

# FATAL WORK INJURIES IN NEW SOUTH WALES

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There is no comprehensive source of information describing work-related fatalities in any Australian state or territory. Information for NSW is available from WorkCover NSW but this information is based heavily on workers' compensation data. Significant groups within the population, and particular types of injury, are excluded from the available data, either by design or practice.<sup>1,2</sup> This lack of comprehensive information makes the planning and evaluation of prevention initiatives very difficult, and forces occupational health and safety (OHS) agencies to base their decisions on incomplete, biased, or old data.

The most comprehensive up-to-date data describing work-related fatalities in NSW come from the more recent of two studies on work-related fatalities in Australia, Work Related Fatalities 2 (WRFS2) conducted by the National Occupational Health and Safety Commission (NOHSC).<sup>3-5</sup> An earlier NOHSC study of work-related fatalities, Work Related Fatalities 1 (WRFS1),<sup>6</sup> and more recent workers' compensation data from WorkCover NSW,<sup>7</sup> and from the Comparative Performance Monitoring (CPM) project,<sup>8</sup> also provide useful information. This article uses all these sources of information to shed light on some key questions relevant to work-related fatal injury in NSW.

## METHODS

The second work-related fatalities study (WRFS2) investigated all work-related fatalities in Australia for the period 1989 to 1992. Primarily utilising coronial files, detailed information was collected concerning work-related deaths. A general overview of the main results and a detailed description of the methods used in the study are available elsewhere.<sup>3,4</sup> The study included only deaths caused by external causes and excluded suicide. A broad definition of 'work-related' was used, and deaths were separated into various categories that had relevance to particular aspects of OHS. The deaths of people fatally injured at work ('workplace', 'work-road', and 'working' deaths) provide the main focus of the current report. 'Working' deaths covered people who were fatally injured as a result of some kind of work activity for pay, profit, or kind. The working deaths were divided into two subgroups—workplace (workers who were fatally injured as a result of work activity in some form of fixed work-

place) and work-road (workers, but not commuters, who were killed in motor vehicle incidents on public roads in the course of their work). The study also considered the deaths of people fatally injured while commuting to or from work ('commuters'), and the deaths of people not working but fatally injured as a result of the work activities of others ('bystanders'). Bystanders were further separated into 'workplace bystanders' (that is, those fatally injured as a result of workplace activities not usually associated with public roads or public transport) and 'road bystanders' (that is, those fatally injured in motor vehicle incidents on a public road, or on public transport, as a result of other people's work, where the working vehicle was primarily 'at fault' in the incident).

## RESULTS

### How big a problem are work-related fatalities in NSW?

There were 741 working and commuting deaths in NSW in the four-year period from 1989 to 1992 (approximately 185 deaths each year). Of the 741 people killed, 580 were fatally injured while working (78.3 per cent) and 161 were fatally injured while either commuting to or from work (21.7 per cent). The working deaths involved 388 workplace deaths (66.9 per cent) and 192 work-road deaths (33.1 per cent). The 580 working deaths over the four-year period equated to 145 deaths per year in NSW or approximately three deaths per week.

### How does NSW compare to Australia?

The overall rate of work-related death for workers in NSW was 5.3 per 100,000 workers per year, similar to the national figure of 5.5 deaths per 100,000 workers per year.

### Is work becoming safer for NSW workers?

Using information from both WRFS1 and WRFS2, it appears that the overall rate of working deaths in NSW declined fairly steadily from 1982 to 1992. This pattern of a declining rate of working deaths was also seen in the national figures covering the same period (Figure 1). Data from WorkCover NSW suggest this trend has continued since then, with a reasonably steady fall of 3.1 per cent per year across all deaths covered by the workers' compensation system from 1991-92 to 1998-99. Information from the Comparative Performance Monitoring project on compensated fatal injury in NSW also suggests a decline in risk in the last six years. So, available data suggest working in NSW is becoming safer. However, the situation is not as straightforward as these results suggest. Consideration of the percentage change in fatality rates for different industries in NSW between WRFS2 and WRFS1, where the number of deaths was high

enough to allow meaningful comparison, showed the construction (49.0 per cent), mining (32.1 per cent), agriculture (17.9 per cent) and transport and storage (11.8 per cent) industries had higher rates of death, and the manufacturing industry (-27.9 per cent) had a lower rate of death in WRFS2 compared with WRFS1. What has happened since 1992, and what factors may have influenced the observed changes in risk for different industries, is not known.

#### **Are men in NSW more likely than women to be fatally injured at work?**

The vast majority of working deaths were of males (95.3 per cent), with the rates of death for working males and females at 8.7 and 0.6 per 100,000 workers per year, respectively. It is likely that the higher rates for men are due almost entirely to more men being employed in occupations and industries that have a high risk of injury. However, the number of women fatally injured is too small to allow the hypothesis to be tested appropriately by examining occupation and industry-specific rates.

