FATIGUE KILLS!
LONG HOURS LIMIT LIFE

BEWARE
Severe headache
Lack of focus
Irritability and short temper

BEWARE
Stress
Bowel and digestive disorders
Loss of concentration

BEWARE
Diabetes
Depression

BEARE
Premature death
Heart disease

rmt.org.uk
Introduction

The promotion, development and maintenance of effective measures designed to look after your health and safety is a key function for RMT and your RMT Health & Safety rep.

Positive safety cultures are encouraged where RMT Health & Safety reps are active in the workplace. Positive safety cultures exist where Health & Safety reps interact with workers just like you, members of your RMT union, and provide that link between workers and the employer.

Effective tools for finding out about members Health & Safety concerns in the workplace for issues such as Fatigue, include ‘body mapping’ the workplace and workforce and undertaking surveys. That is why all workers under the RMT umbrella, regardless of the industry they are in, Shipping, Off-shore, Rail, Bus, Tube or Taxi have the right to a Work - Life balance that creates the right to life and the right to work.

Mick Cash
A hard day’s work won’t kill you

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Or might it?

Working excessive hours is definitely bad for your health. All of these conditions can arise from or can be made worse by a long working week. Other common complaints of working continuous long hours include increased smoking, drinking and eating a poor diet, all of which can have serious health consequences. Long hours also reduce the time available for family, socialising and relaxing, and so can drastically undermine the quality of life. Fatigue is also associated with increased accident rates and reduced productivity.
RMT say end the long hours culture.

Briefing on fatigue in the Transport Industry

RMT define fatigue as the decline in mental and/or physical performance that results from prolonged exertion, lack of quality sleep or disruption of the internal body clock. The degree to which a worker is prone to fatigue is also related to workload. For example, work that requires constant attention, is machine paced, complex or monotonous can increase the risk of fatigue.


Why is understanding fatigue important?

More than 3.5 million people are employed as shift workers in the UK. They work in a wide variety of industries, especially where the RMT organise including transport, road, rail, bus, maritime and taxis, oil, gas & chemical industries, along with the emergency services, healthcare and the utilities. Poorly designed shift-working arrangements and long working hours that do not balance the demands of work with time for rest and recovery can result in fatigue, accidents, injuries and ill health.

Fatigue has also been implicated in 20% of accidents on the roads and is said to cost the UK £115 - £240 million per year in terms of work accidents alone. RMT members are no longer willing to accept this level of risk and loss to themselves and their families. So we are working closely together to put a stop to it, this booklet is part of the programme to help us remove it from our workplaces and to ensure that we have control of the hours we work, the rest periods we require and additional issues relating to insufficient rest and recovery time.

RMT and its army of trained H&S reps are working on your behalf with your employers and government legislators to ensure we have control of our working lives and the hours we work. We want you to join us and be involved in changing the unrequired culture of long hours and continuous working days. Fatiguing alternating shift patterns are hurting our bodies and lives, through increased stress, increased illness and decreased time to recover, eat properly, socialise, play and sleep.
A consensus view by scientists who study human performance and safety is that sleep is a powerful and vital biological need. Insufficient and disturbed sleep, chronic sleep loss and being awake for prolonged periods, increases the risk of errors and accidents. This particularly applies to tasks that require:

- vigilance and monitoring;
- decision making;
- awareness;
- fast reaction time;
- tracking ability;
- memory.

Key principles in fatigue

Look at these key principles and see what you know and recognise from your own experiences

- Fatigue needs to be managed, like any other hazard and risk.
- It is important not to underestimate the risks of fatigue. For example, the number of accidents and injuries has been found to be higher on night shifts, after a succession of shifts or when shifts are long and there are inadequate breaks.
- The legal duty is on employers to manage risks from fatigue, irrespective of any individual’s willingness to work extra hours or preference for certain shift patterns for social reasons. Compliance with the Working Time Regulations alone is insufficient to manage the risks of fatigue.
- Changes to working hours need to be risk assessed and, where change is required, then the changes are notified in advance.
- Employees and our RMT representatives should negotiate and agree roster and be consulted on working hours and shift patterns. However, note, that where employees state a preference to certain shift patterns that are potentially unhealthy and may cause fatigue then these preferences must be managed to ensure the risks to workers are suitably controlled.
- Develop a policy that specifically addresses and sets limits on working hours and patterns, overtime and shift-swapping, and which guards against fatigue. Implement the policy and make arrangements to monitor and enforce it. This may include developing a robust system of recording working hours, overtime, shift-swapping (shift exchange) and on-call working.
• Problems with overtime and shift-swapping may indicate inadequate resource allocation of staff or just a shortage of staff with vacancies unfilled.

