

Managing the risk of fatigue at work

Code of practice

February 2026

NSW Editorial note

1. This code is based on a national model code of practice developed by Safe Work Australia under the harmonisation of national work health and safety legislation and has been approved under section 274 of the *NSW Work Health and Safety Act 2011* (the NSW WHS Act). Notice of that approval was published in the NSW Government Gazette referring to this code of practice as *Managing the risk of fatigue at work* on Friday 20 February 2026. This code of practice commenced on 20 February 2026.
2. When reading this Code, please be aware that any reference to:
 - the 'Work Health and Safety Act' refers to the *Work Health and Safety Act 2011* (NSW), or any successor legislation,
 - the 'Work Health and Safety Regulation' refers to the *Work Health and Safety Regulation 2025* (NSW), or any successor regulation,
 - a code of practice refers to the relevant NSW Code of practice, or any successor code of practice.

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Foreword

This Code of Practice on managing the risk of fatigue at work is an approved code of practice under section 274 of the *Work Health and Safety Act 2011* (the WHS Act).

An approved code of practice provides practical guidance on how to achieve the standards of work health and safety (WHS) required under the WHS Act and the *Work Health and Safety Regulation* (the WHS Regulation), and effective ways to identify and manage risks.

A code of practice can assist anyone who has a duty of care in the circumstances described in the code of practice. Following an approved code of practice will assist the duty holder to achieve compliance with the health and safety duties in the WHS Act and WHS Regulation (WHS laws), in relation to the subject matter of the code of practice. Like regulations, codes of practice deal with particular issues and may not cover all relevant hazards or risks. The health and safety duties require duty holders to consider all risks associated with work, not only those for which regulations and codes of practice exist.

Codes of practice are admissible in court proceedings under the WHS laws. Courts may regard a code of practice as evidence of what is known about a hazard, risk, risk assessment or risk control and may rely on the code in determining what is reasonably practicable in the circumstances to which the code of practice relates. For further information see Safe Work Australia's *Interpretive Guideline: The meaning of 'reasonably practicable'*.

Compliance with the WHS laws may be achieved by following another method if it provides an equivalent or higher standard of WHS than the code.

An inspector may refer to an approved code of practice when issuing an improvement or prohibition notice.

Scope and application

This Code is intended to be read by a person conducting a business or undertaking (PCBU). It provides practical guidance to PCBUs on how to manage health and safety risks related to fatigue at work.

This Code may be a useful reference for other persons interested in the duties under the WHS laws.

This Code applies to the performance of work and to all workplaces covered by the WHS Act.

How to use this Code of Practice

This Code includes references to the legal requirements under the WHS laws. These are included for convenience only and should not be relied on in place of the full text of the WHS laws.

The words 'must', 'requires' or 'mandatory' indicate a legal requirement exists and must be complied with. The word 'should' is used in this Code to indicate a recommended course of action, while 'may' is used to indicate an optional course of action.

1. Introduction

1.1 What is fatigue?

Fatigue is a state of physical, mental or emotional impairment. Fatigue can develop over the short or long term, can prevent people from functioning safely and can have health effects.

In a work context, fatigue is more than feeling sleepy, tired and drowsy. It is a state of impairment which can be:

- **physical** – impacting physical abilities like coordination and strength
- **mental** – impacting mental and cognitive abilities like decision making and concentration
- **emotional** – impacting abilities to engage emotionally or regulate emotions, or
- a combination of any of the above.

Fatigue can be caused by a range of hazards broadly grouped as:

- **Work hours and shift design** – this includes working long hours, working during some or all of the natural time for sleep or not allowing sufficient opportunity for sleep or rest.
- **Tasks, equipment or environments** – this includes an imbalance between the demands of a worker’s job, and the personal and work resources available to support them to manage these demands.
- **Individual** – workers’ levels of fatigue tolerance and vulnerability will differ, influenced by factors such as age, general health status, sleep disorders, and natural sleep-wake preferences (e.g. being a ‘morning’ or ‘evening’ person).

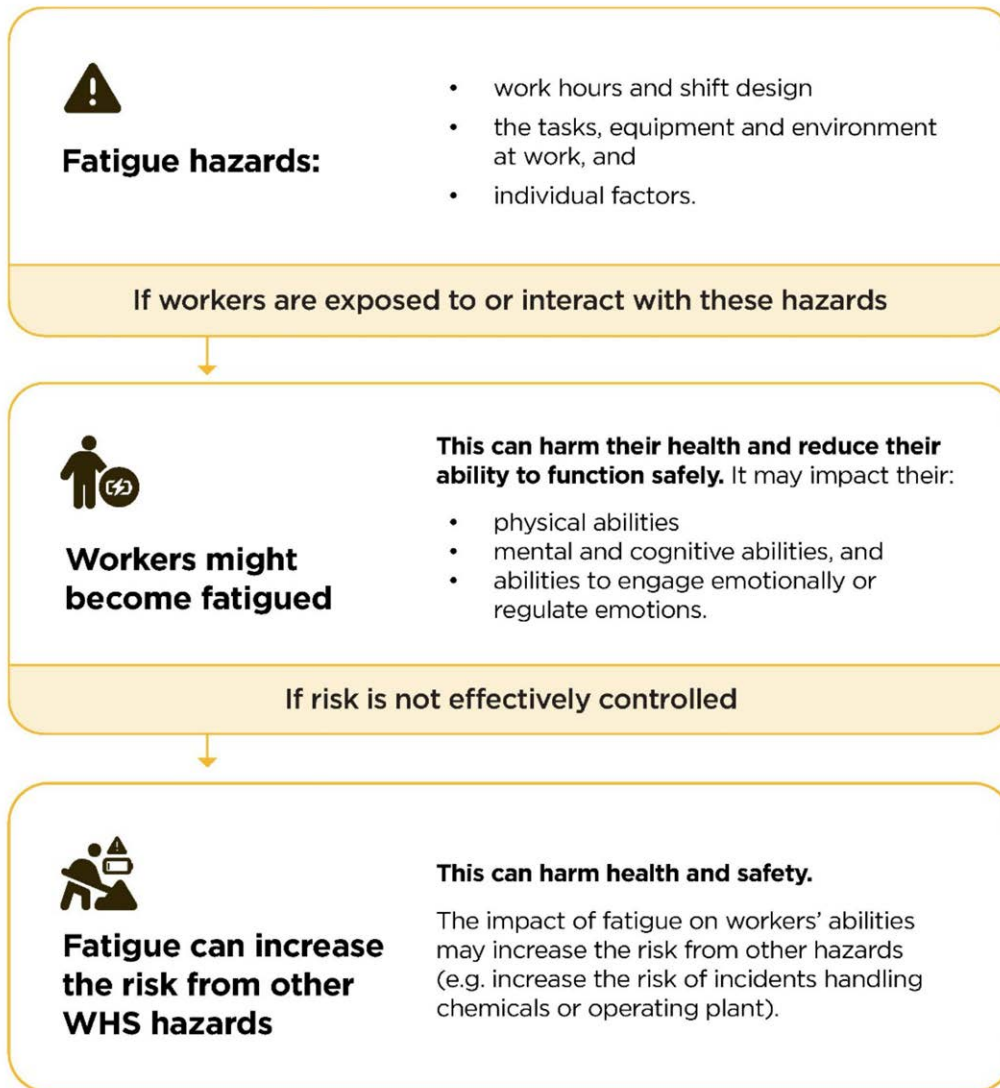
In this Code, **shift** is used broadly to describe a period of work, including both standard day shifts and shift work. **Shift work** is used to describe non-standard patterns of work such as working at night or extended periods.

This Code does not address **chronic fatigue syndrome** (a medical condition) or **pathological fatigue** (evoked by a disease process).

1.2 Fatigue implications

Fatigue can impact workers’ health and can increase the risk of health and safety incidents. Managing the risk of workers becoming fatigued will generally reduce the risk more effectively and reliably than addressing the implications once a worker is fatigued.

Figure 1 Fatigue risk chart



Health implications of fatigue



Fatigue can harm workers' physical and psychological health, contributing, for example to the development of:

- heart disease
- musculoskeletal disorders
- diabetes
- high blood pressure
- gastrointestinal disorders
- reduced fertility
- anxiety
- depression
- aggravation of existing health issues (e.g. mental health conditions, asthma, epilepsy or diabetes), and
- some cancers.

Broader health, safety and wellbeing

For physical and mental health, adults generally require:

- 7 or more hours' sleep a night (or in each 24 hour period)
- 2.5-5 hours of moderate intensity exercise or 1.25-2.5 hours vigorous exercise a week
- a healthy, balanced diet, and
- regular social interaction.

While much of this may be beyond a PCBU's control and duties under WHS laws, shifts or work that prevent a healthy lifestyle can have broad health and wellbeing impacts.

In Australia, working beyond 39 hours per week over a prolonged period has been shown to lead to a decline in mental and physical health.

The World Health Organization and International Labour Organization have found working 55 or more hours per week is a serious health hazard. It is associated with an estimated 35% higher risk of a stroke and a 17% higher risk of ischemic heart disease, compared to working 35-40 hours a week.

Workers may also be at risk where they are fatigued from work and then do tasks outside of work where fatigue-related errors can result in injury. For example, using power tools, cooking or driving.

Fatigue-related incidents



In addition to the health implications, fatigue can increase the risk from other safety hazards. Particularly when:

- fatigue reduces workers' ability to function safely (e.g. slower reaction times, reduced alertness, strength, coordination and capability to communicate, impaired memory, concentration and judgement, and proneness to micro sleeps), and
- work systems and task requirements are unsafe given this reduced worker capability.

Fatigue impacts workers' coordination, response times and cognitive abilities. Studies have shown that being awake for 17 hours has similar effect on cognitive and motor performance as having a blood alcohol content of 0.05% and being awake for 24 hours is similar to having a blood alcohol content of 0.10%.

Fatigue-related incidents may include:

- loss of control while operating fixed or mobile plant, including vehicles or vessels
- errors in following health and safety procedures
- errors in the selection and correct usage of PPE
- errors while providing medical care and other human-focused services
- errors when providing professional advice, such as engineers or technicians
- slipping or falling, especially while operating plant or tools and performing tasks requiring balance and coordination such as when working at heights, or
- lapses in attention or reduced awareness while doing tasks requiring a high level of concentration such as working in a process control room and monitoring children on an excursion.

Inter-relation between fatigue, psychosocial hazards and hazardous manual tasks

Work which is physically and/or psychologically demanding increases the risk of fatigue. For example, jobs requiring intense concentration or high physical effort can create a risk of fatigue, even when a worker has had good sleep and has not worked a long shift.

Fatigue can negatively impact workers' speed and accuracy of work, communication, mood, patience, ability to manage emotions, resilience and pro-social behaviours. This can create or increase psychosocial hazards such as:

- high work demands (e.g. decreased efficiency and errors of the fatigued worker)
- poor support (e.g. lack of patience and time for other workers; decreased empathy)
- harmful behaviours (e.g. rudeness, aggression and bullying).

Physical fatigue may begin to damage tired muscles causing musculoskeletal injury. Fatigued workers may also be more likely to move awkwardly, hold awkward postures or forget to use or incorrectly use tools to assist with manual tasks. Fatigue can reduce workers' ability to maintain their balance when challenged (e.g. walking on uneven paths, using force to perform their job), identify any potential slip, trip and fall hazards in their path and respond in time to avoid these hazards.

Under the WHS Regulation, PCBUs have specific duties in relation to both psychosocial risks and hazardous manual tasks. For more information on these risks see the *Code of Practice: Managing psychosocial hazards at work* and the *Code of Practice: Hazardous manual tasks*.

1.3 WHS duties to manage fatigue

WHS Act section 19

Primary duty of care

A **PCBU** must ensure, so far as is reasonably practicable, workers and other persons are not exposed to risks to their physical and psychological health and safety, including the risk of fatigue. A PCBU must eliminate health and safety risks at work, or if that is not reasonably practicable, minimise these risks so far as is reasonably practicable.

This duty includes ensuring, so far as is reasonably practicable:

- the provision and maintenance of work environment without risks to health and safety
- the provision and maintenance of safe plant and structures
- the provision and maintenance of safe systems of work
- the safe use, handling and storage of plant, structures and substances
- the provision of adequate facilities for the welfare of workers including ensuring access to those facilities
- the provision of any information, training, instruction or supervision that is necessary to protect all persons from risks to their health and safety arising from work carried out
- that the health of workers and the conditions at the workplace are monitored for the purpose of preventing illness or injury of workers arising from the conduct of the business or undertaking.

Workers are 'at work' any time they are doing work for a PCBU, even if it is outside paid working hours. For example, if workers are working late or you contact them after hours with a work question then they are 'at work' and you must manage the risk of fatigue. This is particularly important for night workers if their sleep is broken as they are often unable to return to sleep.

