

# WORK-RELATED TRAUMATIC INJURY FATALITIES, AUSTRALIA 2004–05



April 2008



Australian Government

Australian Safety and Compensation Council



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### **Acknowledgement**

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# Foreword

This report is the second 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.

To date, the exact number of people who die as a result of work-related activities in Australia has not been accurately established. This is because there is no single national data collection system that includes all types of work-related injury fatalities. The National Data Set for Compensation-based Statistics (NDS) is currently the key source of information used to monitor work-related fatalities in Australia, but this dataset only includes those work-related deaths for which liability for compensation has been accepted.

The previous study demonstrated that it is possible to estimate the number of work-related injury fatalities in Australia by supplementing the NDS, with data from the Notified Fatalities Collection (NFC) and the National Coronial Information System (NCIS). The previous study concluded that as there was some overlap of fatality cases between the datasets, using all three sources would provide a better measure of the number of work-related fatalities in Australia.

Changes to the timing of data extraction and some improvements to the way work-related deaths are identified in the NCIS has resulted in a greater level of overlap in this study. Nevertheless, information from all three datasets is still considered essential to provide a robust measure of the number of work-related injury deaths occurring in any particular period.

## 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 2004 and 30 June 2005.

The scope of this project includes:

- all persons killed while working for income (including payment in kind, 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 occupational health, the working for income category has been further split into:

- Working for income – not a road crash, and

- Working for income – road crash.

The reader should refrain from adding together the number of deaths from the three categories of work activity and concluding a total number of work-related deaths, as this study identified a number of areas where the extracted data is still considered undercounted. 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 identified as commuting in the NCIS by reference to the coding in the NDS. However since less than half the jurisdictions in Australia provide workers' compensation to those travelling to or from work, it is likely that the number of commuting deaths shown in this report is undercounted 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. Most of the bystander deaths in this report were identified by the extraction of all records involving heavy road transport vehicles. It is likely that many more deaths have occurred from collisions involving cars engaged in work activity.

Discussions are being held with the NCIS compilers on better ways to identify bystander and commuting deaths.

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# SUMMARY OF FINDINGS

Analysis of the three datasets concluded that during 2004–05 there were 249 persons who died in Australia from work-related injuries while working for income. In addition, the study identified a further 98 persons who died from an injury incurred while travelling to or from work and 58 persons were killed as a bystander to work activity.

While this study found that 405 people died from work-related deaths, it is felt this number is undercounted due to difficulties in identifying deaths occurring while travelling to or from work and bystander deaths. In addition, the total number of deaths counted in this study should not be compared to the 332 published in the 2003–04 report due to a number of improvements to the way work-related deaths were identified in the coronial database resulting in a substantial increase in the number of deaths found to be work-related, particularly bystander deaths. The scope of this project has also been changed from the previous report with the inclusion of deaths of defence personnel working within Australia, Australian territories or territorial waters. This report identified 4 deaths of defence personnel that would not have been counted in the previous report.

## Fatalities occurring while working for income

The number of workers who died while working for income can be equated to 2.5 per 100 000 employed persons (which includes civilian and defence workers).

The highest estimated number of work-related deaths while working for income was recorded by the Agriculture, forestry and fishing industry (67 deaths), followed by the Transport and storage industry (55) and the Construction industry (25). The Agriculture, forestry and fishing and Transport and storage industries also had the highest and second-highest fatality rates (19.0 and 12.3 deaths while working for income per 100 000 employed persons). While the Mining industry recorded a relatively small 8 deaths, the lower workforce numbers resulted in this industry recording the third highest fatality rate (6.8 deaths while working for income per 100 000 employed persons).

Each of the three datasets made a significant contribution to the final estimate of 249 deaths while working for income. The NCIS provided 238 in-scope records, two of which pertained to the same death. The 237 records about separate deaths contributed 95% of the working for income deaths identified in this study. The NDS identified 149 deaths while working for income, 60% of the working for income deaths. The NFC identified 125 deaths, 50% of the total.

*Vehicle accidents* was the cause of 46% of the working for income deaths. The next most common cause was *Falls from a height* (12%) followed by *Being hit by falling objects* (10%) and *Being hit by moving objects* (10%).

*Mobile plant and transport* was the object directly involved in 60% (150 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* 29% (43 fatalities), *Tractors, agricultural or otherwise* 7% (10 fatalities) and *Passenger aircraft* 6% (8 fatalities).

Of the 249 working for income fatalities 8% (20 deaths) involved women and the remainder men. When the size of the workforce is taken into account, the fatality incidence rate for men calculates to be eight times the rate for women. The data also show that the fatality incidence rate for men aged 65 and over is three times the rate for all men. Three quarters of the deaths in this age group (15 of the 20) were from injuries sustained while working in the Agriculture, forestry and fishing industry.

## Fatalities occurring while travelling to or from work

There were 98 commuting deaths identified in 2004–05 which can be equated to 1.0 death per 100 000 employed persons occurring while travelling to or from work. 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 65% of cases, the deceased was a driver or passenger in a car or was hit by a car.

The NCIS captured 92% and the NDS 77% of the identified commuting deaths. The NDS proportion is much lower than the NCIS proportion as many heavy vehicle drivers are self-employed and hence not eligible for workers' compensation.

The highest number of work-related deaths while commuting was recorded by the Retail trade and Manufacturing industries, both with 11 commuting deaths. However, the Cultural and recreational services industry recorded the highest incidence rate with 2.1 commuting deaths per 100 000 employed persons.

## **Bystander fatalities**

In 2004–05, 58 deaths were identified as people who died from injuries due to the activities of another person's work activity (bystanders). While this study identified considerably more than the 10 bystander deaths identified in the previous study, the 58 bystander deaths reported this year is still 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.

Transport and storage was the industry of workplace where 62% of the bystander deaths identified in this study occurred. This is due to all deaths involving heavy vehicles being assessed for work-relatedness. The Communication services industry was the workplace for a further 7% of the bystander deaths with the remaining deaths spread across a range of industries.

*Vehicle accidents* accounted for 69% of the deaths with trucks, semi trailers or lorries being involved in 57% of the accidents.

Of the 58 identified bystander deaths, 11 were of children under the age of 18.

# 1. Work-related deaths by type of work activity

Table 1 describes the work activity at the time of the injury event by industry of employer for the estimated deaths during 2004–05. This study identified 405 work-related deaths made up of 249 deaths occurring while working for income, 98 while travelling to and from work and 58 killed as a result of someone else's work activity (bystanders).

While this study found that 405 people died from work-related deaths, it is felt this number is undercounted due to difficulties in identifying deaths occurring while travelling to or from work and bystander deaths. In addition the total number of deaths counted in this study should not be compared to the 332 published in the 2003–04 report due to a number of improvements to the way work-related deaths were identified in the coronial database for this report and the later extraction of data from the NDS. The previous study identified 226 deaths occurring while working for income, 89 while travelling to and from work and 10 bystander deaths. The large increase in the identification of bystander deaths was as a result of the investigation of all road fatalities where a heavy road vehicle was involved.

