

## 7 Improving health and safety at work

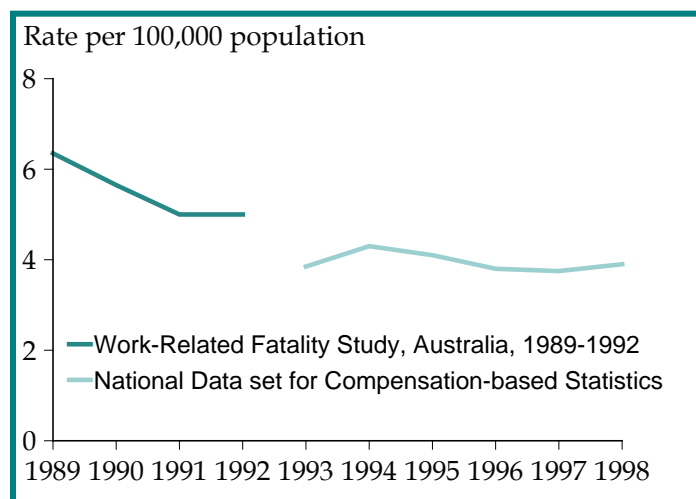
Employment and working conditions are two of the key determinants of population wellbeing. For employed people, those who have more control over their work circumstances, work in safe environments and have fewer stress-related demands in their jobs, are likely to be healthier.<sup>583</sup> People without secure and satisfying work are less likely to have an adequate income; and unemployment and under-employment are generally associated with reduced life opportunities, financial hardship and poorer health and wellbeing.<sup>584</sup>

At the beginning of the 20th century, the emphasis in occupational and industrial health was on providing basic public health amenities for the first time (such as toilets and ventilation in workplaces), and on setting limits and special provisions for the employment of women and children. Over the century, the fields of occupational health and safety developed, resulting in improvements in the working conditions of employees across a wide range of industries and occupations. Workplace hazards and injuries were significant causes of disability and related health problems, but workplaces were also increasingly the sites of public health programs to improve health (e.g., workplace-based hearing screening, blood pressure monitoring, and screening for preventable genetic conditions).

Work-related fatalities made up a significant proportion of accidental deaths throughout the century. Working conditions in the earlier part of the century were often highly dangerous, involving substantial exposure to a range of toxic substances or immediate physical risks. Occupational health and safety (OHS) issues were relatively later matters of legislative concern in Australia, with some employers and unions previously focusing more on agreed extra payments (e.g., 'danger money') for working in risky or hazardous environments.<sup>585</sup> Occupational health hazards, however, remained for many workers, with the complexity of modern work processes bringing new problems alongside improvements.<sup>586</sup>

In relation to work-related injuries, two major changes in the economy were reflected in the reduced risk of hazardous occupational exposures. The first of these was the movement of a significant proportion of workers from the most hazardous sectors (e.g., mining, manufacturing, agriculture) to the relatively safer service industry sectors. The second was the transition from manual work to automation, which resulted in fewer people engaged in hazardous occupations, and therefore, less exposure per unit of risk.<sup>587</sup> It was difficult to demonstrate some of these changes, as there were no national, centralised systems for the collection of data for work-related deaths, injuries, and risk exposures (incident and disease) over much of the century. However, later time trend data indicated some success in this period (Figure 7.1).<sup>588</sup>

Figure 7.1: Work-related death rates, 1989-1998



Source: National Occupational Health and Safety Commission, *Data on OHS in Australia*, 2000, p. 29.

One study that analysed data from 1989-1992 estimated that an average of just under 2,300 deaths occurred in Australia annually, from occupational exposure to hazardous substances (including acute chemical poisoning).<sup>589</sup> Workers in particular industries had very high exposures to certain hazards: for example, exposure to asbestos (which caused the fatal diseases of lung cancer and mesothelioma) was very high in certain industries (e.g., asbestos mining and export) and occupations.<sup>590</sup> In some cases, these hazards were being eliminated - for instance, asbestos was eventually not 'mined, milled or manufactured' in Australia because of the risk to health. Public health success in reducing exposures to asbestos and lead are described in Sections 2.2 and 2.1.