#### **Are young workers at higher risk of fatal work-related injury?**

The average age of workers who were fatally injured was 39.8 years, and two-thirds of all working deaths occurred to persons in the 20 to 49 year age range. However, work-related death rates showed a fairly gradual rise with age, and a considerable increase for those workers aged 65 and over (Figure 2). WorkCover NSW data for all deaths covered by the workers compensation system (including disease) suggest a very similar pattern—the number of young people fatally injured at work is too small to allow occupation and industry-specific rates to be determined. So, contrary to widespread belief, there is no evidence—either in NSW or elsewhere in Australia—that young workers are at increased risk of work-related fatal injury. In fact, available evidence suggests that they have the lowest risk, at least for workers 15 years of age or older.

#### **What are the most dangerous occupations and industries in NSW?**

Not surprisingly, the high-risk occupations in NSW are very similar to those for the whole of Australia. This reflects the fact that the extent of a worker's exposure to hazards, and the nature of those hazards, is closely connected to the worker's occupation. Specific occupations (of those where the number of deaths was high enough to allow a meaningful rate to be determined) with a particularly high fatality rate (deaths per 100,000 workers per year) in NSW were pilots (190.4 per 100,000), truck drivers (47.4 per 100,000), mining labourers (45.2 per 100,000), mobile plant operators (30.9 per 100,000) and farmers (25.1 per 100,000).

Also, the high-risk industries in NSW generally had similar rates to those in the whole of Australia: forestry and logging (113.9 per 100,000); fishing and hunting industry (59.8 per 100,000); mining (32.3 per 100,000); agriculture (23.5 per 100,000); transport and storage (23.4 per 100,000); and construction (10.4 per 100,000).

#### **What sort of injuries are involved?**

Multiple injuries (29.2 per cent), head injuries (24.3 per cent) and injuries to the chest (8.3 per cent) were the most common types of injuries associated with working deaths. Electrocutation, crush asphyxia, and drowning were other common causes of death in the workplace. Approximately six per cent of all fatally injured working people died of the medical complications resulting from their injuries.

#### **Do work activities have any adverse injury impacts on the general community?**

There were 293 bystanders who were fatally injured in NSW in the four-year period from 1989 to 1992. Of the 293 deaths, 83 were of workplace bystanders (28.3 per cent) and 210 were of road bystanders (71.7 per cent), a rate of death of 0.36 per 100,000 persons per year for workplace bystanders, and 1.0 per 100,000 persons per year for road bystanders. Thirty-one per cent of workplace bystanders were aged less than five years and 44.6 per cent were aged less than 15 years. The rate of workplace bystander deaths of children aged less than 15 years was two to three times the rate of the other age groups.

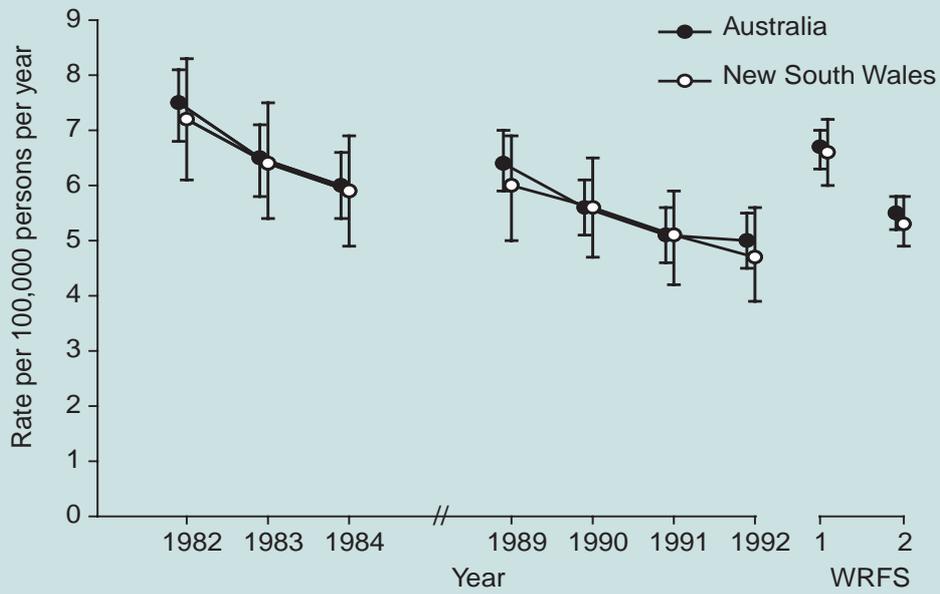
Nearly half (49.1 per cent) of the workplace bystander incidents occurred in rural areas or in a farmhouse, and 28.9 per cent occurred on a public road. The most common mechanism involved in bystander deaths was vehicle incidents, including where persons were travelling as passengers in work vehicles; being hit by moving objects; and drowning. Eighty-nine per cent of road bystanders were passengers or drivers of motor vehicles and the remaining 11.0 per cent were pedestrians. Trucks (51.0 per cent), cars (22.9 per cent) and buses (20.5 per cent) were commonly involved in road bystander deaths.

