

**SUBMISSION TO THE
HOUSE OF REPRESENTATIVES
STANDING COMMITTEE ON
COMMUNICATION, TRANSPORT
AND THE ARTS**

Managing Fatigue in Transport

Terms of Reference

In relation to managing fatigue in transport, the House of Representatives Standing Committee On Communications, Transport and the Arts is to inquire into, and report on the following:

- Causes of, and factors contributing to, fatigue
- Consequences of fatigue in air, sea, road and rail transport
- Initiatives in transport addressing the causes and effects of fatigue
- Ways of achieving responsibility by individuals, companies, and governments to reduce the problems related to fatigue in transport

1. INTRODUCTION

1.1 Fatigue - a growing health and safety hazard

The ACTU welcomes the Standing Committee Inquiry into Managing Fatigue in Transport. The ACTU is increasingly concerned about the impacts of fatigue on the health of individuals and on the safety of workers, their colleagues and the general public.

As stated in the media release Awake to the Danger - Managing Fatigue in Transport, fatigue is a health and safety hazard not only in transport, but in any industry which involves shift work and extended working hours.

While work outside daytime hours is unavoidable in many industries such as essential services, the move to 24 hour, 7 day (continuous) operations across a growing range of industries, is increasing the pressure for work outside day time hours in industries where this has not traditionally been required.

Shiftwork and extended working hours have often been introduced or increased for commercial or so called 'productivity' reasons, with little or no consideration of the risks to the health and safety.

In industries where remuneration is low but paid overtime is available, or where income is based on piecework or completion of the job, employees can work long hours in order to earn an 'adequate' income. In other industries, unspoken expectations and/or excessive performance monitoring results in employees spending extra unpaid hours at work.

In all industries, *job insecurity* is a significant factor in the extent of excessive hours worked. Over 30% of respondents to the 1997 ACTU Survey on stress at work, and almost 42% of respondents from the transport industry, identified job insecurity as among the three most stressful conditions at work.

1.2 What is fatigue

Fatigue is tiredness that results from physical or mental exertion. The extent of fatigue will vary depending on the workload imposed by a job, time pressures and expectations, external influences, the length of shift, previous hours and days worked, and the time of day or night. Night work and/or extended hours which carry into the night period impose a greater risk of fatigue.

Jobs which require standing for lengthy periods, frequent manual handling or repetitive movements, or heavy work which is physically demanding can lead to increased fatigue on long shifts or shifts with overtime. Monotonous work or work where a high level of attention and alertness is required can also increase fatigue. These working conditions are frequently experienced in the transport industry.

Lack of sleep and fatigue in combination can adversely affect job performance, risking individual health and safety and the safety of others.

1.3 The Transport Industry

Safety in the Transport Industry is dependent upon, inter alia, the prevention of fatigue in a range of occupations, including pilots; vehicle drivers; crews of vessels; maintenance staff; service staff such as flight attendants; and those involved in the coordination of transport routes and timetables, such as fleet and air traffic controllers and call centre employees.

The ACTU has been provided with copies of submissions to this Inquiry from the following affiliates:

- Australian Licensed Aircraft Engineers Association;
- Maritime Union of Australia;
- Rail, Tram and Bus Union; and
- Transport Workers' Union.

Each of these submissions has identified common issues related to fatigue in transport, in addition to issues specific to the sectors of the transport industry represented by the particular union.

The ACTU does not seek to repeat the specific issues raised in the union submissions. However, we do echo the need for much greater attention by the community to the underlying causes of fatigue in transport, and for urgent action by governments and employers in particular, to address the serious impacts which fatigue is having on occupational health and safety.

This submission focuses on three of the terms of reference of the Inquiry. We refer to the union submissions (above) in respect of the identification of any specific initiatives in the various sectors of the transport industry, which may be addressing the causes and effects of fatigue.

2. CAUSES OF, AND FACTORS CONTRIBUTING TO, FATIGUE

The ACTU identifies the following major factors, which are causing and/or exacerbating the levels of fatigue, which is being experienced by workers across all industries, including the transport industry:

2.1 The push for more ‘flexible’ working hours

Traditionally, industrial awards have provided the framework and parameters for working hours in Australia, and have served as a standard within and across industries. The move away from industry awards to enterprise agreements has resulted in greater deregulation of working hours. It is estimated that over 75% of new EBAs include changes to working hours.