There were marked variations in the safety of different industries and types of work and in the health of those who worked in them. An analysis of death rates in males working in manual versus non-manual occupations found that, while mortality for both declined markedly during the period 1966 to 2001, for males in manual occupations the decline was 44%, whereas for males in non-manual occupations, the decline was higher, at 59%. These declines slowed after the mid-1980s.<sup>591</sup>

The National Occupational Health and Safety Commission, (NOHSC) was a Commonwealth authority established as a tripartite statutory body (with representation from employers, employees, and government) under the *National Occupational Health and Safety Commission Act 1985*, and its primary role was to facilitate and implement the government's *National Occupational Health and Safety (OHS) Strategy*.<sup>30</sup> It was succeeded by the Australian Safety and Compensation Council (ASCC) in 2005.<sup>597</sup>

- *'Australia's continuing high rates of work-related fatal and non-fatal injury and disease present a significant challenge to us all. Every year, significant numbers of people die and many more are severely affected by work-related injuries and diseases. There have been significant improvements in OHS performance in recent years but considerable scope exists for further progress.'*  
– National Occupational Health and Safety Strategy 2002-2112, 2002.

In 2000, the NOSHC published a report that provided an overview of OHS in Australia as described by national data collections.<sup>592</sup> This directly supported the *National Improvement Framework* goal of prevention, and was the most comprehensive study to date on work-related injury and disease in Australia. The main findings were that:

- the health burden due to occupation was a significant component of the total public health burden;
- the health burden due to disease was much higher than that due to injury, and cancer appeared to be the main disease problem;
- there were no significant decreases in the level of injury and disease over the decade (1989-1998) - although an improvement in death rates was apparent (Figure 7.1);
- risks of fatal and non-fatal injury varied with age - rates rose steadily to about age 64 years, and increased dramatically for workers over that age;
- risks of fatal and non-fatal injury varied by industry, with consistently high rates in agriculture, mining, transport and construction (timber and fishing industries had low numbers but exceptionally high rates; while manufacturing had high numbers of both but only high rates of non-fatal injury, when compared with all industries); and
- risks of fatal and non-fatal injury varied by occupation, with consistently high rates among plant and machine operators and drivers, labourers and tradespersons. Paraprofessional workers, managers and administrators (including farmers) had moderately high rates of fatal injury.<sup>592</sup>

Later data indicated that Australia's work-related fatality rate had decreased overall, at a higher rate than that of a number of the best performing countries in the world (Figure 7.2).

**Figure 7.2: Comparison of Australia's work-related injury fatality rate with selected best performing countries, 1999-2001 to 2003-2005 (projected)**



Source: Workplace Relations Ministers' Council, *Comparative performance monitoring report: comparison of occupational health and safety and workers' compensation schemes in Australia and New Zealand*, 2006, p. 4.

Information on fatalities where workers' compensation was applicable also showed a decreasing rate from 1996-97.<sup>593</sup> Although these data did not include all work-related fatalities (for instance, contractors were excluded), and were confounded by other factors, they appeared to indicate improving safety in Australian workplaces. There was, however, a pressing need for improved collection and analysis of national data on work-related fatalities, injuries, exposures and resulting diseases and conditions.

