

WORK-RELATED TRAUMATIC INJURY FATALITIES, AUSTRALIA 2005–06



September 2008



Australian Government
Australian Safety and Compensation Council

Australian Safety and Compensation Council

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INJURY FATALITIES,
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Acknowledgement

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Foreword

The exact number of people who die as a result of work-related activities in Australia is difficult to accurately establish. This is because there is no single national data collection system that identifies all work-related injury fatalities. This report is the third in a series which examines three datasets containing information on work-related injury fatalities to determine the best estimate of the number of workers and bystanders killed each year from work-related injury.

The key source of information currently used to monitor work-related fatalities in Australia is the National Data Set for Compensation-based Statistics (NDS). However this dataset only includes those work-related deaths for which liability for compensation has been accepted and excludes bystanders.

A second source of information compiled by the Australian Safety and Compensation Council (ASCC) is the Notified Fatalities Collection (NFC). This source is limited to fatalities notified under the Occupational Health and Safety (OHS) Act in each jurisdiction and does not generally collect commuting or bystander deaths.

The third dataset used is the National Coronial Information System (NCIS) which contains information on all deaths notified to any Australian coroner. While all work-related deaths are likely to be in the NCIS, they are not all coded as work-related and information from the other sources is necessary to identify the record in NCIS.

In addition to using information from these three data sets, information from media articles has been used to advise the project of additional deaths not previously identified. These deaths tended to come from incidents investigated by Commonwealth agencies i.e. plane and rail crashes and incidents involving the maritime industry. All such cases were matched with information in the NCIS to determine work-relatedness.

Definition of work-related deaths

Work-related deaths included in this report are those cases resulting from a work-related injury: where injury is defined as those conditions covered by the External Cause coding rationale of the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) .

A case is defined as a person:

- who was fatally injured
- whose injuries were as a direct result of work-related exposures
- whose injuries occurred in an incident that took place in Australia, Australian territories or territorial waters, and
- whose death occurred on or between 1 July 2005 and 30 June 2006.

The scope of this project includes:

- all persons killed while working for income or receiving payment in kind (including volunteer workers, unpaid family workers and persons undertaking work experience) and also including defence personnel if killed within Australia, Australian territories or territorial waters
- persons travelling to or from work (commuting) or travelling for work, and
- persons who were not working but were killed directly as a result of someone else's work activity (bystanders).

The scope of this project does not include:

- iatrogenic injuries – those where the worker died due to medical intervention
- natural causes of fatalities such as heart attacks and strokes

- fatalities as a result of diseases (such as cancers)
- defence personnel and civilians killed while working overseas
- suicides, and
- fatalities that result from personal home duties that are in no way related to a person's occupation.

Methodology

The case definition described above was applied to each data set to extract only those deaths considered to be in-scope for this project. Details of the deaths from each dataset were then compared in order to identify and remove duplicate and triplicate records, and a count of the remaining unique cases was obtained.

Information on the individual cases was then used to categorise the cases into one of three types of work activity:

Working for income

Commuting (travelling to or from work), or

Bystander.

To show the impact that travelling on public roads has to OHS, the working for income category has been further split into:

Working for income – not a road crash, and

Working for income – road crash.

Caution should be used, however, with the number of deaths shown in this publication for Commuting and Bystander. While it is reasonable to assume that the NCIS should contain all deaths, identifying those that fit into the Commuting and Bystander categories is dependent on the information collected and coded by the coroners' offices around Australia. Many deaths were only identified in the NCIS by reference to the commuting code in the NDS. However since less than half the jurisdictions in Australia provide workers' compensation coverage to those travelling to or from work, it is likely that the number of commuting deaths shown in this report is understated in Victoria, Western Australia, South Australia, Tasmania and the Northern Territory.

Bystander deaths are even more difficult to identify as they are not collected through the NDS and rarely through the NFC. Most of the bystander deaths in this report were identified by the extraction of all records involving heavy road-transport vehicles. Deaths were only included as Bystanders if they were due to the actions of a worker. For example, if a car swerved into the path of the heavy vehicle and the car driver was killed then this death would not be included in the statistics in this publication. This is a change to the previous report in which all deaths involving heavy vehicles were included. The number of Bystander deaths is still considered understated as it is likely that many deaths have occurred from collisions involving cars engaged in work activity which have not been identified as work-related in the NCIS.

This publication includes for the first time a time series section (Chapter 5) with data from 2003–04 to 2005–06 provided on a consistent basis so that movements over time can be assessed. Additional work-related deaths that have been identified since the original data were extracted have been included.

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SUMMARY OF FINDINGS

Analysis of the three datasets concluded that during 2005–06, 270 people died in Australia while working for income. In addition, the study identified a further 123 persons who died from an injury incurred while travelling to or from work and 41 persons who were killed as a bystander to work activity.

Fatalities occurring while working for income

The 270 workers who died during 2005–06 while working for income represents 2.6 deaths per 100 000 workers (which includes civilian and defence workers).

The highest number of work-related deaths while working for income was recorded by the Agriculture, forestry and fishing and Transport and storage industries (55 deaths each) followed by the Construction industry (43 deaths). The Agriculture, forestry and fishing and Transport and storage industries also recorded the two highest fatality rates (15.9 and 11.9 deaths respectively while working for income per 100 000 workers). While the Mining industry recorded a relatively low 14 deaths, the lower workforce numbers resulted in this industry recording the third highest fatality rate (11.3 deaths while working for income per 100 000 workers).

Vehicle accident was the cause of 40% of the working for income deaths. The next most common cause was *Being hit by moving objects* (14%) followed by *Falls from a height* (13%).

Mobile plant and transport was the object directly involved in 55% (148 fatalities) of the working for income fatalities. Within this group *Trucks, semi-trailers and lorries* accounted for 39% (58 fatalities); *Cars, station wagons, vans or utilities* 22% (33 fatalities); *Passenger aircraft* 12% (17 fatalities) and *Tractors, agricultural or otherwise* 5% (8 fatalities).

Of the 270 working for income fatalities 6% (15 deaths) involved women and the remainder men. The data show that fatality incidence rates increased with age in 2005–06, with the incidence rate for workers 65 years and over nearly four times the rate for all workers. Half of the deaths in this age group (10 of the 21) were from injuries sustained while working in the Agriculture, forestry and fishing industry.

Fatalities occurring while travelling to or from work

There were 123 commuting deaths identified in 2005–06 which represents 1.2 commuting deaths per 100 000 workers. The number of commuting deaths shown in this report is known to be understated due to the difficulty in identifying these types of deaths in the NCIS. Most commuting deaths were identified because they were compensated (NDS data) or were heavy vehicle related. In 86% of cases, the deceased was a driver or passenger in a vehicle. A further 12% of deaths were due to being hit by a vehicle.

The highest number of work-related deaths while commuting was recorded by the Manufacturing industry (24 deaths) followed by the Construction industry (21) and the Retail trade industry (14). However, the Mining industry recorded the highest incidence rate with 3.2 commuting deaths per 100 000 workers.

Bystander fatalities

In 2005–06, 41 deaths were identified as people who died from injuries due to another person's work activity (bystanders). This number is considered understated due to the difficulties in identifying this type of death in the NCIS. These deaths are not covered by the NDS and there is limited coverage in the NFC.

Nearly half (47%) of the bystander deaths were as a result of work activity in the Transport and storage industry. This is due to all deaths involving heavy vehicles being assessed for work-relatedness. The remaining deaths were spread across a range of industries. *Vehicle accidents* accounted for 18 bystander deaths: of those, 13 involved trucks, semi trailers or lorries.

Of the 41 identified bystander deaths, 11 were of children under the age of 18. Four were due to *Vehicle accidents*, three from *Being hit by falling objects* and two from *Being hit by moving objects*.

Time series comparison

Over the period from 2003–04 to 2005–06 the number of deaths that occurred while working for income increased 5%. Much larger increases were recorded for Commuting (up 41%) and Bystander deaths (up 37%), attributed to an increase in the number of deaths from *Vehicle accident*.

While there was an increase in the number of working for income deaths, the growth in employment over this period resulted in a slight decrease in the incidence of fatality while working for income: from 2.7 deaths per 100 000 employed persons in 2003–04 to 2.6 in 2005–06. Nearly 60% of the working for income deaths which occurred from 2003–04 to 2005–06 were recorded in three industries: Agriculture, forestry and fishing; Transport and storage; and Construction.

While the Agriculture, forestry and fishing industry recorded a reduction in the number of working for income fatalities from 66 deaths in 2003–04 to 55 in 2005–06, the incidence rate of 16 deaths per 100 000 employed persons recorded in 2005–06 is still six times the rate for all industries.

The Transport and storage industry also recorded a drop in the number of fatalities while working for income: from 61 deaths in 2003–04 to 55 in 2005–06. However, the industry recorded the second highest number of deaths and incidence rates in all three years, recording 12 deaths per 100 000 workers in 2005–06, nearly five times the rate for all industries of 2.6.

The Construction industry recorded the third highest number of deaths of all industries in all three years and recorded a 30% increase in the number of deaths from 33 to 43 in the three years. The incidence rate increased 14%, due to increasing employment in this industry: from 4.2 deaths per 100 000 workers in 2003–04 to 4.8 in 2005–06.

