

# **Tenth International Conference on Managing Fatigue: Abstract for Review**

## ***NIOSH Training for Nurses on Shift Work and Long Work Hours: Development Process and 1 Year Post-Launch Impacts***

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### **Problem**

Nurses and their managers provide vital services to society around the clock but often lack an appreciation of and knowledge about the health and safety risks associated with long work hours and shift work. The scientific community has generated extensive information about the risks and strategies to reduce the risks but this complex and diverse information has not been translated in a comprehensive yet concise way for nurses. The purpose of this project was to develop, pilot test, and disseminate an online, freely available, multimedia, interactive training program for the nursing community to relay this information.

### **Method**

Development of the training included several steps to create a program that meets the needs of the nursing community. 1) The content was organized from a review of the literature. 2) The American Nurses Association staff and a focus group of nurse managers gave suggestions on the content and methods to present it. 3) A short video was created using interviews of registered nurses to engage and motivate the audience. The training program was drafted, written in plain language, and edited in response to each of the following reviews and tests. 4) The American Nurses Association and a NIOSH subject matter expert gave suggestions to improve the draft. 5) A focus group of nurse managers and a focus group of staff nurses gave suggestions. 6) After IRB review and approval, a draft of the online training was pilot tested with senior nursing students and registered nurses who were in a graduate nursing program. 7) External subject matter experts and NIOSH subject matter experts reviewed it and gave suggestions. 8) To gain approval for continuing education certificates from CDC Training and Continuing Education Online, a pilot test of the NIOSH approved training program was

conducted with 10 CDC registered nurses. The training was released (see Figure 1). Dissemination efforts included a NIOSH blog, several rounds of social media messaging from NIOSH and the American Nurses Association, posts on NIOSH internet pages and other organizations sites, and articles in newsletters by NIOSH, nursing organizations, and other media. One year post launch impacts were compiled.