### Public health practices

In 1854, the *Public Health Act* of Victoria, the colony with the largest manufacturing industry in Australia at the time, empowered Local Boards of Health to require factories of more than 20 people to provide a sufficient number of 'water closets' (toilets) and other basic public health amenities that were not commonly provided to employees.<sup>5</sup> From 1885, laws to protect workers were progressively enacted. For example, the state factory acts prohibited the employment of children (aged less than 13 years) and regulated the employment of minors (aged more than 13 but less than 16 years), which led to a reduction in industrially-related child deaths.<sup>30</sup> The Victorian *Factories and Shops Act 1885* regulated the employment of women and youths, by setting a (less onerous) working week of 48 hours for females and males under 16 years.<sup>5</sup>

The Harvester Judgement, delivered in the (then) Commonwealth Court of Conciliation and Arbitration in 1907, was a landmark judgement. The ruling stated that the employer was required to pay his employees a wage that guaranteed a standard of living reasonable for 'a human being in a civilised community'.<sup>594</sup> It created the concept of a minimum wage, and the legal requirement for employers to pay a basic wage sufficient for a worker and family to live 'in frugal comfort'.

**Survey respondent:** *The Harvester Judgement was a public health success as it created a 'frugal but adequate wage for all adult Australian male workers, with major impact on poverty-related illness.'*

Occupational and industrial health and safety remained largely matters for the states and territories after Federation in 1901, and most of the earlier developments occurred at this level (Box 7.1). For instance, the Victorian *Health Act* of 1919 enacted regulations to govern dangerous occupations, and, in

1923, the Dangerous Trades Regulations were issued under this *Act*, requiring every medical practitioner to notify specified occupational illnesses due to:

- certain substances - carbon bisulphide, carbon monoxide, lead, mercury, nitrous fumes, phosphorus, chloride of sulphur, turpentine or cyanogen compounds (e.g., cyanide);
- ulceration of skin or mucosal surfaces due to chrome, irritant dust, or caustic or corrosive liquids;
- septic poisoning due to handling meat or meat products; and
- pneumoconiosis (a lung condition caused by inhalation of dust) due to organic and inorganic dusts.<sup>5</sup>

The character of modern OHS legislation developed largely from the 1970s, in the wake of the influential Robens Report, the result of a British inquiry into then current UK health and safety legislation. The Report found that there was 'too much law' *per se*, that much of the law was obsolete or too focused on standard-setting, that agencies were fragmented, that self-regulation was not as effective as it could be, and that, most importantly, real progress was only possible with the cooperation and commitment of all employees.<sup>30</sup>

At the start of the 21st century, the area of OHS was governed by a framework of acts, regulations, and underpinning codes of practice and standards, many of which were industry-level standards.<sup>595</sup> Each state and territory had a central piece of legislation, which was their principal *Occupational Health and Safety Act*. This jurisdictional legislation generally established tripartite bodies consisting of employer, employee, and government parties, with functions to oversee the operation of OHS legislation.<sup>30</sup> Australia's no-fault compensation schemes provided support to injured workers and promoted rehabilitation and their return to work.

Over the 20th century, there were major reductions in fatalities, as a result of substantial changes in industrial, occupational and work-related practices and safety measures. These included:

- the development of modern OHS legislation;
- a raft of measures to reduce workers' exposure to hazardous substances;
- the establishment of registries to track workers who suffered from certain hazardous exposures and injuries (e.g., the Australian Mesothelioma Program and Register, which began in 1980; the Australian Spinal Cord Injury Register, which began in 1995 and had full coverage of new incident cases of spinal cord injury from 1986);
- the National Coronial Information System, used to address the links between safe design and occupational safety (see Section 5.2); and
- campaigns on a range of issues (e.g., to enforce sun protection on construction sites, or to target the use of seatbelts on forklifts - there were 85,000 forklifts in Victoria alone).<sup>718,30,596</sup>

Certain industries had historically higher or relatively intractable work-related injury rates and risks relative to other sectors, and these continued to require concerted effort. Industries identified as priorities were:

