

**Attachment E**  
**Protocol**

**Protocol:** Assessment of occupational injury among fire fighters using a follow-back survey

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## PROJECT OVERVIEW

**Protocol Summary:** 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). This will be accomplished via follow-back telephone interviews of the injured and exposed firefighters. The National Institute for Occupational Safety and Health's (NIOSH) occupational supplement to the National Electronic Injury Surveillance System (NEISS-Work) will be used to identify potential respondents for the interviews. Data collection will be done via a questionnaire containing 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. The results from the data collected through this project will provide a deeper insight into the prevalence and characteristics of nonfatal occupational injuries and exposures among English-speaking firefighters 18 years of age and older who sought treatment at an ED for an occupational injury or exposure during the four year study period (2018 through 2021).

### *Investigators/Collaborators*

**Suzanne Marsh, MPA, principal investigator,** is a statistician at NIOSH in the Division of Safety Research (DSR) Surveillance and Field Investigations Branch (SFIB), Special Studies Team (SST). She is project officer responsible for updating and maintaining the occupational supplement to the National Electronic Injury Surveillance System (NEISS-Work). Suzanne has also worked with fatal and nonfatal occupational injury data for almost 31 years. She has managed a project conducting telephone interviews of injured/ill workers, including questionnaire development, administration, and analysis. She has also worked on several projects focused on injuries and fatalities among firefighters and emergency medical services (EMS) workers.

**Steve Miles** is a Fire Fighter Fatality Investigator at NIOSH in the DSR, SFIB, FFFIPP. Steve came to NIOSH in 2008. He investigates firefighter fatalities and produces investigation reports. Prior to NIOSH, Mr. Miles was at the Virginia Beach Fire Department (VB FD) for 31 years where he served as firefighter and officer in the suppression and training divisions, as a Captain (Shift Safety Officer) in the fire marshal's office and safety division, and as Battalion Chief of Health and Safety. In the safety roles, he was responsible for accident and injury investigations. Steve has served on the National Fire Protection Association (NFPA) Respiratory Protective Equipment Committee as a user since 2003 and as a FFFIPP representative since 2008.

**Audrey Reichard, MPH** is an epidemiologist at NIOSH in the DSR, SFIB, SST. She is the Deputy Branch Chief of the DSR SFIB and was the project officer of NEISS-Work. Audrey has authored and co-authored several NEISS-Work manuscripts, including one comparing nonfatal injuries among emergency responder occupations. Audrey managed a project conducting telephone interviews of injured ill EMS workers, including questionnaire development, administration, and analysis. Through this effort, she developed a good knowledge base of emergency responder nonfatal injuries.

**Rita Fahy, PhD** is a Manager of Fire Data Bases and Systems in the Fire Analysis and Research Division of the NFPA. She is involved in statistical analysis and computer modeling work, mainly in the areas of fire fighter deaths and human behavior in fire. She has authored NFPA's annual study of on-duty fire fighter fatalities since 1981.

**William Troup, MBA** has served at the U.S. Fire Administration (USFA) for 25 years. He manages research programs in Fire Fighter and Emergency Responder Health and Safety. He holds many fire and EMS professional certifications and is an active firefighter and EMS responder. In 2008, he received the EMS 10: Innovators in EMS award by the Journal of Emergency Medical Services Magazine for contributions to emergency vehicle safety. He works with the U.S. Department of Justice/National Institute of Justice (NIJ), supporting health and safety programs for Law Enforcement and serves on the Department of Homeland Security Science and Technology First Responders Group. Bill is a veteran of the U.S. Air Force.

### ***Funding Source***

Funds for this project are primarily provided by NIOSH through the National Occupational Research Agenda (NORA). These funds will be used for staff time to complete administrative tasks and data collection. The funds will also be used to pay the Consumer Product Safety Commission (CPSC) for the collection of telephone interview survey data. Supplemental funding will come from NIOSH DSR, as DSR consistently funds the routine collection of NEISS-Work data.

## **INTRODUCTION**

### ***Literature Review/Current State of Knowledge about Project Topic***

Firefighters play a vital role in community safety. With over 1 million workers at almost 27,000 fire departments in the U.S. [NFPA, 2016], 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 EMS workers during medical calls. During these activities, firefighters regularly face hazards for occupational injuries and exposures, including exposure to immediately dangerous to life or health atmospheres, other atmospheric contaminants that may negatively impact health, heat or high-temperature steam, excessive cold, and infectious disease. Firefighters are also at risk of being struck by motor vehicles during traffic incidents, falling from heights, and sustaining electrical shock. Resulting injuries and exposures can negatively impact the mental, physical, and financial well-being of the workforce, the fire departments, and their communities. Furthermore, several studies suggest that numbers and rates of nonfatal injuries among firefighters are high compared to many other occupations. A study of data from 2000 to 2001 estimated nonfatal injury rates for all firefighters to be 3.5 per 100 full-time equivalent (FTE) workers and rates for career firefighters to be as high as 9.2 per 100 FTE [Reichard and Jackson, 2010]. Data from the 2015 Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses (SOII) indicated that the rate of nonfatal occupational injuries and illnesses for firefighters was 397.5 per 10,000 FTE, almost four times higher than the rate of 104 for all workers [BLS, 2016]. In 2015, NFPA firefighter survey results