This duty extends to ensuring so far as is reasonably practicable, that the health and safety of other persons is not put at risk from work carried out. For example, the risk to patients if hospital staff are fatigued or the risk to students from excessive workloads.

Officers duty

WHS Act section 27

Duty of officers

Officers, such as company directors, have a duty to exercise due diligence to ensure the PCBU complies with its duties under the WHS laws. This includes taking reasonable steps to ensure the business or undertaking has and uses appropriate resources and processes to manage the risk of fatigue. For example, ensuring the PCBU collects any information needed to identify if unsafe hours are worked and systems to ensure the work environments does not create fatigue risks.

For information on officers and their duties see Safe Work Australia's *Interpretive Guideline: The health and safety duty of an officer*.

Worker duty

WHS Act section 28

Duties of workers

Workers must take reasonable care for their own health and safety and not do anything which could adversely affect the health and safety of other persons. Workers must also comply with any reasonable health and safety instructions given by the PCBU, and cooperate with reasonable health and safety policies or procedures that have been notified to workers. For example, policies on working second jobs or notifying the PCBU if they feel fatigue developing or are already fatigued.

Further information is provided in part 5.4 of this Code.

Other persons duty

WHS Act section 29

Duties of other persons at the workplace

Other persons at the workplace (like visitors and customers) must take reasonable care for their own health and safety and must take reasonable care not to adversely affect other people's health and safety. They must comply, so far as they are reasonably able, with reasonable instructions given by the PCBU to allow them to comply with the WHS laws.

For example, tourists on a self-drive tour may be instructed by the tour operator to arrive the night before their tour to minimise fatigue.

Further information is provided at part 5.5 of this Code.

Other relevant duties

Other relevant duties under WHS laws are set out throughout this Code. See [Consulting with workers](#), [Consulting, cooperating and coordinating activities with other duty holders](#), and [Information, training, instruction and supervision](#).

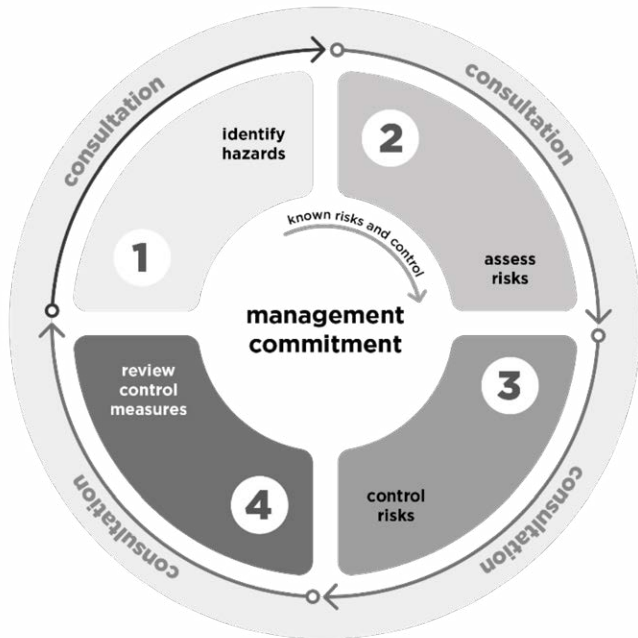
PCBUs must notify SafeWork NSW of certain work-related incidents or occurrences. For example, a fatigued worker causing a car accident on their way home may be notifiable if the fatigue arose out of the conduct of the business or undertaking.

You will have additional duties under WHS laws if you have management or control of a workplace, fixtures, fittings or plant, or if you design, manufacture, import, supply, install, construct or commission plant, structures or substances.

WHS laws do not operate in isolation and other laws may also apply. For example, industrial relations, criminal, anti-discrimination, privacy and workers' compensation laws. Some industries may also have fatigue specific legal requirements including the heavy vehicle, rail, civil aviation, offshore oil and gas, mining and maritime industries.

2. Risk management process

To meet your duties to ensure health and safety, you as the PCBU, must eliminate or minimise the risk of fatigue so far as is reasonably practicable. To achieve this, just as for any other hazard, you can apply the risk management process described in the *Code of Practice: How to manage work health and safety risks*.



The risk management process involves four steps:

- 1. Identify hazards** - find out what could lead to fatigue ([Chapter 3](#)).
- 2. Assess risks**, if necessary - understand the nature of the harm the hazard could cause, how serious the harm could be and the likelihood of it happening. This step may not be necessary if the risks and control measures are known ([Chapter 4](#)).
- 3. Control risks** - implement the most effective control measures that are reasonably practicable in the circumstances and ensure they remain effective over time. This means:
 - you must eliminate the risk of fatigue, if reasonably practicable to do so
 - if it is not reasonably practicable to eliminate the risks, implement the most effective control measures to minimise the risk of fatigue so far as is reasonably practicable in the circumstances, and
 - ensure those control measures remain effective over time ([Chapter 5](#)).
- 4. Maintain and review control measures** to ensure they are effective, used correctly and working as planned and make changes as required ([Chapter 6](#)).

Risk management is a proactive process that helps you respond to change and facilitate continuous improvement in your business. It should be planned, systematic and cover all reasonably foreseeable hazards creating the risk of fatigue. If control measures are not effective, you should repeat the risk management process.

In the event of an injury or incident at work, the risk assessment process can identify whether different or additional measures are needed to prevent fatigue and a recurrence of the injury or incident.

The risk management process may be implemented in different ways depending on the size and nature of your business or undertaking. Larger businesses and those in sectors where workers are exposed to more or higher risk of fatigue are likely to need more complex, sophisticated risk management and consultation processes to meet their WHS duties. For example, large hospitals and factories operating 24 hours a day will likely need more sophisticated processes than a small café operating for limited hours.

Before you start the process you should:

- get commitment and engagement from senior leaders and managers
- identify who needs to be involved, for example managers, workers, Health and Safety Representatives (HSRs), subject matter experts, and human resources or scheduling personnel
- explain the process to the persons involved, and
- decide how the process and its outcomes will be recorded and communicated.

Fatigue management should be integrated with your broader WHS management by:

- including fatigue in broader risk management processes (e.g. hazard identification, audits, investigations, training programs and safety reviews)
- considering fatigue in risk assessments for all high-risk work, and
- integrating fatigue management policies with other safety policies.

2.1 Leadership and management commitment

Genuine commitment by the PCBU, officers, and other organisational managers and leaders is essential. All these roles, through their governance arrangements and resourcing decisions, actively shape the organisation and the way work is undertaken. These decisions will, directly and indirectly, impact how effectively you can manage the risk of fatigue.

This commitment can be built by ensuring leaders understand their duties under WHS laws, the risk management process these require, the implications of not effectively managing fatigue, and the roles of various organisational roles (e.g. human resources and WHS managers).

Officers (such as company directors) have specific duties under the WHS Act (see Officers duty).

2.2 Consulting throughout the risk management process

Consulting with workers

WHS Act section 47

Duty to consult workers

WHS Act section 48

Nature of consultation

WHS Act section 49

When consultation is required

A PCBU must consult, so far as is reasonably practicable, with workers who are (or are likely to be) directly affected by a WHS matter. Consultation involves sharing information, giving workers a reasonable opportunity to express views and taking those views into account before making decisions on health and safety matters.

If you and your workers have agreed procedures for consultation, it must be conducted in accordance with those procedures. All consultation must include any HSRs representing your workers. References to consultation with workers in this Code includes consultation with any HSRs, even when HSRs are not explicitly mentioned.

The definition of 'worker' under the WHS Act is broad. In addition to employees, it includes anyone working for the business or undertaking, including contractors and their employees, labour-hire workers, outworkers, apprentices, trainees, work experience students and volunteers.

You must consult with workers when:

- identifying hazards and assessing risks to health and safety arising from the work carried out or to be carried out
- making decisions about ways to eliminate or minimise those risks
- making decisions about the adequacy of facilities for the welfare of workers
- proposing changes that may affect the health or safety of your workers, and
- making decisions about procedures for consulting with workers; resolving health or safety issues at the workplace; monitoring health of your workers; monitoring the conditions at the workplace under your management or control and providing information and training for your workers.

However, it may be useful to also consult workers about matters not listed above.

Different workers may be exposed to different fatigue risks and you must consult with all workers who are likely to be directly affected. For example, workers on different shifts or apprentices who have study requirements in addition to work.

Consulting your workers will assist you to identify anything that may put certain workers at greater risk, and whether there are additional reasonably practicable controls you must implement to eliminate or minimise the risks for these workers. This should include identifying potential barriers and ways to design your health and safety systems to overcome them. For example, providing health and safety information in multiple languages.

Further guidance is available in the *Code of Practice: Work health and safety consultation, cooperation and coordination*.

Consulting, cooperating and coordinating activities with other duty holders

WHS Act section 16

More than 1 person can have a duty

WHS Act section 46

Duty to consult with other duty holders

More than one person can have the same WHS duty at the same time. This could be because they are involved in the same work activities or share the same workplace. The WHS Act requires that where more than one person has a duty for the same matter, each person retains responsibility to meet their duty in relation to the matter and must do so to the extent to which they can influence and control the matter.

Duty holders must consult, cooperate and coordinate activities with all other persons who have a WHS duty in relation to the same matter, so far as is reasonably practicable. Where you share a duty (e.g. a role requires a worker to carry out work for you and another PCBU), each duty holder should:

- exchange information
- find out who is doing what about their respective WHS obligations, and
- work together in a cooperative and coordinated way so risks are eliminated or minimised.

Consulting, cooperating and coordinating with other duty holders can help you more easily and effectively control the risk of fatigue, and assist each of you to comply with your duty.

Shared duties - example

Where a business is providing on-hire workers for shift work, both the labour hire and host businesses have a duty of care to the workers. The businesses must consult, cooperate and coordinate to identify whether fatigue may be a risk and consider hazards such as the mental and physical demands of the job, shift rosters and working hours. The labour-hire business must consider the cumulative fatigue arising from all the different workplaces the worker is sent to and agree on arrangements to manage the risks of fatigue with each business.

Further guidance is available in the *Code of Practice: Work health and safety consultation, cooperation and coordination*.

3. Identify hazards

The first step in the risk management process is to identify hazards. This involves identifying the aspects of work and situations that could potentially harm your workers or others at your workplace and why these may be occurring. This step should also assist PCBUs to identify where and when workers are exposed to fatigue risks, and if controls are not adequately eliminating or minimising risks from known hazards.



Workers are likely to be exposed to a combination of hazards and in most circumstances, it will be this combination of hazards which together cause harm.

For example, harm is more likely when workers are exposed to long hours, poor conditions and high job demands, and the exposure is repeated, prolonged or severe. However, harm can also be caused by a single hazard or instance such as if workers are exposed to very high demands and irregular shifts during an emergency response.

Some hazards may be constantly present, while others arise sporadically. For example, construction work may be more physically demanding in summer due to the heat or a government department may experience higher work demands during budget time.

3.1 Hazards for workers becoming fatigued



Below are examples of hazards that contribute to the risk of workers becoming fatigued. Some can cause fatigue on their own, but in many circumstances, it will be a combination of hazards together that cause fatigue. Fatigue can be caused by a single instance of exposure to these hazards (e.g. working a double shift) or over time with repeated or prolonged exposure (e.g. working 12 hour shifts 5 days a week for several months).

The tables below list examples of each hazard, noting that these are not exhaustive.

Fatigue hazards can vary significantly between industries. Consider the specific context of your industry when identifying hazards. For example:

- healthcare may face more risks from night shifts and high emotional demands
- professional services (e.g. law firms) may face more risk from high cognitive demands
- transport industries often deal with long hours and irregular schedules, and
- emergency services may face unpredictable work patterns and high cognitive demands.