• There are many different shift work-schedules and each schedule has different features. This sheer diversity of work and workplaces means that there is no single optimal shift system that suits everyone. However, a planned and systematic approach to assessing and managing the risks of shift work can improve the health and safety of workers. A guiding principle has to be a shift system of ‘rotation forward not back’.

• Sleep disturbances can lead to a ‘sleep debt’ and fatigue. Night workers are particularly at risk of fatigue because their day sleep is often lighter, shorter and more easily disturbed because of daytime noise and a natural reluctance to sleep during daylight. If you lose 1 hour sleep a day/night, then over the week you have lost 7 hours and that is a full ‘night’s sleep’ – do that over a 3 month period and you have lost 12 ‘nights of sleep’.

Some of you may recognise the difficulties in getting to sleep after arriving home from a shift. Because we are human our bodies are often alert and our brains are ticking over at a furious rate. This may be because you have been involved in a high level of activity, assessment and responsibility whilst at work. Your body is not like a light switch that you can turn on and off, and within a few seconds go to sleep – it doesn’t work like that.

We have to wind down and relax – and that’s an example of where a simple formula of X hours worked, X hours home isn’t appropriate, particularly if it is 10, 11 and 12 hours at the work place and then a hour or more to arrive home and your roster pattern is telling you to be back at work 11 or 12 hours after you previously left work.

The main complaint for people with sleep problems who work long shifts is excessive tiredness. Other symptoms include:

• Insomnia
• Disrupted sleep schedules
• Reduced performance
• Difficulties with personal relationships
• Irritability/depressed mood

Unfortunately, treatment for these people is limited. Behavioural and pharmacological remedies can help alleviate symptoms, however ALWAYS remember that for safety critical work, drugs, even from a Pharmacist, can be problematic. You should always check beforehand whether any proposed medication will be safe for the work you do, including any driving, using machinery or other potentially hazardous work and record what you are taking with your line management to get an agreed understanding for their use.
Driving is also something else you need to be cautious about if you are using medication to assist sleeping patterns. Some research indicates that the body may never fully adapt to shift work, especially for those who switch to a normal weekend sleep schedule. If you are a shift worker and have difficulty sleeping during the day, chances are you also have difficulty staying awake at work. The more tired/fatigued you are, the more likely you are to experience a "micro sleep," – this is an involuntary bout of sleep brought on by sleep deprivation that lasts for a few seconds.

For shift working to be successful, you need to maintain a satisfactory level of productivity and safety. Fatigued shift workers may perform less well than those working standard daytime hours, especially during periods of low alertness. The consequences of this could range from relatively minor events to serious accidents.

The risk of errors, accidents and injuries has been found:

- to be higher on the night shift;
- to rise with increasing shift length over eight hours;
- to increase over successive shifts, especially if they are night shifts;
- to increase when there are not enough breaks.

WORK RELATED FATIGUE

As we have shown high levels of fatigue and/or stress lead to reduced productivity, and increase the risk of accidents and injuries.

Research has shown that staying awake for 17 hours can make people perform as badly as being over the drink drive limit for driving on the road.

See what you recognise from your own workplace and your own work-life style.

- High work pace (time pressure)
- Lack of control (over work pace, but also over the management of physical risks)
- Low participation
- Little support from colleagues and management
- Poor prospects for future career development
- Job insecurity
- Long working hours
- Shift work
- Low income
- Stress
RMT are dedicated to dealing with and reducing to zero these issues in the workplace.

See what you recognise from your own experiences at work.

