Workplace Violence Prevention Programs in NJ Healthcare Facilities

Request for Office of Management and Budget Review and
Approval for Federally Sponsored Data Collection
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Section B

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B1. Respondent Universe and Sampling Methods

Compare the comprehensiveness of nursing home facility workplace violence prevention programs in New Jersey before after enactment of the legislation, compared to the comprehensiveness of programs in control nursing homes in a state without such legislation (Virginia).

> *Working Hypothesis: Enactment of the NJ regulations will improve the comprehensiveness of nursing home workplace violence prevention program policies, procedures and training.*

Characteristics related to nursing home in NJ: small 24%, medium 59%, and large 15%; for profit 69%, non-profit 25%, and government 6%. Characteristics related to nursing home in VA: small 43%, medium 52%, and large 5%; for profit 68%, non-profit 27%, and government 5%.

Characteristics related to nursing home staff in NJ and VA: CNA hours per resident per day (NJ 2.28, VA 2.3); LPN hours per resident per day (NJ 0.77, VA 1.05); RN hours per resident per day (NJ 1.04, VA 0.81); licensed staff hours hours per resident per day (NJ 1.81, VA 1.86); Total nurse hours per resident per day (NJ 1.1, VA 4.16) and Physical Therapist hours per resident per day (NJ 0.17, VA 0.12).

Source: Staff Data for nursing homes processed on 2/1/16 Via Center for Medicare and Medicaid Services (CMS). Available at: https://data.medicare.gov/data/nursing-home-compare

Statistical Power Calculation and Statistical Analysis Plan for Nursing Home Workers: We will assess the effectiveness of the legislation in NJ by comparing the percentage of NJ nursing homes who have violence prevention programs to the percentage of VA nursing homes who have violence prevention programs. Assuming that 50% of NJ nursing homes have a violence prevention program (Peek-Asa C, Casteel C, Allareddy V, Nocera M, Goldmacher S, Ohagan E, Blando J, Valiante D, Gillen M, Harrison R. Workplace violence prevention programs in psychiatric units and facilities. Arch Psychiatr Nurs. 2009 Apr;23(2):166-76) and 10% of VA nursing home have a violence prevention program, a simulation study (based on 10,000 simulations) which employed a logistic regression to statistically compare the rates by state and assumed $\alpha=0.05$, found the power of this test to be 81.1% for 20 nursing homes surveyed in each state. The sampling frame will be obtained for NJ by the Department of Health and Senior Services (n=362) and for VA by the Department of Health Professions (n=279). Variables **in both databases** (sampling frame) include provider number, nursing home name and address, nursing home type of ownership, payment type, certified number of beds, located within a hospital, multi-nursing home ownership, total number of residents, and percentage of occupied beds. A random number generator will be used to randomly sort the sampling frame of each state. The first 20 nursing homes of each state from this random order will be selected to participate in the study. If a nursing home refuses to participate in the study, the next nursing home on the random list will be selected for inclusion into the study. We will continue this procedure until we have 20 nursing homes from each state in the study; all power calculations

were performed assuming we will have 20 nursing homes fully participating in each state. We expect the response rate to be 50%. One measure of comprehensiveness will be created: (1) compliance measure to represent the degree to which nursing homes have all of the components of the NJ regulations in place following enactment. Compliance measures will be scored either as having all components of the regulation or not having all components. These components include: 1) violence prevention policies, 2) reporting systems for violent events, 3) violence prevention committee, 4) written violence prevention plan, 5) violence risk assessments, 6) post incident response, and 7) violence prevention training. Within each component, nursing homes are required to implement specific elements. Compliance measures will be collected by a self-administered survey. We will also look at degrees of compliance with the different pieces of the legislative requirements. The qualitative responses will not be used for the compliance estimates; the qualitative questions will be utilized to clarify any questions from the quantitative data. We will also compare the distributions (size and type) of these same variables for our sample versus the population to evaluate the representativeness of our sample. Limitations of measuring violence prevention programs through the existence of plans or written polices is that the researcher does not know if the policies and plans were implemented; if they were implemented, the researcher does not know the quality of the them and if they were effective in protecting the employees.

Examine patterns of assault injuries to nursing home workers before and after enactment of the regulations

> *Hypothesis:* The rates of assault injuries to nursing home workers will decrease following enactment of the regulations.

Statistical Power Calculation and Statistical Analysis Plan for Nursing Home Workers: Workmen's compensation records from both NJ and VA will be evaluated to determine if the rate of worker's compensation claims to nursing home nurses declined after implementation of the legislation. Workmen's compensation records will be utilized as a proxy for healthcare violence and assault incidents as was done in the Trinkoff et al. study (Staffing and Worker Injury in Nursing Homes. Trinkoff AM, Johantgen M, Muntaner C, and Rong L. American Journal of Public Health. July 2005, 95 (7): 1220-1225.). Three years prior to the legislation (2009-2011) and three years post-legislation (2012-2014) will be collected. A previous study (Staffing and Worker Injury in Nursing Homes. Trinkoff AM, Johantgen M, Muntaner C, and Rong L. American Journal of Public Health. July 2005, 95 (7): 1220-1225.) has shown the rate of worker's compensation claims by nurses employed in nursing homes to be 3.09 per hundred nurse FTE per year. Assuming there are 13,190 nurses employed in NJ each year, and the rate of 3.09 violence claims per FTE per year drops by 10% to 2.78 per FTE per year, a simulation study (based on 10,000 simulations) assuming the number of claims per year to follow Poisson probability distributions and $\alpha=0.05$, our power to detect a statistically significant difference is 71.4%. A drop in the three year post data of 20% with the same assumptions would provide 99.9% power to detect a significant difference.

