NOHSAC

National Occupational Health and Safety Advisory Committee

Komiti Tōhutohu Mahi A-Motu Hauora me te Haumaru

THE BURDEN of OCCUPATIONAL DISEASE and INJURY IN New Zealand

REPORT TO THE ASSOCIATE MINISTER OF LABOUR

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Foreword

The National Occupational Health and Safety Advisory Committee (NOHSAC) was established to provide independent contestable advice to the Minister of Labour on major occupational health and safety issues. We are implementing a work programme agreed with the Associate Minister of Labour and have already launched www.nohsac.govt.nz.

This report represents the first stage of our work programme. It is accompanied by a Technical Report, which provides greater detail on the research methods and findings on which our conclusions are based.

NOHSAC's establishment reflects increasing recognition that occupational disease has not received the attention it could have from the Occupational Safety and Health service (OSH), even though it accounts for a much greater burden of occupational mortality than occupational injury - OSH's overwhelming focus. Our work will help to redress this imbalance and provide the Minister with advice on the major current occupational health and safety issues, the policy measures likely to yield the greatest benefits, occupational health and safety workforce needs, and the associated training needs.

In considering the findings of this report, several issues are particularly striking. The first is that in the field of injury we have a long way to go in even identifying the size and nature of the problems, let alone developing effective interventions. The second is that, although the burden of occupational injury remains inadequately addressed, there is a much greater burden of occupational disease (including cancer, respiratory disease and the effects of fatigue) - and this has received little attention in New Zealand. The third issue relates to a lack of New Zealand data; it is completely inadequate to document the size of the problem and suggest and enable solutions, particularly for occupational injury and illness in women and in Māori.

This last point is of particular concern because we cannot even start to tackle the burden of occupational disease until we know the size of the problem and the diseases involved.

It would be considered completely unacceptable if the Ministry of Transport did not know how many New Zealanders were dying or being seriously injured on the roads, or the main causes and circumstances of the deaths and serious injury, and therefore had no effective strategies to reduce the death and injury rate.

Why is such a situation therefore acceptable for deaths in the workplace?

The Department of Labour and other government agencies do not know how many people die from work-related causes each year. More than 80% of work-related deaths (most due to disease rather than injury) are not documented or reported, and are not investigated.

NOHSAC intends to play a positive role in building on our strengths and addressing our weaknesses, so that we can tackle the major occupational health and safety hazards in an appropriate and effective way that benefits all New Zealanders. Our second report will therefore consider the surveillance of occupational disease and injury, while our third will consider the surveillance and control of workplace hazards.

PROFESSOR NEIL PEARCE

Chair, National Occupational Health and Safety Advisory Committee

Background

NOHSAC is responsible for providing independent advice directly to the Minister of Labour on major occupational health and safety issues in New Zealand. It plays a key role in:

- providing an independent assessment of measures that would deliver the greatest benefit for preventing occupational injury and disease
- developing an evidence-based approach to occupational health and safety issues.

This report is a starting point for developing the evidence-based approach, using what is currently known or can be reasonably inferred from international evidence. Its estimates are primarily based on studies undertaken in countries that have working conditions reasonably similar to New Zealand's. To build the evidence base, the information needs to be updated with New Zealand data as it becomes available.

It is important to note that present estimates of mortality often reflect past exposure conditions. Many of the deaths in one year do not automatically reflect present-day exposure conditions[1]. However, conditions such as asbestos-related cancers will continue to increase in number over the next decade. And, in addition to existing or traditional occupational health problems, a number of new occupational health issues are expected to emerge, often with a multi-factorial and multi-causal origin[2].

This Report

This report is a summary of detailed findings that are presented in an accompanying Technical Report. Its information is based on published literature and relevant information from government reports and on-line and other appropriate sources.

The report covers all conditions that, according to reasonable evidence, have causes related to work. They were determined from two recent review articles, identified literature and conditions particularly relevant to New Zealand. The report also includes quantitative estimates of:

- the annual number of deaths from occupational disease and injury
- the annual number of new cases of work-related disease and injury in New Zealand.

In many cases these could not be estimated directly from New Zealand data, so a combination of New Zealand and overseas data has been used. This means the estimates should be considered indicative.

