

OHS and construction safety



- Australia's ongoing high rates of work-related fatal and non-fatal injury and illness present a critical challenge to researchers, legislators and employers.
- Within the area of occupational safety, there is a strong, urgent and increasing need for solid research expertise to guide interventions, strategies, and policies in Australia and overseas.

State of the Road A Fact Sheet of the Centre for Accident Research & Road Safety - Queensland (CARRS-Q)

OH&S: THE FACTS

What is occupational health and safety (OH&S)?

- Occupational safety is a multi-disciplinary approach aimed at protecting the safety, health and welfare of employees, contractors and visitors attending workplaces and worksites. Occupational safety professionals acknowledge that work-related death, injury and illness can be prevented through effective and appropriate risk management. By recognising and controlling for hazards, they strive to create a proactive and sustainable safe work environment.
- Under OH&S legislation, organisations are obliged to provide safe premises, machinery, materials and systems of work, information, instruction training and supervision as well as a suitable working environment and facilities required for the job.
- OH&S regulations aim to prevent a person's death, injury or illness being caused by a workplace, by a workplace area, by work activities, or by plant or substances for use at work places.

Why is OH&S important?

- Every work-related accident is preventable and every employee has the right to work in a safe environment.
- OH&S is critical to organisations for the following reasons:
 - Improved profitability by reducing the costs associated with production delays, recruiting new staff and replacing equipment;
 - Improved worker morale and productivity;

- Higher employee retention rates; and
- Enhanced corporate image.
- Not only do employers and employees benefit from safer workplaces, but also their families, their communities and the economy at large.

All members of a workplace have obligations to maintain the health and safety of themselves and others, regardless of whether they are owners, managers, employees or visitors to a workplace.

The Australian situation

2010-2011 in focus:¹

- There were 374 work-related traumatic injury fatalities in Australia during 2010-11. Of these:
 - 220 (59%) were injured at work.
 - Workers killed while travelling to or from work (Commuter Fatalities) accounted for a further 110 (29%) fatalities.
 - The remaining 44 (12%) fatalities were people who were killed as a bystander to someone else's work activity (Bystander Fatalities).
 - Half (183 fatalities) of all the work-related injury fatalities were the result of a traffic incident - an incident occurring on a public road.

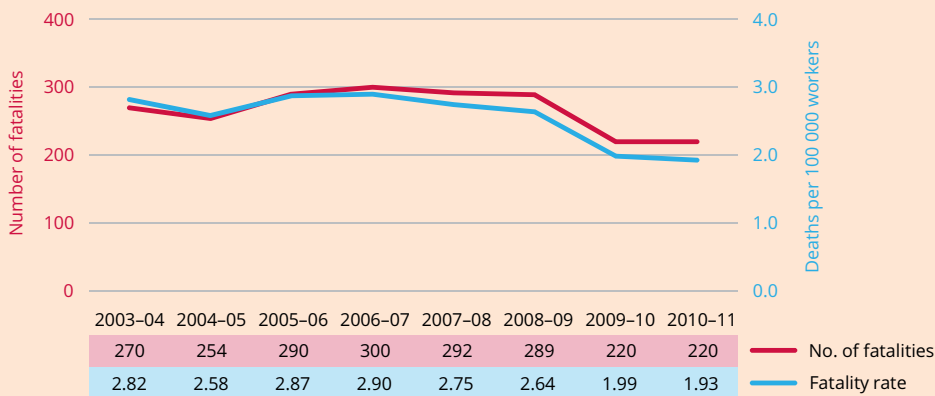
- 203 (92%) of the 220 workers killed were men.
- The average age of workers killed was 49 years. The most notable fall in the number of fatalities for males was recorded by the 25-34 years age group.
- The Agriculture, Forestry and Fishing Industry accounted for the highest number of fatalities (60). This was followed by the Transport, Postal and Warehousing (42) and Construction (39) Industries. The Road Freight Transport Sector recorded 20.5 deaths per 100,000 workers, eleven times the all industries rate.
- In 2010-11, 79 workers (36%) died following a *Vehicle incident*, the lowest number since the series began. A further 29 workers (13%) were killed due to *Falls from a height* and 26 (12%) each from *Being hit by moving objects* and *Being hit by falling objects*.
- Safe Work Australia has calculated that the total cost of workplace injury and illness to the Australian economy for the 2008-09 financial year was \$60.6 billion. This represented 4.8% of the Australian Gross Domestic Product. The significant economic costs of work-related injury, illness and death are borne by workers, their families, the broader community and employers.²

OH&S: CARRS-Q'S WORK IN THE AREA

- CARRS-Q works closely with stakeholders from the tertiary, public, and private sectors in projects to improve occupational health and safety. CARRS-Q staff offer expertise drawn from a range of disciplines including psychology, public health, civil and mechanical engineering, computer