The Mining industry recorded one of the highest percentage increases in the number of working for income deaths: up from 6 deaths in 2003–04 to 14 in 2005–06. This industry has also had a large increase in the number of workers, thus moderating the increase in its incidence rate from 6.4 deaths per 100 000 workers in 2003–04 to 11 deaths per 100 000 workers in 2005–06, the third highest of all industries.

The Electricity, gas and water supply industry has also recorded a substantial increase from 3 working for income deaths in 2003–04 to 6 in 2005–06. The increase in employment moderated the increase in incidence rates, from 4 deaths per 100 000 workers in 2003–04 to 7 deaths per 100 000 workers in 2005–06, which is nearly three times the rate for all industries.

1. Work-related deaths by type of work activity

This study identified 434 work-related deaths that occurred in 2005–06, comprised of 270 deaths which occurred while the worker was working for income, 123 while the worker was travelling to or from work (commuting) and 41 persons killed as a result of someone else’s work activity (bystanders). However the number of commuting and bystander deaths is understated due to difficulties in identifying these deaths in the NCIS.

Table 1 shows that the highest number of work-related deaths was recorded by the Transport and storage industry (82), followed by the Construction industry (66 deaths), and the Agriculture, forestry and fishing industry (65). These three industries accounted for nearly half of all work-related deaths identified by this study and nearly 60% of the working for income deaths.

Table 1: Identified work-related deaths and incidence rates by type of work activity undertaken and industry of employer, Australia, 2005–06

Industry of Employer	Working for income	Commuting	Bystander*	Total	Incidence Rate **
Agriculture, forestry and fishing	55	6	4	65	17.3
Mining	14	4	0	18	14.5
Transport and storage	55	8	19	82	13.6
Electricity, gas and water supply	6	1	0	7	8.2
Construction	43	21	2	66	7.2
Manufacturing	25	24	1	50	4.6
Personal and other services	13	3	1	17	4.0
Wholesale Trade	4	8	0	12	2.5
Property and business services	20	9	0	30	2.3
Accommodation, cafes and restaurants	5	6	1	12	2.3
Communication Services	2	2	0	4	2.2
Retail trade	13	14	0	27	1.8
Government administration and defence	4	5	1	10	1.6
Cultural and recreational services	3	1	6	10	1.5
Education	4	5	1	10	1.3
Finance & Insurance	1	3	0	4	1.1
Health and community services	3	1	5	9	0.4
Unknown	0	2	0	2	n/a
Total	270	123	41	434	3.8

* data shown for bystanders is by industry of workplace

** deaths per 100 000 workers, does not include bystanders

Table 1 also shows that the pattern of deaths is quite different across the type of activity groups. While the Agriculture, forestry and fishing, Transport and storage and Construction industries recorded the highest number of working for income deaths of all the industries, Commuting deaths mainly occurred in the Manufacturing, Construction and Retail trade industries. The Transport and storage industry also recorded the highest number of Bystander deaths (19 of the 41 identified bystander deaths) due to this study mainly identifying deaths to bystanders where a heavy road-freight transport vehicle was involved. It is expected that many additional bystander deaths would have been identified in the NCIS if it was possible to determine if other road users (i.e. cars) were involved in work activity. It is likely that these deaths would have been recorded against a variety of other industries.

However, when determining which industries have the highest rates of death, the number of workers in that industry must be considered. Table 1 shows that while the Transport and storage industry recorded the highest number of fatalities, the Agriculture, forestry and fishing industry recorded the highest incidence rate of 17 deaths per 100 000 workers (over four times the rate for all industries).

The Transport and storage industry recorded the third highest rate (14 deaths per 100 000 workers), more than three times the rate for all industries.

The table also shows that while the Mining industry recorded a relatively low 18 deaths, the lower number in the workforce in this industry results in it recording the second highest fatality rate (15 deaths per 100 000 workers). The lowest incidence rate was recorded by the Health and community services industry with 0.4 deaths per 100 000 workers. However while this industry recorded 4 deaths to workers it also recorded 5 bystander deaths.

Incidence rates have been calculated excluding bystander deaths so that a rate per employed person could be accurately calculated as the inclusion of bystander deaths would adversely inflate the Transport and storage industry rate.

2. Work-related deaths: working for income

Analysis of the datasets identified 270 deaths while working for income in 2005–06. This represents 2.6 deaths per 100 000 workers.

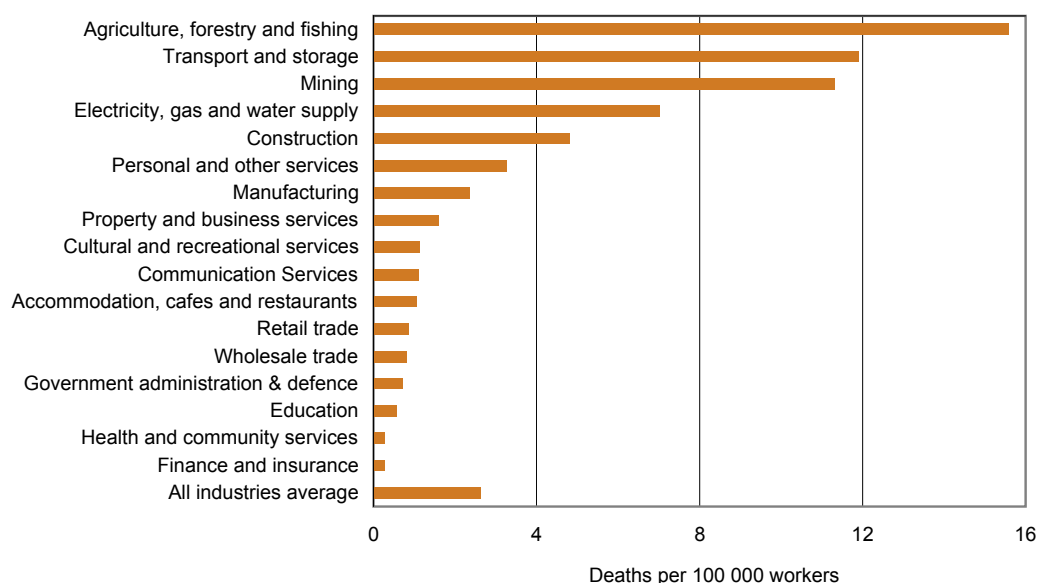
2.1 Working for income fatalities by industry of employer

The data in Table 1 on page 3 of this report showed that the highest number of work-related deaths while working for income was recorded by the Agriculture, forestry and fishing and Transport and storage industries (55 deaths each) followed by the Construction industry (43). However, when determining which industry had the highest rate of death, the number of workers in that industry must be considered. Figure 1 shows that in addition to having the highest number of fatalities, the Agriculture, forestry and fishing and Transport and storage industries also had the highest fatality rates (15.9 and 11.9 fatalities per 100 000 workers respectively). These rates are six and five times the all industries rate of 2.6 deaths per 100 000 workers respectively.

While the Mining industry recorded a relatively low 14 deaths, the lower number in the mining workforce means this industry had the third highest fatality rate (11.3 deaths per 100 000 workers) of all industries.

These data show that 11 of the 17 industries recorded rates below the all industries rate, with 8 of these industries recording 5 or less deaths while working for income.

Figure 1: Working for income fatalities: incidence rate by industry of employer, Australia, 2005–06



2.2 Working for income fatalities: involvement of road crashes

In 2005–06, road crashes accounted for 29% of deaths (78 of 270) from injuries sustained while working for income. Table 2 shows that not surprisingly, road crashes in the course of work were most prominent in the Transport and storage industry (29 deaths). This industry sector contributed 37% of the total number of deaths due to road crashes while working for income, followed by the Agriculture, forestry and fishing industry with 14%. The remainder of deaths resulting from road crashes occurred across a wide range of industries.

Vehicles also contributed to a number of deaths not involving a crash on a public road. In 2005–06, there were 16 deaths in plane crashes, 15 involving trucks not on public roads, 8 from tractor incidents and 8 involving cars not on public roads. Some of these deaths occurred on agricultural properties, others on business premises.

Table 2: Working for income deaths by whether a road crash was involved and industry of employer, Australia, 2005–06

Industry of Employer	Number of deaths		Proportion	
	Non-road crash	Road crash	Non-road crash	Road crash
Agriculture, forestry & fishing	44	11	80%	20%
Mining	12	2	86%	14%
Manufacturing	20	5	80%	20%
Electricity, gas and water supply	4	2	67%	33%
Construction	36	7	84%	16%
Wholesale trade*	3	1	75%	25%
Retail trade	7	6	54%	46%
Accommodation, cafes and restaurants*	4	1	80%	20%
Transport and storage	26	29	47%	53%
Communication services*	0	2	0%	100%
Finance and insurance*	1	0	100%	0%
Property and business services	17	3	85%	15%
Government administration and defence*	3	1	75%	25%
Education*	3	1	75%	25%
Health and community services*	1	2	33%	67%
Cultural and recreational services*	3	0	100%	0%
Personal and other services	8	5	62%	38%
Total	192	78	71%	29%

* comparison across industries should be treated with caution as these industries recorded 5 or less fatalities in 2005–06

2.3 Working for income fatalities by state/territory

New South Wales was the location for 37% of the deaths followed by 24% in Queensland and 16% in Victoria. Table 3 shows that more deaths due to road crashes occurred in the three largest states which together accounted for over 80% of this type of death compared to 74% of the non-road crash deaths. When the working population is taken into account, Table 3 shows that the highest incidence rate in 2005–06 was recorded by the Northern Territory with 9.5 deaths per 100 000 workers compared to the national average of 2.6. While 7 of the 9 deaths in this state were classed as non-road crash deaths, 3 were due to vehicle accidents not on public roads. Three of the deaths were due to electrocution. The deaths occurred in a range of industries.