Occupational Disease and Injury

The story of work-related disease and injury is one of human and economic costs borne by individual workers, their families and industry over periods often extending to years. Common knowledge indicates there are about 100 deaths each year due to injuries in New Zealand workplaces, but these statistics are just the tip of the iceberg:

- Deaths from injuries in the workplace account for only about 10% of all deaths due to work-related causes. These "hidden deaths" are generally not recognised as work related, are not reported, and therefore are not investigated. This is a major issue, as we can only develop effective strategies for preventing work-related deaths if we know how many there are and of what type, and can monitor changes over time.
- Those with non-fatal work-related injuries and illnesses experience a significant burden of morbidity.
- Occupational injuries and illnesses have long-term consequences and represent a significant cost to workers, their families, their employers, the Government and the economy. The social and economic consequences have been documented in a recent report[3], which is a useful companion to this report.

Continuing Work

This report will be regularly updated to take advantage of better quality information and to track the performance of occupational health and safety in New Zealand.

The Overall Burden of Work-Related Disease and Injury

IT IS ESTIMATED THAT EACH YEAR IN NEW ZEALAND THERE ARE:

IN ADDITION, IT IS ESTIMATED THAT:

IN A STUDY OF WORK-RELATED INJURY AND DISEASE, THE AUSTRALIAN PRODUCTIVITY COMMISSION[4] ESTIMATES THAT THESE COSTS ARE DISTRIBUTED IN SOCIETY AS FOLLOWS:

- about 700-1,000 deaths from occupational disease, particularly cancer, respiratory disease and ischaemic heart disease
- about 100 deaths from occupational injury
- 17,000-20,000 new cases of work-related disease
- about 200,000 occupational accidents resulting in ACC claims, about half of which result in disability and about 6% in permanent disability.

- of all deaths in people age 20 or older, 2%-4% are due to occupational disease
- of all cancer deaths in people age 30 or older, 3%-6% are due to occupational cancer
- work-related fatal injuries account for 7.3% of all external causes of death in people age 20 or older (105 of 1,435).

There is no valid data available on the costs to New Zealand of these deaths, injuries and illnesses. However, it is believed that the cost to society is about $4.3 billion to $8.7 billion each year.

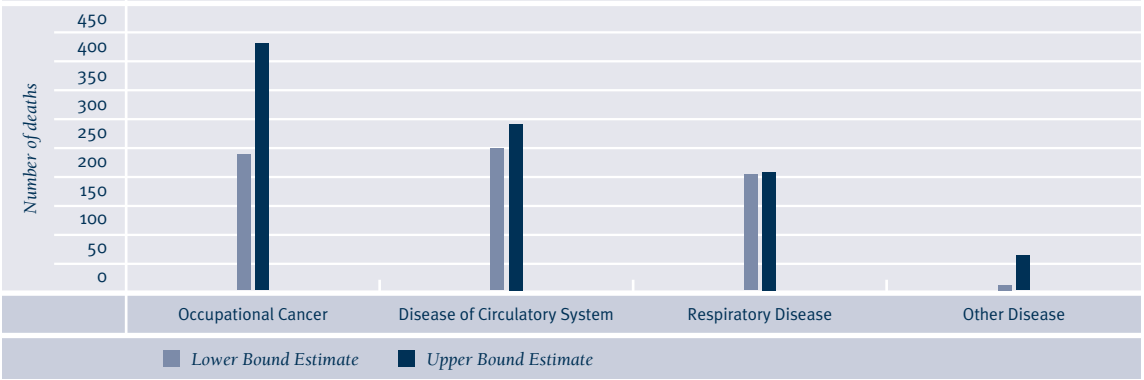
- Employers bear approximately 40% of costs, including workers' compensation, loss of productivity and overtime.
- Injured workers bear approximately 30% of costs, including loss of income, pain and suffering, loss of future earnings, and medical costs.
- The community bears approximately 30% of costs, including social welfare payments, medical and health costs, and loss of human capital.

Death Due to Work-Related Disease

It is estimated that between 700 and 1,000 workers die in New Zealand as a result of work-related disease every year.

- **About 80% of these deaths occur in men.**
- **About 30%-40% of these deaths are due to occupational cancer, mainly lung cancer.**
- **Other occupational diseases representing a high burden include ischaemic heart disease and respiratory diseases.**

TABLE 1 Estimated Annual Deaths from Work-Related Disease



Occupational Cancer

The 237-425 work-related deaths from occupational cancer each year are caused by:

- lung cancer due to exposure to asbestos, arsenic, beryllium, cadmium, chromium, diesel fumes, nickel, silica and environmental tobacco smoke
- mesothelioma due to asbestos exposure
- leukaemia from benzene exposure and low-frequency electromagnetic field exposure
- bladder cancer (from textile dyes, paints, pigments, leather, rubber, solvents and poly-cyclic aromatic hydrocarbons).