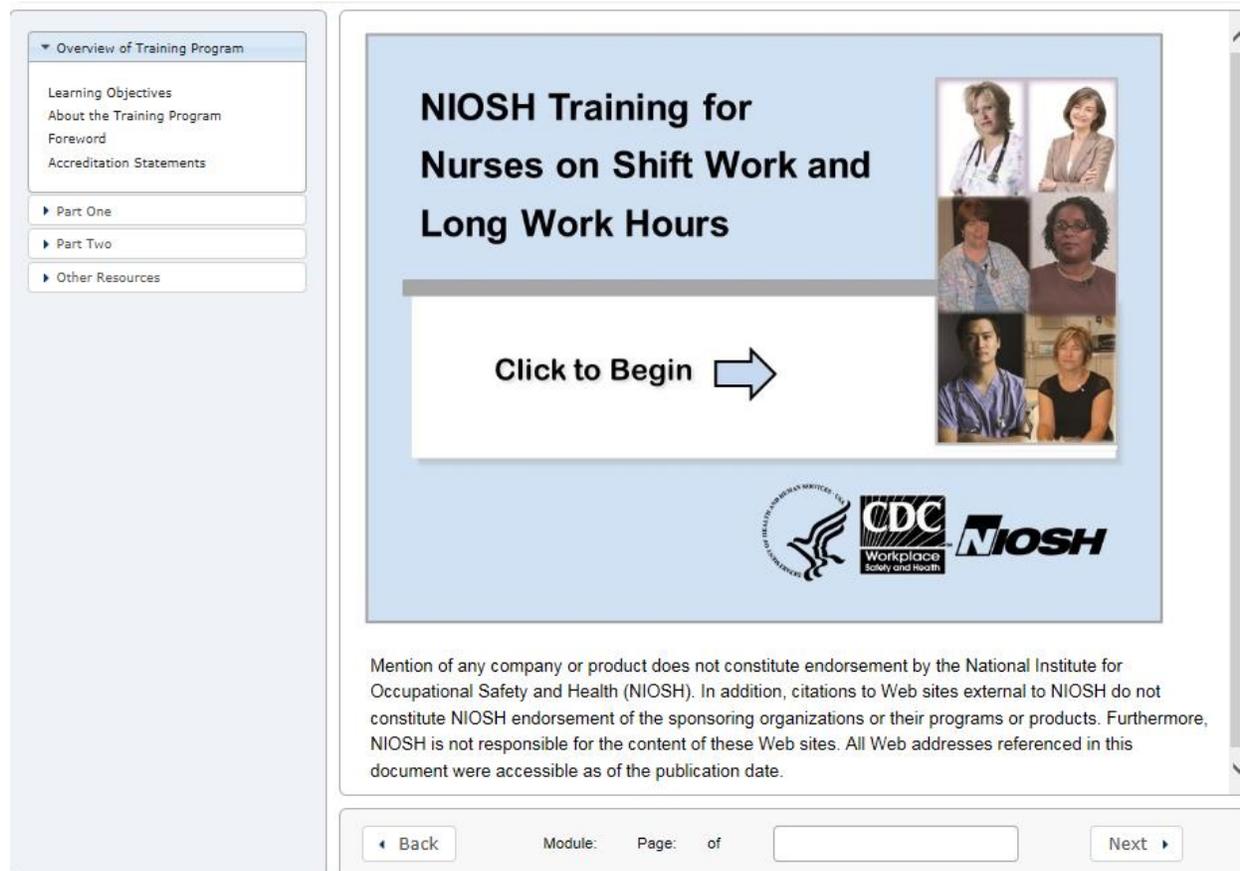


Figure 1. Launch page of the online training program.

## Results

Desktop and mobile versions of the training are freely available on demand on the NIOSH internet. The training takes about 3.5 hours to complete and can be taken over a series of short time periods if desired. The training has two parts. Part 1 includes four modules that discuss the health and safety risks linked to shift work and long work hours, why these occur, basic information about sleep, circadian rhythms, and fatigue, and individual differences. Part 2 includes eight modules that discuss strategies to reduce risks. Suggestions for managers include designing work schedules and workplace systems to reduce risks. Strategies for workers include using behaviors that improve sleep and alertness, using naps, suggestions for different shifts

(day, evening, and night), driving, and gaining cooperation from the people in one's personal life. Each module ends with interactive questions and answers. A 7.5 minute video includes several nurses who talk about their personal experiences to motivate and engage the audience. Several types of continuing education certificates are available: CNE, CEU, CPH, and Audit.

One year after beginning the dissemination efforts, evidence demonstrates the uptake of the training. The training website had over 19,000 visits. Over 2000 people obtained continuing education certificates for taking the training. Over 45 organizations list the training program on their websites. This training was highly rated on the evaluation by persons who took the course to obtain a continuing education certificate. About 99% of those who took the posttest of knowledge items achieved a passing score.

## **Discussion**

Evidence after the first year of dissemination shows a growing number of people taking the training program. Overall the feedback has been very positive. People who took the training for continuing education certificates showed high rates of passing the posttest of knowledge items. Efforts to disseminate the training are continuing.

Future research can test the training's effectiveness on immediate outcomes: sleep length and quality; worker safety at work, during the commute and at home; worker feelings including sense of well-being; and patient outcomes. Research can examine longer term effects on other health outcomes, and relationships with family and the important people on one's life.

Shift work and long work hours are a complex workplace hazard that would benefit from studies of many types of interventions to reduce risks: testing various work scheduling patterns; manipulating light exposure, pharmacology agents, and diet regimes; work organization strategies such as fatigue risk management systems; mathematical models to predict risks; education programs for workers and managers; and studies of the impact of broader public policy measures (for example, regulations limiting work hours). This project focused on one type of promising intervention: a training program tailored for nurses to reduce risks from shift work and long work hours.

## **Summary**

A comprehensive online training program tailored for nurses by USA NIOSH relays the risks linked to shift work and long work hours and gives strategies for nurses and their managers to reduce these risks.

The citation for the training program: NIOSH, Caruso CC, Geiger-Brown J, Takahashi M, Trinkoff A, Nakata A. [2015]. NIOSH training for nurses on shift work and long work hours. (DHHS (NIOSH) Publication No. 2015-115). Cincinnati, OH: US Department of Health and Human

Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. <http://www.cdc.gov/niosh/docs/2015-115/>

Evidence of impacts one year after the launch of the training indicates high satisfaction from people who took the training. Continued dissemination efforts would alert more nurses that the training is available. It would be helpful for future research to examine the effects of the training on immediate and long term health and safety outcomes.