**Table 1: Identified work-related deaths and incidence rates by type of work activity undertaken and industry of employer, Australia, 2004–05**

Industry of Employer	Working for income	Commuting	Bystander*	Total	Incidence Rate **
Agriculture, forestry and fishing	67	6	1	74	20.7
Transport and storage	55	4	36	95	13.2
Mining	8	2	1	11	8.4
Personal and other services	17	4	0	21	5.3
Electricity, gas and water supply	3	1	1	5	4.7
Cultural and recreational services	6	6	1	13	4.2
Construction	25	7	3	35	3.7
Wholesale Trade	9	7	0	16	3.7
Government administration and defence	8	8	0	16	3.2
Manufacturing	21	11	3	35	3.0
Accommodation, cafes and restaurants	5	8	2	15	2.6
Property and business services	11	8	0	19	1.6
Retail Trade	9	11	2	22	1.3
Health and community services	3	6	2	11	0.9
Education	2	3	0	5	0.7
Communication services	0	1	4	5	0.6
Finance & insurance	0	1	0	1	0.3
Unknown	0	4	2	6	
<b>Total</b>	<b>249</b>	<b>98</b>	<b>58</b>	<b>405</b>	<b>3.5</b>

\* data shown for bystanders is by industry of workplace

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

This table shows that the highest number of work-related deaths was recorded by the Transport and storage industry (95), followed by Agriculture, forestry and fishing industry (74 deaths), and the Construction industry (35).

However, when determining which industries have the highest rates of death, the number of employed persons in that industry must be considered. Table 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 (20.7 and 13.2 fatalities per 100 000 employed persons). The table also shows that while the Mining industry recorded a relatively low 11 deaths, the lower number in the workforce means this industry had the third highest fatality rate (8.4 deaths per 100 000 employed persons) of all industries.

Incidence rates have been calculated excluding bystander deaths so that a rate per employed person could be accurately calculated. In addition, the inclusion of bystander deaths would adversely inflate the Transport and storage industry rate. This study mainly identified deaths to bystanders where a heavy road freight vehicle was involved. It is expected that many additional 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.

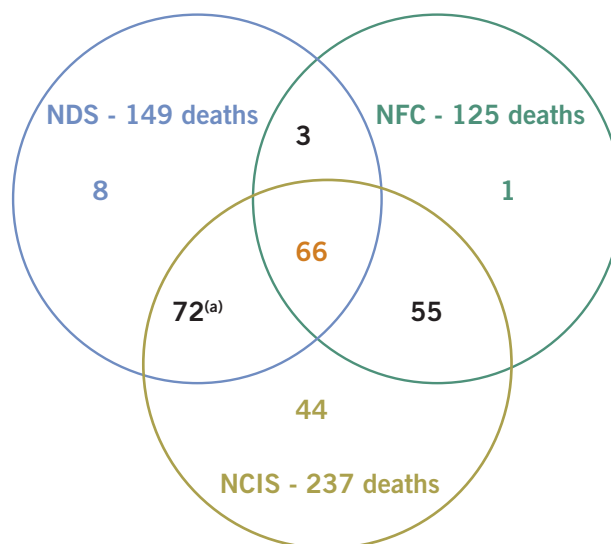
## 2. Work-related deaths: working for income

The three datasets identified 511 records in 2004–05 relating to deaths while working for income, analysis of which identified 249 unique incidents. These deaths indicate that the fatality rate for 2004–05 was 2.5 deaths per 100 000 employed persons (including civilian and defence workers) while working for income.

While this appears to be a significant increase on the 226 deaths reported in the 2003–04 study, a number of improvements to the data collection process have taken place resulting in higher numbers for 2004–05. The main improvement affecting these numbers is the later extract of data from the NDS which allowed the capture of an additional 22 deaths where liability for compensation had not been accepted by the time of the preliminary data extraction. This in turn allowed for a greater identification of these deaths in the NCIS. As this later NDS extraction also meant that we undertook the NCIS extraction at a later date, it is not possible to determine if these additional 22 deaths would have been picked up in the NCIS if the earlier extraction date had been used for the NCIS. For this reason, comparison with the previous study should be treated with caution.

The contribution to the number of deaths from the three data sources are summarised in Figure 1.

**Figure 1: Contribution of each dataset to the number of working for income deaths**



*(a) While there were 72 deaths, there were 73 separate coronial records as one death was the subject of coronial investigations by two jurisdictions.*

Of the 249 deaths, 27% (66 deaths) were found in all three datasets, 52% (130 deaths) were found in two datasets and 21% (53 deaths) were only found in one of the datasets.

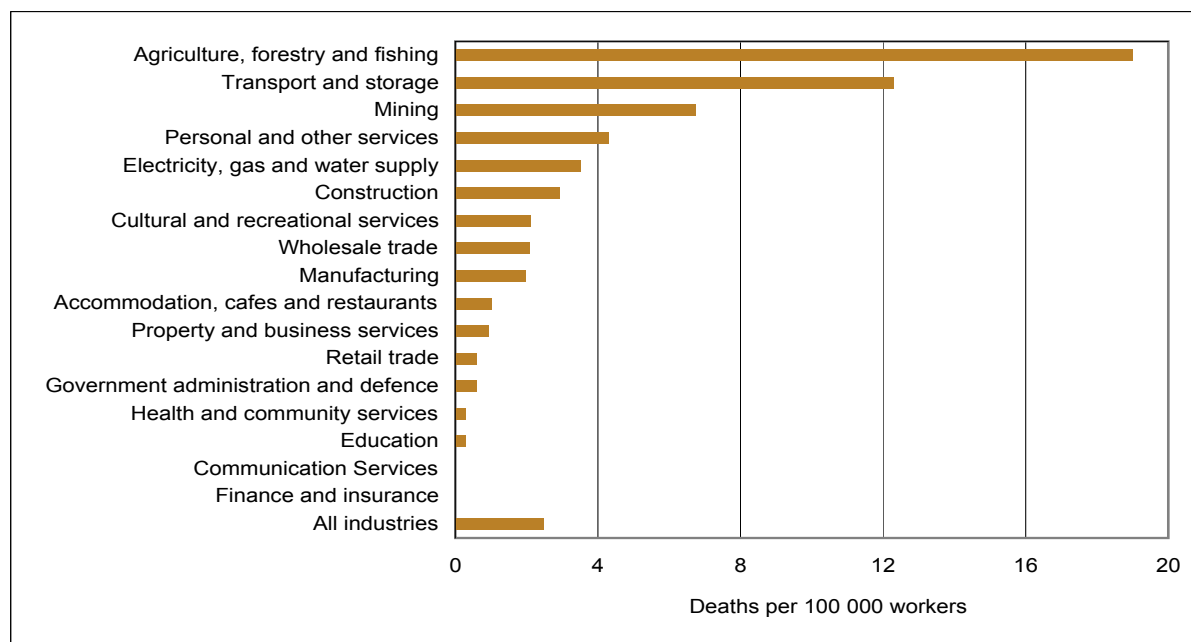
The NCIS contributed 95% of the estimated number of deaths (237 of 249), the NDS contributed 60% (149 of 249) and the NFC contributed 50% (125 of 249) – these contributions summing to more than 100% due to duplication across the data sources. These percentage contributions should not, however, be taken to represent the exact proportion of deaths that would have been detected by extracting from one dataset alone, because information from more than one source was sometimes necessary to decide whether a record should be included in this category or not.

### 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 industry (67 deaths), followed by the Transport and storage industry (55) and the Construction industry (25).

However, when determining which industries have the highest rates of death, the number of employed persons in that industry must be considered (see Notes Table 1 on page 20). Figure 2 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 (19.0 and 12.3 fatalities per 100 000 employed persons respectively). While the Mining industry recorded a relatively low 8 deaths, the lower number in the workforce means this industry had the third highest fatality rate (6.8 deaths per 100 000 employed persons) of all industries. These results follow the same pattern as the results from the previous study which recorded 61 deaths for the Agriculture, forestry and fishing industry and 55 for the Transport and storage industry.