- Increasing absenteeism – not wanting to go to work, missing a Monday or a Friday.
- Increasing tardiness – being late and being sluggish about your behaviour
- Increasing personnel turnover – staff leave, retire early, change departments.
- Decreasing performance and productivity – slow down in tasks and jobs being done or completed.
- Decreasing quality of work and products – jobs have to be done more than once, and the products start developing faults.
- Increasing unsafe working practices and accident rates – safety and health standards/practices are lowered – corners are cut – injury rates rise.
- Increasing complaints from clients/customers – e-mails, twitter and the local press become vehicles of verbal complaints – some customers, passengers remove their custom.
- Increasing violent events – the pressure mounts, staff fall out with managers, disputes occur, interface with the public becomes strained and unwelcoming.
- Increasing occupational diseases – health (and safety) standards drop, reporting and monitoring disappears, people’s health suffers.
- Increasing costs through all of the above – Costs rise due to a company that has lost its way.

NON-WORK RELATED FATIGUE

Of course, life won’t stop because you have left your workplace, the problems and issues can transfer from the job to the home and can be an influential factor in your relationships and social life, do you recognise any of these?

- Conflict of responsibilities and roles, particularly for women
- Home is the workplace
- Family exposed to work-related hazards
- Domestic violence, physical assault
- Difficulties in organising daily life activities to fit with work activities
- Grumpy and argumentative attitudes towards other people
- Lack of self confidence
And from there on in, the stress, fatigue and lack of sleep starts to take control on you personally, because as a human you eventually get caught up in the process, despite how much you believe you can control what is going on around you. You will see from below what happens when that is ignored, miss-managed or neglected.

Then we have the additional day to day issues that are blockers to getting your well-earned rest when you do return home, they are there in varying forms and levels for us all.

Children’s school activities including sports & dancing, pets, shopping, swimming, football, cricket, cycling, housework, car cleaning, house maintenance, gardening, visitors, doctors/dentists, weddings, quiz nights, summer BBQ, visiting relatives & grand-children are obvious examples.

They all come and go and take up our time.

RMT MEMBERSHIP SECTIONS

Rail Industry

As a direct consequence of the Clapham Inquiry, the rail industry adopted what became known as the ‘Hidden Limits’ on excessive overtime which were included in an appendix to Railway Group Standard GH/RT4004 (now withdrawn). The limits were generic (eg not specific to any particular group of safety critical workers) and reflected what was achievable in operational terms at the time, based on expert opinion and agreed good practice.

Although not mandatory, they were recommendations to assist Infrastructure Managers and Railway Undertakings comply with GH/RT4004 and Regulation 4 of The Railways (Safety Critical Work) Regulations, 1994.

These last regulations were replaced by the Railway and other Guided Transport Systems Safety Regulations (ROGS) 2006. Specifically, Regulation 25 deals with fatigue. The ORR Guidance ‘Managing Rail Staff Fatigue’ published in December 2012 and consequently the RMT’s guide (now incorporated into this document) to using the ORR Guidance and the nine-step approach are tools that can be used in the management of fatigue. The nine-step approach is applicable to other industries.

The ‘Hidden Limits’, however, did not address all of the known causes of fatigue. There remained, therefore, no guarantee that workers would not continue to experience fatigue and therefore the risks to the operation of the railway were not effectively managed. For example, simply specifying a minimum rest period between shifts will not guarantee that a shift worker is fully recovered. The reason is that the extent of a person’s recovery will depend upon many factors. These include, for example, how much sleep a person has been able to obtain; the
quality of that sleep; the extent to which the rest period coincides with the normal (circadian) cycle of the biological body clock; and the conscious effort on the part of the individual to obtain sufficient sleep.

The use of a mathematical Fatigue Risk Index can be used by employers in a way that punishes some groups of workers with reports that they are being utilised to cut shift lengths so that workers have to do more shifts per year in total. Working more shorter shifts can lead to higher levels of fatigue if there is an increase in journeys to work and less time away from work. It must also be remembered that fatigue modelling is merely one component of the fatigue management system and should never be used as a standalone product.

Known causes of fatigue are either work or non-work related, some of these are listed below.

The main work-related causes of fatigue include:

- Long shifts, particularly those that impinge on the normal hours of sleep (e.g. nights and early starts).
- Rapid turnarounds (e.g. insufficient time available between shifts for rest and recovery).
- High numbers of consecutive shifts
- Inadequate breaks within a shift.
- Variability in the shift pattern (e.g. a rotating shift pattern that changes about once a week; short notice changes to roster; backward rotating shifts; variable shift start times in a sequence of consecutive shifts).
- Unplanned work (e.g. on-call duties; overtime; emergencies).
- Commuting time.
- Workload and nature of task.
- Features of the work environment (e.g. temperature, noise, vibration).