Disease of the Circulatory System

The 246-286 work-related deaths from circulatory diseases each year are primarily due to:

- work strain (including the effects of shift work)
- exposure to carbon monoxide from engine exhausts
- exposure to environmental tobacco smoke.

Respiratory Disease

The 200-205 work-related deaths from respiratory disease each year are caused by:

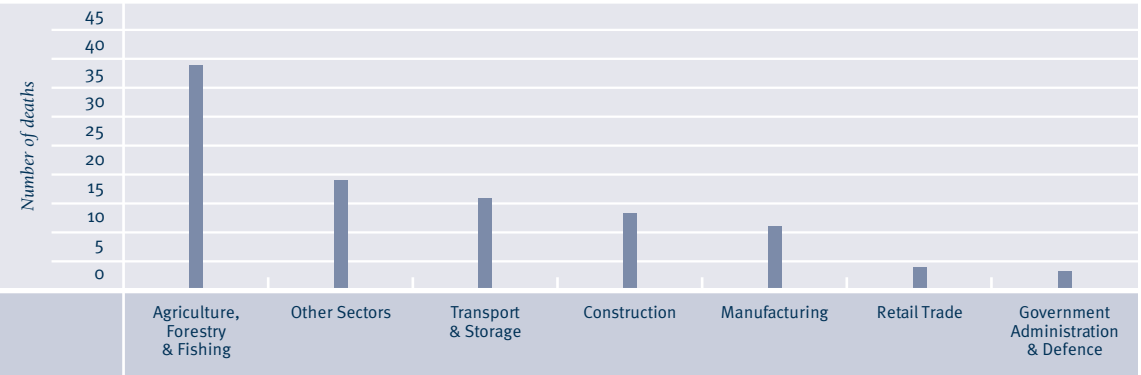
- chronic obstructive pulmonary disease due to exposure to organic dust, microbial dust, endotoxins, welding fumes and environmental tobacco smoke
- occupational asthma
- asbestosis.

Death Due to Work-Related Injury

There are about 100 work-related fatal injuries in New Zealand every year.

- 94% of these deaths occur in men.
- The "agriculture, forestry and fishing" industry has the highest number of fatal work-related injuries (39 a year).
- 30% of all work-related fatal injuries are traffic related and happen while people are working or commuting.

TABLE 2 Estimated Annual Deaths Due to Injury



Deaths from work-related injury are primarily due to:

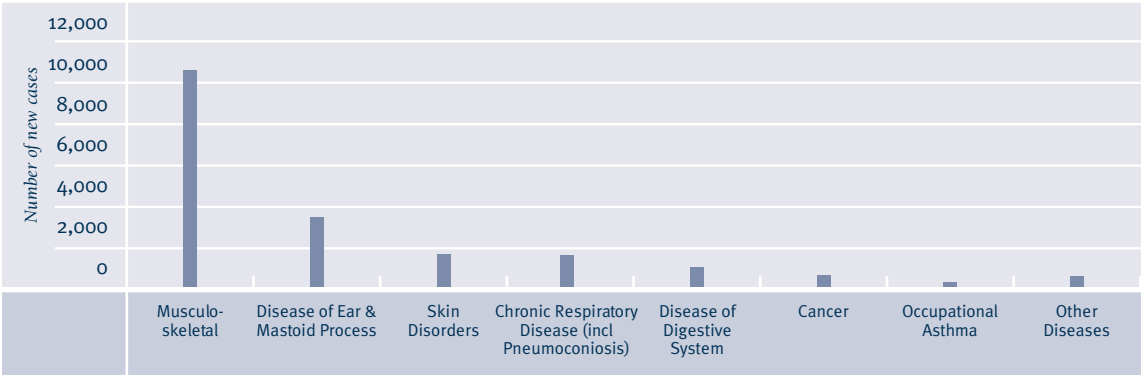
- traffic accidents (31 deaths)
- machinery-related accidents (17)
- water transport accidents (10)
- being struck by falling objects (10)
- falls (7).

Incidence of Work-Related Disease

In New Zealand each year there are an estimated 17,000-20,000 new cases of work-related disease and 2,500-5,500 new severe cases of work-related disease.

- **Around 75% of these diseases occur in men.**
- **Of all cancer cases in people age 30 or older, 2%-6% are estimated to be work related (325 and 773 of 16,294).**
- **For men this is estimated to be 3%-8% (288-653 of 8,681).**
- **For women this is estimated to be 0.5%-1.5% (37-120 of 7,613).**
- **Musculoskeletal disease is thought to be the highest-incidence occupation-related disease, followed by diseases of the ear, skin disorders, chronic respiratory disease, diseases of the digestive system and cancer.**

TABLE 3 Estimated Annual Incidence of New Disease



Incidence of Work-Related Injury

Each year in New Zealand over 200,000 occupational injuries result in ACC claims. This corresponds to 12 injuries per 100 workers.