ANALYSIS OVER 8 YEARS¹

Worker fatalities: number of fatalities and fatality rate, 2003–04 to 2010–11



- The number of worker fatalities in 2010–11 was the same as the previous year which was considerably lower than the high of 300 recorded in 2006–07.
- Over the period 2003–04 to 2010–11, one-third of worker fatalities were due to a Vehicle Incident on a public road, one-third were due to a vehicle incident at a workplace and the remaining one-third did not involve a vehicle. Trucks were the vehicle most often involved.
- Over the eight year period from 2003–04 to 2010–11, the Transport, Postal and Warehousing Industry accounted for the highest number of fatalities, followed by the Agriculture, Forestry and Fishing Industry, and then the Construction Industry.
- Whilst fatality rates for male workers have declined over the period 2003–04 to 2010–11, males have consistently recorded ten times the fatality rate of females.

science and optometry. In particular, Centre staff are leaders in applied research in the evaluation of alcohol and other drugs impacting the mining, energy, aviation and rail sectors, as well as in the design and evaluation of fleet and rail safety policy and programs. They offer valuable experience in working in partnership with employer and employee groups in sensitive policy development and implementation.

- CARRS-Q's occupational safety research programs have national and international partners working across a range of behaviour, policy, legislative and corporate culture projects. Examples of CARRS-Q's OH&S work are listed in the context of specific theme areas in the following pages.

CONSTRUCTION SAFETY

- Given its current size, economic value and expanding nature, improving workplace health and safety in the Australian Construction Industry is especially important. CARRS-Q has been integral to the collaborative research effort with various industry partners to improve safety in the Australian Construction Industry.

The current situation

- In 2011–12³, the Australian Construction Industry employed 1.01 million people, representing 9% of the Australian workforce.
- Over the five years from 2007–08 to 2011–12³:
 - 211 construction workers died from work-related injuries. This number of deaths equates to 4.34 fatalities per 100,000 workers which is nearly twice the national fatality rate of 2.29.
 - Falls from height accounted for 24% of the fatalities (51 deaths). Of these, 18 involved falls from buildings, 15 involved ladders and 8 involved scaffolding.

- Vehicle incidents resulted in 34 fatalities. In 21 of the incidents, the worker was in a car and 10 were in a truck.
- Being hit by moving objects and Being hit by falling objects accounted for 29 deaths each. More than half of the deaths caused by Being hit by moving objects involved road transport.
- The Construction Industry accounted for 11% of all serious workers' compensation claims.
- On average, there were 39 claims each day from employees who required one or more weeks off work because of work-related injury or disease.
- The Construction Industry recorded the third highest number of fatalities by industry sector for both the period 2010–11, and the eight year period from 2003–4 to 2010–11. The number of fatalities in the Construction Industry has remained relatively stable over the past few years.¹
- The incidence rate of serious claims in the Construction Industry has fallen 38% from 31.0 claims per 1000 employees in 2000–01 to 19.1 in 2010–11. However, this rate remains much higher than the rate for all industries of 12.7 and was the fifth highest of all industries in 2010–11³.

Alcohol and other drugs in the Construction Industry

- The impact of employees' alcohol and other drug (AOD) consumption on workplace safety and performance is an on-going issue for Australian employers, particularly within high-risk industries like Construction.
- There is increasing concern about the impact of employees' AOD consumption on workplace safety in the Construction Industry. Very little is known about what proportion of accidents are directly attributable to the effects of AODs, despite AOD consumption being relatively prevalent within the Australian community⁴

- and the clear link between such consumption and subsequent declines in cognitive and behavioural performance⁵.
- Research undertaken by CARRS-Q⁶ aimed to scientifically evaluate the use of AODs within the Australian Construction Industry in order to reduce the potential resulting safety and performance impacts and engender a cultural change in the workforce. Prior to this, no known study had scientifically evaluated the relationship between the use of drugs and alcohol and safety impacts in Construction. In addition, there had been only limited adoption of nationally coordinated strategies, supported by employers and employees to render it socially unacceptable to arrive at a construction workplace with impaired judgment from AODs. Using the Alcohol Use Disorders Identification Test (AUDIT), the study adopted both quantitative and qualitative methods to evaluate the extent of general AOD use in the industry. Results indicated that a proportion of the Construction sector may be at risk of hazardous alcohol consumption. A total of 286 respondents (58%) scored above the cut-off score for risky alcohol use with 43 respondents (15%) scoring in the significantly 'at risk' category. Other drug use (both illicit and licit) was also identified as a major issue that must be addressed, recognising complex and contentious issues around detection and privacy that must be considered. Whilst general AOD use does not necessarily translate into workplace AOD use and impairment, the results of the study do, however, suggest that those who may be at risk are unaware that a problem may exist. The study has fundamentally contributed to a greater understanding of the use of AODs in the Construction Industry and results support the need for evidence-based, preventative educational initiatives that are tailored specifically to the industry.

