

Managing Driver Fatigue

Introduction

Fatigue can affect all people in their working environment to varying levels. Driving is a complex mental and physical task requiring sustained levels of concentration and skill to maintain maximum performance. No driver can afford to be fatigued nor can anyone else. Driver fatigue causes thousands of road accidents each year. Research shows that driver fatigue maybe a contributing factor in 20% of these accidents and up to one quarter of serious and fatal accidents [1]. The management of such fatigue is critical to the safe operation of gas industry delivery vehicles and the drivers to return home safe at the end of every shift.

Further information on fatigue related to general working and shift patterns can be found in EIGA Info HF 09, *Fatigue from working patterns - Shiftwork and overtime* [2].

Scope

The purpose of this publication is to provide training topics and recommendations that can help to avoid situations that affect drivers in their daily lives and can make them fatigued. It gives guidance on what to consider when creating a fatigue management system.

Definitions

BMI: body mass index.

Circadian body clock: A circadian rhythm is a natural, internal process that regulates the sleep/wake cycle and repeats approximately every 24 hours.

CPAP: Continuous positive airway pressure.

DDDR: Driver distraction and drowsiness recognition - is an in-vehicle system designed to detect symptoms of fatigue and alert the driver, warning them to take a break.

Fatigue: the feeling of extreme physical and mental tiredness.

MVA: motor vehicle accident.

Sleep Apnoea: temporary cessation of breathing during sleep due to obstruction of the airway.

Learning more about fatigue

1. Do your drivers recognise the signs of fatigue?
2. Do your drivers know what actions to take if they are fatigued?
3. Do you train your drivers in fatigue awareness and how to adapt their lifestyle to help prevent fatigued driving?
4. Does your company have a fatigue management policy and do you check if it is effective?
5. Are you collecting and analysing data to be sure that drivers are respecting the driving and working hours?
6. Are you using this information for creating a system which supports you to manage driver fatigue?
7. Do you have processes in place to manage sleep apnoea and medical treatments?

If the answer to any of the above questions is 'no', then you should consider taking action!

THIS TRANSPORT SAFETY INFORMATION GIVES GUIDANCE ON DRIVER FATIGUE AND MANAGEMENT WHICH WILL HELP TO IMPROVE SAFETY IN ROAD TRANSPORT.

Effects of fatigue

Fatigue is more than falling asleep at the wheel. Fatigue describes the feeling of being tired, drained or exhausted.

It causes poor judgment, poor hazard perception, impaired coordination with slower reactions and impacts on how well one can work. It builds up, leading to a progressive loss of alertness that ultimately ends in sleep and is a major contributing factor in many road incidents.

The effects of fatigue include the following:

Loss of alertness. This is when you respond more slowly to things as they arise. Loss of alertness is an early sign of fatigue and may result in less efficient vehicle control (for example finding it hard to drive inside the lanes or finding it hard to maintain a constant speed).

Poor judgment. Before drowsiness sets in, fatigue affects the ability to think clearly, which is vital when making safety related decisions and judgments.

Someone who is very fatigued may not realise how fatigued they really are. As a result, fatigued people are unaware that they are not functioning as safely as they would if they were not fatigued. Decision making is slowed, reaction times are increased and at times decisions are based on entirely incorrect assumptions or on flawed information perceived by the fatigued driver.

Drowsy driving. Drowsiness means feeling sleepy, but not actually being asleep. When drowsy, a driver may drift in and out of sleep occasionally without knowing it (micro sleep). Nodding of the head while driving is a symptom of micro-sleeps.

Falling asleep at the wheel. Falling asleep at the wheel happens in numerous incidents, typically very severe single vehicle incidents where there has been no attempt by the driver to control the vehicle. Often the driver is completely unaware of events before the incident.

Poor memory. Being fatigued also affects the memory. As the brain shuts down and prepares for sleep, it allows less and less information to be gathered and processed. For example, drivers may have travelled a significant distance without knowing it. This is directly related to loss of alertness.