**Box 1 Box 7.1 The way it was... working conditions early in the 20th century**

*'The position in Australia was not substantially different from that in Britain. Long hours, child labour and destitution following unemployment or injury all presented as problems in Australia as they did in Britain. The remedial legislation in some cases contained detailed provisions directed to improving health and safety - for example, the Victorian Factories and Shops Act 1890. In other cases, it was more limited - for example, the South Australian Factory Act 1894 which followed the English models by: expressly limiting the hours of women and children, setting age limits on employment; and imposing only rudimentary safety and health requirements such as ventilation and the guarding of dangerous machinery. The requirements were also of limited application (to the metropolitan area) and excluded shops and workplaces with less than six workers. Yet, there were arguments that these requirements should be left to self regulation... Dr Magarey MLC [SA] argued that the proposed Act gave extraordinary powers to inspectors (it did not) and that it might be better for under 13 year olds to be at work rather than on the streets.'*

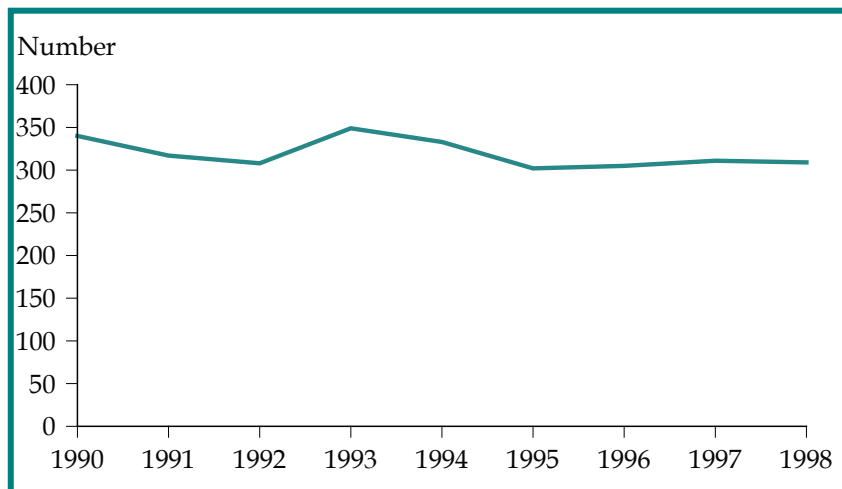
— C Reynolds, *Public health law in Australia*, 1995, pp. 224-225.

- agriculture, forestry and fishing;
- construction;
- health and community services;
- manufacturing;
- mining; and
- transport and storage.<sup>598</sup>

In terms of agricultural industries, improvements in safety on farms were necessary as they were residences where non-working adults and children lived (and visited), as well as worksites. Farms contained dangerous equipment and chemicals, and agricultural industries had rates of work-related deaths that were among the highest in Australia.<sup>599</sup> Farm injuries resulted in between 20 to 60 presentations to rural hospital emergency departments for every 100 farms annually.<sup>599</sup> A comparative study of farm-related fatalities from 1989 to 1992 found that the fatality rate was four times higher for the agricultural industry (20.6 per 100,000 workers) than the all-industry rate (5.5 per 100,000 workers) during the same period.<sup>600</sup> Information from this and other studies was used to develop health and safety risk profiles for agricultural industries, which promoted the development of guidelines, hazard checklists, and other tools to help farmers manage their OHS risk.<sup>600</sup>

Farmsafe Australia was incorporated in 1993, and, in 1996, set ambitious goals and targets for achievement in the first *Farmsafe Australia Strategy 1996-2001*.<sup>601</sup> A review in 1999 found that, apart from reductions in deaths due to tractor roll-over, there was little evidence of progress in achieving the targets (Figure 7.3). There had been progress, however, in implementing the strategy and significant improvements were expected within the following decade.<sup>602</sup>

**Figure 7.3: Deaths from injury of farm managers and workers, 1990-1998**



Source: Farmsafe Australia Inc., 'Farm Safety Facts', [n.d.].