B.2 Procedures for the Collection of Information

Data Collection Methods: Data collection for Facility (Nursing Home) Survey will include interviews with the facility's violence prevention committee chair (who is the individual

responsible for oversight of the program); the chair could be a nursing home administrator. The committee chair is selected by the nursing home violence prevention committee members and is responsible for the workplace violence prevention program.

Facility (nursing home) survey

Interviews with Violence Prevention Committee Chairs: The purpose of these interviews is to gathers data on the nursing home's workplace violence prevention program, the policies, procedures and training materials. The interviews will utilize standardized questionnaires (C1 and C2) for the nursing home administrator. At the time of recruitment, Dr. Blando will schedule an interview to be conducted at the facility with the committee chair.

Violent Event Incident Reports and Administrative Records:

The employee incident form will not be utilized since nursing home physical assault injuries will not be collected.

Quality Control and Data Management:

The NJ Department of Health maintains the master nursing list (updated annually) and the Virginia Department of Health Professions maintains the master list and updates it annually. Each eligible facility in NJ will be assigned a unique study identification number. This number will be used on all interview forms. The facility name and address will never be documented on these forms. Interview data will be collected directly into SAS databases. Any pertinent information from the interview that is not amenable to key stroke entry will be recorded in hard copy, and decisions will be made after the site visit on how best to incorporate this information. However, it is important to note that the database will contain text fields that can allow for respondents to expand on questions asked in the interview. The direct data entry is an efficient process and will also reduce the potential for transcription errors.

A password-protected FTP (File Transfer Protocol) site, available through NIOSH, will be used to transfer SAS databases from Drs. Blando and Casteel to Ms. Ridenour and Dr. Hartley at NIOSH (see section B5 for full details of roles).

A tracking database will be maintained of all eligible health care facilities identified from the NJDHSS, Division of Health Care Facility Evaluation and Licensing. This database will link the facility with the study identification number and will track: status of participation (enrolled, declined, passive withdrawal), and if declined, the reason why; facility-level financial and operation data (e.g. number of hospital beds, number of patients per year, amount of charity care rendered, hospital control); and dates the various sources of data are received at NIOSH. Ms. Ridenour and Dr. Hartley will maintain this database and monitor all field activity.

Data cleaning will be conducted on a quarterly basis. Codebooks will be created for all databases. Back-up copies of databases and codebooks will be regularly archived on secure file servers maintained by NIOSH. All data will be maintained on password-protected computers, accessible only to project staff. All hard-copy forms will be stored in locked filing cabinets in locked project staff offices and shredded once data entry and cleaning are completed.

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

Potential limitations of the study include: (1) Nursing Home nonparticipation, and (2) Quality of nursing home-level regulation implementation. *Nursing Home nonparticipation:* Nonparticipation will be minimized through several means which includes follow-up by letter and phone during the recruitment process. Studies have shown that follow-up letters and multiple phone calls can increase participation rates by up to 10%. *Quality of nursing home-level regulation implementation:* The proposed analysis plan for measuring baseline comprehensiveness to the NJ regulations is based on the number of components nursing homes have in place. In other words, it is a quantitative measure and does not incorporate the quality of implementation of the component.

To address non-response bias which could occur due to nursing homes which were randomly selected and refused to participate in the study, an analysis on the distribution of nursing homes by the variables available in our data frame (nursing home type of ownership, payment type, certified number of beds, located within a hospital, multi-nursing home ownership, total number of residents, and percentage of occupied beds) for all nursing homes in the frame, selected nursing homes who participated in the study, and selected nursing homes who did participate will be compared. If the distribution of these variables are found to significantly differ, this variable will be included in any final modeling to adjust for potential non-response bias and/or selection bias due to our random sampling.

B.4 Tests of Procedures of Methods to be Undertaken

The personal interview methodology was employed because this worked in the previous NIOSH study.

A NIOSH protocol for the full study was peer-reviewed by a committee of grant proposal reviewers and external peer reviewers. The protocol has been submitted for NIOSH HSRB review and approved. In the event that any changes need to be made to the data collection forms, a change justification will be submitted to OMB.

B.5 Individuals consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

No change to key personnel providing statistical consulting, data collection, and study design.

Key personnel providing statistical consulting, data collection, and study design are provided below.
Statistician consulting: Completed the power calculations and developed the sampling methodology:

Scott Hendricks, M.S.
Statistician
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Data collection: The hospital interviews will be conducted by Dr. Blando. The nurse surveys and home healthcare aid surveys will be done by contract employees: Contract to be awarded in FY12. OMB will be notified upon contract award.

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Study design, data collection, and analysis: The principle investigators (NIOSH project officers), Carri Casteel and James Blando are responsible for the study design, management of the data collection, management of the system of records, and analysis of the data:

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