**Figure 2: Working for income fatalities: incidence rate by industry of employer, Australia, 2004–05**



(a)Source of employment figures: *Labour Market Statistics, 2005 (ABS 6105.0)* plus permanent defence workers from the *Department of Defence Annual Report*.

## 2.2 Working for income fatalities by dataset

Table 2 shows the proportion of deaths sourced from each dataset for each industry category. These data show considerable variation across the industries which is heavily influenced by the scope of the data sources. This table shows that the NCIS is the best source of information on deaths while working for income in all industries and captured all cases in 10 of the 17 industries. Although this suggests that NCIS could be the primary source for work fatality information, some cases required information from the other datasets to confirm whether the case should be included in this category.

As there were no working for income fatalities recorded in 2004–05 in the Communications services and Finance and insurance industries, these industries are not shown in Table 2 and no conclusions about the best sources of information on these industries can be drawn from this report. Data presented in the 2003–04 report, however showed that the NCIS covered 80% of fatalities in the Communications industry whereas the NDS and NCIS both recorded 67% of fatalities in the Finance and insurance industry.

Table 2 highlights that as road crashes are not well covered by the NFC, 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 2 shows that the NFC only captured 27% of the fatalities in the Transport and storage industry compared to the NDS with 69% and the NCIS with 93%.

Whereas the NFC contributed just 50% of cases across all industry groups, it captured all of the Electricity, gas and water industry cases (3 of 3 deaths) and 83% of the Cultural and recreational services industry cases (5 of 6 deaths), equal best with the NCIS.

**Table 2: Percentage contribution from each dataset to the number of working for income deaths by industry of employer, Australia, 2004–05**

Industry of employer	NDS	NFC	NCIS
Agriculture, forestry and fishing	37%	52%	94%
Mining	50%	75%	88%
Manufacturing	81%	43%	90%
Electricity, gas and water supply*	67%	100%	100%
Construction	64%	76%	100%
Wholesale trade	89%	44%	100%
Retail trade	78%	44%	100%
Accommodation, cafes and restaurants*	60%	40%	100%
Transport and storage	69%	27%	93%
Property and business services	82%	55%	100%
Government administration and defence	50%	75%	100%
Education*	50%	50%	100%
Health and community services*	67%	33%	100%
Cultural and recreational services	67%	83%	83%
Personal and other services	53%	53%	100%
<b>Total</b>	<b>60%</b>	<b>50%</b>	<b>95%</b>

\* comparison across datasets for this industry should be treated with caution as there were 5 or less fatalities in 2004–05

The results of this study show that despite 87% of workers being classed as employees (see Explanatory Notes Table 1), only 60% of deaths occurring in 2004–05 were captured by the NDS. 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 37% of the deaths in the Agriculture, forestry and fishing industry considering that only 51% of workers are employees. The NDS appeared better at collecting information in the Construction industry. This industry has 68% of workers classed as employees and the NDS captured 64% of the deaths.

It is surprising, however, that the NDS has poorly captured deaths in some industries where high proportions of the workforce are employees. Of particular note is the Mining industry which has 97% of workers classed as employees but the NDS only captured 50% (4 out of 8) of the deaths attributed to this industry. One possible explanation is that many workers in the Mining industry are employed on a contract basis (labour hire) from an employer that under the NDS would be coded in the Property and business services industry, and since it is not possible from information obtained through the NFC and NCIS to correctly determine the industry of the employer in labour hire situations, the percentages shown in Table 2 should be treated with some caution. This explanation is consistent with the NDS capturing 82% of deaths with only 83% of workers in the Property and business services industry when the NDS generally only captured around 60% of deaths in each industry.

Government administration and defence is also a special case. While all workers are classed as employees, the NDS data does not capture claims from defence force employees. Deaths occurring in the Defence industry have been included in this report for the first time, with 4 of the 8 deaths in the Government administration and defence industry attributed to Defence. Excluding these Defence deaths it can be concluded that the NDS did capture all deaths attributed to Government administration.

### 2.3 Working for income fatalities: involvement of road crashes

In 2004–05, road crashes accounted for 34% of deaths (84 of 249) from injuries sustained while working for income. Table 3 shows that the NCIS captured 96% of the fatalities from road crashes and 95% of the fatalities not involving road crashes. The table shows that the NFC collected few road crash fatalities. Of the 84 road crash fatalities only 16 were found in the NFC, 7 of these involved trucks and the remaining 9 cars.

**Table 3: Number and proportion of working for income fatalities by whether a road crash was involved, Australia, 2004–05**

Type of activity	NDS	NFC	NCIS	Total deaths
<b>Number of records</b>				
Working for income, not a road crash	85	109	156	165
Working for income, road crash	64	16	81	84
Total working for income	149	125	237	249
<b>Contribution of each dataset to total deaths</b>				
Working for income, not a road crash	52%	66%	95%	100%
Working for income, road crash	76%	19%	96%	100%
Total working for income	60%	50%	95%	100%

Table 3 also shows that only half of the working for income cases not involving a road crash were found in the NDS. As previously mentioned this is partly due to workers' compensation only being available to employees and partly due to claims for compensation only being lodged where there are dependents.

Table 5 shows the work activity undertaken at the time of the injury event split by the industry of employer. Not surprisingly, road crashes in the course of work were most prominent in the Transport and storage industry (32 of 55 cases). This industry sector contributed 38% of the total number of deaths due to road crashes while working for income, followed by the Agriculture, forestry and fishing industry with 15%. The remainder of deaths resulting from road crashes occurred across a wide range of industries.

The highest proportion of deaths due to road crashes while working for income occurred in the Government administration and defence industry (63% of deaths) followed by the Transport and storage industry (58%).

Vehicles also contributed to a number of deaths not involving a crash on a public road. In 2004–05, there were 11 deaths in plane crashes, 9 from tractor incidents, 10 involving cars not on public roads and 14 involving trucks not on public roads. Some of these deaths occurred on agricultural properties, others on business premises.

**Table 4: Working for income deaths by whether a road crash was involved and industry of employer, Australia, 2004–05**

Industry of Employer	Number of deaths		Proportion	
	not road crash	road crash	not road crash	road crash
Government administration and defence	3	5	38%	63%
Transport and storage	23	32	42%	58%
Education*	1	1	50%	50%
Wholesale trade	5	4	56%	44%
Retail trade	5	4	56%	44%
Manufacturing	13	8	62%	38%
Property and business services	7	4	64%	36%
Health and community services*	2	1	67%	33%
Construction	19	6	76%	24%
Personal and other services	13	4	76%	24%
Agriculture, forestry and fishing	54	13	81%	19%
Accommodation, cafes and restaurants	4	1	80%	20%
Mining	7	1	88%	13%
Electricity, gas and water supply*	3	0	100%	0%
Cultural and recreational services*	6	0	100%	0%

\* comparison across datasets should be treated with caution as these industries recorded 5 or less fatalities in 2004–05

## 2.4 Working for income fatalities by state/territory

New South Wales was the location for 31% of the deaths followed by 23% in Queensland and 21% in Victoria. Table 5 details the state or territory of where the death actually occurred and explores the degree of overlap between the three datasets. This table shows that on average 2 records were found for each death. There was relatively little difference in the degree of overlap between the datasets across the states and territories with the ratio of records to deaths ranging between 1.9 and 2.5. This provides some confidence about the comparability of the estimation methodology across the jurisdictions. Comparison with information from the 2003–04 study shows the improvement in finding records in more than one source.