Mood change. Being fatigued can also make people irritable, agitated, aggressive and poor company. They can start to overreact to things including those that wouldn't normally upset them or under-react to things that you normally would address in a more rational manner.

Causes of fatigue

There are several main causes of fatigue in people driving vehicles:

Driver rest periods. A driver having adequate rest periods between shifts and during the shift is critical to ensure a driver does not become fatigued. In the EU, the regulation of driving hours and day and night rest, are established by regulation (Regulation (EC) No 561/2006 *on the harmonisation of certain social legislation relating to road transport*), while the weekly working hours are fixed by each local government both of which are controlled by the use of tachographs [3]. In regions where there is no legislation or

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agreed driving time, then rest periods should be agreed with local management ensuring the driver has adequate rest.

The quality of rest not just the quantity is important to prevent the driver becoming fatigued. Consideration should be given to where the driver is taking their rest periods for example in cab sleeping as opposed to hotels with facilities such as air conditioning, heating, quiet location etc.

There should be a monitoring process to ensure compliance but compliance along to these minimum requirements is not enough to guarantee a driver will not become fatigued.

Hours of work - circadian body clock. The biological clock tells you when it is lunch time, gives a lift at certain times of day, and affects the body temperature. Most people's clocks run on a daily rhythm of approximately 24 hours. In principle, human beings are day orientated.

There are two cycles per day when most people's biological clocks make them likely to feel sleepy. One is in the afternoon from 14:00 – 16:00. The other, is the early morning, 02:00 – 06:00.

A driver needs to be aware of their own body clock. This will help them take extra care and precautions during those times they are most likely to feel sleepy. Drivers shall comply with the hours of service or legislated regulations and accept their responsibility to get plenty of sleep during your off-duty time.

All drivers, managers and supervisors need to understand that driving whilst fatigued is not solely work related. The driver needs to consider the driving to and from work. This is particularly important at recruitment as it is important the driver is not travelling for long periods before they get to work. The driver needs to make their employers aware if they decide to change their home address.

If the employer asks the driver to work from another location, ensure the overall driving period is considered.

All drivers, contractor or employee, shall ensure they have the appropriate rest and sleep habits between shifts. Managers, supervisors and schedulers shall ensure that drivers do not have other duties that negatively impact their rest between shift and/or contribute to their fatigue.

Sleep Homeostasis. Sleep homeostasis is another factor that regulates our sleep / wake cycle. It is also known the need to recover lost sleep. It is wake dependent and it increases in proportion of the amount of time a person has been awake since their last sleep. If sleep is shorter than usual, a sleep debt is accrued. A proportion of this debt needs to be made up during the person's next sleep cycle.

Drivers need to be aware that additional sleep is required after short or interrupted rest periods.

Operational staff and fatigue. Although it is the driver's responsibility to ensure they have sufficient rest before driving, it is the responsibility of operational staff to ensure that they have scheduled adequate rest periods between shifts for drivers. These rest periods shall be in line with company standards that meet at least legislated requirements to ensure the driver is well rested at the commencement of their next scheduled shift. Companies should develop procedures to manage the movement of drivers between shift patterns.

Sleep apnoea. Obstructive sleep apnoea is a sleeping disorder that is considered a major contributor to fatigue in some individuals. It is a condition that when sleeping, partial or total obstruction of the airway occurs and breathing frequently stops, resulting with the individual being woken multiple times a night and only sleeping lightly and not getting the restorative deep sleep required. The individual quickly becomes fatigued during the day affecting their capabilities to perform even simple tasks well let alone a complex task like driving.

The correct treatment for sleep apnoea can be highly effect with a great improvement in the quality of life and significantly improves the safety of any driver by reducing the risk of fatigue.

For detailed information on symptoms, diagnosis and treatment of sleep apnoea see Appendix A.

Illness and medications / drugs

An unwell state, for example the onset of colds, flu, hay fever / sinus, headaches etc. can itself be a contributing factor to fatigue. Medical advice should be sought where necessary being aware that some medications may cause drowsiness. Both medically prescribed prescriptions and over-the-counter medications can impair driving ability. Always follow the label precautions. This responsibility rests solely with the driver.