Work hours and shift design

Hazard	Examples
Long hours	<ul style="list-style-type: none"> • long hours over a week • long hours in a shift • ‘double shifts’ • back-to-back shifts • long hours at night • long hours performing demanding or safety critical work • on-call work in addition to regular shifts

Hazard	Examples
Irregular hours	<ul style="list-style-type: none"> • call or as-need-arises work beyond a normal workday • rotating shifts (particularly backwards or slow rotations) • remote work for blocks of time (e.g. fly in fly out or drive in drive out work) • less than 24 hours' notice before the shift (reduces workers' ability to plan sleep) • shifts where the start or finish time is changed at short notice • frequent unplanned overtime
Insufficient breaks during work	<ul style="list-style-type: none"> • regular breaks are not provided • breaks are tightly scheduled • workers do not have any control over when they take breaks • workers do not have access to flexible, regular comfort breaks
Insufficient breaks between periods of work	<ul style="list-style-type: none"> • working more than 5 days in a row • not having at least one full day off per week • not having at least two consecutive nights sleep between shift blocks – to allow adequate sleep recovery • extended travel or commute times that reduce sleep opportunity • less than 12 hours between shifts • shift design that does not allow free days for family/social interaction (e.g. not having regular free weekends or consecutive days off) • workers do not have opportunities to use leave entitlements
Work that disrupts circadian rhythm	<ul style="list-style-type: none"> • night or early morning work, particularly between 2 am and 6 am, when the body is biologically programmed for sleep • demanding or safety critical work between 2 pm and 4 pm - the period of secondary 'sleepiness peak' during the day • more than 3 successive night shifts • travel between midnight and 6 am • less than 24 hours' notice given before night work • rapid changes between day and night shifts • international travel across multiple time zones • irregular shift patterns that prevent establishing stable sleep patterns

Tasks, equipment or environments

Hazard	Examples
High or low physical job demands	<ul style="list-style-type: none"> • physically demanding, challenging or tiring work • time pressures or fast paced work • new tasks where workers have not built the necessary fitness • prolonged sedentary work • lack of effective tools and resources to perform work without additional effort • inefficient work systems resulting in increased job demands

Hazard	Examples
High emotional job demands	<ul style="list-style-type: none"> • responding to distressing or traumatic situations • managing heightened emotions of others in the workplace • providing support or empathy • delivering bad news • suppressing emotions • displaying false emotions • new tasks where difficult situations may be unexpected or more distressing than a worker expects
High or low cognitive (or mental) job demands	<ul style="list-style-type: none"> • complex tasks or work that exceeds workers' capacity and competency • sustained concentration or vigilance • poorly designed or integrated technology making tasks more difficult • tasks with little or no margin for error • absence of systems to prevent errors • repeatedly or rapidly switching tasks • insufficient time for the number or volume of tasks • repetitive tasks • rapid or prolonged organisational change • new tasks or technology the worker is learning • monotonous work or passive monitoring tasks
Workplace barriers	<ul style="list-style-type: none"> • barriers to understanding health and safety information (e.g. literacy or language) • barriers to raising health and safety issues (e.g. power imbalances or psychosocial hazards such as bullying)
Exposure to other psychosocial hazards	<ul style="list-style-type: none"> • poor support from leadership or co-workers, increased demand where there are inadequate workers for a task, or tools or equipment are not available • low job control, workers are prevented from varying task intensity, changing tasks or controlling the pace of their work • remote or isolated work which may require significant travel time or limit support from other workers • other psychosocial hazards (e.g. poor reward and recognition and exposure to violence)
Poor physical work environment	<ul style="list-style-type: none"> • extremes of heat or cold • high noise levels • poor lighting • poor air quality • exposure to hazardous substances • exposure to vibration • inadequate break facilities • limited access to healthy food options or facilities to store and heat healthy food options
Poor accommodation	<ul style="list-style-type: none"> • worker accommodation that does not allow for sleep and recovery (e.g. appropriate temperature for sleep and light blocked out for night shift workers sleeping during daylight hours) • worker accommodation requiring significant travel to the workplace

Individual (both work and non-work)¹

Hazard	Examples
Insufficient sleep amount and quality	<ul style="list-style-type: none">• time since last sleep• influence of alcohol and drugs on amount and quality of sleep• age, health and fitness (e.g. menopause, pregnancy sleep and disorders like sleep apnea)• dietary and hydration factors (e.g. quality and time of meals)• influence of personal psychological factors, such as depression, anxiety, grief, chronic disease, etc.
Inadequate fitness and experience	<ul style="list-style-type: none">• limited experience (e.g. new or young workers learning tasks)• new to shiftwork• fitness for work (e.g. general physical and mental health and fitness)• recent physical or mental illness/injury
Limited sleep opportunity	<ul style="list-style-type: none">• second jobs• caring responsibilities• extended commutes between work and home• sleep environment
Other individual factors	<ul style="list-style-type: none">• perception that fatigue cannot be managed without detriment to business or career (e.g. sole traders or businesses with customer, patient or supply chain pressures)• working for multiple PCBUs (e.g. labour hire workers or contractors)

3.2 Identify fatigue impacts on other WHS risks



As well as considering the risks of workers becoming fatigued, you need to consider whether fatigue may impact the risk from other hazards.

Fatigue reduces workers' reaction times, alertness, strength, coordination, ability to communicate, memory, concentration, patience and judgement. Fatigued workers may also fall asleep or have micro sleeps. Where safety relies on workers' performance this can increase the risk of safety incidents and harm.

The additional health and safety risks from fatigue are greatest where:

- workers are doing hazardous work (e.g. driving vehicles, working at heights, operating plant, working with hazardous chemicals, doing electrical work)
- there are insufficient systems to:
 - control harmful workplace interactions and behaviours (e.g. behaviours such as harassment or violence and aggression)
 - prevent errors (e.g. relying on workers to maintain vigilance, memorise information or perform manual calculations without checks), or
 - protect workers and others from errors.

It is unlikely that you can completely eliminate the risk of workers arriving at work fatigued, so your safety systems should consider this. For example, implement systems that do not depend on workers' concentration or reaction times, or, where this is not possible, monitor for signs of fatigue.

¹ Both work and non-work fatigue hazards can contribute to the risk of fatigue at work and should be considered as part of your risk management process. PCBUs may not be able to directly control non-work fatigue hazards, however they are included to assist you consulting with your workers to identify fatigue hazards outside the workplace and to develop relevant policies (e.g. fitness for work).

3.3 How to identify fatigue-related hazards

PCBUs should use a variety of sources to identify hazards. In the context of fatigue, ensure you identify both:

- hazards likely to cause fatigue, and
- where fatigue may impact other WHS risks.

You can seek information on fatigue-related hazards from:

- considering planned work
- workers, through consultation, surveys and tools, reporting mechanisms and self-assessments
- workplace inspection and observation
- reviewing available records and analysing data
- seeking information from reliable sources, and
- monitoring the health of workers and conditions at the workplace.

You should look for trends across these information sources. As well as identifying common hazards, ensure your process identifies hazards for less common but serious cases, such as working long hours in response to an emergency.

Effective hazard identification can be promoted by:

- leadership that actively supports fatigue hazard reporting
- making it clear that reporting fatigue will not lead to punishment
- regular discussion of fatigue in health and safety meetings, and
- demonstrated commitment to acting on identified fatigue hazards.

Consider planned work

Consider planned work to identify the fatigue risks it may create. Including:

- work hours and shift design
- tasks, equipment and environments
- the systems of work and processes
- individual factors (e.g. new workers for a project may be inexperienced), and
- safety risk exacerbated by fatigue (e.g. driving).

There are tools available which support work planning and can assist to prevent fatigue.

Ensure you consider foreseeable issues impacting on fatigue risks. For example, delays, interruptions or additional work which may result in changes to work hours, additional workers or changes to job demands.

Information from workers

You must **consult** your workers when identifying hazards at the workplace. For example, consulting your workers to understand where fatigue hazards arise in their work (see also [part 2.2](#) of this Code). However, there are other ways of seeking information from your workers which you may choose to use in addition to agreed consultation processes, such as surveys and hazard reporting.

Surveys or other **tools**, which collect data from workers, have the advantage of proactively seeking information from workers who may not otherwise report feeling fatigued. Tools can capture information to better understand the hazard, such as the work demands, complexity and activity levels which contribute to fatigue. You can design surveys to provide workers with anonymity or to target areas of work where you are concerned there may be a problem. For example, you could use surveys to identify if workers feel fatigued undertaking particular tasks or shifts.

You should have a mechanism for **reporting** WHS matters and encourage workers to report fatigue related incidents, hazards that may give rise to fatigue and any additional risks and implications fatigue may create. Your reporting mechanism should protect workers' privacy and allow for anonymous reporting where possible. Your reporting mechanism should suit your business size and circumstances.

Where there is a high risk of fatigue and related health and safety implications (e.g. fatigued workers driving passenger vehicles or operating machinery) it may be reasonably practicable to ask workers to do a **self-assessment** for fatigue before they commence work. Fatigue self-assessment tools can assist to overcome challenges associated with workers identifying their own fatigue level. Where workers identify fatigue, your response should be non-punitive where possible to encourage accurate reporting.

Workplace inspection and observation

Inspecting and observing the workplace is a useful way of identifying some hazards.

Fatigue related hazards may be identified by observing the:

- workplace (e.g. a poor physical work environment which may contribute to fatigue such as high noise levels, extremes of heat or cold, poor air quality, poor support or lack of resources, poor break facilities, ineffective ergonomic setups of workstations or work vehicles), and
- work and how work is performed in practice (e.g. is the work physically, cognitively or emotionally demanding, is work delayed, or do certain tasks result in frequent mistakes).

You should ensure the inspection and observation considers all elements of the workplace such as vehicles.

Not all hazards are 'visible' so a walk-through should not be used in isolation from other identification methods, like worker consultation.

Review available records and data analysis

Review relevant information and records which may include:

- data generated through work (e.g. by plant or technology on error rates or response times)
- records of hours worked including any differences between rostered and actual hours worked, shift swaps, and any records of shift schedules which were redone because of fatigue or working hour requirements
- records of injuries, incidents or workers' compensation (e.g. incident investigation reports)
- worker complaints –including non-WHS compliance (e.g. an industrial relations grievance regarding hours of work may indicate a fatigue related hazard)
- reports from investigations into past incidents
- audit records
- reports from workplace inspections (e.g. HSR or safety officer walk arounds)
- staffing including number of unfilled positions
- work systems, policies, governance arrangements and procedures
- duty statements and performance agreements

- data on leave usage, including sick, annual and long service leave
- absenteeism, turnover data and exit interviews, and
- Health and Safety Committee (HSC) meeting records.

You should ensure you are collecting and maintaining records in a form that covers all workers and can be used to help you understand patterns and WHS risks at work. For example, only being able to access records of hours worked in relation to individual personnel files, or through accessing individual entry/exit swipe times, would limit your ability to identify fatigue risks in a timely way.

You should consider how you will collect, store and use information and clearly articulate this to workers. For example, if workers agree to be monitored, recorded or tracked to identify and prevent fatigue, ensure this information is not used for other purposes, such as performance monitoring. Misusing this information can create psychosocial hazards such as poor organisational justice (where information is misused) or low job control (where it is used to tightly control how a worker works) and might have other implications (e.g. under privacy laws).

Seek information from reliable sources

Information and advice about fatigue hazards and risks relevant to particular industries and work activities are available from SafeWork NSW, other safety regulators where applicable, industry associations, unions, technical specialists (e.g. human factors specialists or ergonomists, occupational health professionals), similar workplaces and health and safety consultants. Advice is particularly helpful in complex or high-risk situations.

Monitoring

WHS Act section 19(3)(g)

Primary duty of care

PCBUs must ensure, so far as is reasonably practicable, that the health of workers and conditions at the workplace are monitored for the purpose of preventing illness or injury of workers arising from the conduct of the business or undertaking. For example:

- monitor the workplace conditions to minimise fatigue (e.g. workstations are well setup with appropriate lighting and temperature is comfortable)
- if sleeping facilities are provided at the workplace (e.g. for on-call emergency workers or crews on vessels) regularly check the facilities (e.g. air conditioners, blinds) to ensure the conditions remain suitable for sleep, or
- if work involves driving long distances, install equipment to monitor fatigue (e.g. in-vehicle eye-monitoring and reporting systems).

Signs workers may be fatigued include:

- behaviour changes, such as arriving late for work more often
- not being fully productive or engaged (presenteeism)
- excessive yawning or falling asleep at work
- reduced alertness
- noticeably reduced capacity to engage in effective interpersonal communication
- impaired decision-making and judgement
- reduced hand-eye coordination, reaction time or slow reflexes
- reduced ability to process information, and
- increased errors/or reduced performance.

Technology can assist in monitoring fatigue-related hazards but should be used as part of a broader monitoring strategy, not in isolation. Examples include:

- in-vehicle monitoring systems that detect eye movement patterns
- wrist-worn devices that track sleep/wake patterns, and
- performance monitoring software that can detect changes in reaction times or accuracy.

Workers may have symptoms that are not obvious to others (e.g. feeling drowsy, headaches, difficulty concentrating, blurred or impaired vision, need for extended sleep on days off).

Any risks to health and safety from workplace monitoring must also be managed and workers must be consulted. For example, managing risks from intrusive surveillance, only check sleeping facilities when they are not in use to minimise the risk of sexual or gender-based harassment.