An estimated half of the injuries result in disability, and 6% in permanent disability.

- **74% of the work-related injuries occur in male workers.**
- **The manufacturing industry has the highest number of work-related injuries.**
- **The mining, agriculture, forestry and fishing, and construction industries have the highest injury rates.**
- **Mining has the most injuries per 100,000 workers, followed by agriculture/forestry/fishing and manufacturing.**
- **Sprains and strains are by far the most frequent injury (90,000 claims), followed by open wounds (37,000 claims).**

TABLE 4 Estimates of Annual Work-Related Injuries

Causes of Work-Related Diseases and Injuries

In this section we give more information about what is known about the causes of the major work-related diseases and injuries.

CAUSES OF SPECIFIC DISEASES

The following diseases are estimated to account for approximately 80% of deaths each year from work-related disease.

CANCER

The major types of cancer that involve a significant number of work-related deaths include lung cancer, mesothelioma, bladder cancer and leukaemia.

Lung Cancer

Lung cancer is a malignant disease of the respiratory tree and gas exchange areas of the lung. Occupational exposures strongly implicated as causing lung cancer are asbestos, arsenic, beryllium, cadmium, chromium VI, diesel fumes, nickel, radon, silica, soots, bis- (chloro-methyl) ether and environmental tobacco smoke.

There are several published measures of increased risk of developing lung cancer in certain New Zealand work groups, including bricklayers and carpenters, "asbestos-exposed" workers, machine tool operators, sawmillers, welders, pulp and paper mill workers and meat workers. There is little comprehensive published New Zealand information on the extent of workforce exposure to specific agents that have been identified as increasing the risk of lung cancer.

A wide range of occupations in New Zealand would involve exposure to one or more lung carcinogens.

Mesothelioma

Malignant mesothelioma is a malignant disease of the inside lining of the chest wall (pleura), pericardium and abdomen (peritoneum). The latency between exposure and development of disease is in the order of 20 to 50 or more years. Asbestos is the only known cause, and the vast majority of this exposure occurs in an occupational context.

Work in a range of occupations has been associated with asbestos exposure and mesothelioma occurrence. In the New Zealand context, construction workers and waterside workers are likely to be, or to have been, exposed. These occupations account for the majority of identified occupational malignant mesothelioma cases in New Zealand. The only relevant New Zealand studies identified raised risks of malignant mesothelioma in "asbestos-exposed workers" and in "foundry and heavy engineering workers".

The number and rate of mesothelioma cases are expected to rise at least until about 2010.

Leukaemia

Leukaemia is a malignant disease of a subset of white blood cells. Occupational exposures strongly implicated as causing leukaemia are ionising radiation, benzene and ethylene oxide. Work in certain occupation or industry groups has also been implicated as a cause of leukaemia.

There are no New Zealand-based estimates of leukaemia risk arising from specific exposures, or any estimates of attributable fraction. However, there are several published measures of the risk of developing leukaemia in certain New Zealand work groups.

There is no comprehensive published New Zealand information on the extent of workforce exposure to specific agents that have been identified as increasing the risk of leukaemia, but all the main exposures occur in the New Zealand workforce. Relevant occupations that have been associated with increased risk of leukaemia and that employ persons in New Zealand include electrical workers, agricultural workers and meat workers.

Bladder Cancer

Bladder cancer is a malignant disease of the urinary bladder. Occupational exposures strongly or moderately implicated as causing bladder cancer are aromatic amines, poly-cyclic aromatic hydrocarbons, paints, dyes, chlorinated hydrocarbons, and other solvents, metals and industrial oils/cutting fluids. Work in certain occupation or industry groups has also been implicated as a cause of bladder cancer.

There are no New Zealand-based estimates of bladder cancer risk arising from specific exposures, or any estimates of attributable fraction. However, two New Zealand studies provide measures of risk in some occupation groups. There is no comprehensive published New Zealand information on the extent of workforce exposure to specific agents that have been identified as increasing the risk of bladder cancer. Relevant occupations that have been associated with increased risk of bladder cancer and that employ persons in New Zealand include painters, dry cleaners, truck and other vehicle drivers and metalworkers.