The safety of children on farms was a major concern, with an average of one child (under 16 years) fatally injured on an Australian farm every ten days, and many more hospitalised or requiring medical treatment.<sup>603</sup> Targets set by Farmsafe Australia for 2002-2007 aimed at reductions in:

- injury related deaths on farms, by 30%;
- compensable injury, by 30%;
- hospital admissions due to farm injury, by 30%; and
- the number of young people on farms (aged 15-24 years) with noise-induced hearing loss, by 15%.<sup>604</sup>

The key public health principle driving measures to ensure safe working environments was the knowledge that work-related death, injury and diseases were preventable, not inevitable. Improvements in the assessment, elimination and control of risks and the development of a safety culture, especially in hazardous industries were also important. Later movement towards mechanisms

to develop and audit compliance with regulatory regimes and frameworks helped to shift OHS in proactive directions (and away from the former focus on non-compliance). Regulatory authorities increasingly offered advisory services, awareness and education programs and other assistance to support workplaces, employees and employers to comply with health and safety standards.

A national strategy, the *National Occupational Health and Safety Strategy 2002-2012* was endorsed by the Workplace Relations Ministers' Council (WRMC) in 2001. It was described as a landmark development, because it enshrined the commitment of all Australian governments, the Australian Chamber of Commerce and Industry and the Australian Council of Trade Unions, to work cooperatively on national priorities to improve OHS, and achieve minimum national targets to reduce the incidence of workplace deaths and injuries. National Priority Action Plans were endorsed by the WRMC in 2002:

- to reduce high incidence and severity risks;
- to strengthen the capacity of business and workers to manage OHS effectively;
- to prevent occupational diseases more effectively;
- to eliminate hazards at the design stage; and
- to strengthen the capacity of government to influence OHS outcomes.<sup>593</sup>

Comparative Performance Monitoring reports from 1998 enabled trend analysis on the OHS and workers' compensation schemes operating in Australia, providing information to assess progress on the strategy, and the success of differing approaches to the prevention of work-related injury and disease.<sup>597</sup> The strategy was reviewed in 2004–05 and found to be contributing to improvements in OHS, through the focus on a national effort and the setting of targets based on data.<sup>593</sup> As with other areas, OHS was a state responsibility, and the evaluation found that all Australian OHS authorities had integrated the strategy into their business plans, and that members of the ASCC were working on education and compliance campaigns, to engage industry in activities in support of the strategy's goals for priority risks and industries. As a consequence of the review, an additional target was adopted, for 'Australia to achieve the lowest rate of work-related traumatic fatalities in the world by 2009'.<sup>593</sup>

### **Factors critical to success**

The success of measures to provide safe working environments for all Australians relied on the recognition that work-related death, injury and diseases were preventable, and that it was the responsibility of everyone to take action to ensure safe workplaces and work situations, and eliminate hazardous practices.

Public health measures began in the latter half of the nineteenth century with basic requirements such as the provision of toilets, ventilation, fire escapes and first aid equipment. These developed into a highly regulated system ensuring that in all jurisdictions, the duty of care owed to workers and third parties was shared by all whose actions could affect their health and safety. For example:

- employers had to provide safe and healthy workplaces and safe systems of work;
- employees had to work in as safe a manner as possible; and
- suppliers, designers and manufacturers had to provide safe products and accurate information about the safe use of materials and equipment.<sup>593</sup>

Public health data collection and tracking activities, such as registers of workers who suffered injury or injurious exposures, and studies on the mechanisms of work injury and fatality (e.g., falls from a height, being hit by moving objects) all contributed to preventive programs to reduce the effects of occupational injury.<sup>605</sup>

## Cost-effectiveness

While there were no overall cost-benefit analyses for OHS programs in Australia, the cost of workplace accidents (e.g., industrial and occupational fatalities, injuries resulting in loss of a limb or blindness) and hazardous exposures resulting in disability (e.g., industrial deafness) or diseases (e.g., mesothelioma) were estimated by Worksafe Australia in 2000 at a minimum of \$27 billion annually.