indicated there were 68,085 firefighter injuries, 27,250 exposures to hazardous conditions, and 8,350 exposures to infectious diseases [Haynes and Molis, 2016]. Annual costs of firefighter injuries have been estimated to be \$2.8 to \$7.8 billion [NIST, 2004].

### ***Justification for Study***

Severity, frequency, and costs of injuries and exposures to firefighters indicate that prevention should be a priority. While several studies have investigated conditions and causes of firefighter injuries and exposures [Britton et al., 2013; Frost et al., 2016; Jahnke et al., 2013; Poplin et al., 2012; Walton et al., 2003], these studies are limited by inclusion criteria and coverage. These studies included a limited number of departments, only a portion of the workforce (e.g., Federal wildland firefighters), or generally excluded volunteers. It is also recognized that there is not a single injury surveillance system for the U.S. fire service [Widman et al., 2017]. While attempting to address some of these limitations, this study offers another piece to this complex puzzle by using data from an ongoing collection of occupational injuries and exposures from a stratified national sample of U.S. EDs. Results will provide an up-to-date picture of nonfatal injuries and exposures to firefighters treated in EDs and a deeper insight into events that lead to the largest number of nonfatal injuries and exposures among firefighters.

### ***Intended/Potential Use of Study Findings***

Study results will be used to determine common injuries and exposures among firefighters treated in EDs. The results will assist in identifying subsets of this firefighting population who are at most risk for occupational injuries and exposures, and identify circumstances and activities that put these firefighters at risk. These results will be used to provide justification and direction for further research and for the development and improvement of injury prevention efforts for this critical workforce.

## **DESIGN**

### ***Objectives/Study Design/Locations***

The primary objective of the proposed research is to identify priority areas for intervention-based research by identifying and characterizing common injury scenarios for firefighters. Specific aims of this study include:

Aim 1: Identify the study population (firefighters who received medical treatment at an ED from 2018 to 2021 for job-related injuries or exposures) using an existing surveillance system (NEISS-Work) that provides a national stratified sample of individuals who sought care at EDs in the U.S.

Aim 2: Administer a follow-back survey to the study population identified from NEISS-Work. This fully-vetted follow-back survey was developed and tested on firefighters during FY 2016 through a DSR-funded pilot.

When this project was planned, a third aim involved statistically weighting the interview data. Due to a lower than expected response rate, this aim has been replaced by a revised Aim 3: Develop a manuscript that will provide an analysis of all firefighter injuries treated in EDs from the routine NEISS-Work dataset and the more detailed interview data. The completed interviews will be analyzed through a case series. Where feasible, standardized codes will be applied to the interviews and will be used to identify and characterize common injury and exposure scenarios among the interview data.

Aim 4: Conduct data analyses with the final interview dataset the year after funding ends.

The objective and aims will be accomplished using two inter-related data sources: (1) routinely collected NEISS-Work data which is an occupational supplement to the broader NEISS and (2) follow-back telephone interviews of firefighters identified from NEISS-Work. Data for NEISS and NEISS-Work, including the telephone interviews, are collected by CPSC. The collection of NEISS-Work data is funded by NIOSH, who monitors data quality, stores the data, and oversees use of the data. NEISS-Work is a nationally representative, stratified probability sample of approximately 67 U.S. hospital EDs based on hospital size determined by the annual number of ED visits. NEISS-Work includes civilian, non-institutionalized individuals who present to urban and rural hospital EDs with work-related injuries, illnesses, or exposures throughout the U.S. CPSC captures all work-related injuries treated in EDs by abstracting standardized information from the emergency medical record.

Injured/exposed firefighters will be identified from NEISS-Work. Once cases are identified, CPSC will request contact information for all identified cases from the hospitals. At least ten business days prior to calling a firefighter identified in the NEISS-Work data, the firefighter will be sent a letter of consent describing the study and measures that will be taken to protect confidentiality if they choose to participate (Appendix A). The letter provides instructions on how to opt out of the telephone interview study by calling a toll-free number. For firefighters who do not opt out initially, CPSC will conduct interviews through contracts with trained interviewers. The interview script will ask each firefighter to provide verbal consent prior to proceeding. Once consent is given, the interview will proceed. Data will be collected on the firefighters themselves, their injury or exposure, and injury or exposure outcomes. NIOSH will not receive contact information or request any personal identifiers during the interview.

