	<b>56.9%</b>	<b>50.2%</b>

### Use of media reports

Apart from the three basic sources, some additional work-related deaths are identified through media coverage, generally related to plane crashes, train crashes and maritime incidents investigated by Commonwealth authorities and therefore not notified. Such cases are included in the collection where details can be verified with NCIS information.

## 5 Calculation of fatality rates

Employment figures from ABS quarterly Labour force data are used in calculating fatality rates in this publication. The denominator is the average of all persons employed over the four quarters of the financial year for each sex, age group, industry, occupation, or state or territory. Because work-related injury fatalities of Australian Defence Force personnel within Australia are in scope of this report and therefore nominally included in the numerator of certain fatality rates, denominators for the Government administration & defence industry division and the total of all industries are supplemented with the 'actual average funded strength for ADF permanent members' reported in the Department of Defence Annual Report. Denominators for fatality rates by sex and by state or territory have been calculated using the average of levels reported at 30 June 2006 and 30 June 2007. Although included in the numerators for fatality rates, 7 of the Working fatalities were volunteers who are not accounted for in the denominators.

## 6 Identification of matching cases

Details of the deaths in each of the three datasets were compared in order to identify duplicate records. In general, matching was achieved by sorting the death records by date variables and reviewing groups of records that had the same or similar values. Pairs or triplets that looked plausible on the basis of date of death were scrutinised carefully, using other data items to confirm or refute the match. The other data items used most often were age, sex, jurisdiction, text descriptions (for NFC and NCIS cases), date of birth (for NCIS and NDS cases), mechanism of injury, industry, occupation, and agency (in roughly that order of priority).

A number of cases were found where the death occurred in one jurisdiction but the NDS record came from the jurisdiction of the employer. Extra care was taken with these records to confirm a match. This is particularly an issue for NDS records for the Comcare jurisdiction, which covers Commonwealth employees and the employees of certain self-insuring firms and does not specify the geographical location where the fatal injury occurred. Record matching in these situations may improve as jurisdictions progressively adopt NDS3 standards which include the collection of postcode of workplace.

The NCIS database was interrogated to find records corresponding to NDS and NFC records that were not matched in the original NCIS extract. Where a match was found, it often provided invaluable details missing in the NDS and NFC records. Cases identified only through media reports were also confirmed through the NCIS.

Since virtually all injury deaths in Australia are reported to the coroner, it is reasonable to expect that the NCIS would include records for all work-related traumatic injury fatalities. The reason not all NDS and NFC records have been matched to an NCIS record is that some jurisdictions restrict the information available on open cases. In addition, the coroner will not commence an inquest until all criminal proceedings have been completed. So while NCIS may have assigned a record to the case, not all information will be accessible. Records of open cases from Western Australia, for example, suppress the decedent's name. Open cases from Queensland do not include a date of death and names are also sometimes suppressed. If the name of the deceased is not available from the NDS or NFC, it is almost impossible to find a matching record in the NCIS.

This impacts on the NCIS's utility in closing gaps in the other data sources, such as self-employed workers out of scope of the NDS and persons killed in road crashes seldom captured in the NFC. The NCIS is the only one of the three datasets likely to record, for example, the road crash death of a self-employed truckdriver. If the NCIS record for such a case is uncoded or incorrectly coded for work-relatedness, it would not be included in the initial extract. For this reason, all cases involving a heavy vehicle, whether flagged as work-related or not, were extracted and scrutinised to determine whether they were in scope of this collection. Where the incident involves a working light vehicle, like a tradesperson in a utility or van, or a bicycle courier, however, it is unlikely to be identifiable as work-related.

## **The availability of dates for the data matching process**

Dates were very important in the matching process. Dates of incident, death and birth were usually consistent across the data sources, suggesting that the date information was often of good quality. While the NDS provides the date of the injury incident, apart from New South Wales and Queensland cases, it does not currently include date of death, although this is generally unproblematic because in most traumatic fatality cases, death occurs on the same day as the incident. Date of death is being progressively supplied by the jurisdictions with the introduction of NDS3.

