**SURVEY OF HEALTHCARE WORKERS’ HEALTH AND SAFETY PRACTICES**

Request for Office of Management and Budget (OMB) Review and Approval

for a Federally Sponsored Data Collection

James M. Boiano, MS, CIH

Project Officer

[jboiano@cdc.gov](mailto:jboiano@cdc.gov)

National Institute for Occupational Safety and Health

Division of Surveillance, Hazard Evaluations and Field Studies

Surveillance Branch, Mail Stop R-17

4676 Columbia Parkway

Cincinnati, OH 45226-1998

513-841-4246 (tel)

404-929-2646 (fax)

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**Table of Contents**

**A. Justification**

A1. Circumstances Making the Collection of Information Necessary

A2. Purpose and Use of Information Collection

A3. Use of Improved Information Technology and Burden Reduction

A4. Efforts to Identify Duplication and Use of Similar Information

A5. Impact on Small Businesses or Other Small Entities

A6. Consequences of Collecting the Information Less Frequently

A7. Special Circumstances Relating to the Guidelines of 5 CFR 1320.5

A8. Comments in Response to the Federal Register Notice and Efforts to Consult Outside the Agency

A9. Explanation of Any Payment or Gift to Respondents

A10. Assurance of Confidentiality Provided to Respondents

A11. Justification for Sensitive Questions

A12. Estimates of Annualized Burden Hours and Costs

A13. Estimates of Other Total Annual Cost Burden to Respondents or Record Keepers

A14. Annualized Cost to the Government

A15. Explanation for Program Changes or Adjustments

A16. Plans for Tabulation and Publication and Project Time Schedule

A17. Reason(s) Display of OMB Expiration Date is Inappropriate

A18. Exceptions to Certification for Paperwork Reduction Act Submissions

**B. Collection 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 Nonresponse

B4. Tests of Procedures or Methods to be Undertaken

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

**Literature Cited**

**Attachments**

Attachment A: Occupational Safety and Health Act [29CFR § 671]

Attachment B: NIOSH Surveillance Strategic Goal 3

Attachment C: Stakeholder Letters of Support

Attachment D: 60-Day Federal Register Notice

Attachment E: Public Meeting

Attachment E1: Notice of Public Meeting April 30, 2008

Attachment E2: Public Meeting Attendees

Attachment F: HSRB Non-Research Determination

Attachment G: Web Page Informational Materials

Attachment G1: Home Page

Attachment G2: Information about NIOSH

Attachment G3: Frequently Asked Questions (FAQs)

Attachment G4: Privacy and Security

Attachment G5: Disclaimer

Attachment G6: How to Contact Us

Attachment H: Sampling Approach for Partnering Professional Organizations

Attachment H1: Organizations with greater than 3,000 members with email addresses

Attachment H2: Organizations with 3,000 or fewer members with email addreses

Attachment I: Survey Instrument

Attachment I1: Screening Module

Attachment I2: Hazard Module A - Aerosolized Medications

Attachment I3: Hazard Module B - Antineoplastic Agents (Compound)

Attachment I4: Hazard Module C - Antineoplastic Agents (Administer)

Attachment I5: Hazard Module D - Chemical Sterilants

Attachment I6: Hazard Module E - High Level Disinfectants

Attachment I7: Hazard Module F - Surgical Smoke

Attachment I8: Hazard Module G - Anesthetic Gases

Attachment I9: Core Module

Attachment J: Email Recruitment Letters

Attachment J1: Pre-Survey Notification

Attachment J1: Invitation Email

Attachment J2: First Reminder Email

Attachment J3: Second reminder Email

Attachment J4: Final Reminder Email

**A. Justification**

**A1. Circumstances Making the Collection of Information Necessary**

**Background**

This is a new information collection request from the National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention. The proposed information collection will address the need for occupational hazard exposure surveillance data for healthcare workers who use or come in contact with hazardous chemical agents including antineoplastic agents, anesthetic gases, aerosolized medications, chemical sterilants, high level disinfectants and surgical smoke. The target population for this survey will include members of healthcare-related professional organizations who have agreed to make the survey available to its members.