Of the larger states, Victoria recorded the lowest incidence rate, 1.7 deaths per 100 000 workers due to a substantially lower number of non-road crash deaths compared to the other states.

Table 3: Proportion of working for income deaths by state/territory of death and whether a road crash was involved, 2005–06

State/territory of death	Non-road crash		Road crash		Total		Incidence rate ^(a)
	No.	%	No.	%	No.	%	
New South Wales	69	36%	30	38%	99	37%	3.0
Victoria	26	14%	18	23%	44	16%	1.7
Queensland	46	24%	20	26%	66	24%	3.2
Western Australia	17	9%	2	3%	19	7%	2.5
South Australia	20	10%	3	4%	23	9%	2.2
Tasmania	6	3%	3	4%	9	3%	4.0
Northern Territory	7	4%	2	3%	9	3%	9.5
Australian Capital Territory	1	1%	0	0%	1	0%	0.5
TOTAL	192	100%	78	100%	270	100%	2.6

(a) deaths per 100 000 workers

2.4 Working for income fatalities by age

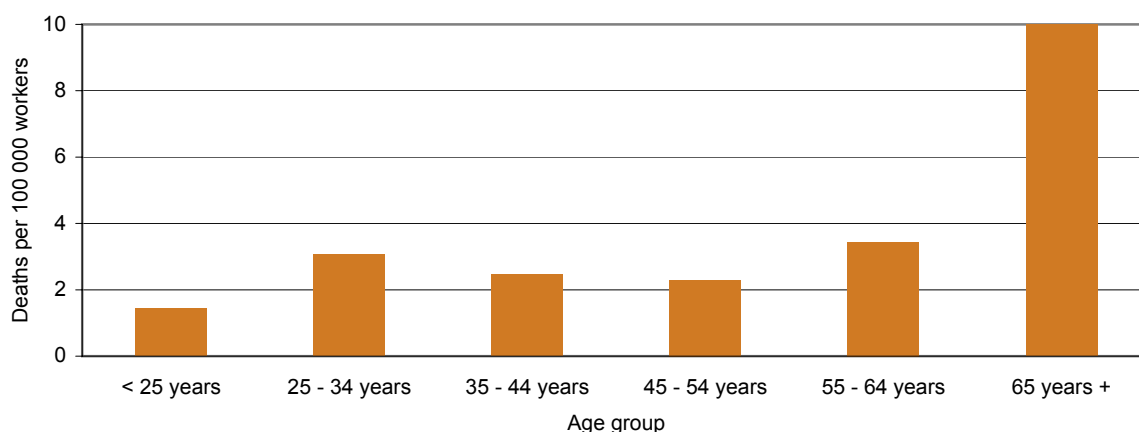
Of the 270 working for income fatalities that occurred in 2005–06, 15 (6%) involved women and the remainder men. Table 4 shows the age profile of the working for income deaths with fewer deaths recorded in the youngest and oldest age groups and the highest number of deaths recorded in the 25–34 years age group.

Table 4: Number of working for income deaths by age group and gender

Age Group	Women	Men	Total
Less than 25 years	1	25	26
25 – 34 years	3	65	68
35 – 44 years	5	54	59
45 – 54 years	4	48	52
55 – 64 years	1	43	44
65 years and over	1	20	21
Total	15	255	270

However when the workforce size in each age group is taken into account (Figure 2) it can be seen that incidence rates increase with age, with the incidence rate of work-related death for workers aged 65 years and over nearly four times the rate for all workers. Half of the deaths (10 of the 21 deaths) in this older age group were from injuries sustained while working in the Agriculture, forestry and fishing industry.

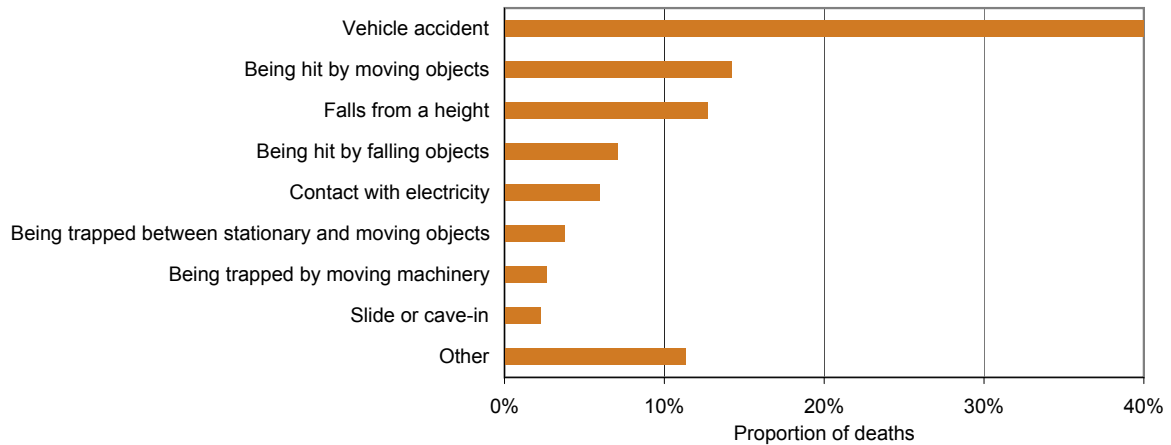
Figure 2: Incidence rates by age group, 2005-06



2.5 Working for income fatalities by mechanism of injury

As previously mentioned vehicle accidents feature prominently in deaths while working for income. Figure 3 shows that 40% of deaths were due to *Vehicle accident*. The next most common cause was *Being hit by moving objects* (14%), followed by *Falls from a height* (13%).

Figure 3: Deaths while working for income by mechanism of injury, 2005–06



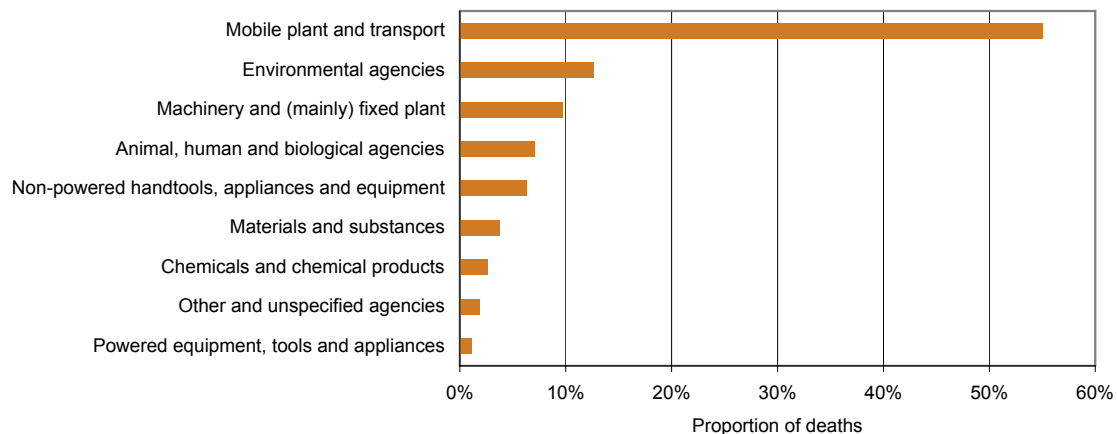
2.6 Working for income fatalities by agency of injury

The agency of injury describes the object, substance or circumstances directly involved in inflicting the injury. Figure 4 shows that 55% (148 deaths) of working for income fatalities involved Mobile plant and transport (which includes all types of vehicles). Within this group *Trucks, semi-trailers and lorries* contributed 39% (58 fatalities), *Cars, station wagons, vans or utilities* 22% (33 fatalities), *Aircraft* 12% (17 fatalities) and *Tractors* 5% (8 fatalities).

Environmental agencies contributed 13% (34 deaths) of the working for income fatalities. This category includes a variety of conditions relating to weather and ground conditions as well as building and vegetation factors. The highest number of fatalities in this group (12 deaths) occurred in *Buildings and other structures*, 6 deaths were due to *Holes in the ground* and 6 deaths were due to falling trees.

Machinery and (mainly) fixed plant also contributed 10% (26 deaths) of the working for income fatalities. This group includes cranes and conveying equipment, high and low tension distributions lines and other electrical equipment.

Figure 4: Deaths while working for income by agency of injury, 2005–06



3. Work-related deaths: commuting

Analysis of the datasets identified 123 workers who died travelling to or from work which represents 1.2 commuting deaths per 100 000 employed workers in 2005–06. This incidence rate is substantially lower than the national road toll rate of 8 deaths per 100 000 population.