Examples of completed and in-progress CARRS-Q research relating to safety in the Construction Industry and conducted in partnership with The Sustainable Built Environment National Research Centre (SBEnc) and its predecessor, the CRC for Construction Innovation include:

- A national qualitative and quantitative assessment of the use of drugs and alcohol in the Australian infrastructure and building industry, and development of an industry-wide nationally consistent collaborative approach to reducing the risk of impaired performance on construction sites and increasing workers' commitment to alcohol and other drugs safety.
- A practical guide to safety leadership: Implementing a construction safety competency framework.
- Interlocked projects in safety competency and safety effectiveness indicators in the construction sector.
- Risk management and injury prevention: Competencies, behaviours, and attitudes to safety in the Construction Industry.
- A study of construction site safety culture and implications for safe workplaces.
- Changing safety behaviour in the Construction Industry: Using enforcement and education as the stick and the carrot to improve safety culture.
- Safety culture, safety attitudes and market force influences on construction site safety.
- Understanding and defining OH&S competency for construction site positions: Worker perceptions.

ALCOHOL & OTHER DRUGS

In addition to research into the safety impacts of alcohol and other drugs in the Construction Industry, CARRS-Q has a specific research strength and interest in the impact of alcohol and drugs in the general occupational and community sector. Please see *CARRS-Q's Drink Driving⁷ and Drug Driving⁸ Fact Sheets* for detailed information on the current statistics and trends pertaining to the impact of drugs and alcohol on safety, and the Centre's work in these areas. Examples of CARRS-Q's research include:

- Deterrence of drug driving: The impact of the ACT drug driving legislation and detection techniques
- Illicit drug use and drug driving among long haul truck drivers: An investigation of behavioural antecedents and viability of deterrence initiatives .
- Development of an alcohol and other drugs (AOD) workplace policy.
- CARRS-Q has been involved in several research projects with the Queensland Police Service aimed at identifying the prevalence and resource impact of alcohol-related incidents and violence. Examples of policing research include:
 - An investigation of alcohol misuse in the community and development of best practice models for policing.

- An alcohol incidence management study to investigate the occurrence and resource impact of alcohol-related incidents on operational general duties policing.
- Piloting of random roadside oral drug testing.
- Community understanding and management of the impact of prescribed drugs on driving and machine operation.

RAIL SAFETY

Please see *CARRS-Q's Railway Level Crossing Safety Fact Sheet⁹* for detailed information on the current statistics and trends pertaining to safety in this area, and the Centre's work in rail safety. Examples of CARRS-Q's rail safety research include:

- Use of Intelligent Transport Systems for safer level crossings.
- Integrating driver and traffic simulation to assess in-vehicle and road-based level crossing safety interventions.
- Understanding pedestrian behaviour on railway crossings.
- The conduct of a training needs analysis for Australian rail incident investigators and the development of a rail-specific capability framework to define the curricula for a multi-level national training program for use within the industry.
- A review of alternative and lower cost safety systems for railway level crossings.
- Focus group research of Queensland train drivers and heavy vehicle drivers to explore the contributing factors toward level crossing crashes.
- Survey of Queensland train drivers' to determine their ratings of perceived risk associated with illegal motorist behaviours at level crossings.
- Development, trial and evaluation of educational interventions specific for different road user groups (including heavy vehicle drivers) to promote safe driver behaviour.
- A socio-economic study of platform and carriage crowding in the railway industry.
- Low-cost level crossing risk and legal evaluation.
- Establishing baseline rail level crossing incident occurrence and behaviours using video data.

WORK-RELATED ROAD SAFETY

Please see *CARRS-Q's Work-related Road Safety Fact Sheet¹⁰* for detailed information on the current statistics and trends pertaining to work-related road safety, and the Centre's work in this area. Examples of CARRS-Q's work and research include:

Customised research advisory service

CARRS-Q offers a "one stop shop" service for the fleet safety requirements of local and national organisations ranging in fleet size from 5 to 18,000 vehicles. Our services

include fleet safety policy development, crash recording and reporting processes, seminars and educational workshops, driver profiling, fleet bench-marking to evaluate current and future practices, and the development of tailored interventions and evaluations.

Road safety awareness program

Designed to be easily implemented by a company to reach as many staff as possible to encourage safe driving, the program includes road safety posters, fleet safety fact sheets, work-related road safety hints or tips, computer screen messages and Tool Box Talks covering a range of topics.