Tracking of occupational hazards, exposures, injuries and illnesses has and continues to be an integral part of the NIOSH mission since its creation by the Occupational Safety and Health Act [29CFR § 671] of 1970 (Attachment A). This project is of programmatic importance to NIOSH; Goal 3 (Attachment B) of the NIOSH Surveillance Strategic Plan is to “strengthen surveillance of high-risk industries and occupations, and of populations at high risk, including special populations.” NIOSH and stakeholders have recognized healthcare as a high-risk industry with workers in many occupations being exposed to chemical, physical, biological and radiologic agents, physical and psychosocial demands, workplace stress and violence which places workers at risk for illness and injury.

The proposed survey will provide important information on health and safety practices and exposures of healthcare workers that is not currently available elsewhere. The more than 17 million workers in the Healthcare and Social Assistance (HCSA) sector represent about 12% of the U.S. workforce with a projected growth of more 30% by 2014, more than in any other industrial sector [Bureau of Labor Statistics 2006; Hecker DE 2005]. Workers in this sector are experiencing higher rates of illness and injury as compared to workers in all private industry. The data collected from this survey, the first of its kind by the Federal government, will provide information on health and safety practices (including exposure controls) utilized by healthcare workers who handle or come in contact with the targeted hazardous chemical agents. NIOSH will use the data to identify gaps relative to the utilization of best practices and guide interventions and future hazard surveillance activities; the participating organizations will use the data for benchmarking, identifying areas for expanding guidelines and for health and safety promotion.

In order to address occupational safety and health issues of the nation, NIOSH organized its National Occupational Research Agenda (NORA) program portfolio into eight industrial sectors as defined by the North American Industry Classification System (NAICS). Each sector has a sector council (comprised of representatives from industry, labor, academia and NIOSH) which is responsible for identifying important occupational health and safety issues and occupational safety and health goals for their respective industry sectors. The HCSA Sector Council has identified important knowledge gaps and research needs in their report *State of the sector/healthcare and social assistance: identification of research opportunities for the next decade of NORA* [NIOSH 2009a]. One of the recommendations of the council was for improved hazard and health surveillance, recognizing that such data would be used for multiple purposes, i.e., to identify new and emerging hazards, track the magnitude and distribution of exposures and the use of exposure con­trols among occupational groups, identify populations for targeted interventions, and track the effectiveness of interventions over time.

The proposed data collection will also meet goals identified by the HCSA sector council [NIOSH 2009b] including:

Activity Goal 3.1.1: Partner with professional associations to acquire demographic information on members who compound and/or administer hazardous drugs by occupation and size and type of practice setting.

Intermediate Goal 3.3: Eliminate or reduce exposures and adverse health effects caused by chemical agents (other than hazardous drugs) that are used or generated in healthcare establishments.

This hazard surveillance survey will describe health and safety practices including the use of exposure controls (and barriers to use) by healthcare workers who are likely to use or come in contact with hazardous chemical agents in their job. Health and safety practices of healthcare workers by hazard, occupation, and type and size of work setting. Although this survey is limited to the over 900,000 members of twenty-two (22) professional organizations representing many healthcare occupations and specialties, it will nevertheless provide valuable information to guide health and safety promotion, interventions and future research.

*Other surveys of health care workers*

We are aware of three occupational health and safety surveys specific to healthcare workers, all focusing on nurses, the largest occupation in healthcare. The surveys gathered information on hazards, exposures, health and safety practices, exposure controls and/or health outcomes. Each survey was web-based and utilized a convenience sampling approach. These three surveys demonstrate the utility of web surveys in healthcare.