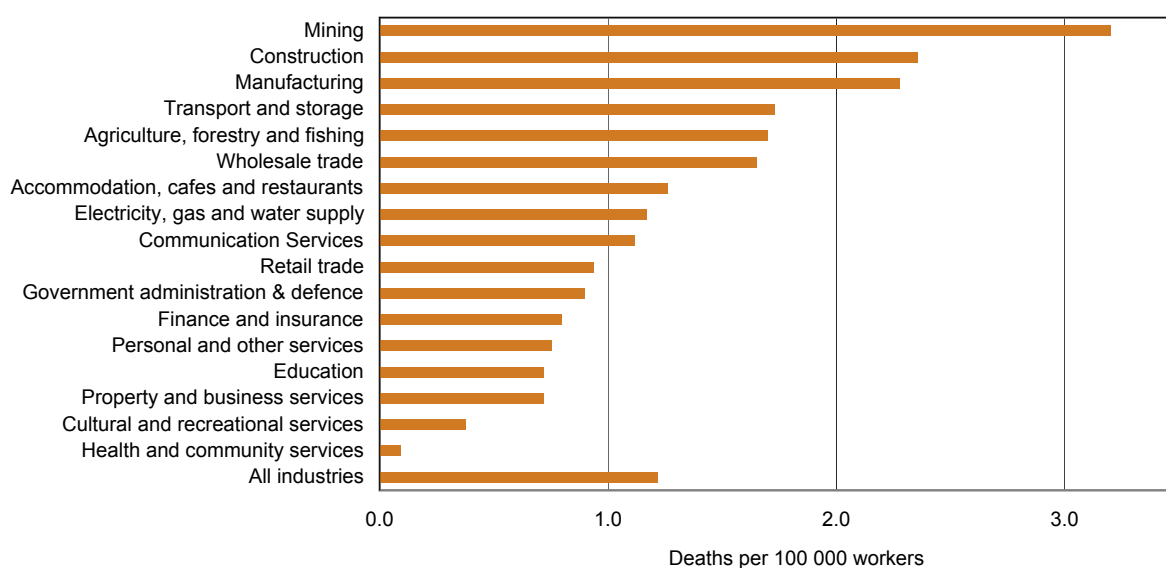
3.1 Commuting fatalities by industry of employer

Table 1 on page 3 showed that all industries recorded at least one commuting death. The highest number of commuting deaths were recorded by the Manufacturing industry (24 deaths), the Construction industry (21 deaths) and the Retail trade industry (14 deaths).

Figure 5 shows that while Mining recorded a relatively low 4 commuting deaths, the smaller number of workers in this industry resulted in it recording the highest incidence rate of 3.2 commuting deaths per 100 000 workers, three times the Australian rate of 1.2 commuting death per 100 000 workers. By comparison the Construction (21 deaths) and Manufacturing (24 deaths) industries had incidence rates of 2.4 and 2.3 respectively.

The relatively low number of commuting deaths (8) in Transport and storage is due to it being unclear when a long haul truck driver is commuting, with the assumption being made for this report that if the person is in the truck, they are working.

Figure 5: Commuting deaths by industry of employer, Australia, 2005–06



3.2 Commuting fatalities by state/territory

Table 5 identifies the state/territory where the death occurred for the identified commuting deaths during 2005–06. There were no commuting deaths identified in the ACT. These data are heavily influenced by the lack of NDS data from jurisdictions that do not provide coverage for journeys to and from work. These jurisdictions are Victoria, Western Australia, South Australia, Tasmania and the Northern Territory (for motor vehicles).

When the working population is taken into account, the highest incidence rate in 2005–06 was recorded by Tasmania with 2.7 commuting deaths per 100 000 workers compared to 1.2 commuting deaths nationally. This result is surprising given that there is no workers' compensation coverage for commuting in Tasmania and hence these deaths were identified due to the NCIS coding.

Of the larger states, Queensland recorded the highest incidence rate of 1.8 commuting deaths per 100 000 workers.

Table 5: Number of commuting deaths by state/territory of injury event, Australia, 2005–06

State/territory of death	Deaths	%	Incidence rate ^(a)
New South Wales	46	37%	1.4
Victoria	22	18%	0.9
Queensland	38	31%	1.8
Western Australia	6	5%	0.6
South Australia	3	2%	0.4
Tasmania	6	5%	2.7
Northern Territory	2	2%	2.1
Australian Capital Territory	0	0%	0.0
TOTAL	123	100%	1.2

(a) deaths per 100 000 workers

3.3 Commuting fatalities by age

Table 6 shows the commuting deaths by age group with the highest rates recorded in the youngest and oldest age groups.

Table 6: Number of commuting deaths by state/territory of injury event, Australia, 2005–06

Age group	No. of deaths	Incidence rate ^(a)
Less than 25 years	45	2.5
25 – 34 years	24	1.1
35 – 44 years	25	1.0
45 – 54 years	15	0.7
55 – 64 years	9	0.7
65 years and over	5	2.4
All commuting deaths	123	1.2

(a) deaths per 100 000 workers

3.4 Commuting fatalities by mechanism and agency of injury

Vehicle accident caused 106 deaths (86% of all commuting deaths). Of these, 70% (81 deaths) involved cars, 9% involved trucks, and 8% motorcycles. These results are not unexpected given the majority of Australians travel to work by some sort of vehicle.

The second highest mechanism of death, with 15 cases, was *Being hit by moving objects*. This mechanism includes pedestrians being hit by moving vehicles. Of the 15 deaths, 8 involved cars, 3 trucks, 3 trains and 1 a bus.

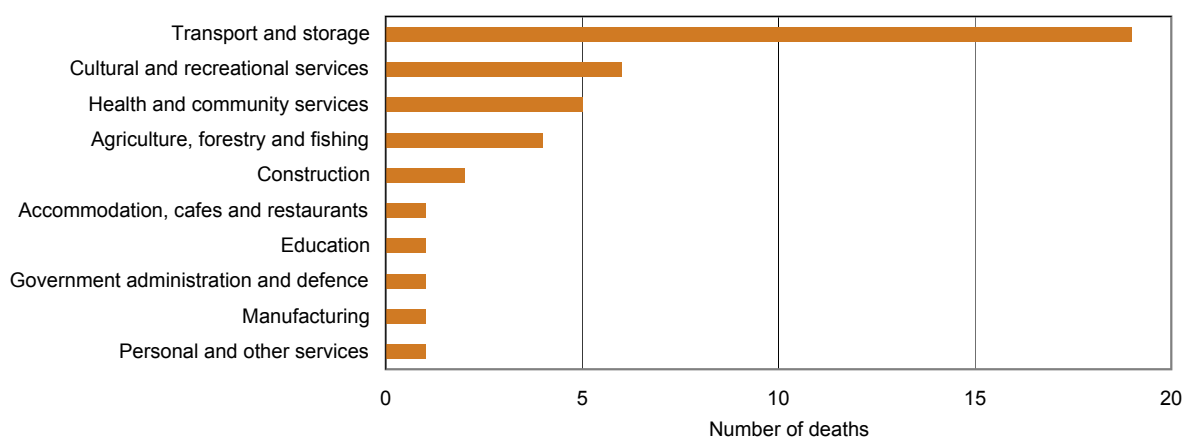
4. Work-related deaths: bystanders

In 2005–06, 41 people died from injuries due to the activities of a working person. This number of bystander deaths is likely to be understated due to the lack of detailed information collected at the time of the incident to indicate if work activity was being undertaken. This is particularly the case where passenger vehicles were involved in incidents on public roads.

4.1 Bystander fatalities by industry of workplace

Industry of employer is not applicable to bystander deaths and instead industry of workplace has been used to identify industries where members of the public are more at risk. Figure 6 shows that the Transport and storage industry was the workplace for 19 of the 41 (46%) bystander deaths. However this was due to the NCIS data extraction including all incidents involving heavy vehicles. These were then scrutinized to determine work-relatedness. This means that bystander deaths involving trucks are more likely to have been identified in this study than cases where there was another agency of injury, such as a car. Deaths were only included in this publication if they were directly due to someone else’s work activity. For example, where a car and truck collide and the car driver is killed, the death is only included if the truck driver contributed to the incident.

Figure 6: Number of bystander deaths by industry of incident, Australia, 2005–06



4.2 Bystander fatalities by state/territory

Queensland and New South Wales recorded the majority of the deaths (14 and 13 respectively) followed by Victoria (7) and Western Australia (6). Given the larger populations in New South Wales, Queensland and Victoria, these numbers of deaths are not surprising. However when the population of the state is taken into account, Queensland and Western Australia had the highest incidence rates at 0.3 bystander deaths per 100 000 population each followed by New South Wales and Tasmania with 0.2 and Victoria with 0.1.

4.3 Bystander fatalities by age

Of the 41 bystander deaths, 11 deaths were of children under the age of 18 with 6 under the age of ten years. Four children were killed due to *Vehicle accident* where they were a passenger in a vehicle, 3 died due to *Being hit by falling objects*, 2 by *Being hit by moving objects* and 1 from *Drowning*. Deaths of children on farms has previously been identified as a concern¹. Encouragingly this study only found 3 deaths in the Agriculture, forestry and fishing industry, 1 where the child drove a vehicle unsupervised and 2 from fencing falling on top of them.