Look for trends

You may be able to identify trends from the information you collect. Trends may show certain tasks have more hazards associated with them, or some hazards are more common in certain roles. Trends may show workers on a particular task, shift or area are exposed to more hazards than in other areas. This can inform your risk assessment ([Chapter 4](#)).

You can improve your trend analysis by:

- using multiple sources of data or information
- consulting workers to check any assumptions and get more context, and
- reviewing data and information over time – this can help show any changes over time and help identify any periods of increased risk.

4. Assess the risks

4.1 When should you assess the risks?

Assessing fatigue risks will help you determine what is reasonably practicable to do in managing the risks.

In many circumstances a risk assessment will be the best way to determine the measures that should be implemented to eliminate or minimise risks. It will help you to:

- identify which workers are at risk of exposure
- determine what sources and processes are causing that risk
- identify if and what kind of control measures should be implemented, and
- check the effectiveness of existing control measures.

However, if you already know what the risks are and how to control them effectively, you can implement the controls without undertaking a risk assessment and then check to confirm these have been effective.

Your fatigue risk assessment should be integrated into your existing WHS management system. Use your established risk assessment processes while considering the specific characteristics of fatigue-related risks.

Further information on risk assessments is available in the *Code of Practice: How to manage work health and safety risks*.

4.2 How to assess the risks

When assessing fatigue risks, you must do so in consultation with workers and their HSRs if you have them. To fully understand fatigue related risks you should consider:

- the duration, frequency and severity of exposure to fatigue hazards and how fatigue hazards may interact or combine. This will provide an understanding of the risk of workers becoming fatigued
- the likelihood and consequences of harm from fatigue related incidents. This will provide an understanding of the health and safety risk once workers are fatigued, and
- the effectiveness of existing control measures.

Larger businesses or those with complex fatigue risk conditions may benefit from using biomathematical fatigue models to help assess fatigue risks. These models require careful interpretation, for example considering whether there are hazards which the model used does not account for (e.g. the level of physical or cognitive demand, accommodation not allowing for proper sleep, or peaks in workload not allowing workers to take breaks).

Other tools that can support your risk assessment may include:

- sleep/wake logs or monitoring
- fatigue self-assessment checklists, and
- analysis of fatigue-related incident data.

The choice of tools should match your workplace needs.



Risk of workers becoming fatigued



Considering duration, frequency and severity is required for some risks such as psychosocial risks and generally provides a clearer understanding of the risk level from cumulative or chronic fatigue risks.

- **Duration** –how long is the worker exposed to the hazards or risks?
- **Frequency** –how often is the worker exposed to the hazards or risks?
- **Severity** –how severe are the hazards and the worker’s exposures?
- **Interactions** –how do those hazards combine and trigger each other?

Risks increase when exposure to hazards is longer in duration, happens more often or is more severe.

For example, the risk of fatigue from long hours increases the more often a worker works long hours and the longer the hours are. Another example, the risk of fatigue from high job demands increases the more intense those demands are.

Fatigue hazards combine and interact to change or increase the risk. For example,

- if a worker is exposed to physically demanding work in high temperatures and long hours, the fatigue risk level increases
- managing psychosocial risks well may help to reduce the risk of fatigue from a long shift, and
- unplanned overtime added to a day shift extending it into the early evening will have a lower fatigue risk level than an evening shift that is extended after midnight.

Remember that fatigue hazards affect different people differently.

Additional health and safety risk from fatigue-related incidents



Considering likelihood and consequences of harm occurring may be more useful where there is an immediate risk from an incident.

- **Likelihood** –how likely is it that someone will be harmed?
- **Consequences** –how severe could the harm be?

You should consider the likelihood and consequences of the full range of harms. For example, the risk for a fatigued driver could range from shutting their hand in the door resulting in soft tissue injuries to driving off the road resulting in fatal injuries.

Fatigue should not be considered in isolation from other work risks. Workers and others may be exposed to more than one risk at any time and risks can interact or combine to create new or higher risks. For example, a person who is already fatigued and then witnesses a violent incident at work may be more likely to experience illness or injury.

5. Control the risks

As a PCBU you must eliminate risks to health and safety so far as is reasonably practicable. If it is not reasonably practicable to eliminate the fatigue risks, you must minimise them so far as is reasonably practicable.

You must consult with workers, and any HSRs, when making decisions about ways to eliminate or minimise fatigue and other risks. Both the PCBU and individual workers have roles in controlling fatigue risks.



5.1 Combination of control measures

You will likely need to implement a combination of control measures.

The best combination of control measures will be tailored to your organisation's size, type and work activities to manage fatigue risks during both everyday operations and emergencies.

To determine what is reasonably practicable to manage fatigue risks:

1. identify as many possible control measures as you can
2. consider which of these control measures are most effective, and
3. consider which controls are reasonably practicable in the circumstances.

It is important to control the risk for each fatigue hazard. For example, only changing shift patterns will not manage the risk of fatigue from high cognitive job demands.

If you cannot control the risk from one fatigue hazard, you may need to do more to control the other fatigue hazards present in order to minimise the risks of fatigue so far as is reasonably practicable. For example, if it is not reasonably practicable to shorten long shifts, it may be reasonably practicable to provide more frequent breaks, ensure the work environment is at a comfortable temperature and minimise high physical demands during the shift.

You may need to balance different risks and check if your control measures introduce new risks.

5.2 Preventing fatigue²



Preventing workers from becoming fatigued is the most effective way of controlling the fatigue risk as it eliminates or minimises both the direct health implications from fatigue and the risk of fatigue-related incidents.

Work hours and shift design

There is no single shift design suited to all workplaces, however there are common principles you can apply in designing shifts to minimise fatigue, including:

- minimising long or irregular hours
- minimising circadian disruption, and
- ensuring sufficient breaks both during and between shifts.

In some organisations, shift design can be supported by scheduling software, such as technology leveraging biomathematical models. Such software can enhance the quality of data used to develop appropriate schedules and help manage irregular operations but requires careful interpretation. Software can also be used to monitor some fatigue risk during shifts, and support analysis of fatigue impact on incidents.

2. Note – a relevant modern award or enterprise agreement may set out minimum break or time-off requirements for employees covered by that award or agreement.

Like all technology, the use of this software needs appropriate human interpretation. It should be:

- used as one of multiple inputs into roster design
- validated for your specific context
- supported by human expertise and judgment, and
- regularly reviewed for effectiveness.

Worker agreement to work high risk shifts

A PCBU's duty is not removed or reduced by hours set in employment contracts, enterprise agreements or awards or a worker's preference for certain shift patterns, or willingness to work extra hours or to come to work when fatigued. It is also not mitigated by the remuneration provided and WHS duties are owed whenever workers are working even if they are not being paid.

Minimise long hours

The risks that workers will become fatigued increases the longer workers are at work. This can be managed by minimising long hours, in particular ensuring workers do not work long hours over a week or long hours over a day.

However, the safe shift length will depend on other fatigue related hazards present. For example, risk is higher for night shifts, physically or mentally demanding work and where safety is dependent on workers being alert (e.g. driving or operating machinery). Where there is a high risk of or from fatigue consider restricting shifts to no more than 8 hours and avoid overtime allocation.

Minimise irregular hours

Minimising irregular hours reduces the risks of workers becoming fatigued. While it may not be reasonably practicable to eliminate irregular hours (e.g. where on call arrangements are used to avoid other fatigue related hazards), risks of irregular hours must still be minimised, so far as is reasonably practicable. For example, by:

- setting rosters early to ensure workers can plan personal time and adjust sleep patterns, particularly if transitioning to or from the night shift
- minimising last minute changes to rosters particularly within 24 hours of a shift to ensure workers have adequate sleep opportunity before shifts
- minimising the use of on-call rosters and allow workers flexibility over nominating for additional shifts
- developing contingencies for unplanned absences to minimise calling workers in at short notice
- providing workers with more control over their shifts to allow for personal responsibilities and leisure time (where possible within other fatigue control measures)
- scheduling shifts in a forward rotation when transitioning between shifts, and
- minimising workers exposure to other fatigue related hazards and managing the risks that may arise from fatigue.

Minimise circadian disruption

Minimising work hours that disrupt workers' circadian rhythm or body clock is an important part of preventing fatigue. Where it is reasonably practicable, work should not commence before 6 am and should end no later than 10 pm. The risk of fatigue increases after 10 pm and is particularly high between 2 am and 6 am.

Where it is not reasonably practicable to schedule work for after 6 am or before 10 pm, you will need to minimise the fatigue risks. For example:

- schedule non-urgent tasks during the day and only do essential tasks overnight (e.g. a veterinary hospital provides emergency care overnight but delays non urgent tasks such as paperwork or scheduled care to day shifts)

-
- do not roster workers for more than three successive night shifts
 - minimise workers doing night shifts while still ensuring enough workers for safety (e.g. to minimise the risk of violence and aggression)
 - minimise the length of night shifts.
 - ensure workers can adjust to night work (e.g. providing at least 24 hours' notice and using a forward shift rotation)
 - encourage workers to have a nap in the afternoon before the first night shift
 - minimise other fatigue related hazards, and
 - minimise the additional risks from fatigue –in particular, avoiding tasks where there is a high risk from individual mistakes during low body clock periods (e.g. driving).

Provide sufficient breaks while at work

The risk of fatigue can be minimised by providing workers with sufficient breaks while they are at work. At a minimum, workers should have a 30 minute break every 5 hours. More frequent breaks may be required for higher risk work or when other fatigue related hazards are present. For example, construction and maintenance workers doing physically demanding work, outside in the heat should have more frequent breaks.

Avoid disruptions to breaks such as workers being 'on call' during break time.

As well as formal breaks, workers should also have access to flexible and regular comfort breaks (e.g. to get water, use the toilet or stretch).

You can support workers to take breaks by providing facilities, increasing workers control over their breaks, and ensuring workers feel safe and able to access breaks.

Schedule sufficient breaks between periods of work

The risks of fatigue can be minimised by ensuring workers have sufficient breaks between periods of work. For example, scheduling work to ensure workers:

- have opportunity for 'down time' as well as sufficient sleep opportunity
- do not work more than 5 days in row
- have at least one full day off per week
- have at least two consecutive nights of sleep opportunity between shift blocks
- do not have less than 12 hours between shifts
- have opportunities to use leave entitlements, and
- are not also exposed to other fatigue related hazards and that the risks arising from fatigue are managed.

You can provide workers with information on the importance of sleep and tips on how to make maximum use of sleep opportunities.

Breaks between periods of work should be complete breaks from all work, allowing workers to disconnect and rest wherever possible. Eligible employees also have the right to refuse employer or third-party contact outside of working hours in some circumstances under workplace relations laws. Information on the right to disconnect is available from the Fair Work Ombudsman.

Task, equipment and environment

Tasks a worker undertakes, the equipment used, and the work environment can create a risk of fatigue even where shifts have been designed to minimise the risk from working hours and times.

These hazards (listed in Chapter 3) can be eliminated or minimised by:

- managing psychosocial hazards that contribute to fatigue – see the *Code of Practice: Managing psychosocial hazards at work*
- managing the risks from hazardous manual tasks that contribute to fatigue – see the *Code of Practice: Hazardous manual tasks*
- managing risks from the work environment contributing to fatigue – see the *Code of Practice: Managing the work environment and facilities*, and
- minimising the duration, frequency and/or severity of workers' exposure to hazards that cause fatigue.

Specific examples of control measures for hazards arising from the task, equipment and environment are listed below.

Task

- Work redesign to reduce or remove unnecessary or less important work.
- Set realistic deadlines and scheduling work to minimise high physical and cognitive demands.
- Schedule hard or complex tasks early in the shift and avoid these tasks when energy and concentration may be low (e.g. between 12-4 am and post lunch 2-4:30 pm).
- Allow workers flexibility to vary their task intensity (e.g. if work is machine or computer paced allow workers to vary the speed of the work throughout the shift).
- Roster sufficient workers for the expected workload and have processes to address unexpected peaks in workload (e.g. calling on additional worker, deferring non-essential tasks or referring work to other PCBU's).
- Rotate workers through physically, cognitively or emotionally demanding tasks (e.g. rotate workers through tasks such as providing distressing news).
- Ensure workers have appropriate training, skills and experience for the task.
- Avoid interruptions or the requirement for workers to rapidly switch tasks (e.g. provide a quiet space for tasks requiring concentration).

Equipment

- Design technology to reduce cognitive demands.
- Provide tools and equipment to assist with tasks (e.g. lifting equipment).
- Ensure tools are stored close to the location work is undertaken.
- Select equipment which minimises hazards such as noise and vibration.
- Train workers in the correct use of equipment.