RESPIRATORY DISEASE

The major types of respiratory disease that involve a significant number of work-related deaths include chronic obstructive pulmonary disease (COPD) and asthma.

Chronic Obstructive Pulmonary Disease (COPD)

COPD and chronic bronchitis are lung diseases characterised by a widespread reduction in the diameter of the airways that cannot be reversed by treatment, and bronchial mucous hypersecretion.

Tobacco smoking is the most important risk factor for the development of these conditions, but work-related exposures such as coal, silica, cotton dust and grain dust, and the occupations in which these exposures occur (mining, construction, farming) have been demonstrated to be strongly associated with COPD.

There are several New Zealand studies of COPD and chronic bronchitis in relation to work. These found increased risks in some farmers, food processors other than bakers, bakers, chemical processors, some metal and electrical workers (particularly welders) and spray painters, and in farmers exposed to fertilizers and formaldehyde. Increases in symptoms, and decreases in lung function, were also found in association with various exposures in welders.

There is no comprehensive New Zealand data available on relevant exposures, but most of the occupations identified as leading to an increased risk of COPD and chronic bronchitis are undertaken in New Zealand.

Asthma

Occupational asthma is a disorder characterised by bronchial hyper-responsiveness or variable airflow limitation related to workplace exposures. Occupational asthma is probably the most common work-related respiratory disorder in industrialised countries, and many hundreds of occupational agents, including some inorganic and organic dusts, have been associated with it.

Several studies have considered occupational asthma in New Zealand. These studies found asthma was more common in farmers and farm workers, food processors other than bakers and laboratory technicians. Studies of specific work groups found increased risks of occupational asthma, sometimes in a dose-response manner, in sawmill workers, plywood mill workers, green mussel openers and some farmers. Notifications to the OSH Notifiable Occupational Disease System (NODS) (94 cases from 1993 to 1999) probably significantly underestimate the incidence of occupational asthma, but have identified many causative exposures. Assessments of some causative workplace exposures have been published. Many of the wide range of occupations and exposures identified as leading to an increased risk of asthma are undertaken in New Zealand.

DISEASES OF THE CIRCULATORY SYSTEM

Most deaths from work-related diseases of the circulatory system involve deaths from ischaemic heart disease.

Ischaemic Heart Disease

Ischaemic heart disease is a condition characterised by partial or complete blockage of arteries taking blood to the muscle of the heart. It can result in angina (chest pain), myocardial infarction (heart attack), heart failure or sudden death.

The connection between occupational exposures and ischaemic heart disease is controversial. Of current exposures, the clearest evidence is probably for carbon monoxide, and there is good, but not compelling, evidence for an association with low job control (possibly exacerbated by high job demands) and environmental tobacco smoke.

Some evidence also exists for a wide range of other exposures and occupations, most of which occur in New Zealand. The only relevant New Zealand studies examined the role of passive smoking in the development of ischaemic heart disease, estimating that in 1985 there were 152 deaths, and in 1997 there were 48 deaths, from ischaemic heart disease arising from workplace tobacco smoke.

There is little comprehensive published New Zealand information on the extent of workforce exposure to specific agents that have been identified as increasing the risk of ischaemic heart disease. Several New Zealand studies have produced estimates of the prevalence of environmental tobacco smoke exposure in the workplace in New Zealand. These estimates range from 23% to 83%.

Most of the relevant exposures and work tasks associated with ischaemic heart disease occur in the New Zealand workforce.

MUSCULOSKELETAL DISEASE

The major forms of musculoskeletal disease that account for significant work-related morbidity include upper limb disorders and low back pain.

Upper Limb Disorders

There is a range of upper limb musculoskeletal disorders associated with work. Some have clear clinical and pathological diagnostic criteria. In addition, there are many cases of upper limb pain without associated objective signs. These cases have been given many labels, including repetitive strain injury, occupational overuse syndrome and regional pain syndrome.

A wide range of occupations, tasks and workplace organisational and psychosocial factors has been associated with one or more of these upper limb disorders and syndromes. There has been particular controversy in New Zealand relating to the problem of upper limb pain without associated objective signs. Debate has covered the approach to such cases taken by ACC and the appropriate terminology to use. One New Zealand-based cross-sectional study looked at the prevalence of self-reported and diagnosed "upper extremity musculoskeletal strains" in clerical workers. Virtually all the occupations, tasks and exposures associated with upper limb disorders occur in the New Zealand workforce.

Low Back Pain

Low back pain is one of the most common musculoskeletal disorders related to work. The connection between symptoms, disability and demonstrable pathology is often not clear or requires very focused investigation.