#### **Are children at risk?**

These results show that about one non-working person is fatally injured every five days in NSW as a result of the work activity of another person. Most of the child deaths were due to drowning in farm dams, or involved work vehicles or mobile machines (such as trucks, utilities, trailers, and tractors) in which children were travelling, or around which they were playing. One or more of the following factors were found to be involved in the incidents: childcare availability, fencing, vehicle and machinery design, shift length, and economic pressures on the family. This raises many important but difficult issues that need to be addressed by any well-grounded prevention efforts.

**FIGURE 1**

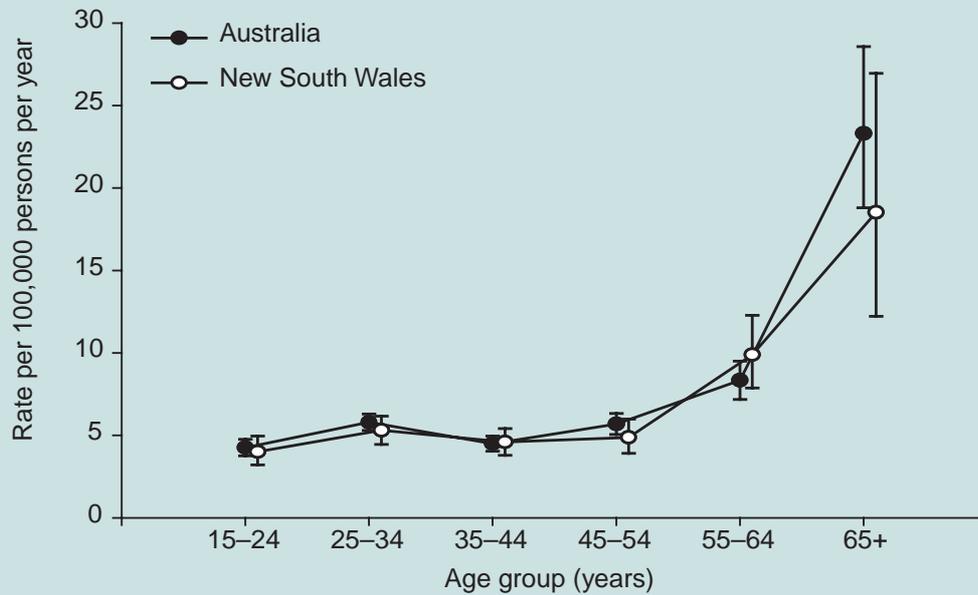
**RATE OF WORKING DEATHS PER YEAR, AND AS AN AVERAGE FOR NSW AND AUSTRALIA, 1982–1984 (WRFS1) AND 1989–1992 (WRFS2)**



Note: Incidence rates—deaths per 100,000 working persons per year. 95% confidence interval.

**FIGURE 2**

**RATE OF WORKING DEATHS BY AGE AT TIME OF DEATH, NSW AND AUSTRALIA, 1989–1992**



Note: Incidence rates—deaths per 100,000 working persons per year. 95% confidence interval.

### What circumstances commonly lead to fatal work-related injuries in NSW?

The common circumstances leading to fatal work-related injury in NSW were similar to those seen for the whole of Australia, and included:

- working on a roof without a safety harness and falling through a skylight that was not properly signposted, is a similar colour to the roof, and has no underlying protective mesh;
- working alone under raised vehicles that were not adequately secured and/or supported;
- operating a tractor, without rollover protective devices and/or without seat belts fitted or used, on a steep slope and the tractor overturning;
- performing maintenance or installation work and coming into contact with live wires on a circuit not protected by a residual current device;
- a combination of high speed, lack of sleep, night driving, and sometimes alcohol and/or drugs in long distance truck drivers involved in motor vehicle crashes;
- construction and mining labourers on worksites being run over by reversing vehicles from which the driver's vision was restricted because of blind spots;
- members of the public being killed when their vehicle was struck by a semi-trailer whose driver had lost control of the truck;
- children (especially those under five) on farms drowning in dams when they wandered away from their parents, often climbing through inadequate fencing and/or following a pet to a small dam into which they fell due to the steep slopes.

These circumstances all identify important issues that need to be addressed by any effective injury prevention program that targets work-related fatal injury. Anecdotal evidence (for example, short descriptions in the press and the quarterly *WorkCover News*) suggests that, although the number of work-related deaths may be declining, little has changed in the type of circumstances that lead to fatal work-related injury.