Of the three data sources, the NCIS has the best array of dates, although date of birth and date of death are not available for all open cases and the NCIS web interface does not permit searching on date of birth. Because date of death is not always available for open cases, date of notification is used as an initial extraction tool.

## **Industry information**

Industry analysis for Working and Commuting fatalities is based on Industry of employer because relevant denominators are available, permitting calculation of fatality rates by industry. Bystander fatalities are classified by Industry of workplace as the employer of a bystander is irrelevant to analysis and usually unknown.

Where different data sources coded the same case to different Industries of employer, this report has generally accepted NDS coding as the most reliable, as the claim is directly linked to the policy of the employer of the deceased worker.

## **The timing of data extraction**

The NDS dataset for a given year pertains to claims that were submitted during the year regardless of when the death occurred. The data are usually extracted by the jurisdictions in the November following the reference financial year. There are however many instances where the insurer has yet to determine liability by the time the data are extracted. As more jurisdictions supply data in NDS3 format, date of death will become increasingly available for extraction purposes.

The timing of NCIS data extraction also bears on the number of work-related deaths captured for this project. Because date of death is not available for all NCIS records, NCIS data are currently extracted on the basis of date of notification to the coroner on the assumption that notification occurs shortly after a death. For this study, the NCIS was interrogated until 1 August 2009 for coronial records matching records in the other datasets.

There are no issues with the timing of extraction from the NFC as updates to the dataset are rarely received more than six months after the fatality.



# Glossary

<b>Agency of injury</b>	The object, substance or circumstance which was the direct cause of the most serious injury.
<b>Activity</b>	This report classifies fatalities from work-related injuries according to the decedent's level of participation in the work causing the injury. See separate entries for: <ul style="list-style-type: none"><li>• Working fatality</li><li>• Commuting fatality</li><li>• Bystander fatality</li></ul>
<b>Breakdown agency of injury</b>	'The object, substance or circumstance that was principally involved in, or most closely associated with, the breakdown event', which is 'the point at which things started to go wrong and which ultimately led to the most serious injury'.
<b>Breakdown event</b>	The point at which things started to go wrong and which ultimately led to the most serious injury.
<b>Bystander fatality</b>	<p>A person who dies as a result of injuries sustained as a result of another person's work activity and who was not engaged in work activity of their own or travelling to or from their own workplace at the time of the injury. Those killed by others' work activity while at work themselves are classified as Working fatalities, and those killed by others' work activity while commuting are classified as Commuting deaths.</p> <p>Where a person is killed in a road crash, it is only classified as a Bystander fatality where the accident can be attributed to someone else's work activity. Typically, this means the driver of a work vehicle is at fault. Cases where fault could not be determined with sufficient confidence were excluded.</p>
<b>Commuting fatality</b>	A person who dies as a result of injuries sustained while travelling to or from work, including those whose injury results from another's work activity.
<b>Employed</b>	The denominators used in calculating fatality rates in this report are based on ABS estimates of Employed persons, as defined in Labour force, Australia (ABS cat no 6202.0) <a href="http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/6202.0Glossary1Oct%202009?opendocument&amp;tabname=Notes&amp;prodno=6202.0&amp;issue=Oct%202009&amp;num=&amp;view=">http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/6202.0Glossary1Oct%202009?opendocument&amp;tabname=Notes&amp;prodno=6202.0&amp;issue=Oct%202009&amp;num=&amp;view=</a> . This population includes Employees, who work for an employer; self employed persons, whether they employ others or not; and those who work without pay for a family business or farm. It excludes persons whose only work is voluntary.
<b>Employee</b>	'A person who works for a public or private employer and receives remuneration in wages, salary, a retainer fee from their employer while working on a commission basis, tips, piece-rates, or payment in kind; or a person who operates his or her own incorporated enterprise with or without hiring employees.' (Source: ABS 2007)

## Fatality rate

The number killed as a result of work-related injury expressed as a per-capita rate against the population at risk of work-related injury. In this report the rate is expressed as the number of deaths per 100 000 Employed persons: for brevity this is usually expressed as 'deaths per 100 000 workers'. The denominator (the population) for any given occupation, industry, jurisdiction, sex, age group, etc. is derived from Australian Bureau of Statistics labour force data, by averaging levels reported for the four quarters of the relevant financial year.

