

**Assessment of Occupational Injury among Fire Fighters Using a Follow-back
Survey (Information Collection Request – Extension, OMB # 0920-1244)**

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

Section A

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Attachments

Attachment A Section 20(a)(1) of the Occupational Safety and Health Act	
Attachment B 60-Day Federal Register Notice	
Attachment C Fire Fighter Follow-back Survey	
Attachment D Pre-Interview Letter for Potential Subjects	
Attachment E Protocol (without Survey)	
Attachment F HSRB Approval Letter	
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Goal of the study: The purpose of this project is to describe nonfatal occupational injuries and exposures incurred by firefighters and treated in a nationally stratified sample of emergency departments (EDs).

Intended use of the resulting data: The results of this study will provide detailed insight into the incidence and characteristics of nonfatal occupational injuries and exposures among firefighters. This information will increase awareness of the need to implement and improve prevention efforts and, consequently, reduce occupational injuries and illnesses among firefighters.

Methods to be used for data collection: Data will be collected via follow-back telephone interviews with injured and exposed firefighters. This questionnaire contains questions about the respondent's injury or exposure that sent them to the ED, their specific activity at the time of their injury or exposure, work experience and competencies, and recovery experience.

Subpopulation to be studied: Injured and exposed firefighters who are captured in a national ED surveillance system.

Data analysis: While the original intent of this study was to compute weighted estimates in a descriptive study of the interview data, due to the lower than expected response rates, data collected through this study will be analyzed through a case series approach. These data will supplement firefighter injury data from an existing ED surveillance system of work-related injury data to provide some additional information on factors contributing to firefighter injuries. This combined analysis will be included in various products including a scientific journal article and presentations to appropriate audiences.

A. Justification

A.1 Circumstances making the collection of information necessary

Under P.L. 91-596 Section 20 (Attachment A), the National Institute for Occupational Safety and Health (NIOSH) is tasked with conducting research involving innovative methods, techniques, and approaches for dealing with occupational safety and health problems. The proposed study addresses this directive through the use of a routine surveillance system that captures nonfatal occupational injuries and illnesses to workers and offers an option to capture more detailed data through telephone interview methodology. This is a request to extend an existing information collection for one additional year from the date of approval (2021 through 2022). There are no changes in objectives or methodology to the existing information collection (OMB # 0920-1244) in the requested extension.

Firefighters play a vital role in community safety. With over 1 million fire service workers in the U.S. [NFPA, 2020], this workforce undertakes many critical public safety activities including fighting structure and wildland fires, responding to motor vehicle incidents, operating at hazardous material incidents, and assisting emergency medical services (EMS) workers during medical calls. It is also recognized that there is not a single injury surveillance system for the U.S. fire service [Widman et al., 2017]. Several studies have investigated conditions and causes of fire fighter injuries and exposures [Britton et al., 2013; Frost et al., 2016; Jahnke et al., 2013; Poplin et al., 2012; Walton et al., 2003], but they were limited by population inclusion criteria and coverage. These studies included a limited number of departments, only a portion of the workforce (e.g., Federal wildland firefighters), or excluded volunteers. This study attempts to address some of these limitations by using data from an ongoing collection of occupational injuries and exposures from a stratified national sample of U.S. emergency departments (EDs). Results will provide additional information on nonfatal injuries and exposures to firefighters treated in EDs and additional insight into events that lead to the largest number of nonfatal injuries and exposures among firefighters.

The Division of Safety Research (DSR) within the National Institute for Occupational Safety and Health (NIOSH) is conducting this project. The primary data collection component of this study involves a fire fighter follow-back telephone interview survey that was developed in fiscal year 2016 (Attachment C). The survey was developed by the project team and reviewed by scientific and subject matter experts for both content and structure. It was pilot tested on nine injured firefighters and has since been used to complete over 60 firefighter interviews to date. NIOSH has successfully used the same data source and approach to collect detailed data on populations such as EMS workers and older workers, as well as injury events such as exposure to bloodborne pathogens and workplace violence.