**Table 5: Number of records and deaths by state/territory of injury event, Australia, 2004–05 and 2003–04**

State/territory of injury event	Records	Deaths	Records per death, 2004–05	Records per death, 2003–04
New South Wales	154	77	2.0	1.7
Victoria	105	54	1.9	1.6
Queensland	117	58	2.0	1.6
Western Australia	66	30	2.2	1.8
South Australia	33	13	2.5	1.8
Tasmania	19	9	2.1	1.9
Northern Territory	12	6	2.0	1.4
Australian Capital Territory	5	2	2.5	3.0
<b>Australia</b>	<b>511</b>	<b>249</b>	<b>2.1</b>	<b>1.7</b>

There were, however, 15 deaths that were notified or compensated by jurisdictions different to where the fatality actually occurred. Excluding the deaths where records from the different datasets were found in different jurisdictions, it is possible to obtain a picture of the efficiency of each dataset in capturing work-related deaths. Table 6 shows that the NCIS captured all working for income deaths except in New South Wales and Queensland. In both these states detailed case records are not available until the record is closed. Therefore it is possible that the number of work-related deaths for these jurisdictions is understated as more deaths may be classified as work-related when the coronial investigations have been completed.

**Table 6: Proportion of working for income deaths by state/territory of injury event, dataset and whether involved a road crash**

State/territory of injury event	not a road crash			road crash		
	NDS	NFC	NCIS	NDS	NFC	NCIS
New South Wales	64%	59%	93%	80%	4%	92%
Victoria	54%	49%	100%	60%	13%	100%
Queensland	45%	68%	89%	89%	16%	89%
Western Australia	41%	86%	100%	63%	38%	100%
South Australia	67%	100%	100%	50%	75%	100%
Tasmania	17%	83%	100%	67%	67%	100%
Northern Territory	33%	67%	100%	n/a	n/a	n/a

This table also shows that the notification system works best in South Australia which captured all of the deaths which occurred while working for income that did not involve a road crash and 75% of those that did involve a road crash. The notification system in Victoria recorded the lowest proportion of working for income deaths not involving a road crash (49%) and only 13% of those that did.

The NDS best captured working for income deaths in New South Wales (70% of deaths). The low proportion of deaths captured by the NDS in Tasmania and the Northern Territory could reflect that the workers who died were not employees and hence were ineligible for workers' compensation. No information is available from the NCIS to determine working arrangements.

Note that the Australian Capital Territory has been excluded from this analysis as there was only one death that occurred in this jurisdiction which was also compensated in this jurisdiction during 2004–05. While this death was captured by all three datasets, it cannot necessarily be concluded that the datasets would always capture all deaths.

### 2.5 Working for income fatalities by Age

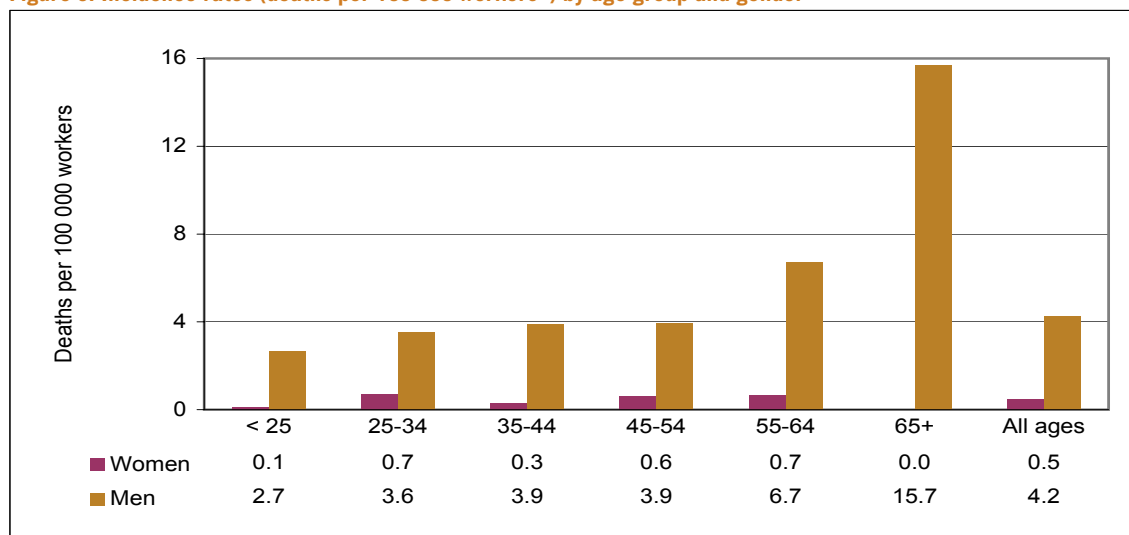
Of the 249 working for income fatalities that occurred in 2004–05, 20 (8%) involved women and the remainder men. Table 7 shows that the age profile of the deaths is fairly evenly distributed with less in the youngest and oldest age groups possibly reflecting the lower numbers of workers in these groups.

**Table 7: Proportion of working for income deaths by age group and gender**

Age Group	Women	Men	Total
Less than 25 years	5%	10%	10%
25 to 34 years	35%	19%	20%
35 to 44 years.	15%	22%	21%
45 to 54 years.	30%	20%	21%
55 to 64 years.	15%	20%	19%
65 and over	0%	9%	8%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Figure 3 provides incidence rate information which shows that the rate of death increases with age and that men are eight times more likely to die due to a work-related injury than women. These data also show that incidence rate of death for men aged 65 and over is three times the rate for all males. Three quarters (15 of the 20 deaths) in this age group were from injuries sustained while working in the Agriculture, forestry and fishing industry.

**Figure 3: Incidence rates (deaths per 100 000 workers\*) by age group and gender**

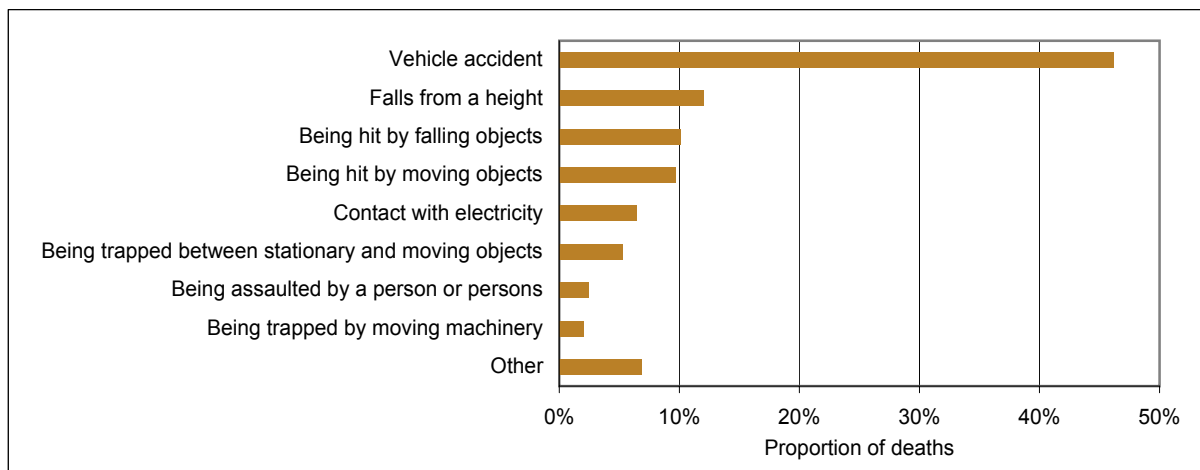


\* Source for number of workers: Labour Market Statistics, November 2004, Employed persons. Note these numbers do not include defence workers.