¹ The report *Work-related fatalities involving children and adolescents in Australia, 1989 to 1992* found 165 bystander deaths of persons aged 19 years or less in the four years, of which 99 occurred at a farm (excluding the farmhouse). There were 54 deaths attributed to drownings many of which occurred on farms.

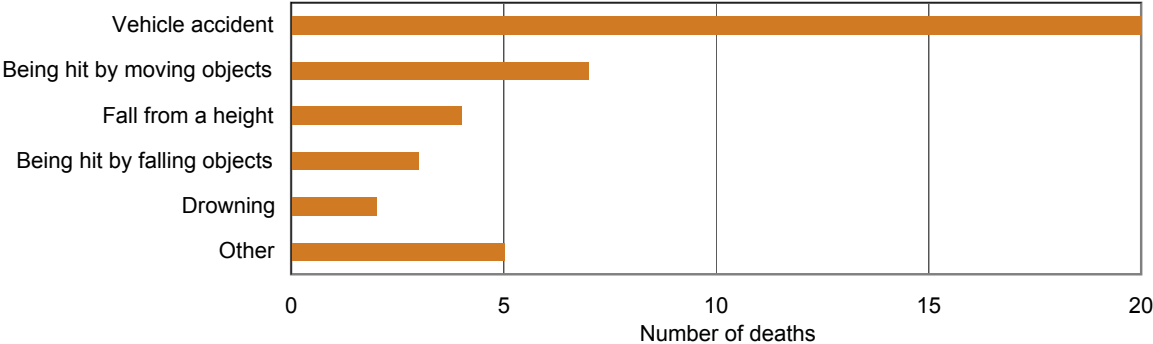
At the other end of the age range, 13 bystanders were aged 65 years and over. As with the children, incidents involving vehicles accounted for most of the deaths with *Vehicle accident* and *Hit by moving objects* accounting for 4 deaths each. *Falls from a height* accounted for a further 3 deaths.

4.4 Bystander fatalities by mechanism of injury

Figure 7 shows that *Vehicle accident* was the main cause of bystander deaths, accounting for 49% of the deaths. A *Vehicle accident* is any accident or incident involving a mode of transport, whether by rail, road, air or water. It covers not only the usual modes of transport such as trucks, buses, cars, trains, planes etc, but also, cranes, forklifts and tractors. *Being hit by moving objects* was the second highest mechanism of injury accounting for 20% of deaths. This mechanism includes pedestrians hit by moving vehicles, with all 8 cases involving a vehicle of some description.

Falls from a height accounted for 4 bystander deaths with 3 of these involving elderly patients being moved from beds and *Being hit by falling objects* accounted for 3 deaths all involving children hit by falling fencing in two separate incidents.

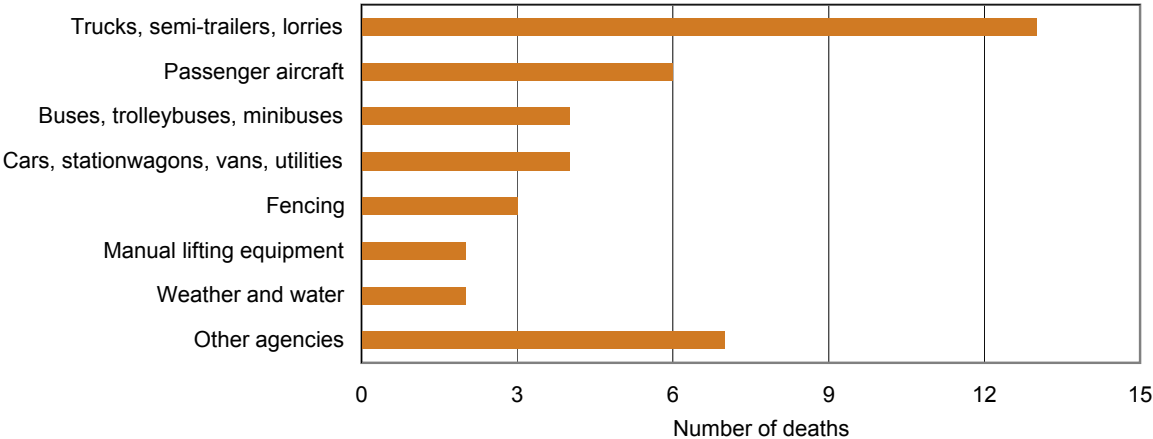
Figure 7: Number of bystander deaths by mechanism of injury, Australia, 2005–06



4.5 Bystander fatalities by agency of injury

The agency of injury describes the object, substance or circumstances directly involved in inflicting the injury. As can be seen from Figure 8, 27 of the 41 bystander deaths involved some form of vehicle with *Trucks, semi-trailers and lorries* accounting for 13 of the deaths and *Passenger aircraft* 6.

Figure 8: Number of bystander deaths by agency of injury, Australia, 2005–06



5. Time series comparison

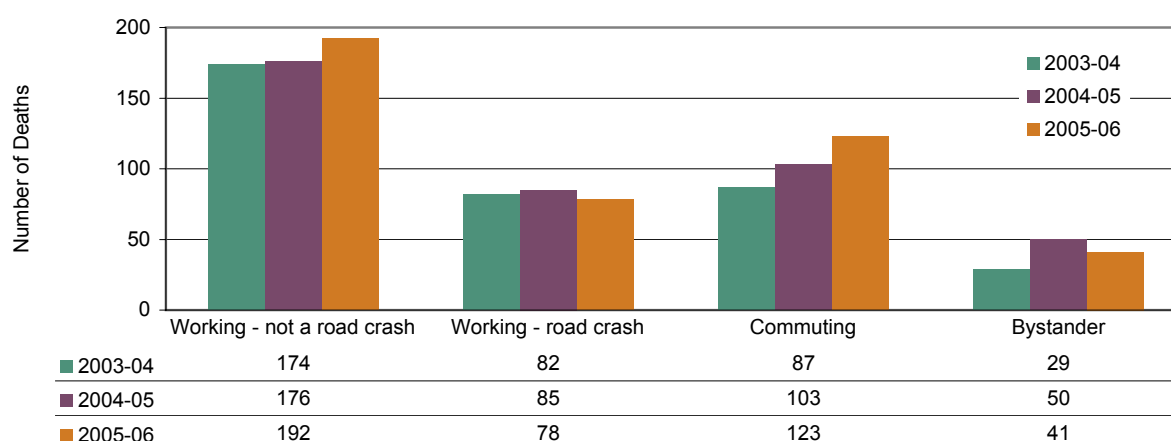
The number of work-related fatalities each year can be volatile and the characteristics of deaths in one year can be quite different to those in other years. So that a more robust analysis of work-related fatalities can be undertaken, data from 2003–04 and 2004–05 have been reviewed to ensure that decisions for inclusion have been made on a consistent basis to those used in 2005–06.

The revised data indicate a 17% increase in the number of work-related deaths: from 372 deaths in 2003–04 to 434 in 2005–06. Figure 9 shows that the number of work-related deaths has increased over the past three years in all categories except deaths that involved a road crash while working, which recorded a 4% fall from 81 down to 78 deaths. Overall the number of deaths that occurred while working increased 5%. This is much smaller than Commuting deaths which increased 41% and Bystander deaths which increased 37%.

The Working for income group recorded a 5% increase in the number of deaths over the three year period. However due to the growth in employment, incidence rates have shown a slight decrease over the three year period: from 2.7 working for income deaths per 100 000 employed persons in 2003–04 to 2.6 in 2005–06.

While the latest data from the NDS (based on date of lodgement) shows that the number of working for income deaths increased 9% from 168 deaths in 2003–04 to 183 deaths in 2005–06, incidence rates have remained stable at 2.0 deaths per 100 000 employees.

Figure 9: Number of work-related deaths by type of work activity and year



5.1 Time series comparison: all work-related deaths by mechanism of injury

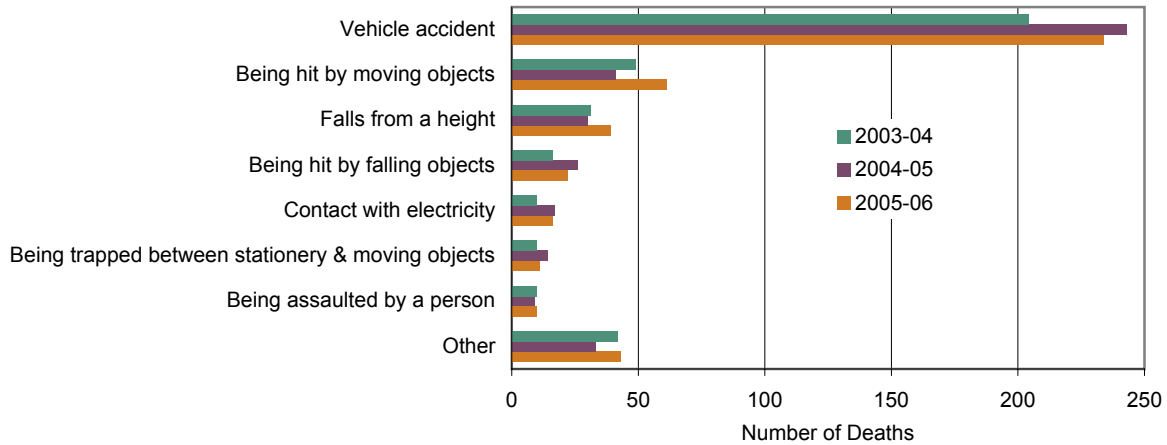
Figure 10 shows that the increase in the number of work-related deaths from 2003–04 to 2005–06 was mainly due to an increase in the number of deaths due to *Vehicle accident* with this mechanism accounting for half of the increase (32 of the extra 62 deaths).