Environment

- Set the temperature to match the work being done (e.g. cooler where workers are performing more physical tasks) or schedule outdoor tasks to suit the temperature (e.g. avoiding extremes of heat and cold).
- Ensure the workplace is well lit, particularly during night shifts and precision tasks.
- Ensure workers have access to break facilities, drinking water and healthy food or the facilities to store and heat healthy food options.
- Minimise loud noise such as machinery but where reasonable allow workers to listen to music, the radio or podcasts to assist with alertness (e.g. where there is not a risk from reduced situational awareness, concentration or focus).

Accommodation

PCBU owned and managed accommodation

WHS Act section 19(4)

Primary duty of care

If you provide accommodation for workers and own or manage the accommodation you must, so far as is reasonably practicable, maintain the premises so that the worker occupying it is not exposed to health and safety, including the risk of fatigue. This includes for example, accommodation for workers working in regional or remote areas, sleeping onboard vessels, or for workers who are on-call during sleeping hours.

Accommodation should support workers to get adequate sleep, rest and recovery. For example, to ensure worker can get adequate sleep, accommodation should:

- be close to the workplace to minimise the need for travel and maximise sleep opportunity
- have sleeping quarters shielded from external noise, light and vibration
- have adequate lighting, heating, cooling and ventilation
- be lockable, with safe entry and exit, and
- be regularly cleaned and have rubbish collected.

Other accommodation

Workers may need to stay in accommodation you do not own or manage. For example, in a hotel while travelling for work. In these cases, you must still ensure the health and safety of workers while they are at work, so far as is reasonably practicable. The same considerations as listed for accommodation you own or manage apply to third party accommodation, however what is reasonably practicable to manage the risk may be different. For example, it may not be reasonably practicable to shield sleeping quarters from noise, however you may be able to select a hotel in a quiet area, particularly where a worker needs to sleep during the day.

Controlling risks for individual workers

It may be reasonably practicable to accommodate the needs of an individual worker to prevent the risk of fatigue and harm where you are aware of those needs. These changes may include, but are not limited to, flexible working arrangements, adjusting workplace policies, changing workload and work hours, the nature of work, the work environment, or supervision. For example:

- consulting with a worker returning to work after injury and offering a temporary change to shorter shifts while they recover
- modifying workload during pregnancy
- supporting workers with diagnosed sleep disorders, or
- accommodating workers with challenging commute times.

Individual arrangements should be made through consultation, considering the needs of both workers and the organisation. They must be regularly reviewed and should not introduce additional health and safety risks.

5.3 Preventing fatigue-related incidents



While preventing fatigue should be the first priority, it may not always be reasonably practicable to eliminate it. Even where you have effective strategies in place to minimise fatigue, there may be a residual risk of fatigue from hazards outside your control.

You must eliminate the risks from fatigue as far as reasonably practicable, or where that is not possible, minimise such risks of fatigue related incidents as far as reasonably practicable.

For some work, errors or slower response rates from fatigued workers will pose little immediate risk (e.g. jobs where quality of work may suffer but not create a WHS risk), but for others the consequences can be catastrophic (e.g. bus drivers). The greater the impact of fatigue on other WHS risks, the more you need to do to identify and control it. Early identification of fatigue may provide opportunities to improve fatigue prevention and to prevent fatigue-related incidents.

To support early identification of fatigue, consider implementing appropriate fatigue detection technologies to support your fatigue risk management. These may include:

- vehicle-based systems that monitor driver behaviour patterns
- wearable devices that track alertness indicators, or
- computer-based performance monitoring systems.

Select technologies based on their validity, reliability and suitability for your workplace. Ensure workers are trained in their use and everyone involved understands that these technologies are not controls. They are monitoring methods to support using, adding or changing risk control measures.

Stimulants

Stimulants such as caffeine should not be relied upon as a control measure for fatigue. They can temporarily reduce feelings of fatigue and may reduce fatigue-related errors for a short time, but as the effects wear off fatigue can worsen. Stimulants:

- are not a substitute for adequate sleep,
- may disrupt subsequent sleep, and
- can have side-effects (e.g. nervousness, dehydration, increased heart rate and increased risk-taking behaviour).

Monitoring, early intervention and recovery

Having a system to monitor worker fatigue development and levels as well as procedures for intervening when workers are fatigued, provides the opportunity to intervene and address the risk of fatigue before an incident occurs.

Monitoring can include a mechanism for workers to self-assess and report fatigue. However, this will not be effective if there are barriers to self-reporting including punitive treatment of workers and no review process to look at possible scheduling impacts on the worker.

Many of the control measures to prevent fatigue can also be used to help workers recover once they are fatigued. For example, providing adequate time between shifts to recover, increasing breaks and minimising job demands.

It may be reasonably practicable to provide some of these control measures to workers to use at their discretion, such as flexibility to take short breaks, adjust the temperature or change the pace of their work. Additional control measures may be reasonably practicable to apply once you identify that a worker is fatigued.

Napping at work

Workplace napping may temporarily reduce fatigue and improve alertness and performance. Napping can be used in response to unanticipated fatigue risk or in combination with other control measures. However, napping should not be required or routinely used as the only control measure.

Napping can create sleep inertia where a worker will wake up temporarily inhibited (tired, groggy or disoriented). To prevent sleep inertia from creating a safety risk:

- no more than 40 minutes should be spent trying to nap, and
- workers should wake up at least 10 minutes prior to returning to work to allow time to recover from sleep inertia (although longer may be required).

The optimal times will differ. You will need to adapt napping arrangements to suit your workers and circumstances.

Where workplace napping is used as a control for fatigue, workers should be provided with a suitable space (e.g. quiet, secure, temperature controlled and away from customers, clients or patients).

Naps can be provided during a shift or at the conclusion of a shift to reduce the fatigue risk during the worker's commute.

Have systems in place to prevent fatigue-related errors

A system of work which relies on workers not making errors is particularly vulnerable to the risks of fatigue. If it is reasonably practicable, eliminate the potential for fatigue-related errors that carry WHS risks. Often it will not be reasonably practicable to eliminate all potential fatigue-related errors. In these circumstances the risk to health and safety of errors must be minimised so far as is reasonably practicable. For example:

- automate tasks to prevent errors
- change tasks or processes that result in frequent errors (e.g. engineers using computer software to calculate safety-critical load ratings instead of doing this manually)
- introduce systems to prevent errors (e.g. have reminders and written notes instead of relying on workers' memory)
- schedule demanding or safety critical tasks during lower risk periods (e.g. not at the end of a long shift or during extremes of heat or cold)
- redesign the workplace to remove slip and trip hazards (e.g. remove objects a fatigued worker needs to navigate over or around)
- assign demanding or safety critical tasks to workers who are less likely to be fatigued (e.g. have worked fewer hours or on less fatiguing tasks, or have recently had a break)
- assign tasks to workers who have the right skills and experience to do the task who may be less likely to make mistakes, and
- train newer or inexperienced workers and supervise them while they gain experience.

Administrative WHS control measures and personal protective equipment rely on human behaviour. They can be forgotten, overlooked or applied incorrectly, particularly by fatigued workers.

Have systems in place to protect workers and others from the consequences of fatigue-related errors

As fatigue-related errors may still occur, have systems in place to protect workers and others from the risks they create. For example:

- provide work vehicles with active safety features

- introduce systems to double check for mistakes
- reduce workplace noise or other hazardous workplace conditions so mistakes in wearing PPE will have less severe consequences
- ensure plant is guarded so even if workers slip, they are not exposed to hazardous plant components, and
- fit plant with safety trigger mechanisms if operator is incapacitated (dead man switches).

This is particularly important when fatigue-related errors may have high consequences, for example in healthcare, construction or plant operations.

5.4 Fatigue duties shared with workers

Both the PCBU and workers have duties and opportunities to control fatigue risk. PCBU and worker duties exist concurrently. Worker duties in relation to fatigue do not diminish the PCBU's primary duty to identify and manage fatigue risks.

The worker duty means PCBUs can expect a worker to:

- take reasonable care for their own health and safety and not to adversely affect the health and safety of other persons (e.g. workers must utilise sleep opportunities to prevent fatigue or notify the PCBU if they are fatigued and not operate high-risk plant)
- comply so far as the worker is reasonably able, with any reasonable health and safety instructions (e.g. an instruction on when to take breaks when driving for work), and
- cooperate with reasonable WHS policies and procedures they have been notified of (e.g. a policy on fitness for work or notifying the PCBU of second jobs).

Commuting

Workers and PCBUs can both have duties relating to commuting to and from work.

The PCBU's duty to workers applies while the worker is at work. While it may not specifically extend to driving to or from work, the PCBU may need to manage the risk if extended commutes mean workers are fatigued while at work.

The PCBU's duty to ensure the health and safety of other persons is not put at risk by the conduct of the business or undertaking may also mean the PCBU has a duty where workers become fatigued at work and put other road users at risk driving home.

Similarly, workers will have some duties in relation to fatigue risks created by commuting, such as extended commutes meaning they arrive at work fatigued.

What is reasonable to manage commuting risks will depend on the circumstances. For example, long commutes will be a reasonably foreseeable hazard for a remote workplace with no nearby accommodation and a PCBU must implement reasonably practicable control measures.

Assisting workers to manage fatigue

You can assist workers to ensure they do not arrive at work fatigued by:

- providing them with information about how to manage fatigue (e.g. how to transition on and off the night shift)
- setting clear expectations (see policies section below)
- providing them with notice of shifts particularly any long, irregular or night shifts, and
- increasing their control over their shifts.

In workplaces where fatigue risks are high, you may consider fatigue self-assessments to assist workers identify if they are fatigued and communicate this to you. Your response where workers identify fatigue should be non-punitive where possible to encourage accurate reporting.

Policies

Workplace policies can provide important information and help ensure everyone involved understands the business or undertaking's processes for managing fatigue. Policies alone should not be relied on to manage the risk of fatigue, but they can detail responsibilities and help set clear expectations.

For example, policies addressing fitness for work which outline the process for workers to self-report fatigue and be provided with alternative duties or policies for second jobs.

WHS policies are not stand-alone documents and will need to be reflected in other places such as employment contracts, travel arrangements, project schedules and IT systems (e.g. shift scheduling software). To be effective workers need to know what will happen if they report fatigue and managers need to ensure reports are dealt with appropriately.

Policies on workers working second or multiple jobs should not limit workers to working less than standard full-time hours regardless of the number of jobs they have. It is important policies address the risks of fatigue for all workers and do not provide a lower safety standard for different worker groups (e.g. for part time, casual workers or gig workers).

Where you have policies relating to fatigue, these must be developed in consultation with your workers and any HSRs. All workers must be made aware of the policies and what is expected of them.

5.5 Other persons

PCBUs must ensure, so far as is reasonably practicable, that the health and safety of other persons is not put at risk from work carried out as part of the conduct of the business or undertaking.

Other persons at the workplace also have WHS duties. This includes taking reasonable care for their own health and safety and complying, so far as the person is reasonably able, with any reasonable instruction that is given by the PCBU. This means you can give reasonable instructions to address fatigue risks, and under WHS laws they must follow them so far as the person is reasonably able.

What is reasonably practicable to manage a risk to other persons may be different to what is reasonably practicable to manage a risk to workers. In part, because in most situations other persons are unlikely to be exposed to the risk of fatigue from work carried out over long periods of time and so are not at risk of chronic consequences of fatigue. For example, a night construction worker will be at risk of long-term consequences of fatigue but a resident near a construction site is unlikely to be exposed to disruption over the long term.

Other persons can be at risk of harm both from becoming fatigued and from fatigue related incidents either because they are fatigued or because workers are fatigued.

Managing fatigue risk for workers will also in many circumstances manage the health and safety risks to other persons. For example, a fatigued bus driver can create a risk to their passengers and other road users – managing the risk to the driver will also manage the risk to others.

You may need to manage fatigue risks to other persons directly. For example:

- universities setting realistic workloads for students and supporting timetabling arrangements that allow students to balance work shifts to minimise the risk of fatigue, or
- self-driving tour operators requiring tourists to arrive the night before their tour commences, scheduling regular breaks and limiting the driving hours each day.

In managing the risks of others becoming fatigued you should consider:

- if there are fatigue-related hazards you can reasonably foresee (e.g. travel time or the time of day you undertake an activity; adult students having to work in addition to their study load), and
- if lack of experience or skill with a task or activity is likely to increase fatigue risks.

Higher risks could arise because other persons are at greater risk of becoming fatigued (e.g. customers doing a hiking tour are unlikely to be as fit as tour guides) or because they are at additional and higher health and safety risk once they are fatigued (e.g. they are more likely to make mistakes and getting injured because they are unfamiliar with a task).

Other examples of control measures for other persons include:

- scheduling high-risk work undertaken by possibly fatigued workers when other persons are not present
- restricting access to areas where possibly fatigued workers are operating equipment
- setting appropriate limits on duration of activities for clients and customers, and
- considering fatigue risks in emergency response planning that may affect the public.

