

## Fatigue: Another Skeleton in the Closet

The National Institutes of Health, USA, informs that approximately one in every five Americans claims to have fatigue that is severe enough to interfere with normal daily life.<sup>1</sup> Fatigue associated with extended hours, night shifts and rotating shifts can have a negative impact on safety and performance. The initial thought process is that the amount or quality of a person's sleep is out of the employer's control. In order to prevent the negative impacts of workplace fatigue, it is important to understand the distinction between personal sources and work sources of fatigue.

Personal sources of fatigue may include lack of sleep, poor diet, inactive lifestyles, stress, health factors, family issues and personal habits. Some of these, such as stress and lack of sleep due to work schedules, may overlap. Work sources may include shift work, shift changes, overtime and staffing issues. There may also be environmental factors, such as vibration, light levels, noise and job demands. Both personal sources and work sources may be addressed through a Fatigue Risk Management System (FRMS).

### Discussion

Throughout history, major catastrophes have occurred that may be attributed to fatigue, such as:

- *R.M.S. Titanic* shipwreck, April 1912.
- Exxon Valdez oil spill, March 1989.
- New York commuter train derailling in 2013.
- Semi-trailer crashes into 13 cars in a construction zone

near Summit, Ill., USA, June 2015.

- The National Highway Traffic Safety Administration conservatively estimates that 100,000 police-reported crashes are the direct result of driver fatigue annually resulting in an estimated 1,550 deaths, 71,000 injuries and US\$12.5 billion in monetary losses.<sup>2</sup>

Unfortunately, accurate figures to determine the percentage of workers' compensation injuries related to fatigue are not available. Employees are hesitant to mention that their state of fatigue may have been a cause of the incident, and employers often do not consider their staffing or overtime to be a factor. Workers' compensation loss data reports do not normally include the amount of overtime leading up to the incident or the number of hours that the employee worked on the shift when the incident occurred.

Employer responsibilities to prevent fatigue at work may include limiting overtime and avoiding incentives for employees to work excessive hours. Work schedules should allow for regular, quality rest breaks during the shift, including extra breaks if the work is demanding or more than eight hours. More difficult and/or hazardous tasks should be scheduled at times when the employees are more alert. For businesses that utilize rotating shift-work, the rotation pattern should allow for employees to get adequate sleep prior to the next scheduled shift.

Although employers cannot manage an employee's non-work-related fatigue, training should be provided to the employees with information

Hazards are ever-present in the steel plant environment, and a heightened awareness and emphasis on safety is a necessary priority for our industry. This monthly column, coordinated by members of the AIST Safety & Health Technology Committee, focuses on procedures and practices to promote a safe working environment for everyone.



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Comments are welcome. If you have questions about this topic or other safety issues, please contact [safetyfirst@aist.org](mailto:safetyfirst@aist.org). Please include your full name, company name, mailing address and email in all correspondence.

for them to become more aware of the importance of adequate sleep, the consequences of fatigue, and to notify their employer if they may be fatigued, without fear of disciplinary action. They should also be aware of fatigue levels based on age, health and fitness levels, and consult with a doctor for chronic fatigue or contact the employee assistance program for emotional issues. Employees should plan social obligations within reason, providing adequate time for sleep before their shift.

## Guidance

An FRMS should be implemented for any organization that has identified a fatigue hazard or with shifts that:

- Are more than 48 hours in any consecutive five-day period.
- Do not have at least two consecutive days off in any seven-day period.
- Are between 7 p.m. and 6 a.m.

The FRMS should be specific to the organization, addressing the specific hazards of the job. The plan should be supported by management, documented and reviewed regularly. It should be integrated with the overall incident and illness prevention plan and wellness plan. All employees and contractors should be expected to understand the policies and procedures in the FRMS and realize the importance of being well-rested and alert at work.

The program should begin with executive support with a policy statement, and specifically list out roles and responsibilities. Company executives should be aware of the potential hazards due to fatigue, understand the benefits of fatigue management, and provide the support and budget for staffing to prevent excessive overtime. Supervisors and foremen should be involved in the process and should comply with scheduling and planning for employee absenteeism, equipment breakdowns or other scheduling issues. Decisions should also be made regarding a moonlighting policy. Based on the hazards of the job and fatigue exposures, it may be necessary to include a policy prohibiting employees from working second jobs.

As previously stated, employees should be trained to understand their responsibility in the fatigue risk management process. Training should be provided so that the employees understand that nutrition, physical

activity and adequate sleep can help to prevent fatigue. They should schedule sleep with the goal of being well-rested when they arrive at work.

Specific procedures should be written addressing how to identify suspected fatigue and steps to take when employees are suspected of fatigue. The procedures should also address what the supervisors or foremen should do if an employee reports that he/she is fatigued, both on a one-time occurrence and if the condition is ongoing. Employees should be encouraged to report if they are having a problem without recourse. Corrective action for prevention should be included.

Procedures may include the hierarchy for control of fatigue risks, including:

- **Eliminate:** Eliminating night shifts in some areas or for high-risk tasks.
- **Substitute:** Increasing the length of breaks in a shift.
- **Engineering:** Altering environment to improve alertness and reduce hazardous substance exposures.
- **Administrative:** Using a checklist to help supervisors identify and assess fatigue impairment.

The program should also include procedures for incident investigations to determine if fatigue was a factor. These could include the number of hours that an employee worked in the week and the day prior to the incident, the amount of overtime that the employee was working, and environmental factors and/or personal factors that may contribute to the employee's fatigue. This information should be logged and reviewed regularly to determine trends.

Finally, the program should be evaluated on a regular basis. Review should include any benefits of the program along with other areas that need to be included. Consideration should be given to the impact of the program, employee feedback and revisions for improvement.

## Conclusion

Employee fatigue affects both safety and productivity at work. It should be understood that fatigue management is a shared responsibility, including management, supervision and employees. Addressing fatigue will help reduce the workplace injuries, reduce errors, and provide a safe and healthy work environment.

## References

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3. "Fatigue Management Overview," NSW Department of Industry Resources and Energy, Web, accessed 2 November 2015.
4. "Managing Fatigue," Workplace Health and Safety Electrical Safety Office Workers' Compensation Regulator, 29 June 2015, Web, accessed 2 November 2015.
5. "Sleep and Sleep Disorders," Centers for Disease Control and Prevention, 12 March 2015, Web, accessed 2 November 2015.

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