Being hit by moving objects, which includes being hit by vehicles, is the second highest cause of death and recorded a 24% increase over the three year period. It is possible that the lower proportion recorded in 2004–05 is due to some deaths being coded as *Vehicle accident* as the latter mechanism recorded a corresponding increase in that year.

Falls from a height recorded a 26% increase in the number of deaths due to this mechanism: up from 31 deaths in 2003–04 to 39 in 2005–06.

Contact with electricity recorded the largest percentage increase (60%) over the three year period: rising from 10 deaths in 2003–04 to 16 deaths in 2005–06. *Being hit by falling objects* also recorded a large percentage increase (38%) with the number of deaths increasing from 16 to 22 over the same period.

Figure 10: Proportion of work-related deaths by mechanism of injury and year



5.2 Time series comparison: working for income by industry of employer

The following analysis has been undertaken only on those deaths which occurred while working for income.

Table 7 shows that three industries have consistently recorded the three highest number of working for income deaths: Agriculture, forestry and fishing; Transport and storage; and Construction. These industries account for around 60% of all working for income deaths.

While the Agriculture, forestry and fishing industry recorded a reduction in the number of fatalities from 64 deaths in 2003–04 to 55 in 2005–06, the incidence rate of 16 deaths per 100 000 employed person recorded in 2005–06 is still six times the rate for all industries.

The Transport and storage industry also recorded a decrease in the number of fatalities while working for income: from 58 deaths in 2003–04 to 55 in 2005–06. Despite the decrease, the Transport and storage industry still recorded the second highest number of deaths and second highest incidence rate of all industries in 2005–06: 12 deaths per 100 000 employed persons, nearly five times the rate for all industries.

The Construction industry has shown considerable volatility with 35, 26, and 43 deaths while working for income recorded across the three years, the third highest number of deaths of all industries in each of the years. However, due to increasing employment in this industry, it recorded a 9% increase in incidence rate: from 4.4 deaths per 100 000 employed persons in 2003–04 to 4.8 in 2005–06, compared to the 22% increase in the number of deaths.

The Mining industry recorded one of the highest percentage increases in the number of deaths: up from 5 deaths in 2003–04 to 14 in 2005–06. This industry has also had a large increase in the number of workers, thus moderating the increase in its incidence rate from 5.3 deaths per 100 000 employed persons in 2003–04 to 11 deaths per 100 000 employed persons in 2005–06, the third highest of all industries.

The Electricity, gas and water supply industry has also recorded a substantial increase from 3 deaths in 2003–04 to 6 in 2005–06. Similar to Mining, there has been an increase in employment, moderating the increase in its incidence rate from 4.1 deaths per 100 000 employed persons in 2003–04 to 7.0 deaths per 100 000 employed persons in 2005–06, which is nearly three times the rate for all industries of 2.6.

The Manufacturing industry has also shown a large increase in the number of deaths: up from 17 in 2003–04 to 25 in 2005–06. There has been little employment growth in this industry and incidence rates have recorded the same magnitude of movement as the number of deaths: up from 1.5 deaths per 100 000 employed persons in 2003–04 to 2.4 deaths per 100 000 employed persons in 2005–06.

The spike in deaths recorded in 2004–05 for Government administration and defence (11 deaths compared to 3 in 2003–04 and 4 in 2005–06) can be attributed to two plane crashes that killed a total of 9 people.

Table 7: Number of deaths and incidence rates (deaths per 100 000 employed persons) for working for income by industry

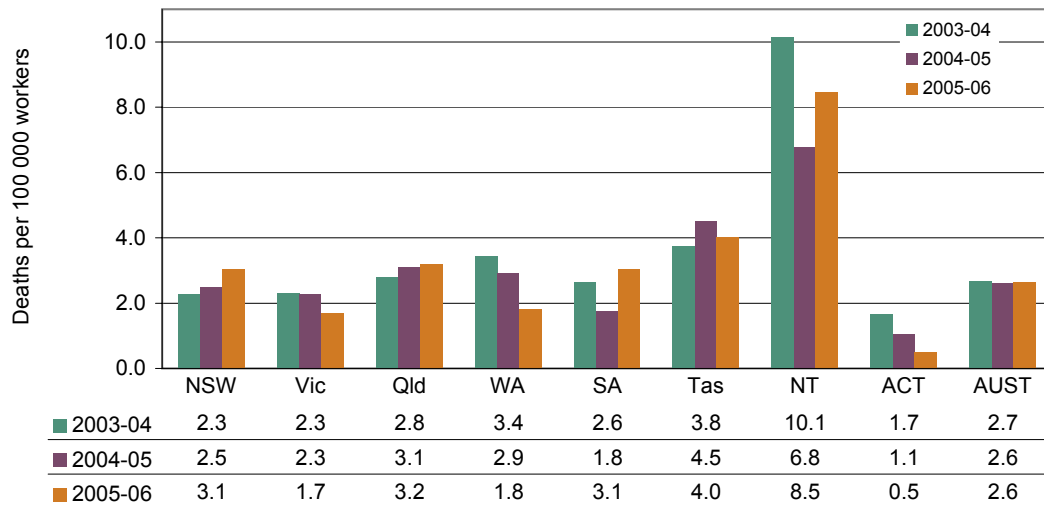
Industry	Number of deaths			Incidence rates		
	2003-04	2004-05	2005-06	2003-04	2004-05	2005-06
Agriculture, forestry and fishing	64	68	55	18.5	19.5	15.6
Mining	5	8	14	5.3	6.8	11.3
Manufacturing	17	21	25	1.5	2.0	2.4
Electricity, gas and water supply	3	3	6	4.1	3.5	7.0
Construction	35	26	43	4.4	3.0	4.8
Wholesale Trade	10	9	4	2.3	2.1	0.8
Retail trade	10	10	13	0.7	0.7	0.9
Accommodation, cafes and restaurants	2	6	5	0.4	1.2	1.0
Transport and storage	58	56	55	13.1	12.5	11.9
Communication Services	6	0	2	3.5	0.0	1.1
Finance & Insurance		0	1	0.0	0.0	0.3
Property and business services	14	13	20	1.3	1.1	1.6
Government administration & defence	3	11	4	0.6	2.2	0.7
Education	4	2	4	0.6	0.3	0.6
Health and community services	8	4	3	0.8	0.4	0.3
Cultural and recreational services	3	7	3	1.3	2.5	1.1
Personal and other services	13	17	13	3.3	4.3	3.3
Total working for income	256	261	270	2.7	2.6	2.6

5.3 Time series comparison: working for income by state/territory

Figure 11 shows incidence rates by state of death for people killed while working for income. While the Australian incidence rate has remained relatively stable across the three years, New South Wales and Queensland have recorded increases in incidence rates, while Victoria, Western Australia and the Australian Capital Territory have recorded decreases.

The incidence of work-related death has shown considerable volatility in some of the smaller jurisdictions, where an increase by 2 or 3 deaths resulted in large changes in incidence rates. This is particularly evident in the Northern Territory where the number of deaths over the three years were 9, 6 and 8 resulting in incidence rates ranging from 7 deaths per 100 000 workers to 10 deaths per 100 000 workers.

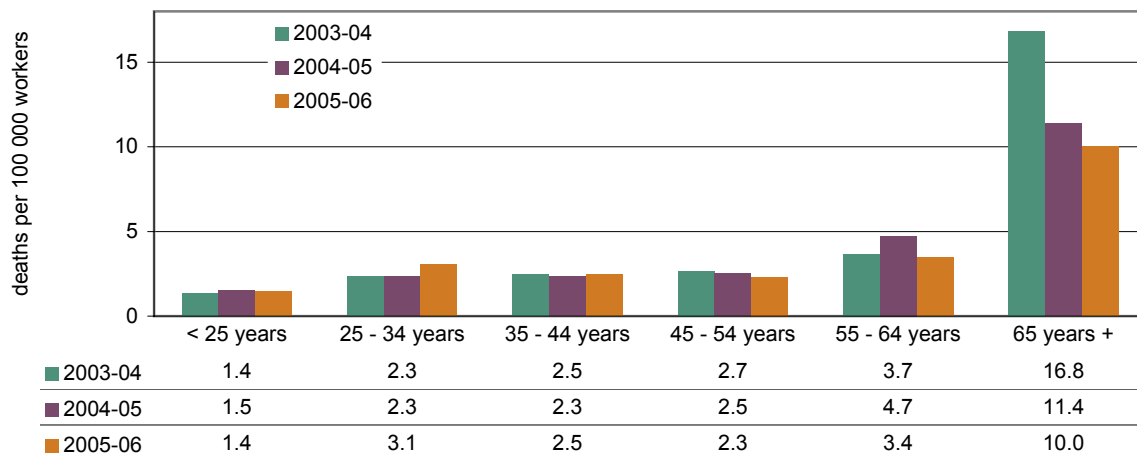
Figure 11: Incidence rates for working for income by state/territory of death



5.4 Time series comparison: working for income by age

Figure 12 shows that incidence rates of the working for income fatalities has recorded little change over the three year period except for the 65 years and over group: which has fallen from an incidence rate of 17 deaths per 100 000 workers in 2003–04 to 10 deaths per 100 000 workers in 2005–06. This decrease is due to a combination of employment increasing 26% for this group over this period and the number of fatalities reducing from 28 in 2003–04 down to 21 in 2005–06.