Work-related road safety research

- Safety in the heavy vehicle industry:
 - population-based study to determine what role driver, employer/company and vehicle characteristics play in heavy vehicle crashes and identify cost-effective strategies to improve safety.
 - documentation of the policy and legislative framework and industry safety culture heavy vehicle drivers currently operate in, and identification of the barriers encountered when trying to implement new safety strategies.
 - illicit drug use and drug driving among long haul truck drivers: An investigation of behavioural antecedents and viability of deterrence initiatives.
 - desktop review of conspicuity markings for heavy vehicles.
- Work related road safety countermeasures in a large fleet (QFleet): An experimental comparison.
- Development and evaluation of an OH&S framework for work-related driving: Benchmarking study involving five South-east Queensland Councils.
- Improving road safety and driver security for high risk fleet (taxi) drivers in Australia.
- Fleet safety in the nonprofit sector: Reducing crashes and developing regulatory frameworks to protect volunteer drivers.
- Development of contemporary driving risk assessment tools to improve fleet safety.
- Best fit interventions in fleet safety.
- Co-development of an Occupational Road Safety Guide.
- Integrating technological and organisational approaches to enhance the safety of roadworkers.
- Development of intervention guidelines for work-related drivers targeting low speed vehicle run-overs of young children.
- Review of safety practices used by commercial vehicle purchasers.
- Collaboration with QUT School of Public Health on QUT's Transport Industry Workplace Health Intervention Research Project, to develop workplace specific programs aimed at getting drivers to eat better and move more, with the aim of reducing chronic disease.

FATIGUE

Please see *CARRS-Q's Sleepiness and Fatigue Fact Sheet*¹¹ for detailed information on the current statistics and trends pertaining to sleepiness and its impact on safety, and the Centre's work in this area. Examples of CARRS-Q's sleepiness research include:

- Development of potential new measures of sleepiness.
- Studies of a wide range of objective physiological measures of fatigue.
- Surveys of driver exposure to sleepiness and their on-road compensation strategies.
- Investigation of the effects of shiftwork on driver sleepiness.
- Investigation of the effects of other social factors (including having a new baby) on driver sleepiness.
- Assessment of potential strategies to combat sleepiness, including evaluation of nap breaks as a countermeasure.
- Differentiating the effects of monotony versus fatigue on driving performance and the effectiveness of various detection methods.
- Developing the case for a National Risk Management Standard.
- CARRS-Q operates Queensland's first advanced driving simulator which provides evidence-based insight into the impact of a range of human behaviour factors such as sleepiness on transport safety.

Every employee has the right to work in a safe environment.

FUTURE DIRECTIONS

- The Australian Work Health and Safety Strategy 2012-2022² provides a 10 year national framework to drive improvements in workplace health and safety in Australia. The Australian Strategy promotes a collaborative approach between the Commonwealth, state and territory governments, industry and unions and other organisations to achieve the vision of healthy, safe and productive working lives. The Australian Strategy builds on the previous National OHS Strategy 2002-2012 under which significant progress was made to improve work health and safety outcomes. This included a reduction in the work-related injury fatality rate by nearly 40%. The Australian Strategy consists of four outcomes and seven action areas to help achieve the vision by 2022.
- The **outcomes** are:
 - a **reduced incidence of work-related death, injury and illness** achieved by
 - reduced exposure to hazards and risks *using*
 - **improved hazard controls** supported by
 - **an improved national work health and safety infrastructure.**
- The seven areas in which actions are required to support the outcomes are:
 - healthy and safe by design;
 - supply chains and networks;
 - health and safety capabilities;
 - leadership and culture;
 - research and evaluation;
 - government; and
 - responsive and effective regulatory framework.

- The Australian Strategy sets three **targets** to measure progress in achieving the vision:
 - a **reduction of at least 20% in the number of worker fatalities** due to injury;
 - a **reduction of at least 30% in the incidence rate of claims** resulting in one or more weeks off work; and
 - a **reduction of at least 30% in the incidence rate of claims for musculoskeletal disorders** resulting in one or more weeks off work.
- The broad industry groups identified as national priorities for prevention activities (based on high numbers and rates of injury and/or fatalities or by their hazardous nature) are: agriculture; road transport; manufacturing; construction; accommodation and food services; public administration and safety; and health care and social assistance.

Work health and safety policy, programs and practice need to be informed by robust evidence. Continuing to improve national data is essential to developing the evidence base. Evidence helps the ongoing identification of national priorities and measurement of our progress towards achieving the vision and the outcomes. Research should lead to practical results to strengthen risk controls in workplaces.

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STATE OF THE ROAD is CARRS-Q's series of Fact Sheets on a range of road safety and injury prevention issues. They are provided as a community service and feature information drawn from CARRS-Q's research and external sources. See the reference list for content authors.

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