

Fatigue Risk Management System (RFDSWO)



Royal Flying Doctor Service
WESTERN AUSTRALIA

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Fatigue Risk Management: The Challenge

The demands of the modern economy require many of us to work extended hours and outside the traditional work window of 7 a.m. to 7 p.m. But the human body was not designed to work at night and sleep during the day. If not properly managed, the body and mind can become fatigued leading to:

- Excessive sleepiness
- Reduced physical and mental performance ability
- Depressed mood and loss of motivation
- Increased risk of incidents and accidents

Fatigue Risk Management Systems are recognised as the optimal way to manage and reduce employee risk.

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Fatigue Risk Management System: The Solution

A Fatigue Risk Management System (or FRMS) is a science-based, data-driven system that directly addresses the root causes of fatigue risk in an operation.

It protects the operation against incidents and accidents caused by human fatigue by optimising:

- Staffing levels
- Work schedules
- Employee training and sleep disorder treatment
- Workplace design and job stimulation
- Peer and supervisor monitoring of fatigue

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SHIFT WORK

Working around the clock (especially at night) has a direct and immediate effect on sleep, due to 2 factors:

1. Your normal circadian rhythm boosts alertness in the morning, making it hard to obtain sufficient daytime sleep.
2. External influences such as noise, sunlight and family obligations, often interrupt or cut short day time sleep.

Insufficient and poor quality sleep may have an impact on:

- The nervous system
- Behaviour patterns
- Anxiety or depression
- Gastrointestinal and cardiovascular disorders

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WHAT IS FATIGUE?

Fatigue is a general term used to describe a state of 'sleepiness,' 'exhaustion,' or 'weariness.' Fatigue is both physiological (experienced in your body) and psychological (experienced in your mind).

Being fatigued can lead to serious risks. For one thing, fatigue can severely impair judgment, which is particularly dangerous because it can reduce your ability to assess how tired you really are. Impaired judgement leaves you vulnerable to making serious mistakes that can have disastrous consequences.

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Circadian Rhythms

Every day, our bodies follow a natural circadian rhythm that tells us when we should wake up and when we should go to sleep. Virtually every function in the human body follows a daily rhythm, including sleep, digestion, hormone secretions, alertness levels, and many more.

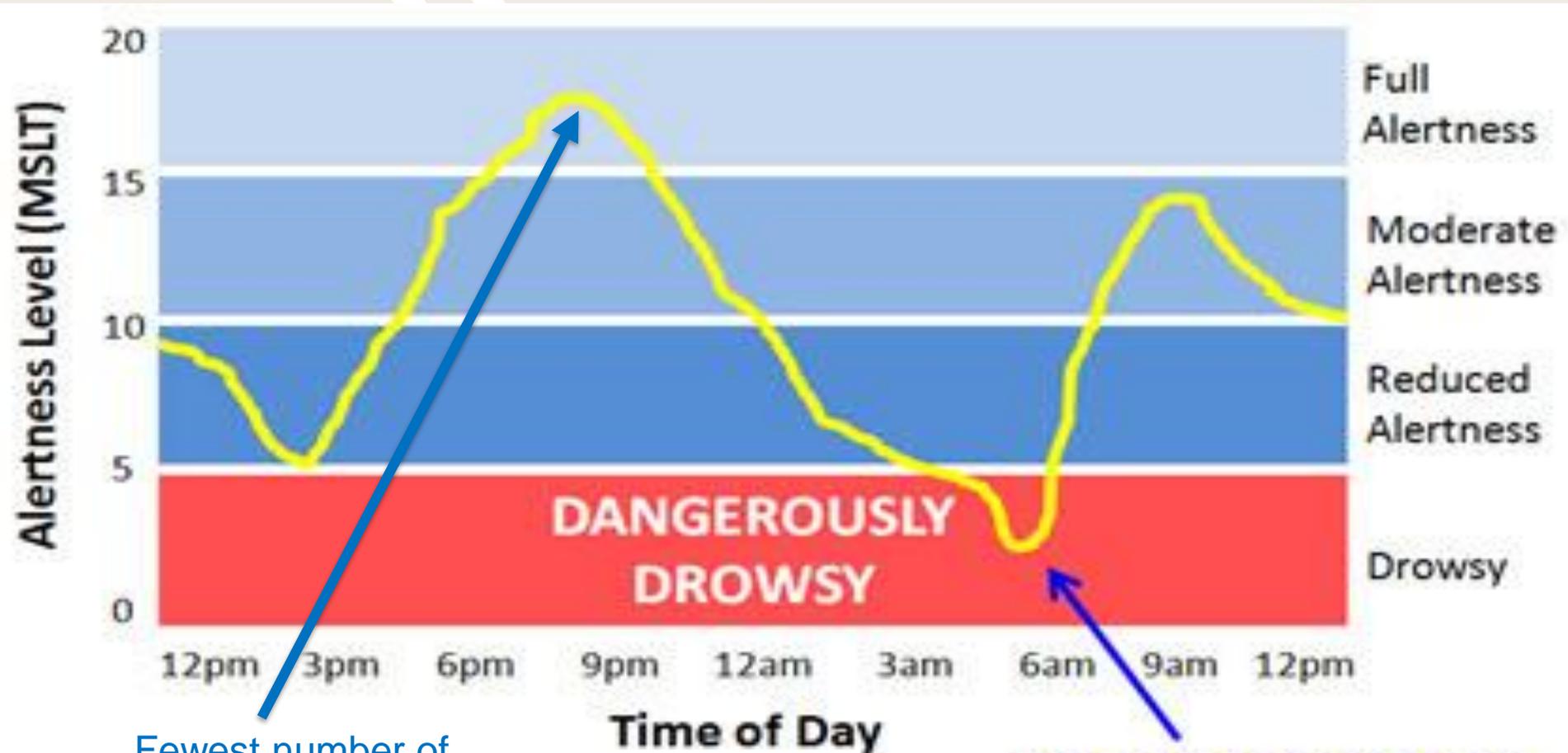
At the same time, more and more workplaces now operate around the clock. This presents workers with the challenges of doing their job effectively when they would otherwise be sleeping, and trying to stay alert, safe, and efficient at times when most people are in bed asleep.