## 2.6 Working for income fatalities by Mechanism

As previously mentioned vehicle accidents feature prominently in deaths while working for income. Figure 4 shows that 46% of deaths were due to *Vehicle accidents*. The next most common cause was *Falls from a height* (12%) followed by *Being hit by falling objects* (10%) and *Being hit by moving objects* (10%).

Figure 4: Deaths while working for income by mechanism of injury



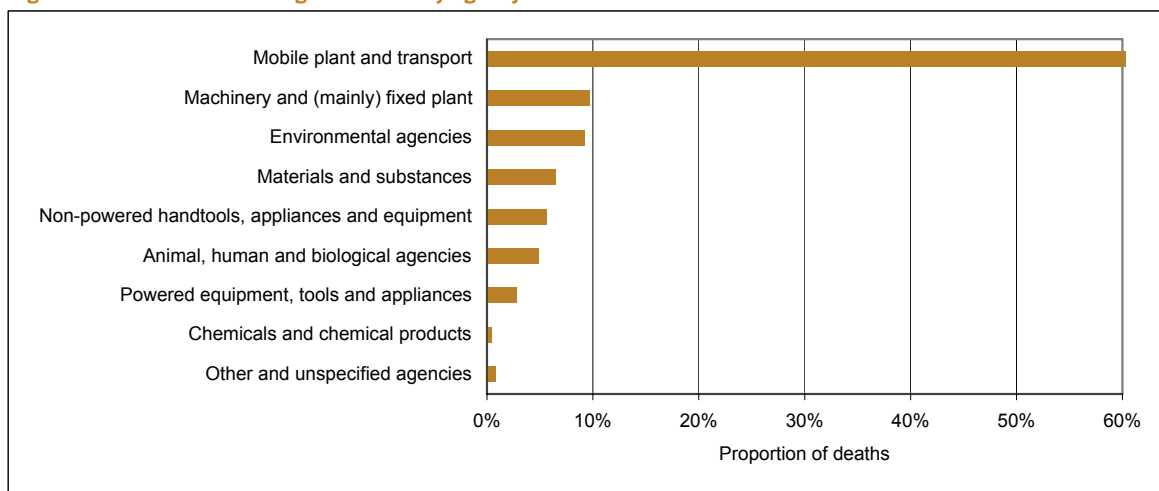
## 2.7 Working for income fatalities by Agency

The agency of injury describes the object, substance or circumstances directly involved in inflicting the injury. Figure 3 shows that 60% 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 of the 150 fatalities), *Cars, station wagons, vans or utilities* 29% (43 fatalities), *Tractors, agricultural or otherwise* 7% (10 fatalities) and *Passenger aircraft* 6% (8 fatalities).

*Machinery and (mainly) fixed plant* also contributed 10% of the working for income fatalities. This group includes cranes and conveying equipment, high and low tension distributions lines and other electrical equipment. There was no dominant agency within this group.

*Environmental agencies* contributed 9% 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 (7 deaths) were due to falling trees.

Figure 5: Deaths while working for income by agency



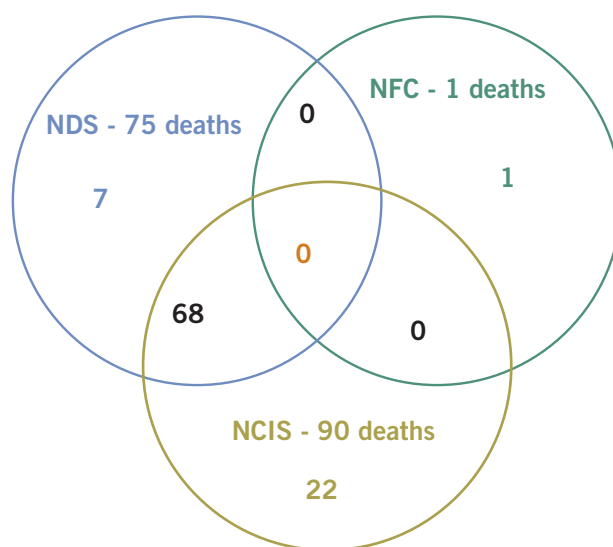
### 3. Work-related deaths: commuting

The outcome of the data extraction process identified 166 records in the three data sources relating to deaths while commuting. After the matching process, 98 separate cases were counted. These deaths equate to a commuting fatality rate in 2004–05 of 1.0 death per 100 000 in employed workers (including defence).

While the 2003–04 study identified 89 commuting deaths, this increase can not be taken as an increase in the number of these deaths as improvements to the timing of the data extraction process is likely to be responsible for at least some of this increase.

The contribution to the number of deaths from the three data sources are summarised in Figure 6.

**Figure 6: The contribution of each data source to the commuting fatality estimate**



Overall, of the 98 deaths found by the three data sources, 30 deaths (31%) were counted from a single data source and 68 deaths (69%) were counted from two data sources. There were no deaths in all three datasets. This is due to the scope of the NFC not including commuting deaths.

The NCIS contributed 92% of the estimated number of deaths and the NDS contributed 77%. Only one death from commuting was captured by the NFC. These contributions sum to more than 100% due to duplication across the data sources. These percentage contributions should not, however, be taken to represent the exact proportion of deaths that would have been detected by a study restricted to that source alone. This is because information from more than one source was sometimes necessary to decide whether a record should be included in this category.

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. The 8 deaths that have yet to be identified in the NCIS all occurred in New South Wales and Queensland. These jurisdictions, as previously detailed in this report, do not make all information available until the coroner has closed the case. It is therefore expected that these cases will be found in the NCIS in the future.

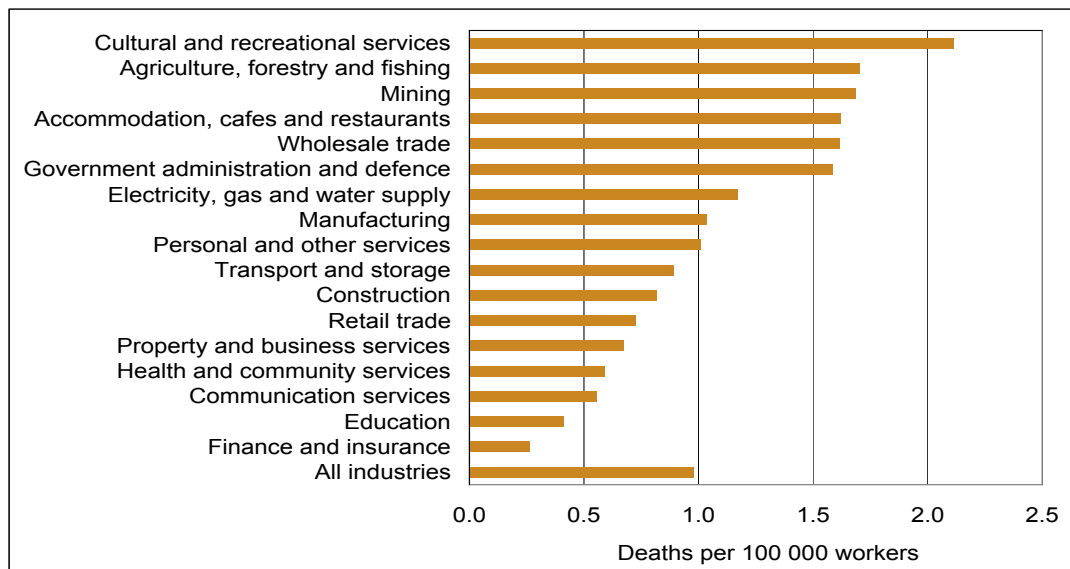
#### 3.1 Commuting fatalities by industry of employer

Table 1 on page 3 showed that all industries recorded at least one commuting death. The Manufacturing and Retail trade industries had the highest number of commuting deaths (11) followed by Accommodation cafes and restaurants, Government administration and defence and Property and business services all with 8 fatalities.