Figure 12: Incidence rates for working for income by age



6. Dataset comparison

This study has used information from three datasets: the NDS; the NFC and the NCIS. Each of these datasets has limitations and hence input from all three datasets is required to more accurately determine the number of work-related deaths occurring each year.

Table 8 shows that the proportion of cases contributed by each dataset remained relatively stable over the past three years, despite the increase in the actual number of identified work-related deaths over this period. While this table shows that the NCIS captured at least 94% of all work-related deaths in each year, information from the other sources was necessary to identify the record in the NCIS as some deaths were not flagged as work-related. In 2005–06, the NCIS captured 99% of the Working for income deaths, 95% of the identified Commuting deaths and 98% of the identified Bystander deaths.

The NFC is limited to fatalities notified under the OHS Act in each jurisdiction and does not generally collect commuting or bystander deaths as shown by the low proportions of these deaths in Table 8.

The table also shows that the NDS captured around half of all work-related deaths. This is due to the NDS only including those work-related deaths for which liability for compensation has been accepted. As only employees are covered for workers' compensation, deaths of self-employed workers would not be included in the NDS. As around 87% of workers are employees (see Explanatory Notes Table 1) and hence are covered by workers' compensation, at best the NDS could capture around 87% of working for income deaths. One reason for the low proportion of working for income deaths captured in the NDS is that a record only exists where there are dependants to lodge a claim. Many younger workers do not have dependants and hence no workers' compensation payment is made. The other reason is that it is possible that more deaths occur from the self-employed group of workers. As the NCIS does not identify whether the worker was an employee or self-employed, it is not possible to identify the exact reason for the low proportions of working for income deaths in the NDS.

Table 8: Number and proportion of work-related deaths by dataset

	Number of deaths			Proportions		
	2003-04	2004-05	2005-06	2003-04	2004-05	2005-06
Working for income						
NDS	141	152	156	55%	58%	58%
NFC	121	124	136	47%	48%	50%
NCIS	247	249	266	96%	95%	99%
Total Working for income	256	261	270	100%	100%	100%
Commuting deaths						
NDS	54	81	79	62%	79%	64%
NFC	0	1	1	0%	1%	1%
NCIS	84	95	117	97%	92%	95%
Total Commuting	87	103	123	100%	100%	100%
Bystander deaths						
NDS	0	0	0	0%	0%	0%
NFC	11	14	9	38%	28%	22%
NCIS	29	47	40	100%	94%	98%
Total Bystander	29	50	41	100%	100%	100%
All work-related deaths						
NDS	195	233	235	52%	56%	54%
NFC	132	139	146	35%	34%	34%
NCIS	360	391	423	97%	94%	97%
Total work-related deaths	372	414	434	100%	100%	100%

The table also shows that the NDS captured 64% of commuting deaths. The better performance of the NDS for commuting deaths (compared to working for income deaths) is due to these deaths being mainly identified in the NDS and confirmed in the NCIS, as NCIS coding did not always identify whether a road crash death involved a worker commuting. The number of commuting deaths in this study is likely to be understated as workers' compensation for commuting is only available in some states and territories. In addition the NDS does not include bystander deaths.

6.1 Working for income fatalities

Table 9 shows the proportion of working for income deaths in each industry captured by each dataset in 2005–06. This table shows that the NCIS captured all deaths in all industries except Transport and storage (96%) and Property and business services (90%) industries where two deaths each were not found in the NCIS. These deaths most likely include some type of criminal activity and police investigations need to be completed before the coroner investigates the death. It is therefore likely these deaths will be available in NCIS at a later date.

As the NDS contains workers' compensation claims made by or on behalf of employees, it is reasonable to expect that industries with low proportions of employees would not be well covered by the NDS. Therefore, it is not surprising that the NDS only captured 32% of the deaths in the Agriculture, forestry and fishing industry considering that only 51% of workers are employees. The low proportion of deaths could indicate that the majority of the deaths in this industry were from self-employed workers. While it is not possible from the information available to determine the work status of each deceased worker, Section 2.4 showed that 10 deaths in this industry were workers aged 65 years and over. These workers were not likely to be employees.

As previously mentioned the lack of dependants to lodge a claim would also contribute to low proportions in the NDS. This could explain why in the Construction industry 67% of workers were classed as employees, but the NDS only captured 58% of the working for income deaths in 2005–06.

Road crashes are not well covered by the NFC: of the 78 road crash fatalities only 7 were found in the NFC. Therefore this dataset is not a good source of information for industries that involve a high proportion of fatalities from road crashes i.e. the Transport and storage industry.

Table 9: Dataset percentage contribution to the number of working for income deaths by industry of employer, Australia, 2005–06

Industry of employer	NDS	NFC	NCIS
Agriculture, forestry and fishing	33%	51%	100%
Mining	86%	64%	100%
Manufacturing	80%	76%	100%
Electricity, gas and water supply	67%	50%	100%
Construction	58%	72%	100%
Wholesale trade*	50%	75%	100%
Retail trade	62%	31%	100%
Accommodation, cafes and restaurants*	60%	20%	100%
Transport and storage	56%	25%	96%
Communication services*	50%	50%	100%
Finance and insurance*	0%	0%	100%
Property and business services	80%	40%	90%
Government administration and defence*	75%	100%	100%
Education*	100%	75%	100%
Health and community services*	67%	0%	100%
Cultural and recreational services*	67%	0%	100%
Personal and other services	38%	62%	100%
Total	58%	50%	99%

* comparison across datasets for these industries should be treated with caution as there were 5 or less fatalities in 2005–06, See Table 1

More information on each of these datasets can be found in the Explanatory Notes.

Explanatory Notes

1. Cases selected for study

Specific inclusions

Bystander deaths

The case definition for work-related fatalities included deaths of persons that resulted from the work activity of another person. These deaths are classed as bystanders. There are however many difficulties in identifying these deaths as they are not included in workers' compensation data, generally not included in notifications and are only identified in the coronial database if detailed information on the circumstances of all parties to the death have been obtained.

Bystanders are persons such as visitors to a workplace, or persons, including children, who received 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). If however the driver of the working vehicle did not contribute to the fatal accident then the death of the other party is not counted as a bystander in this publication. An example of this is where a car veers into the path of a truck and the car driver is killed. The car driver would not be considered a bystander.

Commuting deaths

The case definition for work-related fatalities includes deaths from injury sustained when commuting to or from work, irrespective of whether or not the worker was covered by workers' compensation. There are however many difficulties in identifying these deaths.

Commuting is covered in 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 transport was provided by the employer 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) and 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. It is therefore expected that commuting deaths in these jurisdictions will be understated.

The notification systems across Australia generally do not capture deaths which occur while the worker is travelling to or from work.

While most deaths involving vehicles are contained in the NCIS, specific details on the reasons for travel are rarely collected and hence the identification of commuting deaths is understated.

Fatal commuting incidents would, therefore, only be included in this publication where sufficient information is available to positively classify the deaths in this group.

Deaths resulting from criminal activity

Fatality cases that occurred as a result of work-related criminal activity were included within the scope of this project. Work-related criminal activity includes instances where a worker is killed due to the criminal actions of others. Instances where a person is killed while undertaking criminal activity are not, however, included in the scope of this project.

Specific exclusions

Deaths due to natural causes

Natural causes include heart attacks, strokes and diseases. These are not within the scope of this project.

Deaths due to complications of surgical and medical care

The case definition for work-related traumatic injury fatalities excluded deaths due to complications of surgical and medical care, also termed adverse events or deaths from iatrogenic injury. These cases involve unintended and preventable harm resulting from health care rather than from the underlying condition of the person.

Suicide

The scope of this project excluded deaths that had been assessed to have been the result of suicide. Assessing the extent of any connection between work and a decision to take one's own life is extraordinarily difficult, even when detailed information is available. This makes it unlikely that a clear cut assessment of work-relatedness can be made in many suicide cases.

Deaths of persons undertaking criminal activity

As noted, the case definition for work-related fatalities excluded deaths of persons fatally injured while undertaking criminal activities.

2 Data sources

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 new 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 the Office of the ASCC 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
- 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 NOHSC Type of Occurrence Classification System (TOOCS), and
- has an independent assessment of work-relatedness.

The weaknesses of the NDS are that:

- workers' compensation is only available to employees and hence the NDS does not provide good coverage of deaths in the Agriculture, forestry and fishing and Construction industries which have large numbers of self-employed workers. Notes Table 1 shows the percentage of workers who are employees in each industry
- the date of death is not included in the NDS dataset, though this is being progressively added to data provided by jurisdiction with the introduction of the NDS 3rd Edition (NDS3)
- commuting deaths are only included by those jurisdictions who provide workers' compensation coverage for travel to and from work
- bystander deaths are not included
- narratives are not provided
- claims may not be submitted in some instances—for example, because the deceased lacked dependants to do so
- age and date of birth may not be accurate, and
- names are not provided.