A.2 Purpose and use of information collection

The data collected for this study will be analyzed through a case series approach and will be used to supplement a larger analysis of firefighter injuries from work-related injury data collected as part of the CDC All Injury Program within the National Electronic Injury Surveillance System (NEISS-Work, Consumer Product Safety Commission OMB # 3041-0029). To conduct the study, NIOSH DSR will use the NEISS-Work data to identify potential interview respondents. The NEISS-Work data are collected for NIOSH by the Consumer Product Safety Commission (CPSC) through an Interagency Agreement. From the NEISS-Work, firefighters treated in EDs will be identified for further follow-up through telephone interviews conducted from 2018

through 2022. While interview data have already been collected from 2018 through 2021, we are requesting an extension for several reasons. We've experienced several issues that have caused the collection of interviews to be paused for short periods of time (e.g., interviews were not being conducted during an earlier partial government shutdown and during the early days of the pandemic). Furthermore, we've experienced a lower-than-expected response rate. Thus, an additional year of data is critical to capturing sufficient detail on firefighter injuries via an adequate number of these follow-up telephone interviews. The interview survey (Attachment C) will continue to be used to collect additional details about the firefighters, the injuries and exposures that were incurred, and the circumstances of the injuries and exposures directly from the injured/exposed worker. This information will offer detailed insight into events that lead to the largest number of nonfatal injuries and exposures among firefighters. The data from the interviews as well as from the information obtained from NEISS-Work will be used to produce publications (both peer reviewed and non-peer reviewed), presentations, fact sheets, and infographics that will be disseminated among firefighter stakeholders, including the firefighters themselves, firefighter employers, and persons tasked with protecting the safety and health of firefighters. Dissemination of these results is expected to provide justification and direction for further research and for the development and improvement of injury prevention efforts for this critical workforce.

While contact information, including name, address and phone number, will be collected by CPSC from medical records, this information will only be used to mail the initial study letter (Attachment D) and to contact the individual for the telephone interview. This information will never be released to NIOSH. Please refer to section A.10 (Protection of the Privacy and Confidentiality of Information Provided by Respondents) for further details as to how individual contact information will be protected. No case-specific records will be released to the public and all aggregate data results will follow NIOSH DSR reporting requirements that were established to insure protection and the reporting of stable estimates.

Data collected for this project will have several positive outcomes and impacts:

1. NIOSH is invested in improving firefighter safety and health. Thus, we must understand the injuries and exposures occurring to firefighters and the surrounding circumstances.
2. One of the primary duties of firefighters is to protect the safety and health of the public. It follows that it is necessary to take steps to reduce injuries and exposures among firefighters, enabling them to continue to perform their duties. Following a public health model, these steps begin with surveillance and risk factor identification, both of which are addressed by this project.
3. Existing data describing firefighters' nonfatal injuries and exposures are limited. While attempting to address some of the limitations, the proposed study offers a piece to an otherwise complex puzzle by using data from an ongoing collection of occupational injuries and exposures from a stratified national sample of U.S. EDs.
4. NEISS-Work provides an opportunity to collect data on nonfatal firefighter injuries and exposures and has the unique ability to collect extensive detail on a sample of firefighters, regardless of the firefighter's type of employment (i.e., career versus volunteer).
5. Data dissemination will occur via publications (both peer reviewed and non-peer reviewed), presentations, fact sheets, and infographics. These methods will target those concerned with firefighter safety and health, enabling them to improve and develop targeted prevention methods. Dissemination will also target firefighters to raise their awareness of nonfatal injury and exposure risks on the job.

There are at least two negative consequences to not collecting and disseminating these data:

1. Prevention efforts to reduce firefighter injuries and exposures will lack the nonfatal injury and exposure data to be effectively targeted.
2. Being unable to use data to develop targeted and needed prevention interventions could result in minimal to no reduction in firefighter injuries and exposures. Consequently, injured firefighters will continue to be lost from the workforce, which could mean fewer available workers to protect the safety and health of the public.

A.3 Use of improved information technology and burden reduction

NEISS-Work

Routine NEISS-Work data are reported electronically. Hospital coders who abstract information for NEISS submit NEISS records to CPSC through a secure file-transfer internet site on CPSC-provided laptops.

Telephone Interview Survey

CPSC collects follow-back study data via telephone interview surveys. A Computer Assisted Telephone Interview (CATI) system will continue to be used for data collection. Use of the CATI will facilitate questionnaire administration for the proposed study as skip patterns will be automated, lessening the time the respondent will need to wait for the interviewer to find the correct question and eliminating concerns with inaccuracy due to incorrectly followed skip patterns.

Prior to initiating data collection, NIOSH provided training to the CPSC-contracted telephone interviewers participating in the study. Collection of the telephone interview data will be monitored by both CPSC and NIOSH. As concerns have arisen during the data collection process, CPSC has addressed the issues with the telephone interviewers. CPSC maintains regular contact with the contracted telephone interviewers. In turn, NIOSH maintains regular contact with CPSC staff responsible for these activities. This contact includes, but is not limited to, attendance at biennial coding meetings hosted by CPSC and periodic conference calls with CPSC staff.