The level of work-related fatigue will be similar across individuals performing the same tasks. It should therefore be assessed and managed at the organisational level.

The main non-work related causes of fatigue include:

- Domestic and family circumstances that may cause sleep disruption.
- Health (e.g. sleep disorders).
- Individual differences (e.g. body clock and preferences for certain shifts; age).
- Strenuous activities (e.g. second jobs).
- Lifestyle (e.g. diet; alcohol, drugs and recreational activities).
- Stress (e.g. physical, mental or emotional response to external events).
Non-work related causes of fatigue are best managed at the individual level as the impact of different factors will vary considerably. Employers should ensure however that employees are aware of the (non-work-related) risks and know how and where to go for further information and support (eg General Practitioner or Occupational Health Department).

Seafarers

Seafarers are increasingly working longer hours with less crew support, and to work longer hours with less time off – on board or on shore – to recuperate and re-nourish.

Under the international convention on Standards of Training, Certification and Watch keeping (STCW), it is acceptable for a seafarer to work up to 98 hours a week. This is far longer than the limit of 72 hours a week laid down in the International Labour Organisation convention 180, and almost doubles the maximum of 48 hours per week in the European Working Time Directive.

Safety at sea is endangered as crews may not be fully alert, and take shortcuts. Workers health can suffer, now and in the future, through taking poor care of your physical and mental health needs. Comprehensive research on seafarer fatigue, published in 2006, showed how the long working culture takes its toll on seafarers:

- One in four seafarers said they had fallen asleep while on watch
- Almost 50% of seafarers taking part in the study reported working weeks of 85 hours or more
- Around half said their working hours had increased over the past 10 years, despite new regulations intended to combat fatigue
- Almost 50% of seafarers surveyed considered their working hours presented a danger to their personal safety
- Some 37% said their working hours sometimes posed a danger to the safe operations of their ship

That’s why it’s vital that RMT brings the employers and the legislators to task over the significant dangers and risks of fatigue at work and that we demand the following are addressed as a minimum to ensure safety and the right to live a life for our members.

- Safe crewing levels on board ship
- Enforcement of maritime regulations on minimum hours of rest and/or maximum hours of work
- New regulations on seafarers’ hours of work
- Universal recognition of the right of all seafarers to shore leave
Fatigue to be treated as a serious health and safety issue

An on-board safety culture

Professor Andy Smith of Cardiff University carried out a study into fatigue regarding seafarers working for P&O Ferries in 2011. The main issues covered in this study were hours of work; watch-keeping; factors causing fatigue; symptoms of fatigue; fatigue during and after work; job characteristics and wellbeing.

- Hours of Work - periods of duty and rest were within mandatory requirements and guidelines. However, nearly half of the respondents felt that their working hours presented a danger either to them or the ship.
- Watch-keeping - approximately half of the watch-keepers suffered from fatigue on watch.
- Factors causing fatigue - the major factors were job demands, working hours, length of tour of duty, number of crossings, speed of port turnaround, bad weather, noise and vibration, sleep problems and extra duties such as the life boat drill. Over half the respondents reported these problems.
- Symptoms of fatigue - lethargy, poor quality sleep, tension and loss of concentration were frequent problems. All groups reported that the effects of fatigue increased the longer they were onboard and continued into leave.
- Performance and safety - both marine and customer service crew reported more frequent involvement in fatigue-related incidents or accidents.
- Fatigue during and after work - all groups reported feeling fatigues and tired at work (at least 2 or 3 times a week). Similarly, all groups reported frequent mental and physical fatigue at the end of the working day.
- Stress at work - in a similar survey carried out in 200, 14.6% of the crew were very or extremely stressed at work. In the 2011 survey, the level of stress had increased with 25.4% of the marine crew reporting they were very or extremely stressed at work.
- Sleep - all samples reported difficulty falling asleep, staying asleep and getting up.