In 2001, the American Nurses Association in collaboration with constituent member associations conducted a health and safety survey of nurses [ANA 2001]. The survey consisted of 29 questions, 19 of which focused on health and safety outcomes (injuries/illnesses, needlesticks, back pain, assaults) and use of safe needle devices, lifting and transfer devices, and powdered latex gloves. The remaining questions characterized demographics of respondents. Over 4,800 nurses completed the survey over a four week posting period. One of the more noteworthy findings of this survey was that nearly eighty percent of the respondents indicated that they did not feel safe from work-related injury or illness in their current working environment.

In January 2006, Health Care Without Harm (HCWH) and the Environmental Working Group (EWG) jointly sponsored a web-based survey of nurses to explore the relationship between nurses’ health and occupational exposures to chemicals, hazardous drugs, and other harmful agents [EWG 2007]. Nurses were asked to provide information about their health, the health of their children, and about their exposures to different common healthcare-related hazards. Over 1,400 nurses completed the survey over a one year posting period. The survey showed that nurses who were frequently exposed to chemical sterilants, housekeeping cleaners, chemotherapeutic drugs, radiation and other hazardous substances reported increased cancers and birth defects, particularly musculoskeletal defects in their children. Recognizing biases and limitations of the survey, the sponsors called for a comprehensive national study of nurses’ health and exposures to chemicals and hazardous substances in the healthcare industry.

In 2007, researchers at Duke University Medical Center conducted a survey to evaluate the extent of use of engineering controls and respiratory protection among nurses exposed to surgical smoke [Edwards 2008]. Over 620 nurses, primarily perioperative registered nurses, completed the survey over a 14 week posting period. Survey results indicated that many facilities have not implemented best practices for protecting healthcare workers and patients from surgical smoke plumes.

The proposed survey will gather health and safety information from a wide range of healthcare occupations in addition to nurses. The survey data will allow NIOSH to describe health and safety practices including the use of exposure controls (and barriers to use) by healthcare workers who are likely to use or come in contact with hazardous chemical agents in their job. Each of the participating professional organizations has expressed interest in the data in terms of how they can be used to promote improved health and safety practices among their members.

The proposed survey is modular in design and will be only available on-line. The survey includes separate hazard modules addressing antineoplastic agents, anesthetic gases, aerosolized medications, chemical sterilants, high level disinfectants and surgical smoke. It also includes a core module which gathers information on a broad range of health and safety hazards including physical demands, psychosocial demands, workplace violence, and other pervasive health care hazards, as well as demographic information. Members of participating professional organizations will be recruited by email which will be sent by each organization to their members. All members selected for the survey will complete a brief screening questionnaire. If they used one or more of the chemical agents under study in the past week, they will complete one of the hazard modules and the core module. A second hazard module may also be completed depending on whether they used other chemical agents in the past week. All modules are seamless in the web survey.

**Privacy Impact Assessment**

No information in identifiable form (IIF) will be collected during the survey. The survey will be on a secure web site hosted by our contractor that will be accessible by sampled members of the participating organizations. The hyperlink and internet address to the survey will only be made available to members of participating professional organizations, hence the information will not be directed at children under the age of thirteen years. Aggregated survey results will be made available on the NIOSH public internet site.

Please see below for additional information related to the Privacy Impact Assessment.

**Overview of the Data Collection System**

A web survey software application developed by our survey contractor (Westat) will be solely used to collect and manage the data. Depending on the size of the participating professional organization, all members or a random sample of members will be sent an email by the organization which will contain a link to the survey. The survey will reside on a secure web site hosted by our survey contractor and will be accessible 24/7 during the data collection period. The survey will take less than 30 minutes to complete for most respondents, and about 40 minutes to complete for an estimated 10% of respondents who complete a second hazard module (see Section A12).

All data collection will be conducted by our survey contractor. At the conclusion of the survey, the database will be transferred to NIOSH where it will be stored in a secure manner.

**Items of Information to be Collected**

All data collection activities will be conducted in full compliance with the CDC regulations to maintain the privacy of data obtained on persons and to protect the rights and welfare of human subjects, as contained in Title 28 of the Code of Federal Regulations, Parts 22 and 46.