5.6 Implementing control measures

PCBUs should test control measures and ensure you have provided any necessary information, training or instruction to workers before they rely on the control measure. You should also supervise work to ensure control measures are effective.

You may need to implement temporary control measures to address an immediate risk. For example, if you need to recruit workers to cover additional shifts you may need to reduce the scope of work or hours of operation until you have the additional workers.

Test control measures

Testing control measures (e.g. having a trial period for new rosters) allows you to ensure they are suitable for your workplace, operate as intended and do not introduce new risks.

You should allow enough time for your workers to adjust to changes (e.g. new work processes or schedules) before assessing the effectiveness of control measures. At this stage, you should frequently check with your workers on how they think the improvements are working and supervise workers to ensure controls are implemented effectively (e.g. ensure workers are not working additional non-scheduled hours).

Information, training, instruction and supervision

WHS Act section 19

Primary duty of care

WHS Act section 39

Provision of information, training and instruction

You must provide any information, training, instruction or supervision that is necessary to protect workers and other people from health and safety risks. You must ensure that the information, training, instruction or supervision provided to a worker is suitable and adequate having regard to the control measures implemented. For example, as you are planning to implement control measures, you must consider what information, training, instruction or supervision is required to ensure the control measures are effective.

Training must be suitable and adequate, having regard to:

- the nature of the work to be carried out
- the associated fatigue hazards and risks, and
- the control measures to be implemented.

Training about fatigue and relevant workplace policies should be arranged so it is available to all workers on all shifts. You may need to provide additional training to managers, workers who assign shifts and any others who have a key role in ensuring control measures are implemented and effective. You should also:

- train supervisors and shift managers on how to schedule low risk shifts
- where work hours are flexible (e.g. workers do additional unplanned hours), train managers and supervisors on how to identify and manage fatigue risk (e.g. setting shorter hours following a period of longer hours)
- provide information on what to do if there are issues (e.g. how to escalate scheduling issues like insufficient workers on the roster to schedule shifts safely), and
- provide sufficient supervision to ensure shift rosters are safe.

Training should require workers to demonstrate they are competent in performing the task. It is not sufficient to simply tell a worker about the procedure and ask them to acknowledge they understand and can perform it. Training may include formal training courses, in-house training or on-the-job training.

Information, training and instruction must be provided in a form all workers can understand, for example training may need to be provided in other languages. Information and instruction may also need to be provided to others who enter the workplace, such as customers or visitors.

The level of supervision required will depend on the risks and the experience of the workers involved. High levels of supervision are necessary where inexperienced workers are expected to follow new procedures or carry out difficult and safety critical tasks.

6. Maintain and review control measures

Control measures need regular monitoring and maintenance to ensure they remain effective, including by ensuring they are fit for purpose, suitable for the nature and duration of the work, and set up and used correctly. This step links back to the start of the risk management cycle and allows for continuous improvement.

You should decide what maintenance a control measure will require when you implement the control and establish a schedule for routine checks and maintenance. You may prepare a risk register identifying the hazards, what action needs to be taken, who will be responsible for taking the action and by when.

As part of the risk management process, the WHS Regulation requires the review of control measures that are implemented to manage specific risks to ensure they continue to work effectively. In relation to these risks, control measures must be reviewed in the following circumstances:

- when the control measure is not eliminating or minimising fatigue risks so far as is reasonably practicable
- before a change at the workplace that is likely to give rise to a new or different fatigue risk that the control measure may not effectively control
- if a new fatigue hazard or risk is identified
- if the results of consultation indicate a review is necessary, or
- if an HSR requests a review because they reasonably believe one of the above may affect the health and safety of a worker/s, and the control measure has not already adequately reviewed the control measure.

As part of your ongoing duties as a PCBU in relation to fatigue, you should regularly review your control measures, including in the above circumstances. Managing WHS risks is an ongoing process that needs attention over time, but particularly when any changes affect your work activities.

Reports, complaints (including informal complaints) or grievances from workers, and organisational records (e.g. excessive or rising absenteeism or sick leaves) may identify new hazards or risks that are not adequately controlled and should trigger a review. These do not have to be raised in a WHS context to be a WHS issue. For example, an industrial relations grievance regarding hours of work may indicate that the risks of fatigue are not being managed so far as is reasonably practicable.

Common review methods include inspecting the workplace, consultation with workers, and analysing records and data. You can use the same methods as in the initial hazard identification step to check control measures. You must also consult your workers and their HSRs.

The person reviewing your control measures should have the authority and resources to conduct the review thoroughly and be empowered to recommend changes where necessary. Questions to consider may include:

- Are fatigue control measures working effectively, without creating new risks?
- Have workers reported feeling fatigued or are they showing signs of fatigue or other harm?
- What are the trends in fatigue-related incidents?
- Are there any changes in productivity?
- Are there significant differences in the hours worked versus scheduled hours?
- Have there been any unplanned schedule changes or significant overtime?
- What are the patterns of sleep and alertness data and fatigue monitoring systems, where available?



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- Are we confident we have identified all fatigue related hazards and risks?
 - Have fatigue risks changed or are they different to what you previously assessed?
 - Are workers actively involved in the risk management process?
 - Are workers openly raising fatigue and health and safety concerns and reporting problems promptly?
 - Has fatigue-relevant instruction and training been provided to all relevant workers?
 - Are there any upcoming changes that are likely to result in a worker being exposed to new or different fatigue hazards or risks?
 - Are new fatigue control measures available that might better control the risks?
 - Have fatigue risks been eliminated or minimised as far as is reasonably practicable?

If the effectiveness of the fatigue control measures is in doubt, go back through the risk management steps, review your information and make further decisions about control measures.

7. Record keeping

You should consider what records you need in order to assist you to identify fatigue related hazards and risks. You should keep these records in a format that can best assist you to do so. For example, records of working hours, breaks and travel. Planning for how you will use the information in your risk management process and designing your systems to make this information easily accessible can save time and money later.

You should also record your risk management process and the outcomes, including your consultation with workers. This allows you to demonstrate you have met your WHS duties and will assist you when you need to monitor or review the hazards you have identified and controls you have put in place.

Your records may include the outcomes of consultation, the hazards you identified, how you assessed the risks, the control measures implemented, the training provided, your review and monitoring findings and subsequent actions.

You should select a method of recording the risk management process and outcomes to suit your circumstances. For example, you can use a risk register such as the one in the *Code of Practice: How to manage work health and safety risks*.

It is also useful to have a record of the processes used to investigate and resolve issues. You could choose to include only high-level information in the general risk register where you are concerned about the need to maintain confidentiality.

A WHS inspector may ask to see a copy of records relating to WHS if they visit your workplace. If you do not have a written record, you will need to demonstrate by other means how you have met your duties.

If you collect personal information as part of your process to manage fatigue risks, you should consider the privacy implications. Consider what information is needed and ensure you treat any information you gather appropriately and in accordance with relevant privacy laws.

Appendix A – Glossary

Term	Description
Biomathematical models	<p>Biomathematical models are tools for predicting worker fatigue levels, based on a scientific understanding of the factors that contribute to fatigue.</p> <p>There are different biomathematical models available, all models have limitations that need to be understood for their appropriate use.</p>
Burn-out	<p>The World Health Organization (WHO) explains that burn-out is not a medical condition but rather an occupational phenomenon. WHO defines burn-out as a syndrome conceptualised as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions:</p> <ul style="list-style-type: none"> • feelings of energy depletion or exhaustion • increased mental distance from one’s job, or feelings of negativism or cynicism related to one’s job, and • reduced professional efficacy. <p>Burn-out refers specifically to phenomena in the occupational context and should not be applied to describe experiences in other areas of life.</p> <p>Burn-out and fatigue are different, however fatigue may contribute to burnout and a fatigued worker may describe feeling ‘burnt out’. This should not be ignored or overlooked when identifying fatigue risks.</p>
Control measure	An action taken to eliminate or minimise health and safety risks so far as is reasonably practicable.
Duty holder	Any person who owes WHS duty under the WHS Act including a person conducting a business or undertaking, a designer, manufacturer, importer, supplier, installer of products or plant used at work (upstream duty holder), officer or a worker.
Forward rotating roster	A forward rotating roster is a pattern of shifts where the start time of successive shifts gets later. For example, two morning shifts followed by two afternoon shifts and then two night shifts.
Gig	Gig generally refers to a situation where a person (gig worker) is hired through an app or website to undertake a role for one or more third parties. The app or website is produced and managed by an organisation called a platform.
Hazard	A situation or thing that has the potential to harm a person. Hazards at work may include: noisy machinery, a moving forklift, chemicals, electricity, working at heights, a repetitive job, bullying and violence at the workplace.
Health	Health includes both physical and psychological health.
Health and safety representative	A worker who has been elected by their work group under the WHS Act to represent them on health and safety matters.
May	‘May’ indicates an optional course of action.
Must	‘Must’ indicates a legal requirement exists that must be complied with.

Term	Description
Officer	<p>An officer under the WHS Act includes:</p> <ul style="list-style-type: none"> • an officer under section 9 of the Corporations Act 2001 (Cth) • an officer of the Crown within the meaning of section 247 of the WHS Act, and • an officer of a public authority within the meaning of section 252 of the WHS Act. <p>A partner in a partnership or an elected member of a local authority is not an officer while acting in that capacity.</p>
Person conducting a business or undertaking (PCBU)	<p>A PCBU is an umbrella concept which intends to capture all types of working arrangements or relationships.</p> <p>A PCBU includes a:</p> <ul style="list-style-type: none"> • company • unincorporated body or association • sole trader or self-employed person. <p>Individuals who are in a partnership that is conducting a business will individually and collectively be a PCBU.</p> <p>A volunteer association (defined under the WHS Act, see below) or elected members of a local authority will not be a PCBU.</p>
Psychosocial hazards	<p>A psychosocial hazard is a hazard that may cause psychological harm (whether or not it may also cause physical harm). Psychosocial hazards arise from or relate to the design or management of work, the work environment, plant at a workplace, or workplace interactions or behaviours.</p>
Risk	<p>The possibility harm (death, injury or illness) might occur when exposed to a hazard.</p>
Should	<p>‘Should’ indicates a recommended course of action.</p>
Worker	<p>Any person who carries out work for a person conducting a business or undertaking, including work as an employee, contractor or subcontractor (or their employee), self-employed person, outworker, apprentice or trainee, work experience student, employee of a labour hire company placed with a 'host employer' or a volunteer.</p>
Workplace	<p>Any place where work is carried out for a business or undertaking and includes any place where a worker goes, or is likely to be, while at work. This may include offices, factories, shops, construction sites, vehicles, ships, aircraft or other mobile structures on land or water.</p>

Appendix B – Resources

Other Safety Regulators

Australian Maritime Safety Authority (AMSA)

Civil Aviation Safety Authority (CASA)

National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)

Office of the National Rail Safety Regulator (ONRSR)

National Heavy Vehicle Regulator (NHVR)

Fair Work Commission

The Fair Work Commission is Australia's national workplace relations tribunal and registered organisations regulator. The Commission makes, varies and revokes modern awards (which may include clauses which reference working hours and breaks) and the Commission approves enterprise agreements (which may also include references to working hours and/or breaks).

Phone: 1300 799 675

Website: fwc.gov.au

Fair Work Ombudsman

The Fair Work Ombudsman is Australia's national workplace relations regulator. It provides workers and businesses with information and advice about workplace entitlements and obligations.

The Fair Work Ombudsman can provide general information about workplace rights, obligations, and protections.

Phone: 13 13 94

Website: fairwork.gov.au

Workers' compensation

If a worker sustains a physical or mental injury from fatigue requiring medical attention or time off work, they may be able to access worker's compensation.


NSW State Insurance Regulatory Authority

Appendix C – Risk management chart



Step 1: Hazard identification	Step 2: Risk Assessment	Step 3: Risk Control
Identify potential hazards and risks at the workplace. Examples are listed below, however, you must consider these in the context of your workplace or industry.	To assist risk assessment, a general level of risk for each hazard is indicated along arrow guides. In assessing risk consider interaction between hazards and how that could influence the level of risk. Also take into account specific workplace/industry circumstances.	You must eliminate or minimise the risk so far as is reasonably practicable. Examples of control measures are included below and in Chapter 5 of this Code.