### ***Hypotheses or Questions***

Results of the survey will assist us in answering the following questions:

1. What types of nonfatal occupational injuries and exposures do firefighters incur?
2. What are the characteristics of firefighters injured or exposed?
3. What are the circumstances and exposures surrounding and contributing to nonfatal occupational injuries incurred by firefighters?
4. What are the long-term outcomes and impacts of nonfatal occupational injuries on firefighters?

### ***General Approach***

This project consists of follow-back telephone interviews using cases identified from NEISS-Work. The study will be descriptive in nature. It is our aim to present the data as a case series summary.

### ***How Study Design Addresses Hypotheses and Meets Objectives***

The proposed follow-back interview study will use national surveillance data (i.e., NEISS-Work) to identify firefighters eligible for participation in the telephone interviews. Weighted results will detail



estimates of injuries and exposures occurring to firefighters nationwide. The proposed descriptive analyses of the data collected through the telephone interviews should provide answers to all of the research questions specified in this protocol. The extent to which those details are reportable will be dependent on the number of completed questionnaires.

### ***Audience and Stakeholder Participation***

There are several partners and stakeholders that have interest in this area, including the NFPA, USFA, National Fallen Fire Fighters Foundation (NFFF), the National Volunteer Fire Council (NVFC), and the U.S. Department of Interior. Along with comments from the multi-agency project team and NIOSH survey experts, subject-matter experts from the International Association of Fire Chiefs (IAFC), the International Association of Fire Fighters (IAFF), and NVFC provided comments on the content of the questionnaire during the development phase of the survey. Letters of support for the current project were received from IAFC, IAFF, NFPA, NVFC, as well as CPSC. During the project described in this proposal, it is expected that NIOSH staff will continue to maintain close contact with these same organizations. We will actively seek out assistance from these organizations in interpreting results as well as assistance in disseminating results throughout the firefighting community to increase awareness of the need to implement prevention efforts to better protect firefighter safety and health.

Other audiences for this study are researchers working in firefighter safety and health and safety personnel specifically concerned about firefighter safety. This study will also likely inform other standard and technology organizations like the National Institute of Standards and Technology.

### ***Study Timeline***

The following table provides the proposed project timeline. While funding is only expected through fiscal year 2021, the timeline includes wrap up activities that will occur in fiscal year 2022.

<b>Fiscal Year</b>	<b>Primary Tasks</b>	<b>Specific Activities</b>
<b>2018</b>	<b>Study Approvals &amp; Data Collection</b>	<ul style="list-style-type: none"> <li>• Receive NIOSH Institutional Review Board (IRB) approval<sup>1</sup></li> <li>• Receive Office of Management and Budget (OMB) approval<sup>1</sup></li> <li>• Enter telephone interview questionnaire into the computer assisted telephone interviewing system</li> <li>• Conduct interviewer training</li> <li>• Initiate data collection<sup>2</sup></li> <li>• Perform periodic quality assurance reviews of incoming data</li> </ul>
<b>2019</b>	<b>Data Collection</b>	<ul style="list-style-type: none"> <li>• Continue data collection</li> <li>• Perform periodic quality assurance reviews of incoming data</li> <li>• Complete annual IRB renewal</li> </ul>
<b>2020</b>	<b>Data Collection</b>	<ul style="list-style-type: none"> <li>• Continue data collection</li> <li>• Perform periodic quality assurance reviews of incoming data</li> <li>• Complete annual IRB renewal</li> </ul>
<b>2021</b>	<b>Data Collection &amp; Initial Data Analysis</b>	<ul style="list-style-type: none"> <li>• Continue data collection (expected through 1<sup>st</sup> quarter of FY 2022 to complete four full years of data collection)</li> <li>• Perform periodic quality assurance reviews of incoming data</li> </ul>

		<ul style="list-style-type: none"> <li>• Develop analysis plan and conduct preliminary analysis on follow-back and the routine NEISS-Work data</li> <li>• Draft outline for peer reviewed manuscript</li> <li>• Complete annual IRB renewal</li> <li>• Complete OMB renewal if required</li> </ul>
<b>2022</b>	<b>Final Data Analysis &amp; Report Writing</b>	<ul style="list-style-type: none"> <li>• Complete data collection</li> <li>• Perform final quality assurance reviews and create final data set</li> <li>• Conduct final analysis on follow-back and the routine NEISS-work data</li> <li>• Prepare draft manuscript detailing occupational injuries to firefighters for submission to peer-reviewed journal<sup>3</sup></li> <li>• Develop non-peer reviewed documents (e.g., trade journal article,</li> </ul>

<sup>1</sup>Assumes that both IRB and OMB packages are completed and submitted sometime during the 4<sup>th</sup> quarter of FY 2017.

