Characterizing Occupational Fatigue in Nurses – Implications for the Design of Fatigue Risk Management Systems

**Presented by:**

**Dr. Linsey M. Steege**

Assistant Professor, School of Nursing, University of Wisconsin-Madison

Achieving safe and healthy workspaces relies on the development and implementation of systems to monitor, mitigate, and manage risks associated with occupational fatigue. Occupational fatigue can be defined as a multidimensional state that arises in workers who are exposed to excessive demands and stressors through their work tasks, environments, and schedules, and that can interfere with workers’ physical and cognitive abilities and their ability to function at their normal capacity. As defined, fatigue in hospital nurses is associated with decreased nurse performance and well-being, increased turnover, and negative patient outcomes. Therefore, addressing fatigue in nurses has been identified as a priority worldwide in an effort to promote both a culture of patient safety and a healthy nursing workforce.

Occupational health literature investigating fatigue in other complex industries recommends implementing multifaceted, integrated fatigue risk management systems (FRMS) that include an organizational fatigue management policy; strategies to assess fatigue sources and hazards; controls to mitigate risks; reporting systems; incident investigation; and management training for employees and organizational leaders. However, these FRMS have not yet been widely implemented in healthcare organizations. This may be attributed to multiple barriers and gaps in knowledge, including a lack of data sources or strategies to effectively monitor multidimensional work demands in nursing and associated predictive models of fatigue or associated risks; limited understanding of the sources contributing to fatigue within nursing work systems and barriers to implementing fatigue management interventions or policies; and few tools to support nurses and healthcare leaders in accounting for fatigue and associated changes in nurse capacity when making planning decisions.

During this presentation, I will present a summary of several recent research studies characterizing occupational fatigue across the nursing workforce and contributing to the development of a conceptual model of multi-level fatigue risk management in nursing work systems. I will also discuss an ongoing study of novel measures for real-time monitoring and occupational fatigue risk management, and opportunities for new models and approaches to better account for human capacity to improve decision-making in healthcare systems.

**About the Speaker:**

Dr. Steege completed her PhD in Industrial and Systems Engineering at Virginia Tech with a focus on human factors engineering and ergonomics. She then worked as an Assistant Professor at the University of Missouri with a joint appointment in the Department of Industrial and Manufacturing Systems Engineering and the Informatics Institute. She is currently an assistant professor in the School of Nursing at the University of Wisconsin-Madison. Dr. Steege’s research program focuses on increasing healthcare quality by improving the health, safety and performance of health professionals. Her primary research interests relate to measuring and modeling occupational fatigue in nurses and the associated implications for health system design. Specifically, her recent studies have focused on 1) measuring and modeling nurse fatigue and its impact on nurse and patient outcomes; 2) identifying sources of occupational fatigue in nurses and barriers and facilitators to nurse coping and recovery; 3) conceptualizing models for multi-level fatigue risk management in nursing work systems; and 4) exploring opportunities to improve decision-making in complex human-centered work systems by better accounting for changes in worker capacity. She also conducts research exploring the relationships among work system design, health professionals’ decision-making, teamwork and communication processes, and practice outcomes.