The research concluded that crew were exposed to a number of factors that induce fatigue. Prof. Smith states that there is also an association between fatigue and reduced operational performance and safety.
The report recommendations included the following:

- Continue with fatigue audits in all crew
- Address certain specific issues that clearly influenced the survey
- Set up a working group with all stakeholders (management, unions and Professor Smith) to consider all possible changes to working practices
- Treat fatigue as a health and safety issue. Crew should be provided with appropriate information about awareness of fatigue and prevention and management of it. This should include information on how to prevent poor sleep. Any training should also be evaluated and regular surveys could effectively do this.
- Carry out more detailed audit of safety critical tasks such as watchkeeping

Road vehicle transport/bus and taxi

In the context of vehicle control, fatigue can be accompanied by poor judgement, slower reactions and decreased skill levels. Importantly, fatigue can impair a driver’s judgement of his or her own state of fatigue. Driver fatigue is one of the biggest health and safety concerns within the road transport sector.

Many people who drive taxis and many taxi drivers feel the need to work long hours to maintain their family and/or lifestyle. These drivers may well be putting themselves and others in harm’s way unless they know what causes fatigue and how to avoid it.

Well-documented indicators of driving fatigue are:

- Not feeling refreshed after sleep.
- Falling asleep at work.
- Loss of concentration at work, leading to increased errors or lack of awareness of (i.e. such as drifting out of lane when driving)
- Poor visual perception - in poor light/weather conditions.
- The need for extended sleep during days off.

Driver fatigue is associated with very poor/poor self-rating of quality of sleep, drinking three or more caffeinated drinks daily, and driving more than 10 hours a day.

Research shows that a considerable proportion of vehicle accidents are sleep related and it is believed that up to 20% of serious accidents are caused by fatigue. There are strict rules governing the amount of hours that PSV/PCV and HGV drivers can work, however, these still do not prevent fatigue from occurring. RMT conducted a survey on bus drivers in 2008 and the results indicated that long
hours were still a problem for drivers, despite there being legislation in place for limits on driving hours.

HGV/PSV drivers who drive only in the UK (under 50 miles) are governed by UK domestic driving limits, whereas those who travel within the EU or drive vehicles over 3.5 tonnes need to abide by EU limits which are more stringent than the domestic laws. Currently, the maximum hours at the wheel without a break for UK PSV/HGV drivers is 5.5 hours whereas the EU limit is an hour less at 4.5 hours.

Fatigue may be more of a problem for coach drivers due to longer driving distances on motorways, but given the amount of distractions and high level of concentration needed by urban bus drivers, fatigue is also an issue for this group. Fatigue can be effectively managed by a Fatigue Risk Management System (FRMS). This is a scientifically-based data-driven system which manages employee fatigue in a flexible manner appropriate to the level of risk exposure and the nature of the operation. FRMS can be used in addition to prescriptive hours of work limitations. The traditional method of mitigating driver fatigue has been to limit driver’s time at the wheel.

RMT joined UNITE in a campaign entitled Safer Way, which seeks to reduce driving hours for domestic drivers by one hour to set the limit at the wheel at 4.5 hours. The Department for Transport’s ‘Tiredness Kills’ campaign encourages car drivers to take a 15-minute break every two hours of driving, the same should be applied to bus and coach drivers. What also needs to be taken into consideration is that drivers have other duties besides driving. For the most part they must also check the vehicle for defects and in the case of coach drivers emptying toilet tanks is another task that may need to be done.

The main aspirations of the Safer Way campaign are:

- Normal hours of work should not exceed forty hours per week
- Normal hours of work should not exceed eight per day as average
- Minimum duration of the weekly rest should be twenty-four hours preceded or followed by the daily rest
- Avoid split shifts
- Choose forward rotation: early – day – late

In conclusion, fatigue is a serious issue that needs to be managed effectively. Any FRMS should include consultation with Union Reps who will look at rosters, time off and risk assessments to ensure that fatigue is being managed properly. The result of not managing fatigue correctly is a reduction of safety which in turn can lead to accidents – some of which are devastating and fatal.
Offshore Industry

Because of the unique circumstances of the offshore sector, workers are required to work shift patterns not seen in comparative land based industries. Until the recent downturn in global oil prices the most common shift pattern would have been 2:3 (2-weeks/14-days of 12-hour shifts offshore, followed by 3-weeks/21 days ‘field break’/leave). The most commonly used alternative to this was 2:2 with an annual “holiday” entitlement which would see 4-weeks of offshore time taken off as paid leave/holiday.