Figure 7 shows that while Cultural and recreational services had only 6 commuting deaths the smaller number of workers in this industry results in this industry having the highest incidence rate of 2.1 commuting deaths per 100 000 workers, double the Australian rate of 1.0 commuting death per 100 000 workers. By comparison Manufacturing and Retail trade had incidence rates of 1.0 and 0.7 respectively.

The low number of commuting deaths 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 7: Commuting deaths by industry of employer, Australia, 2004–05**



### 3.2 Commuting fatalities by dataset

Table 8 provides information on the industry of employer for the commuting deaths by data source. Industry of employer was used in this analysis, as this would usually be the industry to which the deceased person would have been commuting. 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 employer of the deceased worker.

The NCIS captured 100% of cases in 12 of the 17 industries. The NCIS also provided reliable results in capturing data in the Manufacturing industry with 91% of cases represented but was least successful in capturing deaths in the Education industry with 67% of cases captured, although it should be noted that there were only 3 cases in total in this industry of which NCIS captured 2.

The NDS proved most reliable in capturing cases from the Property and business services industry (100%), whilst NCIS only captured 75% of these cases, and least successful in obtaining data from the Retail trade industry with only 55% of cases captured. The NDS captured all commuting fatalities for another 6 industries although these industries each had fewer than 5 fatalities.

As the scope of the NFC does not include commuting deaths, the results of this particular analysis for the NFC are not surprising. The one death reported for the Government administration and defence industry was captured as the Comcare jurisdiction captures information on all work-related deaths in its jurisdiction. However as the captured information was limited it has not been possible to match this death to a record in the NCIS.

**Table 8: Contribution from each dataset to the number of commuting deaths by industry of employer, Australia, 2004–05**

Industry of employer	NDS	NFC	NCIS
Agriculture, forestry and fishing	67%		100%
Mining*	100%		100%
Manufacturing	64%		91%
Electricity, gas and water supply*	100%		100%
Construction	71%		100%
Wholesale trade	86%		71%
Retail trade	55%		100%
Accommodation, cafes and restaurants	88%		100%
Transport and storage*	100%		100%
Communication services*	100%		100%
Finance and insurance*	100%		100%
Property and business services	100%		75%
Government administration and defence	88%	13%	75%
Education*	67%		67%
Health and community services	83%		100%
Cultural and recreational services	83%		100%
Personal and other services*	100%		100%
<b>Total</b>	<b>77%</b>	<b>1%</b>	<b>92%</b>

\* comparison across datasets should be treated with caution as these industries recorded 5 or less fatalities in 2004–05

### 3.3 Commuting Fatalities by state/territory

Table 9 describes the state/territory of the injury event for the estimated commuting deaths during 2004–05. These data are heavily influenced by the NDS data not including claims from jurisdictions which 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). Hence these data should not be interpreted that no workers lost their lives travelling to work in Western Australia and the Northern Territory but that the deaths in these circumstances were not identified in the NCIS as work-related.

**Table 9: Number of commuting deaths by state/territory of injury event, Australia, 2004–05**

State/territory of injury event	Deaths	Percentage of total
Queensland	38	39%
New South Wales	38	39%
Victoria	17	17%
Tasmania	2	2%
South Australia	2	2%
Australian Capital Territory	1	1%
Western Australia	0	0%
Northern Territory	0	0%
<b>Australia</b>	<b>98</b>	<b>100%</b>

(a) Source: Labour Market Statistics, 2005 (ABS 6105.0) plus permanent defence workers from the Department of Defence Annual Report.

### 3.4 Commuting Fatalities by mechanism and agency

*Vehicle accidents* resulted in 91 deaths (93% of all commuting deaths). Of these, 65% involved cars, 14% involved trucks, 10% motorcycles and 9% passenger aircraft (all deaths the result of one plane accident). 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 6 cases, was *Being hit by moving objects*. This mechanism includes pedestrians being hit by moving vehicles.

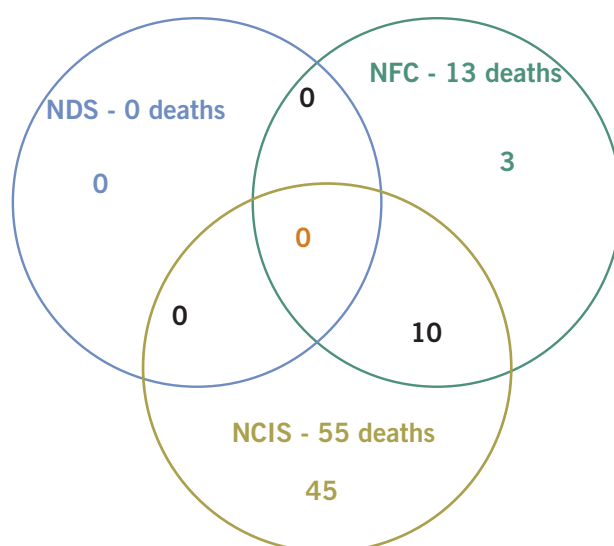
## 4. Work-related deaths: Bystanders

Analysis of the three datasets concluded that during 2004–05 there were 58 persons who died in Australia from injuries due to the activities of another person working. This number should not be compared to the 10 bystander deaths reported in the 2003–04 due to a number of improvements in the coding and identification of bystander deaths made in the NCIS data since the last report was compiled. In particular, all fatalities involving heavy freight transport were inspected, from which 32 bystander deaths were identified that would not have been included in the previous study. It was assumed that any heavy freight transport on a public road was undertaking work and hence any fatality of a bystander that occurred involving these vehicles was included in these statistics.

Despite this increase, the number of bystander deaths is still likely to be understated due to the lack of detailed information collected at the time of the incident to indicate if work activity is being undertaken. This is particularly the case where passenger vehicles were involved in incidents on public roads. In many cases, information was not collected to determine if the drivers were commuting to work, driving as part of their employment or for non-work related purposes.

The contribution to the number of deaths from the three data sources are summarised in Figure 8.

**Figure 8: The contribution of each dataset to the Bystander fatality estimate**



Of the 58 deaths, none were found by all three datasets as bystanders are not compensated through the workers' compensation system and therefore not in the NDS. The majority of the bystander deaths (48 deaths or 83%) were counted from a single dataset with only 10 deaths (17%) identified in two datasets.

The NCIS identified 95% of the bystander deaths and the NFC 22%. This year only 3 fatalities could not be identified in the NCIS. The lack of detailed information collected through the notification system made identification in NCIS difficult as in one case even the age of the deceased was unknown.