A.4 Efforts to identify duplication and use of similar information

The study will be the first to use a worker survey (Attachment C) to collect information, including in-depth data on injuries and exposures resulting from fires, motor-vehicle incidents, and the use of personal protective equipment (PPE) and issues related to PPE that may have contributed to the injury or exposure, from a national sample of firefighters treated in EDs. The questionnaire was developed to focus on firefighters identified from NEISS-Work data. NEISS-Work is unique from other surveillance systems in that it has the option to collect data directly from workers using telephone interviews, providing greater detail and insight than can be obtained from abstracting data from written records (e.g. medical records) alone. Consequently, much of the data proposed for collection is available only through the proposed interviews.

A.5 Impact on small businesses or other small entities

This collection of information is voluntary. It involves talking directly to workers and does not have a disproportionate impact on small businesses.

A.6 Consequences of collecting the information less frequently

Respondents will only be asked to complete the questionnaire one time for an ED-treated injury or exposure. If interviews were not conducted or were conducted less frequently, NIOSH would not capture enough data to accurately improve our understanding of firefighter injuries and exposures. These data are needed to raise awareness of the contributing factors to these injuries and exposures. The lack of data would negatively impact development and improvement of targeted and effective interventions. NIOSH and others concerned with improving firefighter safety and health will be resigned to relying on broad level data and data collected from limited

samples of firefighters to assess the causes of these injuries and exposures. Consequently, firefighter stakeholders will continue to lack the data needed to inform and justify effective injury and exposure prevention efforts.

A.7 Special circumstances relating to the guidelines of 5 CFR 1320.5

Having reviewed all special circumstances related to the guidelines of 5 CFR 1320.5, we believe that this request fully complies with the guidance described in 5 CFR 1320.5.

There is a small possibility that a firefighter could incur two work-related injuries or exposures and be treated in an ED on two separate dates within one quarter of the year within the NEISS-Work sample. Should this happen, they would be offered the chance to complete the telephone interview for each of the separate injuries or exposures, but they would not be required to do so as the respondent will always maintain the right to refuse participation. We suspect that the likelihood of a respondent being identified twice, especially within the same quarter of a year, is small given that NEISS-Work does not capture cases seen in the ED that are deemed to be re-injuries or follow-up ED visits related to the original injury or exposure.

A.8 Comments in response to the Federal Register notice and efforts to consult outside the agency

- A. The 60-Day Federal Register Notice (Attachment B) was published on July 19, 2021 vol. 86, No.135, pp 38100-38101. No comments were received.
- B. The study protocol, including the survey, was externally peer reviewed in 2017. Three external peer reviewers who are knowledgeable about firefighter safety and health and have previously conducted research studies in this area reviewed the protocol. The reviewers were asked to provide critical feedback, including comments related to the data source, content of the survey, and methodology. Comments from the external reviewers were addressed. The external peer reviewers were:

- Jeanne Sears, PhD, RN, Research Associate Professor, Department of Health Services, Adjunct Faculty, Department of Environmental & Occupational Health Services, University of Washington; Phone: (206)543-1360; E-mail: jeannes@uw.edu
- Andrew Levinson, Deputy Director, Directorate of Standards & Guidance, Occupational Safety and Health Administration; Phone: (202) 693-2048; E-mail: Levinson.andrew@dol.gov
- Natasha Schaefer-Solle, PhD, RN, Research Assistant Professor, Director Behavioral and Community Shared Resource Sylvester Comprehensive Cancer Center, University of Miami; Phone: (305)243-7191; E-mail: n.schaefer@umiami.edu

A.9 Explanation of any payment or gift to respondents

This study does not provide a payment or gift to the respondents.

A.10 Protection of the privacy and confidentiality of information provided by respondents

For this submission, the Privacy Act is applicable. The data are also protected by the Consumer Product Safety Act. Besides a unique identifier that NIOSH receives from CPSC with the

NEISS-Work data, no personally identifiable information (PII) will be collected by or for NIOSH. PII will be collected by CPSC to contact potential respondents for interview purposes and will be stored in data files separate from the survey interview data. PII will not be provided to NIOSH. Once the patient is contacted or attempts to contact the patient fail, all PII will be destroyed. The PIA form is included as Attachment G.