Table 2: Risk management chart –Work hours and shift design

Step 1: Hazard identification	Step 2: Risk Assessment			Step 3: Risk Control
Hazard: Work hours and shift design	General Risk indicator 			Control measures: The most appropriate control measures should be implemented for the identified hazard. Control measures may include:
Long hours	35-40 hours (per week) 7-8 hours (per shift)	48 hours (per week) 10 hours (per shift)	55 hours (per week) 13 hours (per shift) Safety critical work performed at night Double shifts	<ul style="list-style-type: none"> • Monitor actual time worked against the allocated roster and identify if excessive hours are being worked. • Plan into work schedules enough workers and other resources to do the job without placing excessive demands on workers. • Ensure workers have and take adequate and regular breaks to rest, eat and rehydrate. • Structure shifts and work plans so demands are highest towards the middle of the shift and decrease towards the end. • Use forward rotation roster systems (day-evening-night). • Avoid overtime allocations after afternoon or night shifts.
Irregular hours	Work hours are regular and infrequently change	Forward rotating shift Short rotating shifts Occasional unplanned overtime Frequent changes to shifts with more than 24-hours' notice	Regularly working in an on call or as need arises capacity beyond a normal workday Backwards rotating shifts Slow rotating shifts Fly-in fly-out work (or other remote work for short periods) Less than 24-hours' notice before start or end time for shift is changed Frequent unplanned overtime	



Step 1: Hazard identification	Step 2: Risk Assessment			Step 3: Risk Control
Hazard: Work hours and shift design	General Risk indicator 			Control measures: The most appropriate control measures should be implemented for the identified hazard. Control measures may include:
Insufficient breaks during work	Regular breaks provided and encouraged	Infrequent breaks Tightly scheduled breaks with little control when breaks can be taken	No breaks	<ul style="list-style-type: none"> • Consider sleep opportunity and recovery in instances where workers are required to work on call after a normal shift or on days off. • Schedule safety critical work outside low body clock periods (i.e. between 2 am and 6 am). • Have opportunities for workers to use leave entitlements. • Avoid quick shift changeovers such as finishing at 11 am and starting again at 7 am the next day. • Allocate shift and night workers consecutive days off to allow for at least two full nights rest including some weekends. • Encourage workers to have a strategic nap in the afternoon before the first night shift. • Implement controlled napping procedures for night shifts, including designated nap facilities and timing, maximum nap durations (20-30 mins), post-nap recovery periods and supervisor approval processes. • Design working hours and rosters to allow for good quality sleep and enough recovery time between workdays or shifts for travelling, eating, washing and sleeping. • Support shift work adaptation (e.g. gradual introduction to night work, individual fatigue management plans, regular review of individual coping and flexible arrangements).
Insufficient breaks between periods of work	Adequate time for sleep, travel, meals, etc 16 hours between shifts	Working more than 5 days in a row 14 hours between shifts	Inadequate time for sleep, travel, meals etc Working more than 7 days in a row Less than 12 hours between shifts Not having at least two consecutive nights sleep between shift blocks Extended commute times	
Work that disrupts circadian rhythm	Day shift	Afternoon shift Night shifts rostered well in advance to allow time to adjust sleep patterns	Night shift Work between 2 am and 6 am –especially safety critical work or traveling Doing more than 3 successive night shifts Less than 24 hours' notice is given before night work International travel time without time for recovery	

Table 3: Risk management chart –Tasks, equipment or environments

Step 1: Hazard identification	Step 2: Risk Assessment			Step 3: Risk Control
Hazard: Tasks, equipment or environments	General Risk indicator 			Control measures: The most appropriate control measures should be implemented for the identified hazard. Control measures may include:
High physical job demands	Minimal physically demanding work	Prolonged sedentary work Short periods of physically demanding work	Highly physically demanding work New tasks workers are adapting to. Lack of tools and resources necessary	<ul style="list-style-type: none"> • Install fit for purpose plant machinery and equipment for use at the workplace. • Redesign jobs to limit periods of excessive cognitive (mental), emotional or physical demands. • Identify and the causes of high emotional demands. • Establish task rotation systems to alternate high/low demand activities, share complex decision-making tasks, rotate between active/monitoring roles and balance physical/mental demands • Rotate workers through physically, cognitively or emotionally demanding tasks. • Roster sufficient workers for the expected workload and have processes to address unexpected peaks in workload. • Schedule hard or complex tasks early in the shift to avoid lower energy and concentration periods later in shifts. • Plan tasks to remove unnecessary work. • Provide equipment and/or technology to assist with tasks. • Match workers' skills and experience to the tasks allocated. • Avoid physically demanding work during periods of extreme temperature.
High emotional job demands	Work-related causes of high emotional demand identified and addressed	Workers rotated through emotionally demanding tasks	Prolonged exposure to high emotional demands (e.g. responding to distressing or traumatic situations or managing heightened emotions of others in the workplace)	
High or low cognitive (or mental) job demands	Varied task demands within the worker's skills and experience	Some variation in tasks but long periods of concentration required.	High concentration work, with high demands over an extended period of time Work where errors may have high risks Insufficient time for the number or volume of tasks Insufficient time for the number or volume of tasks New tasks or technology the worker is learning Monotonous work or passive monitoring tasks	
Workplace barriers	All safety information is provided in formats that address language and literacy barriers. Power imbalances are addressed and safety reporting is encouraged	Language and literacy barriers are addressed inconsistently There are some power imbalances still present but safety reporting is generally encouraged	Literacy and language barriers are not addressed Power imbalances discourage workers from raising safety issues	



Step 1: Hazard identification	Step 2: Risk Assessment			Step 3: Risk Control
Hazard: Tasks, equipment or environments	General Risk indicator 			Control measures: The most appropriate control measures should be implemented for the identified hazard. Control measures may include:
Exposure to other psychosocial hazards	Psychosocial hazards identified and effectively controlled	Occasional exposure to psychosocial hazards	Regular, prolonged or severe exposure to hazards such as poor support, high job demands, low job control, remote or isolated work (or other psychosocial hazards).	<ul style="list-style-type: none"> • Design the workplace to protect workers from extremes of heat and cold (e.g. provide shade and shelter from wind and rain). Install heating and cooling if needed. • Provide additional breaks if working in extremes of temperature. • Select and install fit for purpose machinery (low noise and vibration). • Ensure the workplace and surroundings are well lit, safe and secure. • Ensure accommodation is quiet, dark (particularly when workers are sleeping during the day) and allows for sleep and recovery.
Poor physical work environment	Well-designed physical work environment	Short exposures to loud noise, extreme temperatures or vibration Prolonged exposure to low level noise	Prolonged exposure to loud noise, extreme temperatures, vibration or lighting Exposure to hazardous substances Lack of access to healthy food options or facilities to store and heat healthy food options Poor air quality	
Poor accommodation	Accommodation provided close to the workplace and allows for reasonable sleep	Longer travel time between workplace and accommodation but transport and drivers provided (e.g. bus)	Worker accommodation that does not allow for sleep and recovery Worker accommodation requires significant travel to and from the workplace	

Table 4: Risk management chart – Individual (both work and non-work)

Step 1: Hazard identification	Step 2: Risk Assessment			Step 3: Risk Control
Hazard: Individual (both work and non-work)	General Risk indicator 			Control measures: The most appropriate control measures should be implemented for the identified hazard. Control measures may include:
Insufficient sleep amount and quality	Awake for less than 16 hours 8 hours sleep in 24 hours	Awake for over 17 hours	Awake for 24 hours 6 hours sleep or less in 24 hours Poor quality sleep (e.g. influenced by health conditions, dietary factors or alcohol or drugs)	<ul style="list-style-type: none"> • Consult workers and design shift rosters that enable workers to meet work and personal commitments. • Assist shift work adaptation through individual adjustment strategies, family-supportive arrangements, health and wellbeing programs and regular review of coping capacity. • Set clear expectations on readiness for work policy. • Implement flexible working arrangements to accommodate the individual needs of workers. • Give additional support or supervision to workers who are new or returning to work after a period of extended absence. • Implement a systematic approach to providing workers with accessible WHS information. • Support personal fatigue management through individual fatigue risk plans (e.g. how to transition on and off the night shift), sleep hygiene education, lifestyle management guidance and personal risk assessment tools. • Give notice of shifts - particularly any long, irregular or night shifts to allow works to plan their sleep and other responsibilities. • Promote healthy diet by providing facilities to cook or heat healthy meals and appropriate breaks to eat them.
Inadequate fitness and experience for work	Experienced workers Fit and healthy workers	Inexperienced worker but with good supervision and support	Worker has limited experience and support Worker is new to shiftwork Poor diet Recent illness/injury	
Limited sleep opportunity	Adequate time to rest and sleep	Out of work responsibilities occasionally impact sleep	Significant out of work responsibilities impacting sleep time Extended commutes between work and home sleep environment	

Appendix D – Case Studies

These case studies provide illustrative examples of ways to manage the risk of fatigue in various industries.

Case study: Health

Situation	Hazards/Risks	Outcome
<p>After a medication administration incident, a large city hospital conducted an investigation. During the investigation, they discover the nurse who made the error had worked more than 240 hours that month. The nurse worked many long shifts, some were for 10 hours at night, and some were for 12 hours in the day. The nurse had been required to work several night shifts at short notice to fill in for absent staff. The unit manager had not been able to call on agency staff or casuals because of budget constraints. For the entire month, the nurse did not get two days off in a row. The shifts the nurse worked over the month were often on a backward rotation.</p>	<p>The investigation revealed there were no effective risk controls for fatigue:</p> <ul style="list-style-type: none"> • there was no monitoring of the hours staff actually worked • many shifts were scheduled in a backward rotation • often the rosters did not provide enough recovery time between shifts • some rosters meant staff did not get two consecutive days off a week • shifts were often varied at short notice • no consideration was given to actual acquired sleep of staff and the amount of opportunity staff had to sleep between shifts, and • there were no systems in place to prevent medication errors from fatigue. 	<p>The fatigue risk control measures the hospital implemented included:</p> <ul style="list-style-type: none"> • a safe hours policy which included clear guidelines on how to develop schedules minimising the risk of fatigue. These included: a maximum number of night shifts which could be worked in a roster cycle, minimum number of days off in a roster cycle, minimum hours break between shifts, maximum shift length, minimum rest periods, number of consecutive shifts allowed and emergency coverage arrangements • a forward-rotating rostering system • a monitoring system which included checking hours actually worked against the planned rosters every month • budget allocation for agency staff to cover unplanned absences • supervisor and staff training on the new rostering system and managing individual fatigue factors, and • a system to check medication before it is administered.

Case study: Fly-in Fly-out

Situation	Hazards/Risks	Outcome
<p>A company using fly-in fly-out working arrangements to construct facilities for a mining site in a remote area.</p> <p>Before commencing work, they identify fatigue is likely to be a risk during the construction phase.</p> <p>They conduct a risk assessment in consultation with their workers and based on their previous experience.</p>	<p>The risk assessment identifies the following hazards:</p> <ul style="list-style-type: none"> • some previously trialled shift designs created fatigue risks from long working hours • long commutes from the nearest airport to site • seasonal weather conditions mean some work will be conducted in hot and humid conditions • nuisance and excessive noise on site can disturb or disrupt sleep routines • ineffective window treatments in worker accommodation can prevent sleeping during daylight hours (if needed) • poorly scheduled cleaning activities can disrupt sleep • where alcohol is available on site its use can increase fatigue, and • workers operate plant and undertake work at height which may be dangerous if impaired by fatigue. 	<p>The company implements the following control measures to minimise fatigue risks:</p> <ul style="list-style-type: none"> • maximum work hours' limits, minimum rest period requirements and recovery time between shift cycles • minimising the use of night shifts where tasks can be accomplished in other ways • designing work schedules to minimise fatigue, including fly-in and fly-out days, time zone adjustment strategies, family/social impact management and mental health considerations • using buses to transport workers between the airport and site • planning work to minimise outdoor work during extreme weather and if it is necessary, scheduling additional breaks • minimising sleep disturbances by locating worker accommodation away from communal areas and scheduling cleaning or other noisy activities for times workers are not sleeping • providing accommodation with comfortable beds, sound proofing, air conditioning and blackout curtains • limiting the availability of alcohol on site • promoting good sleep hygiene practices among workers, and • implementing systems to prevent fatigue errors in high risk work.