No individually identifiable information is being collected. Information will be collected on demographic variables (year of birth, sex, race, education, professional and labor organization affiliation, fluent language(s) spoken, employment status), occupation and industry, employment status, health and safety practices, work hours and other aspects of work organization, occupational exposures, illness/injury/exposures in the past year, and use of exposure controls including personal protective equipment and barriers to their use.

**Identification of Website(s) and Website Content Directed at Children Under**

**13 Years of Age**

No information will be directed at children under the age of thirteen years.

The proposed research will involve the collection of information utilizing a web based survey software application which will reside on a secure web server maintained by our survey contractor. The link to the survey will only be distributed to members of the participating professional organizations.

**A2. Purpose and Use of Information Collection**

The purpose of this project is to conduct an occupational hazard surveillance survey that characterizes health and safety practices, including use of exposure controls, by healthcare workers who handle or come in contact with the targeted hazardous chemical agents. This information is not available elsewhere. The survey data will be used by NIOSH to identify gaps relative to the use of best practices and guide interventions and future hazard surveillance priorities in healthcare, and by the participating professional organizations for benchmarking, identifying areas for expanding guidelines and for health and safety promotion.

This project has been fully funded by NIOSH as part of the National Occupational Research Agenda (NORA).

This survey has the support of 22 professional organizations which represent workers in healthcare occupations who are potentially exposed to one or more of the targeted chemical agents (i.e., antineoplastic agents, anesthetic gases, aerosolized medications, chemical sterilants, high level disinfectants and surgical smoke). Each of these organizations voluntarily expressed interest in current information on hazards and exposures and health and safety practices for their members. They stated that the survey would contribute to focusing their efforts to improve the health and safety of their members. Letters of support are included in Attachment C.

Numerous other stakeholders indicated that the survey data would be valuable in characterizing health and safety practices, including use of exposure controls, by healthcare workers who handle or come in contact with the targeted hazardous chemicals. Without this data, NIOSH will not be able to determine whether it is necessary/feasible to conduct a more comprehensive hazard surveillance information collection among healthcare workers.

**Privacy Impact Assessment Information**

No IIF is being collected in this survey.

The information is being collected to provide safety and health data on healthcare workers to professional organizations, researchers, labor organizations, healthcare industry organizations, and the public (including healthcare workers). The information will be used to guide health and safety promotion, interventions and future research.

**A3. Use of Improved Information Technology and Burden Reduction**

In order to maximize efficiency and reduce burden, a web-based survey is proposed for all data collection. At a secure web site, the survey will be constructed for easy respondent use, allowing the automatic administration of skip patterns, while maintaining a simple, seamless navigation. Web-based surveys have gained increasing acceptance as a research tool as they offer many advantages, including:

* On-line surveys create cost efficiencies because respondents complete them during a much shorter window of time than other survey modes, and at a substantially reduced cost (i.e., less labor is involved than telephone or in-person surveys; postage is required for mail-based surveys);
* On-line surveys create time efficiencies (i.e., less time to complete the survey because it can be programmed to efficiently guide respondents through skip patterns so that they are not asked questions that do not apply to them or have to spend time navigating through complex instructions);
* All responses are automatically recorded, allowing for minimal data cleaning, and rapid tabulation and analysis of findings;
* Respondents potentially have the option of answering questions in a private setting where they feel comfortable and at ease (e.g., at home);
* Respondents can complete the survey within their own time schedule, and can exit the survey at any time and resume the survey where they ended;
* Previous research [Catalano et al 2006] suggests that healthcare workers prefer completing an online survey when given a choice between a web survey and a paper survey.

Recent surveys have shown that healthcare workers are very interested in workplace health and safety and it is expected that this interest will result in an acceptable response rate and high quality data [ANA 2001; EWG 2006; Edwards and Reiman 2008].