For the proposed study, verbal informed consent will be requested. A waiver of written informed consent has been granted by the NIOSH Institutional Review Board (IRB) as collecting written informed consent would likely be detrimental to the response rate of the study. It would also increase the study cost and the time lapse between the treatment date and interview data. Upon being selected for the study, CPSC will mail each potential respondent a letter that contains the required elements of informed consent (Attachment D). The letter will further provide the potential participant instructions on opting out of the telephone interview study by calling a toll-free number. During the opening script of the interview, a verbal informed consent will be read to participants (Attachment D). Participants will be told that they should have received a letter explaining the research study and how their privacy will be protected. They will then be informed that there are four key elements of informed consent that must be reviewed with them. Potential respondents will be informed of their rights and any possible effects of the study on their welfare. The telephone script then confirms their willingness to participate by asking, "Would you please help us by answering some questions?" A positive response to this question will be deemed the subject's verbal consent to participate. Both the letter and verbal consent script emphasize that participation is voluntary.

Participation in this study has no more than minimal risk to participants, as extensive precautions are taken to protect the privacy of the participants. The largest risk is an inadvertent release of the data that could lead to a loss of privacy and, consequently, lead to mental stress of the respondent. However, given data has never been inadvertently released during any follow-back studies using the same methodology and the same data source, we anticipate that it is very unlikely to occur at any point during this study.

To manage and protect the data collected through the proposed study, we will implement many safeguards. First, as noted above, the routine NEISS-Work data are protected under the Consumer Product Safety Act and the Privacy Act and are not customarily released to the public, to other government agencies, to non-NIOSH researchers, or to unauthorized NIOSH staff because of potential indirect identification of injured/exposed workers. To become an authorized NEISS-Work data user, interested individuals must follow certain steps. Internal data users and data users external to NIOSH must have a demonstrated need for NEISS-Work data access, receive appropriate approvals, sign a data use agreement, participate in annual privacy training, and submit all NEISS-Work draft publications and presentations to the NEISS-Work project officer for a security review prior to product release. Security of the NEISS-Work data are also protected by multi-layered CDC firewall and server protections with user authentication.

Data collected via telephone interviews will be protected throughout the life of the project. NIOSH and CPSC will identify potential cases for interview, CPSC will contact hospitals to obtain patient contact information, and contact information will be provided by CPSC to their contract telephone interviewers. Data transfers between CPSC and CPSC telephone interview contractors and between CPSC and NIOSH will occur using secure file transfer protocol locations. Once received by NIOSH, data will be stored in restricted-access directories that will only be accessible using password-protected computers. The interview survey data will be maintained as a restricted access data set in compliance with the CDC, NIOSH, DSR sensitive

data handling policies and in accordance with federal recordkeeping requirements. Only DSR researchers and staff directly involved in the project will be given access to these data. The interview contact information, maintained by CPSC and never shared with NIOSH, will be destroyed at the completion of the interview study. Once all products are completed, all resulting datasets will be archived for potential future use. As required, a data management plan has been developed and will be revised as needed through the life of the project.

Due to the highly secure nature of the telephone interview data and the need to maintain the follow-back interview data under the control of NIOSH, the interview dataset will only be shared with restrictions through a special-use agreement. Should the telephone interview dataset be of interest to an individual external to NIOSH, a data sharing agreement specific to the dataset and the proposed use will be developed. The agreement would address all specifications as listed in the CDC/ATSDR Policy on Releasing and Sharing Data in the sub-section titled “Data shared with restrictions” as well as any additional specifications prescribed by DSR security requirements. Data shared with an individual external to NIOSH will be de-identified to the extent possible to further safeguard respondent identities and will be shared via secured transfer protocols.

A.11 Institutional Review Board and Justification for sensitive questions

A.11.A Institutional Review Board approval

In 2017, the NIOSH IRB originally reviewed and approved the proposed study. The protocol was reviewed in accordance with expedited review process outlined in 45 CFR 46.110(b)(1), category (7) and was determined to pose minimal risks to subjects. Approval for annual continuation has been provided, with the current period expiring on Dec 14, 2021 (Attachment F).

A.11.B Sensitive questions

During the telephone interviews, respondents will be asked to provide primary and additional diagnoses resultant of their injury or exposure. This information is necessary for understanding the nature of injuries and exposures occurring to firefighters. Other questions that may be sensitive are those pertaining to personal protective equipment (PPE) use at the time of the incident. This information is needed to assess whether there are potential issues related to firefighters not using PPE and/or PPE not being effective in preventing injuries and exposures. Because the survey is voluntary, respondents may refuse to answer any questions. Respondents are informed of their right to refuse participation and their right to refuse to answer individual questions in the introductory letter (Attachment D) and in the script that is read at the beginning of the interview (Attachment C). Verbal consent will be obtained at the time of interview.