Today, with the downturn, the oil companies have sought to slash costs and the shift patterns of workers have come under attack. The most common shift pattern now is 3:3 (21 days of 12-hour shifts offshore, followed by 21-days field break). Any “holiday” entitlement is being revoked and the predominant practice now is “equal time” giving a minimum total of 2,184 worked hours per year. However, an additional 2,184 hours are spent offshore, off-shift, as all rest between working hours is spent on the offshore installation. In many instances this can be in two-man or even 3-man shared cabins, often with itinerant/short-term contractors who may be unfamiliar to regular crew.

RMT believe the longer 3:3 option is more likely to harm worker’s health. The resulting effect on workers doing shifts like these increases the potential for fatigue as workers struggle to achieve regular and restful sleep. This in turn increases the risk of accidents or incidents in a “major hazard industry” at what are remote and often inaccessible locations. Occupational heath effects are already being encountered and sickness absence reportedly increasing, with cardiac, gastric, musculoskeletal and mental health conditions featuring prominently.

Many workers also suffer from poor quality personal accommodation while working offshore which can also have an impact on the quality of rest and further increase levels of fatigue. Cabin sharing, noise, unfamiliarity and a general lack of privacy are all areas where RMT have concerns and are areas where our representatives must make a concerted effort to make improvements.

The pace, and nature of the conditions faced by offshore workers - noise, vibration, cramped workspace, steep stairways, weather and heavy work tasks also add to the burden faced by this group of workers. The HSE’s Energy Division who are responsible for regulating health and safety to protect our members, recommend a five-stage approach to managing the risks from fatigue. These five steps encourage employers to have a policy on fatigue, to have documented organisational procedures, to consider the working environment, to plan and implement these procedures and controls, to monitor, measure and audit the identified controls.
HSE identify some key issues that need to be controlled:

- “circadian rhythm adjustment” – the off-shore industry has a unique arrangement of working added to a regimented and controlled working environment. There are two fundamentally different strategies to face these challenges – stay awake overnight and adjusting the body clock.

- “the roll-over” or “swing” shift – the shift between a period of nights and a period of days. The most effective way to do this puts the adjustment of the circadian rhythm in workers rest or off duty period and this is rejected by the union’s and by workers. This does however mean that there are increased safety risks which must be managed.

- Travel risks – these are broken down into driving risk and helicopter risks. Off-shore workers face considerable risks of driving related fatigue incidents on the journey to or from a period of work when ostensibly in their own time.

More detailed information on the HSE approach and the risks involved are available at:

http://www.hse.gov.uk/offshore/infosheets/is7-2008.htm
http://www.hse.gov.uk/research/rrhtm/rr318.htm

Railways and Other Guided Transport Systems Regulations – Regulation 25

RMT have long had concerns over the way fatigue among safety critical staff is managed so we are pleased to see that the ORR have produced definitive Guidance on this issue. The Guidance adopts a “triangulation” approach to assessing likely fatigue from a working pattern. The three stages of the triangulation approach are:

- Comparing the working pattern against good practice guidelines to identify potentially fatiguing features
- Using a bio-mathematical tool
- Getting feedback from staff on how fatiguing they actually find the work pattern – RMT believe the best way to gather this information would be through our health and safety reps

All railway operators have a duty under Regulations 25 of the Railways and Other Guided Transport Systems (Safety) Regulations to manage the risks arising out of fatigue and long hours of their staff who carry out safety critical duties.
This Guidance document from the ORR is aimed at companies and individuals who have responsibility for managing rail staff fatigue – whether those being managed are safety critical or not, the same principles can be applied for responsibly managing fatigue in transport workers.

The Guidance explains what a Fatigue Risk Management System (FRMS) should look like and describes the roles and responsibilities, policies and procedures of all staff who work within the system.