**A4. Efforts to Identify Duplication and Use of Similar Information**

NIOSH has searched the scientific literature, contacted colleagues at NIOSH and OSHA, contacted professional, labor and industry organizations representing healthcare workers, and examined questions available in previous surveys of healthcare workers. To date, we are unaware of any survey of healthcare workers that has collected or is currently collecting information that describes health and safety practices employed by healthcare workers when handling or in contact with the targeted hazardous chemical agents. As evidenced by the letters of support (Attachment C), numerous professional organizations agree that there is a need for a survey of healthcare workers which focuses on the important occupational health and safety issues that we are targeting.

**A5. Impact on Small Businesses or Other Small Entities**

Because members of professional organizations representing healthcare workers in different occupational groups will comprise the sampling pool for this survey, issues encountered in small businesses will be covered in this study. Participation is completely voluntary, and respondents will be encouraged to complete the survey on their own time. All respondents will be instructed to complete the entire survey, and questions have been held to the minimum required for the intended use of the data.

**A6. Consequences of Information Collected Less Frequently**

This request is for a one-time data collection. If this data collection does not take place, NIOSH or others will not possess current hazard surveillance data to guide interventions and future research for this important sector of the economy. Furthermore, the participating professional organizations will not have current health and safety data on their members to guide health and safety promotion. There are no legal obstacles to reduce the burden.

**A7. Special Circumstances Relating to the Guidelines of 5 CFR 1320.5**

The study population will consist of members of professional organizations who have voluntarily agreed to participate in the study. The sample design for the survey will be probability based for organizations with >3,000 members, and a census for organizations with < 3,000 members. The study findings from each organization will be representative of that organization, and will not be used to make inferences about the U.S. population for any of the occupational groups (nurses, dentists, pharmacists, etc) included in the survey.

**A8. Comments in Response to the Federal Register Notice and Efforts to Consult Outside the Agency**

1. In accordance with 5 CFR 1320.8(d), a review of the proposed study was sought through a 60-day publication period in the *Federal Register* (December 7, 2009, Vol. 74, No. 233, pages 64088 and 64089 (Attachment D). A request was received from the public for a copy of the survey materials. No other comments were received in response to the Federal Register notice.
2. NIOSH has consulted with numerous individuals and organizations outside the agency regarding the availability and usefulness of the proposed data collection, including numerous professional and labor organizations, industry associations and researchers. In addition, we have contracted with Westat to provide guidance on the survey protocol, sampling design, and questionnaire development. We have also contracted with the University of Michigan, Institute for Social Research, to provide guidance on the design of the web survey.

The following chronology documents these contacts:

***2007***

The survey proposal was peer-reviewed and competitively rated based on project approach, potential impact, innovation, and significance. The project received favorable scores and was selected for funding by NIOSH.

***2008***

An open, public stakeholder meeting was held in Hebron, Kentucky (Greater Cincinnati/Northern Kentucky airport) on April 30, 2008 (see Attachment E for the Notice of Public Meeting and list of meeting attendees). The purpose of this meeting was to provide interested stakeholders the opportunity to comment on the content and operational aspects of the survey. Stakeholders had the option of providing comments during the meeting (which were audio recorded), or by email. NIOSH established Docket Number 135 and the following link for making comments and other project information available to the public <http://www.cdc.gov/niosh/docket/nioshdocket0135.html>. Comments on the questionnaires were evaluated and revisions were made as necessary prior to cognitive testing.

***2009***

The survey instrument was sent to the following individuals for review and input:

Len Boras, AA-C; American Academy of Anesthesiologist Assistants, 608-833-1697; [lboras@charter.net](mailto:lboras@charter.net)

Richard Branson, MSc, RRT; Associate Professor of Surgery, University of Cincinnati Surgeons, Inc., 513-558-6785; [bransord@ucmail.uc.edu](mailto:bransord@ucmail.uc.edu)

Lisa Thiemann, CRNA, MNA; Acting Senior Director, Professional Practice Division, American Association of Nurse Anesthetists, 847-655-1136; [lthiemann@aana.com](mailto:lthiemann@aana.com)