A wide range of occupations, work tasks, workplace factors and psychological factors has been associated with low back pain, with heavy lifting the task most commonly associated, but there is debate regarding the validity of much of the evidence. Several New Zealand studies have considered aspects of work-related back pain. These include: a study that investigated factors that affected the likelihood of the low back pain becoming chronic; a review of all work-related ACC claims over a period of three months in 1984 for back "strains or sprains"; a random population survey in Auckland conducted via telephone to investigate the incidence of low back pain in the general community; and a cross-sectional study of public sector nurses in Auckland in 1992. Virtually all the occupations, tasks and exposures associated with low back pain occur in the New Zealand workforce.

OTHER OCCUPATIONAL DISEASES/INJURIES

Other occupational diseases and injuries that account for a significant number of work-related mortalities or morbidities include chronic solvent-induced encephalopathy and noise-induced hearing loss.

Chronic Solvent-Induced Toxic Encephalopathy

Chronic solvent-induced toxic encephalopathy (or chronic solvent neurotoxicity) is a disorder of the nervous system arising from exposure to certain organic solvents. Causative occupational exposures occur in processes that require the use of organic solvents. These include processes using degreasing agents, paints and glues, as well as in the manufacture of textiles, plastics, polymers and pharmaceuticals, and in the use of fibreglass, as occurs in boat building. It is estimated that in 1998 there were about 100,000 New Zealand workers potentially exposed to organic solvents. There were 193 notified cases, 76 of which were confirmed, between 1993 and 1997.

Noise-Induced Hearing Loss

Noise-induced hearing loss is a permanent, degenerative condition of the inner ear characterised by loss of auditory acuity, particularly in the high frequency range. This particularly affects voice recognition.

The cause of noise-induced hearing loss is loud noise. This occurs in many occupational contexts, but particularly in primary industries such as farming and mining, and in manufacturing and construction. Noise-induced hearing loss is a major cause of disability and compensation in working populations. A cross-sectional study of a random sample of farmers and farm workers found high noise exposures, and that driving tractors without cabs and metalworking posed particular risk. From March 1992 to June 1998 there were 2,411 validated cases (95% male) of noise-induced hearing loss notified to NODS, and in the subsequent two years there were 709 notifications. Most of the relevant work tasks associated with high noise levels occur in the New Zealand workforce.

Other Aspects of Workplace Hazards

Shift Work

Shift work is work that forces sleep to be displaced, with most research focused on night work and rotating shift systems. Shift work has been associated with a range of work-related disorders. The main one of these is sleep disturbance, from which other health problems can flow. Other health effects of shift work, for which there are varying degrees of evidence, include peptic ulceration, ischaemic heart disease, female reproductive disorders, obesity, diabetes mellitus, hypertension, disorders of the immune system and a range of psychological and relationship disorders.

Several other disorders are hampered in terms of treatment or symptom control, but not necessarily caused by shift work. Only one New Zealand study provides evidence of a link between shift work and ill-health. This recent study provides evidence of a relationship between night work and sleep disorders. This study also estimated that 15.8% of Māori worked nights compared to 10.5% of non-Māori, and that women had a lower prevalence of night work than men (9.7% versus 15.2%). A paper from the Department of Labour estimated that 6.8% of current workers performed night work. Many New Zealand occupations involve working shift work.

Environmental Tobacco Smoke

Environmental tobacco smoke is smoke exhaled by another person or side stream smoke arising from another person's cigarette. Environmental tobacco smoke in the workplace has been associated with a range of work-related disorders. The main ones of these are ischaemic heart disease, lung cancer, pneumococcal disease and asthma. Occupations commonly exposed to significant levels of environmental tobacco smoke include bar and restaurant workers, other hospitality workers and a range of workers in workplaces where smoking is not banned.

Job Strain and Job Control

Job strain describes the extent to which the worker is exposed to any of a range of work factors such as excessive workload, unreasonable leadership/management style, professional conflict, excessive emotional demands of the job, and lack of job security. Job strain is also associated and interrelated with job control. Job strain (and/or job control) has been associated with a range of work-related disorders, including: anxiety, depression and related psychological disorders; ischaemic heart disease; upper limb musculoskeletal disorders; and suicide. Virtually any occupation can have associated job strain issues at some stage, and personal factors also play an important role in determining whether a particular factor or factors gives rise to symptoms of strain-related conditions in an individual worker.