The economic cost of the health impacts of occupational exposure to hazardous substances in 1991 was estimated at \$160 million in health service utilisation and productivity losses nationally. Direct costs of hospital treatment were \$38 million; indirect costs due to temporary illness and permanent disability (i.e., lost productivity) were \$20 million, while productivity losses due to premature mortality were \$102 million. The study confirmed previous findings that the impact of occupational exposure to hazardous substances was an important public health problem.<sup>589</sup>

**Table 7.1: Historic highlights of improving health and safety at work**

1854	The <i>Public Health Act</i> of Victoria of 1854 empowered Local Boards of Health to require factories of more than 20 people to provide a sufficient number of 'water closets' (toilets).
1876	A Select Committee of the NSW Legislative Assembly recommended legislation to define the age at which children should be permitted to work in paid employment.
1885-1907	Laws to protect workers e.g., <i>Factory Acts</i> (Vic 1885, SA 1894, NSW 1896) regulating the employment of minors. The Harvester Judgement (living wage, and called the basic wage for many decades).
1921	Commonwealth Division of Industrial Hygiene established; then ceased operation in 1932 during the Great Depression.
1926	The <i>NSW Workers' Compensation Act 1926</i> enacted.
1929-30	First medical appointment to private industry made by Broken Hill Pty Ltd.
1949	Occupational Medicine Section established at the School of Public Health and Tropical Medicine in Sydney.
1972	Publication of the influential Robens Report, the result of a UK inquiry into then current health and safety legislation.
1970s	Development of modern occupational health and safety (OHS) legislation in the states and territories began. The National Occupational Health and Safety Commission established.
1984	The SA Mathews Report set out general propositions on which new OHS legislation was based.
Mid 1980s-	State legislation enacted e.g., the <i>Occupational Health and Safety Act 1983</i> (NSW), 1985 (Vic), <i>Occupational Health, Safety and Welfare Act 1984</i> (WA), 1986 (SA).
1987	Domestic airlines became smoke-free.
1988	All federal government offices became smoke-free.
1991	The <i>Occupational Health and Safety (Commonwealth Employment) Act</i> enacted.
1993	Farmsafe Australia Inc. set up with the aim of enhancing the wellbeing and productivity of Australian agriculture through improved health and safety awareness and practices.
Late 1990s-	State legislation refreshed, e.g., the <i>Occupational Health and Safety Act 2000</i> (NSW) repealed the earlier (1983) act.
1996	First Farmsafe Australia Strategy 1996-2001.
2001	The Workplace Relations Ministers' Council (WRMC) endorsed the <i>National Occupational Health and Safety Strategy 2002-2012</i> .
2002	National Priority Action Plans for the period 2002-2005 endorsed by the WRMC in 2002. Second Farmsafe Australia Strategy for 2002-2007.
2004-05	Review of the National Occupational Health and Safety Strategy found that it was contributing to improvements in OHS. The Australian Safety and Compensation Council (ASCC) replaced the National Occupational Health and Safety Commission.

## Future challenges

In 2006, further challenges included making Australian workplaces free from death, injury and disease, by achieving the National OHS Strategy targets to:

- sustain a significant, continual improvement in the incidence of work-related fatalities with a reduction of at least 20% by 30 June 2012 (with a reduction of 10% being achieved by 30 June 2007);



- reduce the incidence of workplace injury by at least 40% by 30 June 2012 (with a reduction of 20% being achieved by 30 June 2007); and
- achieve the lowest rate of work-related traumatic fatalities in the world by 2009.<sup>593</sup>

The safety of children on farms remained a major concern. Key Farmsafe Australia recommendations included:

- creating a securely fenced house yard for children to play in; and
- establishing farm safety rules that everyone followed.<sup>601</sup>

While noting that the ASCC was working towards improved data collection and analysis, there was a continuing need to improve available information on work-related fatalities, injuries, risk exposures and related disease conditions at the national level, so that data were comparable over time, and could be used to identify best practice and to monitor progress towards the targets.

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