Mary Ogg, RN, MSN, CNOR; Perioperative Nurse Specialist, Association of Perioperative Registered Nurses, 303-755-6304 ext 485; [mogg@aorn.org](mailto:mogg@aorn.org)

Margrethe May, CST, MS; Coordinator, Surgical Technology Program, Delta College, 989-686-9505; [mmay@delta.edu](mailto:mmay@delta.edu)

Nancy Hughes, MS, RN; Director, Center for Occupational and Environmental Health, American Nurses Association, 301-628-5021; [nancy.hughes@ana.org](mailto:nancy.hughes@ana.org)

Arnold Berry, MD, MPH; Professor of Anesthesiology, Emory University, 404-778-3937;

[aberry@emory.edu](mailto:aberry@emory.edu)

Jonathan Katz, MD; Clinical Professor of Anesthesiology, Yale University School of Medicine, Chair, ASA Committee on Occupational Health, 203-576-5152; [jonathan.katz@yale.edu](mailto:jonathan.katz@yale.edu)

Richard Harris, PhD; Director of Research, American Society of Radiologic Technologists

505-816-1865; [rharris@asrt.org](mailto:rharris@asrt.org)

Gail Mallory, PhD, RN; Director of Research, Oncology Nursing Society, 412-859-6308; [gmallory@ons.org](mailto:gmallory@ons.org)

Karl Wagner, BA, PA-C; Senior Physician Assistant, American Academy of Physician Assistants in Occupational Medicine, 248-849-3195; [karl.wagner@providence-stjohnhealth.org](mailto:karl.wagner@providence-stjohnhealth.org)

Sandra Covington, CPhT, BS; Clinical Coordinator,/Instructor, Durham Technical Community College, 919-686-3800; [covingtons@durhamtech.edu](mailto:covingtons@durhamtech.edu)

Cathy Roberts, CDA, EFDA, COA, CDPMA, MADAA; Consultant, American Dental Assistants Association, 812-320-5437; [cjradaa@aol.com](mailto:cjradaa@aol.com)

Helen Ristic; Director, Scientific Information, American Dentists Association, 312-440-2553; [ristich@ada.org](mailto:ristich@ada.org)

Cynthia Reilly, BS Pharm; Director Practice Development Division, American Society of Health-Systems Pharmacists, 301-664-8664; [creilly@ashp.org](mailto:creilly@ashp.org)

Linda Wilson, RN, PhD, CPAN, CAPA, BC, CNE; Liason for Education, Research and Practice, American Society of Perianesthesia Nurses, 856-616-9600 ext 21; [lwilson@aspan.org](mailto:lwilson@aspan.org)

Kevin Frey, CST, MA; Director, Continuing Education Department, Association of Surgical Technologists; 303-325-2515; [kfrey@ast.org](mailto:kfrey@ast.org)

Natalie Lind; Education Director, International Association of Healthcare Central Service Materiel Managers, 218-227-5675; [natalie@iahcssm.org](mailto:natalie@iahcssm.org)

Kathleen Marinucci, BS, BSN, CRNI; Education Manager, Infusion Nurses Society, 888-633-0479; [kathy.marinucci@ins1.org](mailto:kathy.marinucci@ins1.org)

Mike Johnston, Executive Director; National Pharmacy Technician Association, 888-247-8700 ext 201; [mikej@pharmacytechnician.org](mailto:mikej@pharmacytechnician.org)

Ruth Helein; Executive Director, National Surgical Assistants Association, 888-633-0479; [ruth@namgmt.com](mailto:ruth@namgmt.com)

Cynthia Friis, MEd, BSN, RN, BC; Director Education and Practice, Society of Gastroenterology Nurses and Associates, 800-245-7462; [cfriss@smithbucklin.com](mailto:cfriss@smithbucklin.com)

**A9. Explanation of Any Payment or Gift to Respondents**

No payments will be offered to respondents as remuneration for their participation in this survey.