Fatigue is described as “a state of perceived weariness that can result from prolonged working, heavy workload, insufficient rest and inadequate sleep”. In workplaces where fatigue of workers is a factor there are likely to be increases in the likelihood of errors and adverse effects on performance (HSE booklet HSG256, 2006 which can be downloaded for free on the HSE website), especially in tasks requiring:

- Vigilance and monitoring
- Decision making
- Awareness
- Fast reaction time
- Tracking ability
- Memory

Fatigue is a particular concern in safety critical staff as staff may not be aware that their performance is being compromised. There is no test for fatigue and so it can be difficult to detect.

It is vital that fatigue is managed in the railway industry as it was considered a contributory factor or cause in 74 accident and incidents reports between 2001 and 2009. It was also the contributory factor in the 1988 Clapham Junction collision which killed 35 people. In addition, it is estimated that fatigued staff cost employers £115-240 million per year in sleep related incidents.

As well as financial and moral duties there is a legal duty to manage fatigue under the following legislation:

- The Health and Safety at Work etc Act 1974
- The Management of Health and Safety at Work Regulations 1999
- The Working Time Regulations 1998 as amended (WTR)
- Regulation 25 of the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS)
All employers should have management arrangements to control the risks from staff fatigue. The complexity of those arrangements will depend on the type of work being carried out, whether work is safety critical or not and overtime arrangements. See Table 1 for a quick guide on how to use the ORR document:

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<tr>
<th>Type of work</th>
<th>Likely significance of risks</th>
<th>Relevant sections of this from fatigue guidance</th>
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<td>No shift work, no significant overtime, no ROGS safety critical work</td>
<td>Low</td>
<td>Section 4 “Basic fatigue controls”</td>
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<tr>
<td>Some shift work and/or significant overtime but no ROGS safety critical work</td>
<td>Medium to high</td>
<td>Section 5 “Fatigue Risk Management Systems”</td>
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<tr>
<td>ROGS safety critical work</td>
<td>High</td>
<td>Section 5 “Fatigue Risk Management Systems” AND Section 6 “Managing fatigue in ROGS safety critical work”</td>
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Key to the effective management of fatigue is the development of a Fatigue Risk Management System (FRMS). The Guidance sets out what a FRMS is; what features such a system should have and how the FRMS should integrate with other risk control systems.

It is crucial that the managers take a collaborative approach, involving staff and consulting other relevant parties such as trade unions in devising and setting up controls to eliminate or reduce the factors which contribute to fatigue. This is the approach outlined by ORR in the third prong of their triangulation approach.

Controls may include for instance: shorter shifts; fewer successive shifts without a rest day; steps to reduce short-notice variations in planned start times; and enhanced fatigue education and training. Staff and their representatives including trade unions co-operate with employers in ensuring that risks from fatigue are properly controlled.
The FRMS should have a number of components and stages:

- Fatigue Policy
- Organisational issues
- Planning and implementing
- Measurement
- Audit and review

Some companies are now using a Fatigue Risk Index, which provides an estimate of likely levels of fatigue and risk associated with working patterns depending on a number of different data being inputted. This type of index is normally used for shift-working/rosters. The HSE has a Fatigue Index Calculator online, which is free to use, and which asks for information such as commuting length, breaks and rest period. Some companies design their own and use them when designing rosters. If this is the case, you should familiarise yourself with the system your company uses. Ask for training on whichever index they use especially if you are negotiating or scrutinising rosters.

When using a fatigue assessment tool it is important to understand and think carefully about what the output actually means rather than to blindly assume it produces an authoritative “satisfactory / unsatisfactory” decision. According to the ORR Guidance:

*The Fatigue Index represents the estimated probability, expressed as a percentage, that a person working the pattern concerned will feel very fatigued at some point during the shift. A fatigue index of 10 therefore means that on average, 1 in 10 people working that pattern are likely to feel very tired. Although this is clearly more desirable than a fatigue index of 50 (meaning half the people are likely to feel very tired), it does not mean that a fatigue index of 10 is risk-free. But it does indicate which of the two working patterns is likely to be less tiring.*

At the heart of the FRMS there should be a statement of the organisation’s overall policy on fatigue. The policy should recognise that the effective management of fatigue is a collaborative process. Senior management should be committed to involving staff and the trade unions in devising, implementing and monitoring effective fatigue risk control measures. There must be “buy-in” from staff, and the FRMS policy should recognise that the organisation may need to invest time up-front to help “sell” the need for, and benefits of, the co-operative FRMS approach to staff and their representatives.
The company’s overall commitment to managing fatigue, including the status of any relevant company standards and limits, and their relationship to any relevant negotiated agreements with trade unions for instance terms and conditions of employment;

- how the organisation will collect and use data on fatigue and its effects, including the fatigue reporting system for reporting errors, adverse events and concerns which could have a fatigue element;
- staff education and training on fatigue;
- reviewing the adequacy of fatigue controls periodically, and if there is reason to doubt their effectiveness.