2.2 Reduced government resources and commitment to occupational health and safety

Funding to the National Occupational Health and Safety commission has been cut in half, and NOHSC research grants have been discontinued. The development of new OHS standards has been discouraged. Various state and territory governments have also reduced OHS resources.

There has been a lack of sufficient recognition by governments of the effects of fatigue and stress on occupational health and safety.

OHS provisions have been removed from awards.

2.3 The growth in shift work and extended working hours

It is estimated that about 25% of Australian employees are involved in work outside of regular daytime hours. A 1997 study found that one out of every six enterprise agreements examined contained provision for *12 hour shifts*.

Over 30% of respondents from the transport industry to the 1997 ACTU National Survey on Stress at Work identified *long hours and rostering* as amongst the three most stressful conditions at work.

The changes to working hours have been accompanied by calls from employers to *eliminate traditional penalty rates* for night work, overtime and weekend work – in effect to treat all hours the same and pay for the work that is done, not when it is done.

From a health and safety perspective, all hours are not the same. *Night work* and extended hours which carry into the night period, are particularly difficult and hazardous. *Overtime* also increases the risk of fatigue, particularly when large amounts of overtime are worked. Fatigue has led to documented accidents and untold numbers of near misses. However, more data and information on the links between fatigue and work related accidents and incidents is needed.

2.4 Night work

Each hour of night work imposes a greater workload than the same hour during a day shift (3am versus 3pm), because of the effects of circadian rhythms. Work which is physically or mentally demanding, monotonous, or requires high vigilance can lead to fatigue which will be worsened by night work.

Night work combined with extended hours is extremely hazardous in terms of sleep debt and fatigue, and there is a greater risk of accidents at work.

Performance on tasks which require high levels of vigilance and concentration, such as driving and inspection and maintenance work, will be reduced between the hours of 2am and 6am, and/or after long worked shifts, due to the effects of fatigue and *disrupted circadian rhythms*.

2.5 Sleep debt

Disruptions to normal sleep routines are often associated with night work, where the major difficulty is getting adequate undisturbed sleep during the day. Extended hours which carry into the night period may create a similar problem. The cumulative result of these disruptions is lack of sufficient sleep, which may lead to what is called *sleep debt*.

Unpredictable work schedules can also compromise the quality of rest time, particularly if there is a continual possibility of recall to duty.

2.6 Work overload and work intensification

Perceived economic pressures in a competitive environment has lead to a trend across industries to *reduce staffing levels*, while requiring the remaining employees to pick up the work load. This leads to *increased workloads* and *work intensification* and a reduced ability to take *adequate rest and meal breaks* at work.

Almost one in five respondents to the 1997 ACTU National Survey on Stress at Work identified increased workload as the most stressful condition at work, while 42% reported it as among the three most stressful conditions at work. Over *one in four* respondents from the transport industry identified *increased workload* as among the three most stressful conditions at work.

3. CONSEQUENCES OF FATIGUE IN AIR, SEA, ROAD AND RAIL TRANSPORT

3.1 Shift work and extended working hours

As with other health and safety hazards, the greater the exposure to shift work and extended working hours, the higher the risk of harm. Long periods of extended shifts and long continuous hours of work will lead to

fatigue. This can undermine the safety and health of those who work them, and the safety of other employees and members of the public.

Shift workers, particularly those who work night shifts and/or hours which extend into the night period suffer more *sleep difficulties* than do daytime workers. Interrupted or shortened sleep can mean little effective rest.

Without enough sleep the human brain may spontaneously shift into sleep in order to meet its need. This might only last a few seconds, or might stretch to several minutes. These *involuntary sleep episodes* can occur while standing, operating machinery or driving.

Sleep during daylight hours following night shifts is difficult. Most shift night workers sleep an hour or two less in daylight than they normally would, and report that the quality of their sleep is worse. This is largely due to mismatched circadian rhythms and external cues (light, food, noise, temperature) around the worker while trying to rest.

Together with social factors, this explains why many shift workers suffer from *chronic sleep problems*. Continued *poor quality sleep* is a strong predictor of psychological and physical ill health.

Physical and psychological effects associated with sleep difficulties include fatigue, dizziness, inability to concentrate, perceptual changes, mood changes, gastric problems and disturbance of eating habits.

The timing of meals is important from both physiological and social perspectives. Shift work, particularly night work, can continually disrupt eating patterns.

Digestive function is governed by circadian rhythms, and is reduced at night. Eating large meals, or intake of coffee and other drinks containing caffeine to stay awake at night can result in a range of symptoms such as *indigestion, abdominal pains and bowel disturbances*.