**A10. Assurance of Confidentiality Provided to Respondents**

The questionnaire will collect potentially sensitive information about injuries and illnesses and health and safety practices. Risks to participants are low, since no information in identifiable form (IIF) will be collected. NIOSH will only be reporting and publishing aggregated data from this survey.

The Co-Chair of the NIOSH Human Subjects Review Board (HSRB) determined that activities related to pilot testing and implementation of the Healthcare Workers’ Health and Safety Practices Survey do not meet the criteria of research according to 45 CFR 46.1101(b)(2) and CDC Guidelines for Defining Public Health Research and Public Health Non-Research [CFR 2009; CDC 1999]. Because these activities are considered surveillance rather than research, NIOSH HSRB review is not required. (Attachment F).

**Privacy Impact Assessment Information**

1. The CDC’s Information Collection Review Office has reviewed this application and has determined that the Privacy Act is not applicable. No individually identifiable information will be collected.
2. Access to micro data will be limited to authorized NIOSH project staff. NIOSH facilities have 24 hour security, and all electronic data will be stored on secure servers accessible only with passwords. Westat and any other NIOSH contractor will be required to follow equivalent procedures.

The method of handling the data complies with the Freedom of Information Act, the Privacy Act System of Records 09-20-147 (Occupational Epidemiological Studies, HHS/CDC/NIOSH).

1. Respondents will be provided with information on the web page that will explain the intended use of the information collected, describe any risks participants may face, and inform them that their participation is completely voluntary. This information will be provided in the format of ‘frequently asked questions (FAQs)’ (Attachment G). Consent is implied when respondent begins the survey.
2. Respondents will be informed that their participation is voluntary, and that they may discontinue the survey at any time. The Privacy Act does not apply since no individually identifying information is being collected.

**A11. Justification for Sensitive Questions**

The proposed survey contains questions on race, ethnicity, highest level of education, and occupational injuries, illnesses and exposures which some participants may view as sensitive. The web-based data collection instrument will be self-administered and contain no personally identifiable information. Respondents will have complete anonymity in answering the questions and therefore are unlikely to view them as sensitive. The demographic information will be used to compare the demographic composition of those who participate in the survey with the composition of the professional organizations from which the samples were drawn to evaluate response bias where possible. Information on potential exposures, injuries, and illnesses will be used to identify new risk groups, guide health and safety promotion, interventions, and future research.

**A12. Estimates of Annualized Burden Hours and Costs**

A. Estimates of Annualized Burden Hours

Each of the 22 participating professional organizations will be responsible for implementing the sampling approach developed by NIOSH (see Table B-2) and sending invitation and reminder emails to sampled members. It is estimated that these activities will take each organization about 5 hours to complete, resulting in an annualized hour burden estimate of 110 hours. The organizations will not receive any remuneration from NIOSH for their efforts (Table A12-1). .

The sample size for the survey is estimated to be 41,040 healthcare workers. The targeted number of completed questionnaires is estimated at about 20,310 (50% participation rate is assumed). The estimate for the number of completed questionnaires includes 1,000 questionnaires from each of 19 professional organizations with greater than 3,000 members with email addresses, and 1,310 questionnaires from 3 professional organizations with less than 3,000 members with email addresses.

The survey is estimated to take about 30 minutes for respondents who complete the screening module, one hazard module and the core module. An estimated 10% of respondents are expected to complete a second hazard module, estimated to take an additional 10 minutes to complete, for a total completion time of 40 minutes. These two survey completion scenarios yield an annualized hour burden estimate of 11,287 hours (Table A12-1). No direct costs will accrue to respondents other than the time to complete the survey.