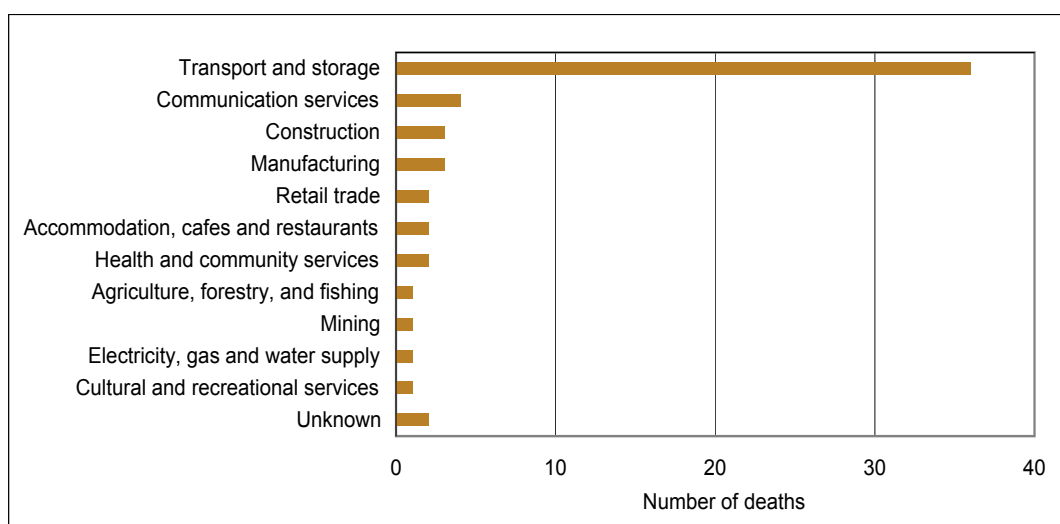
### 4.1 Bystander Fatalities by industry of workplace

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 9 shows that Transport and storage was the industry of workplace where 35 (60%) of the bystander deaths occurred with the Communication services industry the workplace for a further 4 deaths. The remaining deaths were spread across a variety of industries.

The unusually high number of bystander deaths from work activity in the Communications services industry can be attributed to a single accident where 3 people lost their lives.

The Transport and storage industry recorded a significantly higher number of bystander deaths than other industries due to this year's NCIS data extract including all incidents involving heavy vehicles. These were then scrutinized to determine work relatedness. This change 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. The 2003–04 study only recorded one bystander death against this industry as the extraction of heavy vehicle deaths was not undertaken. These data do not imply that truck drivers are always 'at fault' as there were many cases where fault could be attributed to the bystander.

**Figure 9: Number of bystander deaths by industry of incident, Australia, 2004–05**



#### 4.2 Bystander Fatalities by state/territory

Table 10 describes the state/territory of the injury event for bystander deaths during 2004–05. New South Wales was the location for the majority of the deaths (43%) followed by Victoria (17%) and South Australia (12%). Given the larger populations in New South Wales and Victoria, these numbers of deaths are not surprising. When the population of the state is taken into account, Tasmania has the highest incidence of bystander deaths with 1.2 per 100 000 population which is four times the Australian average of 0.3 bystander deaths per 100 000 population. New South Wales by comparison recorded an incidence rate 0.4 bystander deaths per 100 000 population which is only slightly higher than the Australian average.

**Table 10: Number and incidence rates of bystander deaths by state/territory of injury event, Australia, 2004–05**

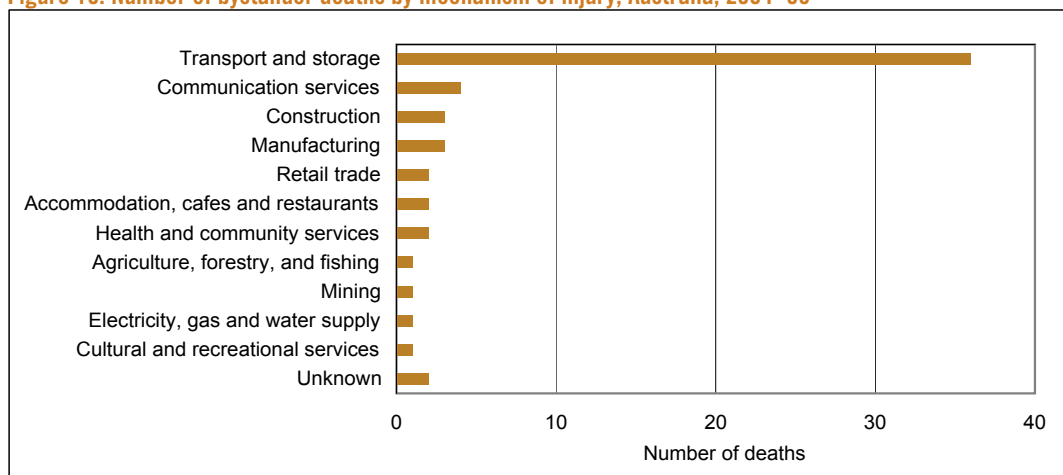
State/territory of injury event	Deaths	Percentage of total	Population as at 30 June 2005 <sup>(a)</sup> '000	Incidence rate (deaths per 100 000 population)
Tasmania	6	10%	485.7	1.2
South Australia	7	12%	1542.1	0.5
New South Wales	25	43%	6768.9	0.4
Victoria	10	17%	5023.2	0.2
Western Australia	4	7%	2011	0.2
Queensland	6	10%	3977.1	0.2
Australia Capital Territory	0	0%	325.8	0.0
Northern Territory	0	0%	203.4	0.0
<b>Australia</b>	<b>58</b>	<b>100%</b>	<b>20337.2</b>	<b>0.3</b>

(a) 2007 Year Book Australia, ABS, 1301.0

### 4.3 Bystander fatalities by mechanism of injury

Figure 10 shows that *Vehicle accidents* caused the majority of bystander deaths, accounting for 69% of all 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.

**Figure 10: Number of bystander deaths by mechanism of injury, Australia, 2004–05**



*Being hit by moving objects* was the second highest mechanism of injury accounting for 19% of deaths. This mechanism includes pedestrians that are hit by moving vehicles and all 11 cases involved a vehicle of some description.

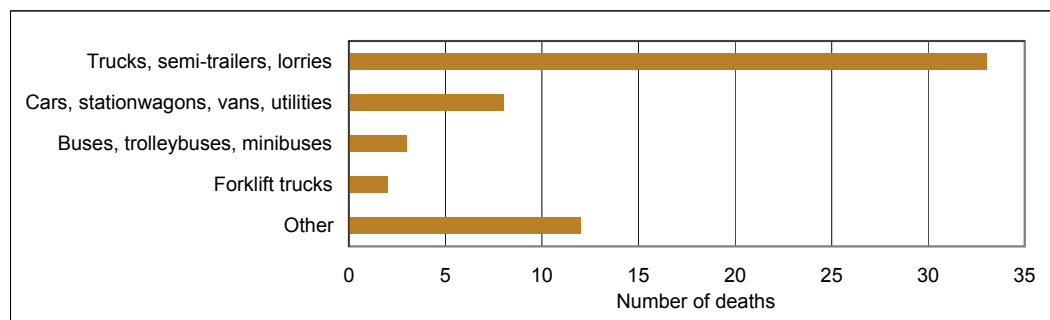
*Falls from a height* (one from scaffolding and one from a building), *Falls on the same level* and *Being hit by falling objects* each accounted for 2 bystander deaths.