Key to ensuring that fatigue risks are properly controlled in the rail industry is input from the trade unions via their health and safety reps. Fatigue risks cannot be properly managed alone so employees and trade unions have their own important responsibilities in controlling the risks from fatigue. Trade unions should, for example:

- Co-operate with an employer’s reasonable efforts to ensure that risks from staff fatigue are adequately controlled
- Make reasonable efforts to ensure that fatigue risk management good practice is taken into account by their representatives during negotiations on working patterns and other issues having a bearing on the control of fatigue risks
- Consider whether pay structures could inadvertently be encouraging fatigue – is low pay encouraging excessive overtime?
- Examine whether existing terms and conditions of service have taken full consideration of possible fatigue effects
- Receive training for negotiating working patterns
- Ensure that the employer carries out a ‘reality check’ by seeking staff feedback on working patterns

If the employer’s undertaking involves safety critical work then, in addition to the FRMS there will need to be applied the requirements of ROGS regulation 25. Regulation 25 states:

1. Every controller of safety critical work shall have in place arrangements to ensure, so far as is reasonably practicable, that a safety critical worker under his management, supervision or control does not carry out safety critical work in circumstances where he is so fatigued or where he would be liable to become so fatigued that his health or safety or the health or safety of other persons on a transport system could be significantly affected.
The regulation also requires the undertaking to have a “controller of safety critical work” – this person should establish effective arrangements for managing the risks arising from fatigue from safety critical workers. This process shall follow the following steps:

1. **Identifying those safety critical workers affected**
   - Identify those people carrying out safety critical work who are liable to be or could become fatigued when carrying out such work.

2. **Setting standards and designing working patterns**
   - Identify, set and adhere to appropriate standards and good practice for working hours and working patterns, observing any relevant working time limits that apply.

3. **Limiting exceedances**
   - Ensure that any standards and limits that have been identified and set are only exceeded with your prior approval and only on an infrequent basis and in exceptional circumstances.

4. **Consulting with safety critical workers**
   - Consult with safety critical workers and their safety representatives on the arrangements needed to manage fatigue and when standards and limits are to be changed.

5. **Recording the arrangements**
   - Maintain a record of your arrangements for managing the risks arising from fatigue in safety critical workers.

6. **Providing information to safety critical workers**
   - Provide all safety critical workers under your management, supervision or control with clear and relevant information on risks to health and safety owing to fatigue and your arrangements for managing fatigue.

7. **Monitoring**
   - Monitor the arrangements for managing fatigue to assess how effectively you are controlling the risks arising from fatigue.

8. **Taking action when safety critical workers are fatigued**
   - Ensure, so far as is reasonably practicable, that safety critical workers who report for duty where they are clearly unfit owing to fatigue, or who, through the course of their work shift become clearly unfit owing to fatigue, do not carry out or continue to carry out safety critical work.

9. **Review the arrangements**
   - Review your arrangements for managing the risks arising from fatigue when you have reason to doubt the effectiveness of the arrangements.
The Guidance provides detailed commentaries on each of these nine stages. RMT representatives should be fully involved in stage 2 – setting standards and designing working patterns, stage 4 – consulting with safety critical workers, stage 6 – providing information to safety critical workers, stage 7 – monitoring and stage 9 – reviewing the arrangements.

The Guidance concludes with a series of Appendices which give important information on a number of issues: fatigue risk assessments, travel time, features of a positive safety culture, and fatigue reporting.

When using this Guidance RMT will be seeking where possible to ensure our Lead Officers approach companies seeking joint training for representatives and managers on the Fatigue Guidance.

The full ORR Guidance is available at:


The ORR’s good practice – fatigue factors is available at:
