

Information Collection Request

**Online Training for Law Enforcement to Reduce Risks Associated
with Shift Work and Long Work Hours**

SUPPORTING STATEMENT

PART B

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

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Collections of Information Employing Statistical Methods

B1. Respondent Universe and Sampling Methods

B2. Procedures for the Collection of Information

B3. Methods to Maximize Response Rates and Deal with No Response

B4. Tests of Procedures or Methods to be Undertaken

B5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

B. Collections of Information Employing Statistical Methods

1. Respondent Universe and Sampling Methods

The pilot study will recruit a convenience sample of 30 new law enforcement officers who are in their first field training experience after graduating the police academy and 30 experienced officers. Law enforcement officers will work fixed night shifts from about 20:00 to 06:40. Night shift is a difficult type of shift work but the hours are consistent and potentially after adapting good personal strategies the worker has a chance for coping with the schedule. Therefore, it is best for this small pilot study to use participants with consistent schedules to reduce the differing effects of many types of rotating shift schedules, evening shifts, or very early morning shifts.

The new officers will be in the first patrol work experience after completing the police academy.

The experienced officers will be officers who have worked 2 to 10 as an law enforcement officer and work on patrol duties (respond to 911 calls and crisis intervention).

The research team will recruit law enforcement officers from local departments in the Spokane Washington area. According to the Department of Labor, Spokane Washington has 610 police and sheriff patrol officers (https://www.bls.gov/oes/current/oes_44060.htm#33-0000).

The following is a list of exclusion criteria for enrollment into the pilot study: alternate assignment because of injury, illness, or other reasons; pregnant or planning to become pregnant during the 12 week study period; travel across three or more time zones in the previous 3 months or plans for travel across three or more time zones during the 12 week study period.

2. Procedures for the Collection of Information

The research team will use RedCap to create and administer all the surveys and the sleep activity diary. Dr. Claire Caruso and Evan Jones, a NIOSH staff member, will create the data collection files. These will be on the NIOSH RedCap account. NIOSH study staff will send each participant links to their surveys and diary (Appendix C).

NIOSH will collect all data. The contractor will not collect any data.

NIOSH study staff will assign each participant a study identification number (ID). The number will be on a small laminated card (Appendix H) in the envelope with the informed consent (Appendix E). NIOSH staff will keep the list matching the study ID on an encrypted file on the NIOSH network. Participants will type their study ID on each survey, diary, and actigraph file. Participants will keep the ID confidential and will not share it with the contractor or anyone else.

NIOSH will not use the participant name when communicating with the contractor.

Dr. Lois James and Dr. Stephen James at Washington State University will recruit participants by an information email (Appendix F) to their law enforcement contacts in Spokane Washington area. They will hold information sessions for those interested in learning more. Copies of the informed consent (Appendix

E) will be available. Officers interested will email Dr. Claire Caruso to schedule a 30-minute phone call. During the phone call, they will learn about the study procedures and review information in the informed consent. Those willing to participate will sign the consent form and mail it to Dr. Caruso.

To begin data collection, Dr. Lois James will hold individual meetings with each participant. During the first meeting, Dr. James will reinforce what they will do in the study, answer questions, orient them to all the surveys (Appendix C), and fit them with the actigraph. They will fill out the first set of surveys during this meeting (Appendix C 1-5). Participants will complete all study surveys on their personal mobile device or personal computer.

At week 3 of the study, NIOSH study staff will email each participant their unique URL to the online training. They will complete the training at times that are convenient during week 3 of the study. After they complete the online training program, the last page of the training will include a link to two surveys: Knowledge Survey and Feedback about the Training, Barriers, and Influential People (Appendix C3 and C6).

At the end of week 4, participant meets with Dr. James to return the actigraph. The actigraph will automatically upload the data to a secure cloud storage area that is accessible only by NIOSH staff. NIOSH staff will then download the data to the NIOSH network.

At week 11 of the study, Dr. Lois James will meet individually with each participant and fit him or her with an actigraph, which they will wear for 2 weeks. They will keep the Sleep Activity Diary (Appendix C1) during those 2 weeks. At the end of week 12 of the study, Dr. James will hold a final individual meeting with each participant to take back the actigraph, give them the \$20 gift card, and have them take the last surveys (Appendix C, C4, C5, C7). The actigraph will automatically upload the data to a secure cloud storage area that is accessible only by NIOSH staff. NIOSH staff will then download the data to the NIOSH network. At this point, data collection ends.

3. Methods to Maximize Response Rates and Deal with No Response

Drs. Lois and Stephen James will be responsible for recruiting participants. These experts in the study of law enforcement have conducted several studies of law enforcement officers. They are well known in the western states law enforcement community and, as a result, are able to gain participation by law enforcement officers. Several large police organizations have sent formal letters of support for this project: Commission on Peace Officer Standards and Training; Department of California Highway Patrol; International Association of Chiefs of Police; and Major Cities Chiefs Association (see Appendix B). Dr. James will include in the recruitment process that these organizations strongly support this project.