**Table A12-1. Estimates of Annualized Burden Hours**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type**  **of**  **Respondent** | **Activity or**  **Form Name** | **Number**  **of**  **Respondents** | **Number of**  **Responses**  **Per Respondent** | **Avg. burden per response**  **(in hours)** | **Total burden**  **(in hours)** |
| Professional Organization | Implement NIOSH sampling approach; send invitation and reminder emails to sampled members | 22 | 1 | 5 | 110 |
| Healthcare Workers | Screening Module | 41,040 | 1 | 1/60 | 684 |
| Primary Hazard Module | 20,310 | 1 | 10/60 | 3,385 |
| Core Module | 20,310 | 1 | 20/60 | 6,770 |
| Secondary Hazard Module | 2031 | 1 | 10/60 | 338 |
| **Total** | | | | | **11,287** |

B. Estimates of Annualized Burden Costs

The median hourly wage rate of a database administrator ($33.53) was used to estimate the annualized cost for professional organizations to complete the activities previously described (Table A12-2). The mean hourly wage rate was based on data from the Bureau of Labor Statistics [BLS 2008].

The hourly wage rate for survey respondents ($33.55) was calculated using median hourly wage rates for occupations represented by the participating professional organizations (see Table B-1) and weighting the hourly rates by the estimated percentage for each occupation completing the survey. The median hourly wage rates for each occupation was based on data from the BLS [BLS 2008] and from O\*NET [O\*NET 2008] where BLS data was unavailable.

**Table A12-2. Estimates of Annualized Costs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of Respondent** | **Total Burden Hours** | **Hourly Wage Rate** | **Total Cost** |
| Professional Organization | 110 | 33.53 | $3,688 |
| Healthcare Worker | 11,177 | 33.55 | $374,988 |
| **Total** | **11,287** |  | **$378,676** |

**A13. Estimates of Other Total Annual Cost Burden to Respondents or Record Keepers**

There are no additional cost burdens for the professional organizations or for the respondents.

**A14. Annualized Cost to the Government**

Total costs include work performed by the survey contractor, an independent consultant, and CDC personnel. The contractor, Westat, will be responsible for programming the web version of the survey, developing the survey web page, usability testing of the web survey, conducting the survey, data management, and preparing survey reports for each of the participating professional organizations. Estimated annualized costs to the Federal Government for the survey period are presented in Table A14 below.

**Table A14. Estimated Annualized Cost to the Federal Government**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **FY2010** | **FY2011** | **Annualized**  **Cost** |
| **CDC Personnela** | $185,524 | $222,480 | $204,002 |
| **Contractors** | $329,246 | $0 | $164,623 |
| **Supplies** | $100 | $150 | $125 |
| **Total** | | | $368,750 |

a Includes a 3% personnel cost of living salary increase per year

**A15. Explanation for Program Changes or Adjustments**

This is a new data collection.

**A16. Plans for Tabulation and Publication and Project Time Schedule**

A research contractor, Westat, will be assisting NIOSH with this survey. Westat will be responsible for cognitive testing of the survey instruments, programming of the paper version of the survey instrument into a web survey, development of a survey web page, usability and functionality testing of the web survey, conducting the web survey, data cleaning, and preparation of separate reports for each of the participating professional organizations. Tables and charts will be used to present frequency distributions of response categories to each question in the survey. Findings will be presented by hazard, occupation, and by professional organization (i.e., each participating professional organization will receive a report presenting tables and charts containing data as described above). Additional characterization may include health and safety practices and exposure controls used by different types and sizes of establishments, and workers with fewer or more years of experience.

**Table A16. Project Time Schedule**

|  |  |
| --- | --- |
| **Activity** | **Time Schedule**  **(months after OMB approval\*)** |
| Programming of web survey/survey home page | During OMB review |
| Survey pre-test | During OMB review |
| Professional organization draws sample | 1 month |
| Invitation/reminder e-mails to sampled members | 1-2 months |
| Data collection | 2 months |
| Data quality control | 3-4 months |
| Data analysis | 4-5 months |
| Prepare survey report and technical documentation; Prepare summary reports for each professional organization | 6-11 months |
| Web-dissemination of survey report | 12 months |

**\***But no earlier than late January 2011

**A17. Reason(s) Display of OMB Expiration Date is Inappropriate**

There is no request for an expiration date display exemption.

**A18. Exceptions to Certification for Paperwork Reduction Act Submissions**

There are no exceptions being sought to the certification statement.