Noise

Noise is unwanted sound perceived as an environmental stressor and nuisance. The main health effect of work-related noise is noise-induced hearing loss. Other health effects associated with noise include sleep disturbance, hypertension, general symptoms such as headache and nausea, and psychological symptoms such as anxiety and change in mood. In an occupational setting, noise exposure has consistently been found to be associated with noise-induced hearing loss and hypertension. Excessive noise levels occur in many occupational contexts, but particularly in primary industries such as farming and mining, and in manufacturing and construction.

Occupational Disease/Injury in Māori

The different employment patterns between Māori and the rest of the New Zealand population have been shown to contribute to the increased rate of fatal and non-fatal injury experienced by Māori relative to the rest of the population. There is no published information about the overall extent of occupational disease amongst the Māori workforce. If Māori are disproportionately employed in occupations more susceptible to occupational disease, it is conceivable that the rate of occupational disease for Māori would be higher than that of the general population.

The Changing Nature of Work

The changing nature of work describes changes to the hazards, organisational structure and employment arrangements. Exposure to "traditional" occupational hazards, such as physical and chemical hazards, is likely to decrease over time as the workforce moves away from primary industries and basic manufacturing to service industries and more refined manufacturing products and processes. Many problem exposures still occur, but the number of workers exposed, the levels to which they are exposed, and the associated risks, can be expected to decrease over time. However, these hazards are replaced by different hazards associated with the new types of work and new ways of working. There are no specific conditions associated with the changing nature of work. The relevant conditions and exposures are considered in earlier sections, and to the extent that the relevant exposures decline or increase, the associated health problems will do likewise. The impact of changes to the work environment and workforce structures in New Zealand has been the subject of a recent review.

Lessons and Conclusions

Work-related disease and injury is responsible for considerable morbidity and mortality in New Zealand.

For mortality, disease represents a considerably greater (10-fold) burden than does injury: about one-third of work-related deaths are due to cancer, and substantial proportions are due to respiratory disease and ischaemic heart disease.

On the other hand, work-related accidents and injuries represent a greater burden of morbidity.

Costs of Workplace Disease and Injury

One of the aims of this report was to assess the economic and social costs associated with work-related disease and injury in New Zealand. However, there is little information on this.

A joint Department of Labour/ACC project took a case study approach to a number of aspects of work-related injury and disease. The authors detailed a range of factors that result in costs to the employee, the employer and the community, which included:

- costs to replace an injured employee (hiring, training)
- rehabilitation costs
- costs from lost production
- costs to repair or replace damaged equipment
- fines
- increased compensation costs
- legal costs
- loss of goodwill from bad publicity
- intangible costs such as loss of morale (and a presumed consequent drop in productivity).

They reported costs of $1.2 million for the 15 cases considered in the report, and projected costs, taking into account ongoing payments for some of the cases, of almost $4 million[3].

The authors also cited an estimate of between $4.3 billion and $ 8.7 billion for work-related disease and injury for the year ending 31 March 2002, based on a percentage of Gross Domestic Product.

Claims to ACC between 1 July 2002 and 30 June 2003 for work-related injuries and some diseases amounted to $143,487,000 for new claims and $275,950,000 for ongoing claims.

Lack of Information on Occupational Exposures

There was little information available on occupational exposures in New Zealand, and what was available was rarely comprehensive. However, information was available on environmental tobacco smoke, lead and levels of shift work. In addition, routine data collections provide information on the number of people employed in particular occupations and industries, which can serve as proxy measures of various exposures.

An increased focus on exposures seems appropriate, especially given the problems raised by diseases of long latency that comprise many work-related disorders of concern in New Zealand (and elsewhere).

Lack of Information on Work-Related Disease and Injury

This report has been based on a combination of overseas and New Zealand data because New Zealand data alone is inadequate to document the size of the problem, let alone suggest and enable solutions.

The Department of Labour and other government agencies do not know how many people die from work-related causes each year. More than 80% of work-related deaths (most due to illness rather than injury) are not documented or reported, and are not investigated.

Occupational cancer is a good example. There are about 237-425 deaths from occupational cancer in New Zealand each year, and 325-773 incident cases. Why does NODS report only about 30 cases a year, of which only about two are for causes other than asbestos? Why does ACC compensate only about four cases a year, including those for asbestos?

The OSH Cancer Panel is currently investigating some specific work-related cancers in more depth (bladder cancer, non-Hodgkin's lymphoma and leukaemia) and is producing estimates that are similar to those presented here. However, this has required intensive investigations rather than relying on voluntary reporting. Obtaining such estimates more generally should be a major priority.