### Are all work-related deaths reported to, and recorded by, WorkCover NSW?

The WRFS2 information was checked against unit record information about work-related fatalities for NSW (and other jurisdictions) for the period of the study. This revealed that just over half (56.4 per cent) of the working fatalities were covered by the workers' compensation system. The OHS agencies covered 38.3 per cent of worker deaths. Overall, 68.1 per cent of work-related fatalities in NSW were recorded by either the OHS or workers' compensation system, with 31.9 per cent of worker deaths

in NSW not covered by any of these agencies. For workplace bystanders, 1.2 per cent of cases were recorded in compensation data and 6.0 per cent in OHS data. No road bystander deaths were recorded.

Published compensation information significantly underestimates the magnitude of work-related traumatic death of workers and provides virtually no information on the deaths of non-working persons fatally injured as a result of someone else's work, whether in a workplace or on the road. The relatively low coverage by the OHS agencies is of particular concern because it is the investigations by these agencies that should provide the detailed information necessary to appropriately target prevention activity. Therefore, if it is assumed that this activity by OHS agencies is useful in improving the level of OHS, lack of awareness by the authorities of the details of a large proportion of incidents in particular areas is not helpful.

### CONCLUSION

Work-related fatal injury is an important public health problem in NSW, both for workers and non-workers. Although WorkCover NSW and the National Occupational Health and Safety Commission provide data on fatal incidents, much of the information is either not comprehensive or is becoming dated. Older comprehensive data are still useful in developing an understanding of the circumstances leading to fatal injury, since these circumstances are unlikely to change quickly. The data, while useful for planning prevention efforts, do not provide on-going information on changes in the number, rate, or circumstances of work-related fatal injuries, and so cannot be used to evaluate prevention efforts. The National Coronial Information System, which is currently being implemented, will provide on-going information on work-related fatalities. This, combined with continuing improvements in the information provided by WorkCover NSW, should fill many of the gaps that currently impede the effective design, targeting, and evaluation of efforts to prevent work-related fatalities in NSW.

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## FARM-RELATED INJURY IN NSW: INFORMATION FOR PREVENTION

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Over the past decade, information about injuries on farms has grown; however, due to the time-consuming and costly nature of its capture, detailed analysis of events of injury has been limited. The aggregation of information has also proven difficult due to various coding frameworks and definitions being used. This article describes some of the information that can assist in the prevention of farm-related injury in NSW.

### THE FARM INJURY OPTIMAL DATASET

In 1994, the Australian Centre for Agricultural Health and Safety started to develop an optimal dataset for use in the collection of information describing agricultural injury.<sup>1</sup> This dataset was made available for use in late 1996. In 1999 the dataset was updated, after it had been used for various studies and some of the practical problems associated with its application had been resolved.<sup>2</sup> The production of an optimal dataset for farm injury has allowed both the aggregation of data from studies from different areas and over different time frames and the subsequent comparison of these studies.

In 1995, the National Occupational Health and Safety Commission undertook the largest collection of data describing work-related fatalities in Australia covering the period 1989–1992.<sup>3</sup> As part of this study, the Farm Injury Optimal Dataset was used to code farm-related deaths. The Australian Centre for Agricultural Health and Safety and the National Occupational Health and Safety Commission produced a detailed report on farm-related fatalities.<sup>4</sup>

### FARM-RELATED FATALITIES IN NSW

The investigation of farm-related fatalities in NSW during the period 1989–1992, which was undertaken as part of the national study, found that there were 185 unintentional deaths on or related to farms. At the time of their fatal injury, 124 people (67.0 per cent) were working, 34 (18.4 per cent) were bystanders to the incident (a person who was injured as a result of workplace activities or by a piece of equipment which was present on the farm to perform work functions), and 27 (14.6 per cent) were involved in other farm incidents (injuries that were not a result of work or work-related).<sup>4</sup>

On average, there were 46 farm-related fatalities on NSW farms per annum, or 39 work-related farm fatalities on NSW farms per annum. There were 193 people who were fatally injured on NSW farms (both intentionally and unintentionally); this gave a rate of 1.09 fatalities per 10,000 agricultural establishments in NSW.<sup>4</sup>

Rates and numbers are all very well when you are examining an issue over time or determining the size of a problem, or if you are examining the effect that a program has had in reducing the problem. Rates and numbers are less able to determine where you should be directing your prevention activities, what these activities should be, or where you should spend resources gathering greater detail about the event of injury.<sup>4</sup>

The study by Franklin et al. (2000) examined the farm-related deaths in NSW in detail including information about gender, age, farm enterprise, location on farm, agent, mechanism, activity at time of injury, pathophysiological cause of death, blood-alcohol content, month, day, and status of visitor to the farm.<sup>4</sup>