Drs. Lois and Stephen James will recruit by word of mouth and communicating with personal contacts within law enforcement. See Appendix D with the recruitment email. This team has years of experience recruiting police participants for multiple studies via this method, and have found it to be the most successful recruitment procedure for law enforcement studies. Officers wanting more information can attend information sessions with Dr James. Dr. Caruso will hold a conference call with all potential participants to assess each for the enrollment criteria, explain the study procedures, and have them sign the consent (Appendix E), which they will mail to her.

To identify participants not filling out the diary and surveys, Evan Jones and Dr. Caruso will monitor the surveys and diaries completed in RedCap several times a week during the data collection. NIOSH staff will send an email or text reminder or phone those who have not completed their forms.

4. Test of Procedures or Methods to be Undertaken

After setting up the surveys and diary in RedCap, four NIOSH team members will fill in the forms to check that they function properly. The data from this test will be loaded into SPSS to check that download function.

All the surveys and the sleep diary have been used in previous studies. The bullet list below provides brief information about each survey and a key reference.

- Items for the Demographic and Work Experience Information (survey) (Appendix C C2) were taken from these sources.
 - CDC Health Message Testing System Question Bank (2009).
 - items to ask about work hours (Appendix) are adapted from the Standard Shiftwork Index. Barton, J., Spelten, E., Totterdell, P., Smith, L., Folkard, S., & Costa, G. (1995). The standard shiftwork index - a battery of questionnaires for assessing shiftwork-related problems. *Work & Stress*, 9 (N1), 4-30.
 - The items asking about job experience are from the Buffalo Cardio-Metabolic Occupational Police Stress (BCOPS) studies and studies by Drs. Lois and Stephen James.
- The Sleep Activity Diary (Appendix C1) has been used by Dr. Lois James in previous studies of law enforcement officers.
Carney, Colleen E., et al. "The consensus sleep diary: standardizing prospective sleep self-monitoring." *Sleep* 35.2 (2012): 287-302.
- Epworth Sleepiness Scale (Appendix C1, C4) is a commonly used survey to measure excessive daytime sleepiness.
Johns, M. W. (1991). A new method for measuring daytime sleepiness: the Epworth sleepiness scale. *Sleep*, 14, 540-545.
- Pittsburgh Sleep Quality Index (Appendix C1, C5) is a commonly used survey to measure sleep quality and disturbances over the previous month.
Buysse, D. J., Reynolds, C. F., III, Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry Res*, 28, 193-213.
- Items in the Knowledge Survey (Appendix C, C3) have been used in previous NIOSH studies and products. These items are part of the test to measure knowledge retained from this new police online 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. [www.cdc.gov/niosh/docs/2015-115/]

- The items in the survey titled - Feedback about the Training, Barriers, and Influential People (Appendix C, C6) come from two sources.
 - i. Items asking feedback about the training are from CDC Health Message Testing System Question Bank (2009).
 - ii. Items to measure barriers and influential people are adapted from a previous training intervention study of nursing students in the area of safe patient handling and movement. These measures concern three factors that influence an adult's intention to perform a behavior: 1) attitude about performing the behavior (positive or negative evaluation; 2) perceived ease or difficulty of performing the behavior based on past experience and anticipated impediments and obstacles; and 3) subjective norm which is the belief about what other influential persons would want them to do.
Nelson, A. L., Waters, T. R., Menzel, N. N., Hughes, N., Hagan, P. C., Powell-Cope, G. et al. (2007). Effectiveness of an evidence-based curriculum module in nursing schools targeting safe patient handling and movement. *Int.J Nurs.Educ.Scholarsh.*, 4:Article26. doi: 10.2202/1548-923X.1486.
- Items for the survey titled - Change in Behaviors after the Training Program (Appendix C, C7) - was adapted from the study reported in this article.
Barger, L. K., O'Brien, C. S., Rajaratnam, S. M., Qadri, S., Sullivan, J. P., Wang, W. et al. (2016). Implementing a Sleep Health Education and Sleep Disorders Screening Program in Fire Departments: A Comparison of Methodology. *J Occup Environ Med*, 58, 601-609.

5.

a. Individuals Consulted on Statistical Aspects and Design of the Pilot Study

Edward Krieg, PhD, Stat (Health) Team Leader; 513-533-8160; ekrieg@cdc.gov

David Lombardi PhD; dlombard@hsph.harvard.edu;

b. Individuals Collecting and/or Analyzing Data

Claire C Caruso, PhD RN FAAN; 513-533-8535; ccaruso@cdc.gov. Dr. Caruso is the NIOSH Project Officer responsible for organizing and supervising the project activities, receiving and approving contract deliverables, and responsible for analyses of the survey data.

Evan Jones; 513-533-8187. Mr. Jones is responsible for setting up the RedCap files and monitoring the collection files during data collection to help identify participants who need a reminder to fill out their surveys and diaries.

Lois James PhD; 509-324-7442; lois_james@wsu.edu. Dr. James is a contractor and external partner responsible for recruiting participants, holding four meetings with participants to apply and remove the actigraph and answer questions. After the data are de-identified, she will assist with analyzing the sleep diary and actigraph data.

Stephen James PhD; 509-385-9385; stevejames@wsu.edu. Dr. James is a contractor and external partner responsible for assisting Dr. Lois James with recruiting participants. After the data are de-identified, he will assist with analyzing the sleep diary and actigraph data.