A.12 Estimates of annualized burden hours and costs

A.12.A Estimates of annualized burden hours

Potential respondents will be identified from the routinely collected NEISS-Work data. Based on the number of firefighters identified in previous years of NEISS-Work data and an ongoing response rate of 10 to 11% based on interviews completed to date, it is estimated that we will complete another 35 telephone interviews of firefighters 18 year of age or older over the next year. This response rate accounts for hospitals that decline to provide contact information and

cases for which incorrect contact information is provided. The survey is taking approximately 30 minutes to complete and respondents are only being asked to complete the survey once. Thus, it is estimated that the annualized burden for this additional year of data collection will be approximately 18 hours.

Estimated Annualized Burden Hours

Respondents	No. of Respondents	No. of Responses per Respondent	Average Burden per Response (in hours)	Total Burden (in hours)
Firefighters	35	1	30/60	18

A.12.B Estimates of annualized burden costs

Based on the U.S. Department of Labor's Occupational Employment Statistics survey, the updated annual average wage for career firefighters is \$52,500 and their mean hourly wage is \$25.24. In addition to the paid firefighters, there are a large number of volunteer firefighters. The National Fire Protection Association (NFPA) estimated that between 2003 and 2014 there were an average of 1,127,000 firefighters. Approximately 30% were career firefighters while 70% were volunteers. To simplify the estimation of annual burden hours, we assume the burden for career and volunteer firefighters is equivalent in terms of the value of their time.

Estimated Annualized Burden Hours

Type of Respondent	Total Burden Hours	Hourly Wage Rate	Total Respondent Costs
Firefighters	18	\$25.24	\$454.32

A.13 Estimates of other total annual cost burden to respondents or record keepers

The only costs to respondents are described in item 12 above. All record keepers are federal government contractors. Thus, estimated cost burden to them is included in item 14 below.

A.14 Annualized cost to the government

The annualized cost to the government for this study for this one-year extension is estimated to be \$66,804. The table below provides a breakdown of the expenses. After data collection ends, project staff will continue to analyze data and finalize study products. Cost of interviews is inclusive of all money given to CPSC to hire contracted telephone interviewers who will perform the telephone interviews, enter data, and submit data to CPSC.

The annualized cost includes the cost of capturing the telephone interview data, conducting analyses on the final interview data, and producing both peer reviewed and non-peer reviewed products. The cost of collecting NEISS-Work data is not included as those data are not collected exclusively for this study. They are historically collected and maintained under their own project allocation within NIOSH.

	Annual cost
Labor	\$63,304
Interviews	\$3,500
Travel and miscellaneous	

A.15 Explanation for program changes or adjustments

This is an extension of an existing data collection.

A.16 Plans for tabulation and publication and project time schedule

We plan to publish study results in both peer reviewed and non-peer reviewed journals. Given the current response rates, we will be analyzing the data collected through a case series approach. Our projected timeline for the additional one year extension is detailed in the table A.16-1 below.

A.16.1 Project Time Schedule for One Year Extension	
Activity	Time Schedule
Continue data collection	Immediately after OMB approval
Continue regular monitoring/quality assurance of incoming data	Immediately after OMB approval
Finalize dataset	13-14 months after approval of OMB extension
Analyses	15-20 months after approval of OMB extension
Publication ready for submission to peer-review journal	25-26 months after approval of OMB extension
Product ready for dissemination to fire fighter stakeholders	28-29 months after approval of OMB extension

Data collected through this study will be analyzed through a case series approach. Where possible, data analysis will include quantitative and qualitative data analysis. Quantitative analysis will involve computing unweighted frequencies to describe nonfatal injuries and exposures among firefighters treated in EDs. Quantitative results will be presented in unweighted frequency tables for important outcomes such as demographics, diagnoses, affected body parts, events, outcomes, and training if frequencies meet reporting guidelines for the NEISS-work data.

Qualitative data analysis will involve identifying themes within the data based on the narrative information collected during the interviews. Qualitative results will be reported using non-numerical quantifiers such as typically used in qualitative research (e.g., many, most, some, few).

A.17 Reason(s) display of OMB expiration date is inappropriate

The OMB expiration date will be displayed.

A.18 Exceptions to certification for Paperwork Reduction Act submissions

There are no exceptions to the certification.