Studies show that shift workers are more likely to display these symptoms than day workers. In the medium to long term more serious diseases of the gastrointestinal tract may develop.

Some studies have suggested higher death rates amongst former shift workers and/or those who sleep less than 7 hours per day.

3.2 Stress

Almost 14% of respondents to the 1997 ACTU national survey on stress at work named long hours and rostering among the three most stressful conditions in their workplace. This was highest in the construction, mining and *transport* areas.

Stress associated with shift work and extended hours may be caused by any, or a combination, of:

- poor roster design (including unpredictable hours)
- the physical and mental demands of the work
- the ability to balance childcare, family and other responsibilities
- the physiological and psychological effects of disrupted circadian rhythms.

3.3 Increased use of alcohol and other drugs

Use of drugs such as caffeine or amphetamines by workers trying to overcome the effects of fatigue, and/or alcohol or sleeping pills to try to get to sleep, is a hazard of shift work, and of unrealistic work schedules.

The effects on health and safety can be dangerous. For example, lack of sleep and fatigue can increase the effects of alcohol. Substances such as amphetamines (“uppers” or “speed”) are highly dangerous. As well as the risk of addiction, these drugs can cause high blood pressure, heart irregularities and mental confusion.

3.4 Exposure to other OHS hazards

Extended working hours, whether rostered or unrostered, may increase exposure to other OHS hazards such as chemicals, noise, vibration, uncomfortable temperatures and manual handling.

Noise, vibration, uncomfortable temperatures and manual handling are health and safety hazards which are typically encountered in the transport industry.

Rosters need to be designed to allow adequate recovery time, and expert advice on exposure levels should be sought.

Standards for exposure to noise are also based on length of exposure, so similar and expert advice will be required to avoid excessive exposure and to allow adequate recovery time.

Manual handling hazards may be increased by shift work, especially extended shifts, due to the cumulative effects of muscle fatigue, and the need for adequate recovery from muscle fatigue and/or from any sprains and strains.

Working in uncomfortable temperatures for lengthy periods is another OHS hazard, which may frequently be encountered on afternoon or night shifts, and which will be increased by extended shifts. Research has shown that work requiring manual dexterity may be impaired at temperatures as high as 15 degrees C.

3.5 Medical problems

Many studies have indicated links between shift work and significant medical problems. These include:

- a higher incidence of gastrointestinal disorders and gastric and duodenal ulcers
- a connection between long periods of shift work and heart disease
- more colds and other respiratory illnesses among shift workers than their day work counterparts
- a range of complaints associated with stress, caused by disruption of family and social life

Those already suffering health problems may face additional burdens.

Shift work rosters can also make it difficult for employees to follow specific requirements for medication or other health routines.

3.6 Effects on women

The effects of shift work (particularly night work) on pregnancy and menstruation, are being increasingly documented.

A study of the effects of night work on nearly 800 women found that the incidence of irregular menstrual cycle was significantly higher in women working nights than in women working during the day. The results indicate that night work may suppress ovarian function by affecting hormone levels which are governed by the circadian rhythms.

While evidence of adverse effects of shift work on pregnancy is mixed, extended working hours can worsen the effects of other hazards during pregnancy.

While the number of females employed in driving and piloting of vehicles may be quite low, they are employed in the service and scheduling sectors of the industry.

3.7 Older employees

Coping with shift work and extended working hours may become more difficult for older employees, due to interaction between:

- changes in circadian rhythms
- reduced ability to cope with stressors
- increased sleep fragility – sleeping less, waking earlier
- cumulative effects of years of shift work

3.8 Cumulative effects

The hazards associated with shift work and extended working hours increase with the level of exposure. Even with well-designed rosters, long periods of shift work and extended hours will increase the health and safety risk. The longer the period over which this occurs, the greater the risk.

3.9 Training

Tired workers may not benefit fully from OHS and work-related training, which may indirectly lead to increased accidents at work.

3.10 Family and Social Life

Employees' lives beyond work can be greatly influenced by shift rosters and working time arrangements. The more shift work (particularly night work) and extended working hours people are exposed to per day, per week, and so on, the greater the effect on the quality of off-duty periods, and the greater the build up of fatigue.

4. WAYS OF ACHIEVING RESPONSIBILITY BY INDIVIDUALS, COMPANIES, AND GOVERNMENTS TO REDUCE THE PROBLEMS RELATED TO FATIGUE IN TRANSPORT

4.1 Role of governments

Governments must wake up to the dangers which fatigue is causing in the transport industry. There is a need for more research and investigation into the interactions between fatigue, work overload, stress at work and other factors on occupational health and safety.