Of the 58 bystander deaths, 11 deaths (19%) were of children under the age of 18. Three children were under the age of 5 with 2 of these deaths being of children less than 1 year old. Five children were hit by moving objects (such as cars, trucks, trailers etc.) while a further 5 deaths were caused by vehicle accidents, where the child was in the vehicle. Two of these vehicle accidents involved trucks, 2 involved forklifts and 1 a bus. The final death occurred when the child was hit by a falling object.

### 4.4 Bystander Fatalities by agency

The agency of injury describes the object, substance or circumstances directly involved in inflicting the injury. As can be seen from Figure 11, 87% of bystander deaths involved some form of vehicle. Trucks, semi-trailers and lorries accounted for 32 (56%) of bystander deaths in 2004–05. It should be noted that the bystander death is recorded against this category wherever one of these vehicles is involved but it should not be taken to imply that the fault lies with the drivers of these vehicles. An exploration of the narratives attached to these deaths shows that in about 20% of cases the accident seems to be due to actions of the deceased and in over 50% of cases there is not enough information to apportion blame.

**Figure 11: Number of bystander deaths by agency of injury, Australia, 2004–05**



# 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 such as bystanders.

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 away from a recognisable workplace, such as fatal injuries connected with the travel of a 'working' vehicle (for example, a truck, commuting vehicle or police vehicle), where identified in the data.

#### 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.

Some jurisdictions compensate for commuting claims while others do not. The NDS only captures fatal commuting claims from jurisdictions that provide compensation. Supplementing the NDS with other datasets provides a possible avenue for the identification of fatal commuting incidents from other jurisdictions. These would, however, only be included in the fatalities estimate where reported and positively identified.

The jurisdictions that compensated for commuting claims for the 2004–05 period were 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 and Seacare. Jurisdictions that did not cover commuting claims for the 2004–05 period were Victoria, South Australia (unless there was a real and substantial connection between the employment and the accident), Western Australia and Tasmania.

#### 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 under-taking 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 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.

Suicides are included within the scope of the NDS whenever assessed as work-related by the workers' compensation authority. For this project, however, all suicide cases were removed from the set of NDS records and removed from the set of NCIS records by reference to the coroner's assessment of intent. Suicides are excluded from the scope of work-related deaths recorded in the NFC.

### **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 based on accepted claims made under the state, territory and Australian Government workers' compensation Acts by or for an employee. The data about these accepted claims are supplied annually to the Office of the ASCC by the jurisdictions, comprising data for the latest reference year together with revised data for the previous five reference years.

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 (see Notes Table 1)
- the date of death is not included in the NDS dataset, though this is being added to data provided from 2007–08
- 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, and
- Claims may not be submitted in some instances—for example, because the deceased lacked dependants to do so.

**Notes Table 1: The proportion of employees by industry, Australia, 2004–05**

<b>Industry</b>	<b>Proportion</b>
Agriculture, forestry and fishing	51
Mining	97
Manufacturing	93
Electricity, gas and water supply	98
Construction	68
Wholesale trade	91
Retail trade	89
Accommodation, cafes and restaurants	92
Transport and storage	86
Communication services	87
Finance and insurance	95
Property and business services	83
Government administration and defence	100
Education	96
Health and community services	93
Cultural and recreational services	84
Personal and other services	80
<b>Australia</b>	<b>87</b>

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 is only available from 2003-04 onwards
- limited information being available at the time of notification
- it has limited coverage of transport-related deaths due to these deaths being notified to and investigated by the Police and the lack of established protocols in most jurisdictions for notifying work-related road 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:

- date of notification is used to identify deaths occurring during a particular period as date of death is not always loaded until the case is closed. Supplementation of future datasets will be made to the NCIS extract using available date of death data when the date of notification is outside of the reference period
- 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 Western Australia and 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 and checked by jurisdictions)	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	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	1991 to current	2003–04 to current	July 2000 to current (January 2001 for Queensland)
Inclusion of bystanders	No	Yes	Yes
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 easily identified
General demographic information (age, gender)	Yes - date of birth collected	Yes	Yes - date of birth collected
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

### 3. 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. 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.

This study found there were 3 fatalities originally provided through the NFC but subsequently removed from that dataset as not being work-related, that were found to be work-related with the greater information available in the NCIS. Greater interrogation of NFC records will be used in future studies to capture all such records.

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. This process identified 65 NCIS records not marked as work-related and hence not initially extracted which were then added to the study following the interrogation process.

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 were able to provide date of deaths for the extracted fatalities considered in scope for this project. Date of death will be added to the NDS from 2007–08.

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 use of individuals' names in the data matching process

Three jurisdictions (South Australia, Western Australia and the Northern Territory) provide names with the NFC returns which proved very useful in this study. Searches of media reports also proved useful in obtaining names of deceased which could then be used to search the NCIS. The use of media reports was particularly useful when the NFC record contained little identifying information and the maintenance of media summaries should be continued.

Some jurisdictions were contacted to confirm matches and if possible to use names from the NDS to identify additional records in the NCIS. This activity produced very few additional records than those

already identified by the use of media reports and hence will not be used in future studies. It however would be most useful to pursue the supply of names on all NFC returns.

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

The findings of this report suggest a considerable 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 persons (NDS) and persons killed in road crashes 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, for the 2004-05 study the original NCIS dataset was supplemented with all cases that involved a heavy vehicle, whether flagged as work-related or not. These cases were then scrutinised and a decision made as to whether they should be included in the study.

### **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.

### **Jurisdictional information**

NDS data are provided on the basis of the location of the employer of the deceased worker. There were 15 cases in 2004-05 where the deceased died in a different state/territory to their employer's location. For this publication these deaths were allocated to the state/territory of the location of their death. Details of these deaths are provided below.

There were 4 NDS records supplied by Comcare which were reassigned based on where the death occurred: 2 deaths occurred in New South Wales, 1 in Victoria and 1 in Queensland. There were 5 NFC deaths which have also been reassigned: 3 to the Northern Territory, 1 to Queensland and 1 to New South Wales.

In addition, there were 5 deaths which occurred in New South Wales with 3 of them being compensated in Queensland, one in Victoria and one in the Australian Capital Territory. There was also 1 death in the Australian Capital Territory that was compensated in New South Wales and 1 death in Victoria that was compensated in South Australia.

There was also one instance where the incident occurred in New South Wales with the injured person transported to a hospital in the Australian Capital Territory where the person later died. This death is counted in both jurisdictions due to coroners from both jurisdictions investigating the death.

### **The timing of data extraction**

The 2003-04 study used preliminary data from the NDS as soon as it was available. As it is known that these data will understate the number of fatalities captured by the NDS, it was decided for the 2004-05 study that the first update on the NDS dataset will be used. This means that more time has elapsed from time of lodgement of the claim to when the data are extracted and thereby capturing more accepted claims. This later extraction of NDS data has also meant that the NCIS data are extracted at a later date and hence will contain more closed cases.

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 time the data are extracted. The deferred extraction of NDS data for this project has provided the additional benefit of enabling the use of the preliminary data pertaining to the following year to identify accepted compensation claims submitted in that time period for work-related fatalities that occurred in the reference year. For example, NDS data from 2004–05 and 2005–06 have both been used to identify fatalities that actually occurred 1 July 2004 and 30 June 2005.

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. 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 March 2008 for any additional coronial records that match records in the other datasets. For future reports, the NCIS extract will be supplemented with a search based on date of death to capture any additional fatalities that had late notifications.

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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