Case study: Manufacturing

Situation	Hazards/Risks	Outcome
<p>A company is setting up a manufacturing operation. They know the industry generally operates 24 hours a day, with three shifts: morning, afternoon, and evening using a mix of employees and labour-hire.</p> <p>Information on the industry suggests there can be significant fatigue risks and a disproportionate number of injuries, near misses and incidents during night shifts.</p>	<p>The company identifies the following potential fatigue hazards:</p> <ul style="list-style-type: none"> • workers operating machinery where there is a risk of minor injuries if their concentration lapses • not having limits on the number of hours worked • not monitoring of hours actually worked • less support on night shift (minimal maintenance workers) • continuous night shift rosters may not provide enough recovery time for workers, and • consistent night shifts would mean night workers would rarely get good quality sleep. 	<p>The company implements initial fatigue management control measures and will monitor to ensure they are effective:</p> <ul style="list-style-type: none"> • establish maximum shift lengths, minimum break durations, task risk assessment processes, production pressure management and overall task rotation strategies • only operate the lower-risk production lines at night • give night supervisors and night maintenance staff permission to shut down the production line if necessary • implement an organisation-wide fatigue management system to manage and monitor the number of weekly hours worked by each worker • limit consecutive shifts to 7 consecutive day shifts or 4 consecutive night shifts • agree a limit on working hours for contactors with the labour hire company, and • provide workers a minimum of six days off every month.

Case study: Hospitality

Situation	Hazards/Risks	Outcome
<p>A chef at a busy local restaurant has been forced to take time off following a second-degree burn acquired during a shift.</p> <p>When asked what caused the incident, they could not give an answer, stating “I guess I was just having a clumsy moment and not concentrating properly “.</p> <p>This is the second time in a month a worker has been absent due to injury and has prompted a full review of work safety.</p> <p>Many kitchen staff work purely nightshifts, often not finishing until midnight.</p>	<p>A walkthrough observation of the workplace revealed multiple hazards leading to increased risks of and from fatigue:</p> <ul style="list-style-type: none"> • repetitive motions (such as cutting or dicing) with inadequately sharpened knives are causing high physical fatigue • long hours, at night, without sufficient breaks due to demands in busy periods • excess heat from the stoves without sufficient ventilation, and kitchen layout meaning prep staff work next to hot machinery, causing further fatigue • cognitive load (multitasking, handling multiple orders), and • managers are stressed and tired from constant time pressures and interactions with staff are often strained or rude. 	<p>New systems to be implemented to limit fatigue in the restaurant include:</p> <ul style="list-style-type: none"> • policies for maximum shift lengths, minimum break durations, rest break timing and recovery periods • managing peak period demands, split shift impacts, customer service demands and seasonal variations • rostering staff so workers can take scheduled rest breaks. • ensuring plant and equipment are adequate, functional, and without risk of physical injury (sharp knives, functional dishwasher and cooler induction stovetops) • separating work areas to limit exposure to hazards • ensuring rosters allow at least 12 hours of rest in between shifts, and that there’s at least one free weekend every three weeks • changing rosters so workers work a maximum of three-night shifts in a row, and • increasing support from senior chefs and, cultivate a culture of reporting hazards

Case study: Warehousing

Situation	Hazards/Risks	Outcome
<p>Daintree Warehousing has received more complaints of incorrect items delivered to customers. They investigate to figure out why this is happening.</p> <p>Workers manually collect the items from the warehouse shelves then box them to be shipped.</p> <p>They receive their order through an app, informing them of what item to collect one at a time. KPIs and other targets are tracked through this software, which workers complain are unrealistically high.</p> <p>It is physically demanding work, with workers lifting hundreds of boxes over a ten-hour shift, with some boxes requiring special lifting equipment. The investigation notes the equipment is being underused.</p>	<p>Key fatigue hazards and risks identified:</p> <ul style="list-style-type: none"> • workers have no control of the order they collect items in, leading to longer walking distances and time in-between collecting items • excessive surveillance through the app is leading workers to feel pressured to work faster creating high job demands and causing mental fatigue • repeated heavy lifting causing physical fatigue, increasing the risk of physical injury, and • the isles are too narrow for the plant to be used correctly, leading more workers to lift boxes manually increasing their physical fatigue. 	<p>The review recommended the following risk control measures be implemented:</p> <ul style="list-style-type: none"> • establish work scheduling controls, rest break requirements, recovery time provisions and team rotation strategies • manage peak demand periods • implement effective temperature controls • modify the app so workers can see all upcoming tasks and select multiple boxes within a safe limit for carrying or collection in their trolley • modify the app to remove the perception of constant monitoring, instead only identifying where workers are struggling • ensure equipment is fit for purpose and minimises physical exertion • ensure training is comprehensive to complete tasks involving heavy machinery, and time is allocated within the task to complete it safely, and • redesign warehouse aisles to allow for a forklift to be used safely to assist with manual tasks.

Case study: Small Accounting firm

Situation	Hazards/Risks	Outcome
<p>While setting up a new accounting firm the owner identifies that their workload will expand significantly around tax time. They know workers in this industry express concerns about being overworked and 'burnt out' during this period and clients complain about the quality of the work being done. They want to ensure they protect their staff and establish the firm's reputation for timely and accurate work.</p> <p>Their office is being set up next to a loud construction site which operates during the working day.</p> <p>Many firms provide overtime pay to recognise this increased workload, but they are hesitant to take this approach as it does not address the risk fatigue creates.</p>	<p>Key hazards and risks identified:</p> <ul style="list-style-type: none"> • high work demand with tight deadlines • repetitive work requiring close concentration that is mentally taxing • employees feeling obliged to be online as much as possible outside of their contracted hours, (e.g. feeling that if they take sick leave or do not work long hours they will be making the situation worse for their colleagues). • workers missing scheduled breaks due to workload • ineffective technology creating more mental effort and frustration • aggression from customers waiting on their tax returns, and • noise from the construction site creating a poor physical work environment 	<p>The firm identifies the following risk control measures:</p> <ul style="list-style-type: none"> • monitoring and recording work hours to understand and manage worker fatigue • hire casual staff to help with the increased demand • source effective accounting software to support workers to complete tasks efficiently • allow appropriate levels of job control so workers can complete smaller, less urgent tasks in times of less demand, as well as halting repetition of tasks • set clear expectations that overtime, whether paid or not, is not a requirement and will only be used where there is a specific need identified not for business-as-usual tasks • while supporting flexibility, set limits on additional hours or times of work, particularly at times that could disrupt good sleep or when extended hours are likely to lead to inefficiencies • consult with the construction site to identify when high noise tasks are being undertaken and allow employees to work from home on those days, and • manage worker leave to ensure maximum staffing levels during periods of peak demand.

Case study: Emergency Services

Situation	Hazards/Risks	Outcome
<p>At the peak of the bushfire season a strike team of five trucks is sent to an area four hours from their own station to assist with a large fire.</p> <p>The plan is to split the team between day and night shifts working either four day shifts or three night shifts. The shifts will be 12-hours long, including travel to and from a staging area at a community hall which is also used for meals and sleep.</p> <p>The community hall is being used as a staging area for other emergency and support services and is quite noisy and busy. There will be several other strike teams in the same situation.</p> <p>The safety coordinator is concerned the strike teams may not get the amount of quality rest and sleep time they need to avoid fatigue. The co-ordinator conducts a risk assessment in consultation with the teams to identify the hazards and implement control measures addressing fatigue.</p>	<p>Key fatigue hazards identified:</p> <ul style="list-style-type: none"> • harsh environment caused by extreme heat, smoke and fire • travel time not accounted for in shift arrangements • the common rest area will be noisy • firefighting is physically demanding work and requires a high level of vigilance to be maintained, and • not enough recovery time. 	<p>The following control measures are implemented:</p> <ul style="list-style-type: none"> • shift lengths and minimum rest periods are modified in consultation with workers to reduce fatigue • accommodation of long-term recovery needs after extended emergency operations • crew leaders on the fire ground will monitor their crews for fatigue • teams alternate between active fighting and asset protection tasks • teams are provided breaks during their shift in a cool, shaded location • more suitable accommodation is provided; where there is no motel accommodation a base camp is set up away from the main staging area • buses are provided for transport to and from staging area and the meals and accommodation locations, and • once the fire is contained, the number of teams working at night is reduced.

Case study: HR investigation

Situation	Hazards/Risks	Outcome
<p>The human resources department receives a complaint after a minor accident in a work vehicle. The complaint is made by a member of the public and suggests the worker was not paying attention at the time of the accident.</p> <p>They talk to the worker's manager and are told the worker has been arriving to work late, talking rudely to their colleagues and making regular minor errors in their work.</p>	<p>The human resources manager thinks there may be an underlying fatigue risk so starts a WHS investigation focussing on whether there are underlying hazards that have not been identified or the risk controlled so far as is reasonably practicable.</p> <p>The investigation identifies:</p> <ul style="list-style-type: none"> • Standard shifts in the worker's area are: <ul style="list-style-type: none"> – 10 hours from 8 am-6 pm – 4 days on and 4 days off – On-call duties overnight for every second shift block. • Workers are regularly tasked with jobs towards the end of their shift and required to work unplanned overtime. • There has been high staff turnover in the area which is now at two thirds of its full staffing level. Workers in the area are covering additional duties and some tasks identified as requiring two workers for safety are being done by a single worker. • At the time of the accident the worker was on the last day of their shift block, had worked 9 hours that day and 12 hours the day before. 	<p>The review recommended the following risk control measures be implemented:</p> <ul style="list-style-type: none"> • Jobs received within the last hour of shifts are assigned to the designated on-call workers to allow workers to better plan around when overtime may be required. • On-call workers who are called out overnight or required to work more than 2 hours of overtime are given either later starts or time off the following day off to recover. • Recruitment for the area is prioritised, and non-essential tasks postponed until the additional staff are available. <p>The human resources manager discusses the circumstances around the accident and the worker's prior behaviour with the worker's manager.</p> <p>They decide fatigue may have contributed to both, and an investigation into whether the worker has breached the organisation's code of conduct is not warranted.</p> <p>The worker's manager discusses the issues identified with worker and they agree to monitor the worker's work and behaviour to see if the changes address these issues.</p>

Case study: Driving

Situation	Hazards/Risks	Outcome
<p>A company regularly requires workers to drive between major cities to carry out work.</p> <p>Workers regularly drive in excess of 3 hours.</p> <p>The company's HSRs have raised concerns that workers do not feel safe on some of these drives.</p> <p>The company identify that there is a risk of workers becoming fatigued, and fatigue related incidents occurring whilst they are on the roads and while carrying out work after these drives.</p> <p>They conduct a risk assessment in consultation with their workers and HSRs.</p>	<p>The risk assessment identified the following hazards:</p> <ul style="list-style-type: none"> • Some workers are paid on commission so they minimise their breaks while driving. • Workers' accommodation is selected based on cost so accommodation often has limited amenities like air conditioning or heating. This makes it harder for workers to get adequate rest. • Workers have limited access to healthy food and few opportunities to refill and drink water whilst on the road. • Company vehicles are dated, noisy and do not have safety features such as lane departure warnings or adaptive cruise control. • Drivers commuting home after long drives often report extreme fatigue and difficulty concentrating. 	<p>The company implements the following control measures to minimise fatigue risks:</p> <ul style="list-style-type: none"> • Limiting drive time and encouraging workers to take breaks. • Where possible allowing workers to travel together and share the driving. • Updating the accommodation policy to set minimum requirements for worker accommodation. • As the company's fleet of vehicles is updated, selecting vehicles with active safety features, minimal road noise and fitted with fatigue monitoring technology. • Providing water and coolers in vehicles to allow workers to take healthy food options. • Training workers on the signs and symptoms of fatigue, encourage worker to complete fatigue self-assessments throughout their drive. If workers are fatigued, allow them to nap without any pressure that doing so would put them behind schedule or lead to less pay. • Where workers are fatigued following an extended drive, providing the options of utilising a facility for a nap or alternative transport home (e.g. a taxi).

Case study: Worker

Situation	Hazards/Risks	Outcome
<p>On Tuesday morning a supervisor notices a forklift driver appears drowsy at the start of their shift and approaches the worker to determine if they are fatigued.</p> <p>The worker works regular shifts, Monday to Friday, 8 am to 4:30 pm each day.</p> <p>Discussions with the worker identify they have started volunteering outside of work hours and they worked 8 hours with the volunteer group after work the night before. They had not notified their supervisor about their volunteering and say they did not realise the outside work policy applied to volunteer work.</p>	<p>The supervisor and worker identify that the worker is too fatigued to safely operate the forklift that shift but can safely perform other low risk tasks.</p> <p>They also identify that the worker normally drives to and from work and may not be safe to drive home.</p>	<p>The supervisor and worker identify other duties the worker can undertake safely and agree on how they will monitor the worker's fatigue for the remainder of their shift.</p> <p>The worker asks a family member to pick them up after their shift ends so they do not have to drive home.</p> <p>The worker agrees to follow the outside work policy to ensure their volunteer work does not create a fatigue risk.</p> <p>The supervisor believes it was a genuine misunderstanding but ensures the worker understands why fatigue is a safety risk and what disciplinary action may be taken for not following safety policies.</p> <p>The company updates their policy on outside work to make it clear how it applies to volunteering and notifies workers of the change.</p>

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