Governments have a clear responsibility to ensure that citizens are not killed, maimed or made sick by their work. In order to fulfil this responsibility, governments must be *actively* involved in preventing occupational injury and disease an *ongoing* way at a number of levels:

Governments must set appropriate standards, enact legislation and regulations, and ensure those laws and regulations are enforced. There must be adequate penalties, including imprisonment where gross negligence by an employer has resulted in death and/or serious injury to workers.

In NSW and the Northern Territory, on the spot fines have been shown to be effective in the case of less severe breaches of OHS laws, or where there is only a minor potential risk to health and safety.

Governments must promote and fund adequate and appropriate research into new and existing OHS problems - both in terms of discovering the nature and extent of the problems, and in finding solutions to them.

Governments must ensure that the whole community is aware and informed of OHS problems, such as fatigue, and their solutions, and of their rights and responsibilities with regard to health and safety at work.

Governments must examine the effects which changes to the industrial relations system has had on the working arrangements, in particular whether 'flexibility' of hours has led to increased fatigue and other occupational health and safety hazards.

4.2 Role of employers

Under occupational health and safety legislation, employers have a duty of care to provide a healthy and safe workplace and safe systems of work. This includes ensuring that work organisation and working hours do not pose a risk to health and safety.

Employers must ensure that health and safety is always considered when planning rosters and working arrangements. The effects of working hours on family and social life must also be considered.

Employers have an obligation not only to employees but also to contractors and their employees. In the transport industry in particular, employers must also consider the impacts of the operations on public safety.

Under the general duty of care in Australian OHS legislation, employers are required to:

- consult employees and elected representatives on health and safety at work
- provide adequate and appropriate information, training, instruction and supervision
- monitor working conditions to ensure hazards and risks to health and safety are eliminated or controlled
- provide adequate welfare facilities for all employees
- monitor the health of employees where required
- maintain information and records about working conditions, the health of employees, and OHS incidents or accidents at work

Employers must ensure that rosters are designed to minimise sleep debt and fatigue. *Rest days* should be distributed throughout the roster cycle to allow recovery and recuperation, and to prevent the onset of fatigue. An accumulation of rest days as a result of extended periods of shift work should be avoided. The "banking" of rest days cannot compensate for daily fatigue.

When planning to *prevent fatigue*, employers must consider all the interacting factors, such as work load, type of work, time of day, time pressures and expectations, external influences, the length of shift, and previous hours and days worked.

4.3 Role of employees

Employees have a role, within the parameters of the work schedules and other job demands imposed on them by employers, to ensure that they do not put at risk their own health and safety or that of others.

However, *it must be emphasised*, that it may be difficult, if not impossible for employees to fulfil this role, in the absence of sufficient attention by governments and employers to the risks of fatigue, and in the presence of employer demands for work schedules and work loads which in themselves lead directly to fatigue.

5. RECOMMENDATIONS

The ACTU makes the following recommendations to the Inquiry:

1. that the federal government initiate a legislatively binding code of practice for shift work and rostering in the transport industry, based on health and safety principles;

2. that OHS Authorities direct more effort and resources to ensuring that employers are fully aware of their duties with regard to working hours in the provision of a safe workplace and safe systems of work;
3. that OHS Authorities direct more effort and resources to ensuring that employers understand and fulfil their duty to consult with employees regarding working hours and rosters;
4. that OHS Authorities direct more effort and resources to ensuring compliance with the duty to provide safe systems of work, including the establishment of competency standards for enforcement officers;
5. that where it can be shown that a fatigue related incident has resulted from employer negligence, that the employer be prosecuted under OHS and, where appropriate, criminal law;

The ACTU also makes the following general recommendations to the Inquiry, in recognition of the growing hazard of fatigue across all industries:

6. that the federal government ratify ILO convention 155 - Occupational Health and Safety;
7. that OHS provisions be reinstated as allowable matters in awards;
8. that the Inquiry recommend that the federal government initiate more research into the impact of fatigue on health and safety across all industry sectors;
9. that OHS Authorities direct more effort and resources to collecting information on the links between fatigue and work related accidents, incidents and near misses;
10. that there be a moratorium on further deregulation of working hours across all industries; and
11. that the federal government consider minimum legislated standards for working hours, including rest breaks at and away from work.