It should be recognised that much of the relevant data is routinely collected by other agencies - for example, the New Zealand Health Information Service (NZHIS) of the Ministry of Health holds information on deaths and cancer registrations. There is no need to duplicate this function, but other crucial surveillance information can only be collected by OSH, and there is a need for specialist expertise in occupational epidemiology to integrate and analyse the data from different sources.

Most published research used in this report presented information only, or predominantly, on males. This must be taken into account, as the nature and extent of women's involvement in the workforce are probably changing to a greater extent than those of men. This means the disorders of which they are at risk, and the associated risks, are probably changing more than they are for men[7].

There is also a lack of detailed ethnicity information in much of the published research. The reasons for this are similar to those on the data for women. The issues are also similar, because Māori and Pacific Islanders have different employment distributions from Europeans, and so can be expected to have different exposures and risks.

There is very little New Zealand information on work-related effects on bystanders - people who are not working but sustain injury or disease as a result of exposure to occupational hazards. Bystanders are an important group to consider, especially in some specific work situations such as farming, where the occupational and non-occupational environments often overlap and where children are often affected; and on the roads, where there appears to be a high number of deaths (and so presumably also non-fatal injuries) each year as a result of traffic crashes involving working and non-working people.

Recommendations

As this report was being prepared, the Department of Labour was reorganised and OSH became part of its Workplace Group. However, OSH's responsibility for occupational health and safety in New Zealand continues.

Our recommendations are therefore particularly relevant to the work of OSH or an equivalent agency, but we recognise they are also relevant to the work of a number of other government agencies including the Ministry of Health, ACC, the Environmental Risk Management Authority, the Land Transport Safety Authority and others.

OSH's responsibilities include:

- influencing societal attitudes about the benefits of good workplace health and safety practice
- raising awareness of workplace participants' rights and obligations under the Health and Safety in Employment Act 1992 ("the HSE Act")
- leading the development of national workplace health and safety initiatives across government and industry sectors and working collaboratively with industry sector organisations and other agencies to develop and promote workplace health and safety
- providing information and advice through the contact centre, website, presentations, seminars, consultations and workplace information visits to help individuals, workplaces and industry sectors understand the legislation and apply best practice health and safety
- assessing workplace health and safety performance and responding to and investigating notifications, complaints and incidents
- identifying breaches and taking appropriate compliance or enforcement action to reduce purposeful or serious breaches of minimum standards under the HSE Act.

In light of these responsibilities and the issues raised in this report, the Committee makes the following recommendations:

1. There should be a markedly increased focus on occupational health. Work-related cancer, respiratory disease, musculoskeletal disease and workplace fatigue should be particular priorities.
2. An increased emphasis on occupational health should not be at the expense of reducing current activities undertaken by OSH in relation to health and safety.
3. It is essential that a single central agency, such as OSH, takes the lead in, and ultimate responsibility for, occupational health and safety, rather than this task being handled by a variety of agencies for which occupational health and safety is a secondary responsibility.
4. The work of such an agency should involve an "all-of-government" approach, with the agency complementing rather than duplicating the work of other agencies such as the Ministry of Health and ACC, while taking ultimate responsibility for the "big picture" of occupational health and safety in New Zealand.
5. In particular, such an agency can be viewed as the occupational health equivalent of the Ministry of Health's Public Health Directorate. The role of the Director of Public Health in the Ministry of Health is particularly interesting and relevant, and this could serve as a model for a position of Director of Occupational Health within OSH who would complement, and work closely with, the Director of Public Health.
6. OSH should have a greater proactive role in promoting occupational health as being in the interests of workers, employers and the country as a whole.
7. An emphasis on occupational health and the prevention of occupational disease requires significant involvement from occupational health specialists, including occupational medicine specialists, occupational health nurses, occupational hygienists and occupational epidemiologists, particularly at the head office level and also at the district level. This in turn requires the development and support of appropriate training programmes to restore and revitalise the specialist occupational health workforce.

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8. Agencies responsible for occupational health and safety should measure improvements in workplace practices as well as injury and disease rates.
9. A major emphasis should be given to the surveillance of occupational disease and injury so that we know how many work-related deaths and cases of work-related disease and injury happen in New Zealand each year. This will be addressed in our next report, but some preliminary measures should be adopted at this stage. Firstly, the current NODS should be preserved, improved and extended. Secondly, information on occupation should be routinely collected for deaths, cancer registrations and hospital admissions, and occupation should be incorporated as a field into the National Health Index (NHI) system. The NZHIS should then routinely code this information.
10. A concentrated effort must be made to reduce the toll of work-related deaths, as is currently done for deaths on the road.

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