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CIRCADIAN RHYTHM OF ALERTNESS



Fewest number of motor vehicle and industrial accidents.

Fifteen-fold increase in Industrial accidents

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FRMS: CHARACTERISTICS AND SCIENTIFIC BASIS

- **Science based** - Supported by established peer-reviewed science.
- **Data driven** - Decisions based on collection and objective analysis of data.
- **Cooperative** - Designed together by all stakeholders.
- **Fully implemented** - System-wide use of tools, systems, policies and procedures.
- **Integrated** - Built into the corporate safety and health management systems.
- **Continuously improved** - Progressively reduces risk using feedback, evaluation and modification.

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FRMS: SHARED RESPONSIBILITY

In a Fatigue Risk Management System both employees and managers have responsibilities to reduce the risk of fatigue.

Managers:

- Ensure staffing levels and work schedules provide adequate time-off for sleep
- Provide sleep and fatigue training and education
- Ensure the work environment promotes alertness

Employees:

- Make sleep a priority
- Report to work well-rested and ready to go

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Why does RFDSWO use the FRMS?

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Australian Government

Civil Aviation Safety Authority

CASA has introduced new rules to cover flight and duty limits to assist in fatigue mitigation for pilots. The newest Civil Aviation Order, 48.1, came into effect on 2 September 2019.

This gives the operator of medical transport operations the option of using either the prescribed rule set in the order or the option of having an approved FRMS.

As the basic rule set is prescriptive in nature, RFDSWO chose to implement a FRMS.

This involved 12 months of preparation to develop a plan and meet the requirements for a Trial FRMS followed by 24 months of Trial to show CASA that RFDSWO was able to meet all of its obligations and responsibilities for a fully approved FRMS. The full CASA approval has since been issued.

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FRMS requirements:

1. Must have a written fatigue policy;
2. Must be integrated with the company's SMS;
3. Use scientific principles and knowledge to justify its procedures which mitigate fatigue risk;
4. Provide for:
 - a) Identification of fatigue related risks;
 - b) Remedial actions to mitigate identified risks;
 - c) Provide for monitoring and assessment of fatigue related hazards.
5. Set out operating procedures including maximum values for:
 - a) Flight times;
 - b) Duty periods;And minimum values for Off Duty Periods.

How does RFDSWO use the FRMS?

A comprehensive Operations Manual (VOL 1F) has been developed to cover the above requirements and practical application of the FRMS.

These requirements (safety performance indicators) are monitored by the Fatigue Safety Action Group (FSAG.) The FSAG also collects and reviews fatigue related hazard and incident reports and duty length data.

This group is subordinate to the Aviation Safety and Quality Committee, chaired by the CEO, and reports its findings and recommendations to it.

Air Maestro (AM) is used to log and monitor flight *and* duty times for each pilot for each period of duty.

It also is used to log fatigue reports.

The information in AM is analysed to identify trends in flight and duty periods.

This information identifies fatigue rates globally (RFDSWO) and by base. This allows for analysis of rostering practices which may increase the fatigue risk and includes information about:

- Shift length;
- Time of tasking (e.g. early, mid or late in the standby shift, etc.);
- Which shifts are more prone to overruns;
- Aircraft type (i.e. PC24 vs PC12.)

Circadian Australia supports this process by providing:

- Sleep consults;
- Readiband devices (these wearable devices track sleep and have a predictive function which indicate alertness);
- CAS 5 modelling (global) – this takes into account each shift code and the fatigue levels produced by rostering using the principles contained in the FRMP and rates the rosters accordingly. As part of the process, past rosters have also been analysed;
- CAS 5 modelling (individual) – this takes into account pilots who are nearing their maximum annual limits and, if within certain parameters, allows an extension.

Thank you



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