For totals and the Government administration & defence industry, the 'actual average funded strength for ADF permanent members' as provided in the Department of Defence Annual Report for the relevant year is added to the denominator. For jurisdictions and sex, the denominator is the average of reported staffing levels at 30 June 2006 and 30 June 2007.

In previous reports, the fatality rate was referred to as the 'Incidence rate'.

## Incidence rate

The rate of work-related injury fatalities per 100 000 employed persons, known in previous reports as the 'Incidence rate', is now called the 'Fatality rate'.

## Industry

A grouping of businesses which carry out similar economic activities. (Based on ANZSIC 1993, p. 2.)

Fatalities data provided to Safe Work Australia for 2006–07 was coded to the 1993 edition of ANZSIC, so all discussion of industry in this publication is based on that classification rather than the 2006 version.

Because the business and other establishments ANZSIC was designed to classify are coded on the basis of their 'predominant activities', Industry of employer may not always indicate the type of work in which a fatal work-related injury occurs. A business in the Mining industry, for example, employs lawyers, accountants, clerks, drivers, tradespersons, etc., as well as geologists and mineworkers. Furthermore, workers employed by labour hire firms and the like are coded to that industry – Property & business services – rather than to the industry they actually work in. The variable Industry of workplace partly compensates for this. Where a fatal injury results from a road crash and there is no link to the Transport industry, Safe Work Australia assigns the Industry of workplace to a supplementary code 0900 Road.

## Injury

A condition coded to 'External Causes of morbidity and mortality' and 'Injury, poisoning and certain other consequences of external causes' in the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM).

<b>Job</b>	A 'job' is a set of tasks designed to be performed by one individual in return for a wage or salary. Of course, some people may work for themselves but are still regarded as having a job and belonging to the labour force. (Source: ASCO, p. 5)
<b>Mechanism of injury</b>	The action, exposure or event which was the direct cause of the most serious injury.
<b>Occupation</b>	<p>A set of jobs with similar sets of tasks. An occupation in ASCO is a collection of jobs which are sufficiently similar in their main tasks to be grouped together for the purposes of the classification.</p> <p>A 'job' is a set of tasks designed to be performed by one individual in return for a wage or salary. Of course, some people may work for themselves but are still regarded as having a job and belonging to the labour force. (Source: ASCO, p. 5)</p> <p>Because fatalities data provided to Safe Work Australia for 2006–07 was coded to the second edition of ASCO, so all discussion of industry in this publication is based on that classification rather than on the more recent ANZSCO .</p>
<b>Road crash</b>	A collision on a public road between any vehicle or self-propelled plant and anything else, including a pedestrian.
<b>Type of occurrence classification system (TOOCS)</b>	<p>A suite of four classifications developed by the National Occupational Health and Safety Commission, a predecessor of Safe Work Australia, comprising:</p> <ul style="list-style-type: none"> <li>• the Nature of injury/disease classification</li> <li>• the Bodily location of injury/disease classification</li> <li>• the Mechanism of injury/disease classification</li> <li>• the Agency of injury/disease classification.</li> </ul> <p>Although the most current version is version 3.1, 2006–07 data was coded principally to version 2.1, with a few additional codes from later versions.</p>
<b>Working fatality</b>	A person who dies as a result of injuries sustained while at work, including those whose injury results from another's work activity.
<b>Working for income</b>	In previous reports the term 'Working for income' was used for the concept known as a 'Working fatality' in this report.



# References

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