



## NATIONAL SAFETY COUNCIL

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### Position/Policy Statement

### Fatigue Risk Management Systems

#### **NSC Policy/Position:**

The National Safety Council (NSC) supports comprehensive, science-based fatigue risk management systems in the workplace to reduce risk of fatigue-related incident and injury.

#### **Background**

Long work hours, irregular and rotating shifts, night work, and physically and mentally demanding tasks are some of the factors that contribute to employee fatigue in many workplaces across America. Individual factors such as sleep disorders, stress and family obligations, can further lead to fatigue. Workers who usually get less than six hours of sleep have a significant increased risk of injury, while those sleeping more than seven hours show no such elevated risks.<sup>1</sup> In fact, a 2014 meta-analysis found that workers with sleep problems are 1.6 times more likely to be injured at work and about 13 percent of all workplace injuries are related to poor or inadequate sleep.<sup>2</sup> Sleep loss and fatigue are known to affect all aspects of human functions, impairing attention, vigilance and memory performance<sup>3</sup>, and lead to increased risks for errors, incidents and injuries.<sup>4</sup>

In many industries, fatigue risks have historically been managed by hours-of-service regulations limiting duty hours and specifying minimum rest periods. Recent developments within many industries show an evolving approach by managing fatigue through risk-based systems.<sup>5</sup> Safety-sensitive professions, like transportation, have had many regulations addressing fatigue risks,

<sup>1</sup> Lombardi, D. A., Wirtz, A., Willetts, J. L., & Folkard, S. (2012). Independent effects of sleep duration and body mass index on the risk of a work-related injury: evidence from the US National Health Interview Survey (2004–2010). *Chronobiology international*, 29(5), 556-564.

<sup>2</sup> Uehli, K., Mehta, A. J., Miedinger, D., Hug, K., Schindler, C., Holsboer-trachsler, E., ... Künzli, N. (2014). Sleep problems and work injuries: A systematic review and meta-analysis. *Sleep Medicine Reviews*, 18(1), 61–73.

<sup>3</sup> Niu, S.F., Chung, M.H., Chen, C.H., Hegney, D., O'Brien, A., & Chou, K.R. (2011). The effect of shift rotation on employee cortisol profile, sleep quality, fatigue, and attention level: a systematic review. *The Journal of Nursing Research*, 19(1), 68–81.

<sup>4</sup> Lombardi, D. A., Folkard, S., Willetts, J. L., & Smith, G. S. (2010). Daily sleep, weekly working hours, and risk of work-related injury: US National Health Interview Survey (2004–2008). *Chronobiology international*, 27(5), 1013-1030.

<sup>5</sup> Dawson, D., Noy, Y. I., Härmä, M., Åkerstedt, T., & Belenky, G. (2011). Modelling fatigue and the use of fatigue models in work settings. *Accident Analysis & Prevention*, 43(2), 549-564.

but recent developments in Fatigue Risk Management Systems (FRMS) present a model by which organizations can take on a more proactive role in managing these risks while allowing for operational flexibility.<sup>6</sup>

### **NSC supports science-based fatigue risk management systems in the workplace**

An FRMS can be considered analogous to, or exist as a component of, a broader Safety Management System (SMS). Fatigue management recommended practices call for an integrated, multi-faceted approach that is data-driven using science-based methods, both in measuring and monitoring fatigue within an organization and in implementation of policies, practices and other strategies.

Key components of an FRMS approach include safety policies, risk management procedures and tools, reporting mechanisms, incident/accident investigation, education and training, and regular auditing, both internally and externally.<sup>7</sup> Lessons learned from fatigue reporting processes and incident investigations can be incorporated into the development of risk assessment tools and into safety training curriculums. As an organization matures in its FRMS efforts, continual improvements could further reduce the risks.

Even easy-to-implement efforts can yield significant benefits, such as strategically planning rest breaks during work shifts, which can lead to a reduction in injuries and improvements in workplace safety.<sup>8</sup> Limiting safety-sensitive activities, such as driving, during certain times of day or night or after a certain number of hours of work are other ways to minimize easily identifiable risks.

The flexibility inherent in an FRMS allows for the implementation of strategies and policies that address the unique challenges and characteristics of a particular organization. Individual components can be implemented, data gathered and further steps then added and improved, based on that initial feedback. A commitment to safety is a responsibility shared between employers and employees where an environment of trust is a necessary component for the success of such approaches. The application of FRMS principles to a work setting can lead to organizational and employee benefits and creates a tremendous “win-win” opportunity.

NSC believes implementing a FRMS is an effective way to manage risk in the workplace while increasing the efficiency of operations.

*This position statement reflects the opinions of the National Safety Council but not necessarily those of each member organization.*

Adopted by the National Safety Council, 2018

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<sup>6</sup> Gander, P. H., Mulrine, H. M., Berg, M. J., Smith, A. A. T., Signal, T. L., Wu, L. J., & Belenky, G. (2015). Effects of sleep/wake history and circadian phase on proposed pilot fatigue safety performance indicators. *Journal of sleep research*, 24(1), 110-119.

<sup>7</sup> Lerman, S. E., Eskin, E., Flower, D. J., George, E. C., Gerson, B., Hartenbaum, N., ... & Moore-Ede, M. (2012). Fatigue risk management in the workplace. *Journal of Occupational and Environmental Medicine*, 54(2), 231-258.

<sup>8</sup> Tucker, P., Folkard, S., Macdonald, I. (2003). Rest breaks reduce accident risk. *Lancet* 361:680.