Notes Table 1: Proportion of workers who are classed as employees by industry, Australia, 2005–06

Industry	Proportion
Agriculture, forestry and fishing	51
Mining	98
Manufacturing	93
Electricity, gas and water supply	97
Construction	67
Wholesale trade	92
Retail trade	90
Accommodation, cafes and restaurants	92
Transport and storage	87
Communication services	88
Finance and insurance	95
Property and business services	84
Government administration and defence	99
Education	96
Health and community services	94
Cultural and recreational services	82
Personal and other services	79
Australia	87

Source: ABS 6291.0.55.001 Labour Force, Australia, Detailed - Electronic Delivery, Quarterly.

Notified Fatalities Collection (NFC)

The NFC is maintained by the Office of the ASCC and provides information on work-related deaths notified to OHS authorities under their relevant OHS legislation. The NFC began on 1 July 2003. These data are collected from OHS authorities throughout Australia and cover employees, self-employed workers and bystanders who suffered a fatal injury at work or as a result of a work activity.

The strength of the NFC is that:

- it captures fatalities not covered by NDS such as self-employed contract workers and bystanders.

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 due to these deaths being notified to and investigated by the Police, road traffic authority or in the case of plane crashes and marine deaths by Commonwealth agencies;
- there is a lack of established protocols in most jurisdictions for notifying work-related vehicle crashes to the OHS authority, and
- it tends to only capture deaths which occur shortly after the injury event in question.

National Coroners Information System (NCIS)

The NCIS was officially launched in July 2000 and is a national internet-based data storage and retrieval system about coronial cases in Australia. The NCIS holds information on all fatalities referred to a coroner in Australia. The coroner's findings, police reports, autopsy reports and toxicology reports may also be made available. The NCIS contains a work-relatedness data item, with fatalities being identified as work-related or not work-related 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 and these data are uploaded to the NCIS on a regular basis.

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
- text details about the causes and circumstances surrounding a fatal incident are generally provided, including details such as police narratives and coronial findings
- there is a work-relatedness assessment against standard criteria, and
- relevant data items are coded to International Classification of Diseases version 10 (ICD-10-AM).

The weaknesses of the NCIS include:

- difficulties with the identification of bystander deaths, due to lack of information in the accompanying text documents especially for road-related fatalities
- under-identification of work-related fatalities in Queensland due to a lack of access to Open cases (i.e. where the coroner's findings are pending) for that jurisdiction and under-identification in New South Wales due to limited information being available on Open cases, and
- limitations in the coding of work-relatedness stemming from lack of information available to coroners.

Summary of selected datasets

Notes Table 2 summarises the major characteristics of the selected datasets (NDS, NFC and NCIS) that are pertinent to the use of these datasets for estimating the number of persons fatally injured in work-related incidents in Australia.

Notes Table 2: The major relevant characteristics of the NDS, NFC and NCIS datasets

Characteristic	NDS	NFC	NCIS
Type of dataset	Administrative	Administrative	Administrative
Work-relatedness	Yes	Yes	Yes
State/territory	workers' compensation jurisdiction	OHS jurisdiction	state/territory of death
Industry coding	ANZSIC (coded by jurisdictions)	ANZSIC (coded by the Office of ASCC)	ANZSIC (coded by the Office of ASCC)
Occupation coding	ASCO (coded by jurisdictions)	ASCO (coded by the Office of ASCC)	ASCO (coded by the Office of ASCC)
TOOCS coding	Yes	Yes (coded by the Office of ASCC)	Yes (coded by the Office of the ASCC)
Scope	Compensated work-related fatalities only	All notified fatalities	All deaths reported to an Australian coroner
Availability of data	1997–98 to current	2003–04 to current	July 2000 to current (January 2001 for Queensland)
Inclusion of bystanders	No	Yes but limited	Yes but not always identified
Inclusion of commuting deaths	Yes but only for NSW, Qld, ACT and limited in NT	Not in scope but some may be provided	Yes but not always identified
Timeliness	Data available 18 months after period	Data available 6 months after period	Data available 6 to 18 months after period
Other	No text description of the incident circumstances	A limited text description of the incident circumstances	Police narrative, autopsy report, toxicology report and coroner's finding available to authorised users

Use of media reports

Media articles were also perused with some additional work-related deaths identified via this media. These deaths generally related to plane crashes, train crashes and incidents involving marine waters. These incidents are usually investigated by Commonwealth authorities and hence do not fall within the current collection scope of the NFC. In all cases, the details were verified with information from the NCIS.

3. Calculation of incidence rates

Employment figures from *Labour Market Statistics*, (ABS 6105.0) are used in calculating incidence rates in this publication. All workers data is used. These data are supplemented with information on the permanent defence workers extracted from the Department of Defence Annual Report. Incidence rates have been calculated using Workers for working for income and commuting deaths. Incidence rates for bystanders have been calculated using the whole population as these deaths involve non-working people.

4. 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 (roughly in that order of priority).

A number of cases were found where the death occurred in one jurisdiction but the NDS record came from a different jurisdiction due to the locality of the employer. Extra care was taken with these records to confirm a match. This is particularly an issue for the Comcare jurisdiction which does not have a physical location. Information was sought directly from Comcare to determine the location of the death for NDS and NFC records. Record matching in these situations may improve with the collection of postcode of workplace in NDS3 being progressively adopted by the jurisdictions from 1 July 2005.

Where records were only identified in the NDS and/or NFC, the NCIS database was then interrogated to find these records so they could be added to the study. Similarly cases identified only through the media were confirmed through NCIS.

It is reasonable to expect that all deaths would be identifiable in the NCIS, since virtually all injury deaths in Australia are reported to the coroner, and all deaths reported to the coroner should be recorded in the NCIS. Several factors may have led to the NCIS contributing less than 100% of in-scope cases, the most significant being that only closed cases in Queensland can be accessed and that in New South Wales, while most cases are visible, very limited information is available making identification difficult. In addition, the coroner will not commence an inquest until all criminal proceedings have been completed. So while the death may have been recorded in the NCIS, only basic information such as name will be loaded. If the name of the deceased is not available from the NDS or NFC then it is not possible to match the record in the NCIS.

The availability of dates for the data matching process

Dates were of foremost importance in the matching process. The project found that dates (of occurrence, death, birth) were usually consistent across the different data sources, which indicated that the date information was of good quality. While the NDS provides the date of the injury incident, it does not currently include date of death, although this is somewhat less of a concern due to the fact that for most injury deaths the date of death is the same as the date of incident. All jurisdictions except Tasmania were able to provide date of deaths for the extracted fatalities considered in scope for this project. 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 is not available for Open cases and the NCIS web interface does not currently allow searching on date of birth, although this is being investigated. The extraction process for the NCIS is hampered by date of death not being available on all cases until they are closed. Hence date of notification is used as an initial extraction tool.

The coding of work-relatedness in the NCIS

The findings of this report suggests some under-identification of work-related fatalities among the set of deaths recorded within the NCIS. The major reason appears to be that the information available to the coroner's office staff is sometimes insufficient to allow work-relatedness to be confidently determined. Because of this, certain types of incidents, such as road crashes, are not identified as work-related. Another factor is that the work-related flag is not always finalised for open coronial cases.

This under-identification has important ramifications on the degree to which the NCIS is able to cover gaps in the other data sources such as self-employed workers who are not captured by the NDS and persons killed in road crashes who are not 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 truck driver. If the NCIS record for such a case has open status at the time of the data search or work-relatedness has been incorrectly coded, it would be unlikely that the death would have been included in the initial extract. For this reason, all cases that involved a heavy vehicle, whether flagged as work-related or not, were extracted and then scrutinised to determine whether they should be included in the study or not.

Industry information

Where the industry coding was different across the data sources for the same death, the NDS coding has been accepted as the most reliable, as the claim is directly linked to the policy of the employer of the deceased worker. Industry of employer has been used for most areas in this report as it would be the industry that was directly associated with the task and circumstances of the fatal incident. Industry of workplace has been used for categorising bystander deaths.

The timing of data extraction

The NDS dataset for a given year pertains to claims that were submitted during the year irrespective 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. NDS data from 2005–06 and 2006–07 have both been used to identify fatalities that actually occurred between 1 July 2005 and 30 June 2006. In addition as jurisdictions move across to supply data in NDS3 format, date of death will become available for extraction purposes. This new information has assisted with the updating of information back to 2003–04.

The timing of data extraction from the NCIS also has a bearing on the number of work-related deaths captured for this project. Currently the NCIS data are extracted on the basis of date of notification to the coroner on the assumption that notification occurs shortly after a death has occurred. Date of occurrence is also used as date of death is not completed by all jurisdictions until the coroner has finalised their assessment of the circumstances. The NCIS extract was supplemented with a search based on date of death to capture any additional fatalities that had late notifications. This approach however has the disadvantage that some deaths take time to be notified. These deaths would only be included in this study if one of the other datasets had a record of it. Therefore for this study, the NCIS was interrogated up until 1 July 2008 for any additional coronial records that match 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 has occurred.

INQUIRES

For further information regarding the contents of this publication contact:

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