<sup>2</sup>Timing of IRB and OMB approval and funding availability will determine the ability to initiate data collection during the 2<sup>nd</sup> quarter of FY 2018.

<sup>3</sup>Publication of peer-reviewed manuscript will be dependent upon the length of time it takes to finalize the data set and conduct the final analyses.

### ***Expedited Protocol Review***

This research will result in a summary of injuries and exposures involving firefighters. This summary will be based on aggregate data output collected during telephone interviews. Potential respondents for these interviews will be firefighters identified from the NEISS-Work data. Reasonable and appropriate protections will be implemented for data storage and data analysis so that risks related to confidentiality will be no more than minimal. No identifiers or individual results will be incorporated in the products produced for dissemination. Hence, the risk to human subjects is minimal.

## **STUDY POPULATION**

### ***Description and Source of Study Population***

Potential respondents will be firefighters identified from the routinely collected NEISS-Work surveillance case data on an ongoing basis over the four year study period. NEISS-Work includes civilian, non-institutionalized workers treated in a hospital ED for an apparent occupational injury, illness, or exposure.

### ***Case Definitions/Inclusion Criteria/Justification of Exclusion of Sub-segment of Population***

Selection of cases for this study will be restricted to injured or exposed firefighters who are 18 years of age or older. Due to the added complication of obtaining parental or guardian consent, interviews will not be completed with those younger than 18. Less than 1% of the firefighter workforce from NEISS-Work fall below this threshold. Given that almost 70% of the firefighters in the U.S. are volunteer, this study will seek to include both paid (or career) and volunteer firefighters. Since there are no formal plans to translate the questionnaire into a language other than English, non-English speaking firefighters will be excluded from the study population if they are reached and unable to communicate with the interviewer. Prescreening using the basic NEISS-Work data elements will be used to restrict the potential respondents to those individuals most likely to meet the respondent definition.

### ***Estimated Number of Participants***

Based on a detailed review of 12 years of NEISS-Work data, we estimate that we will be able to successfully identify an annual average of 600 unweighted firefighters 18 years of age or older from the NEISS-Work data. The response rate for a similar follow-back study on emergency medical services (EMS) workers was between 30 and 40%. Therefore, it is estimated that we will complete approximately 240 telephone interviews per year. It is estimated that four years of data collection will be needed to produce large enough numbers to allow detailed reporting of results.

### ***Sampling***

Firefighters participating in the interviews will be identified from NEISS-Work. NIOSH and CPSC collaborate to collect NEISS-Work data through an existing national stratified probability sample of approximately 67 U.S. hospital EDs. NEISS-Work data are captured via review of medical records for all ED-treated patients at each sample hospital. Records are abstracted for patients with work-related injuries, illnesses, and exposures. NEISS-Work data will be used by CPSC and DSR in a joint effort to identify all firefighters treated in the sampled hospitals during the four year study (2018 through 2021).

Because the number of completed cases has been lower than expected, the interview data will be treated as a case series. For this reason, there is not a specific number of interviews or completion rate that is required to produce a reasonable study.

### ***Enrollment***

Once injured/exposed firefighters are identified from NEISS-Work, CPSC will contact participating hospitals and request patient contact information. Potential respondents with viable contact information will be sent a pre-interview letter notifying them of the study and giving them an opportunity to opt out of the study by calling a toll-free number within 10 days of receiving the letter (Appendix A). The letter describes the study and measures that will be taken to protect their confidentiality should they choose to participate in the study. The letter will also contain all of the elements required in an informed consent although we are requesting a waiver of written informed consent. Attempting to collect written informed consent would likely be detrimental to the response rate of the study and would also increase the study cost and the time lapse between treatment and interview date. Persons who do not opt out per the instructions in the letter will have their names included in a list of potential participants to call. CPSC will send this list to the third-party contractor who will conduct the interviews. Contact information will be provided to the contractor approximately three weeks after the date of treatment. NIOSH will not receive individual identifiers or contact information for any of the potential respondents at any point during the life of the study.

Interviewers will be instructed to attempt to contact potential respondents at least ten times. Contact attempts will be made at varying, but reasonable, hours of the day and on varying days of the week.

When no personal contact is made after a number of attempts, the interview will be set aside and contact attempts will be made at a later date as time permits to maximize response rate while minimizing recall bias issues. Interviewers are trained to be considerate of respondents and their families, leaving a minimal number of messages or speaking with the respondent or another individual of the residence to arrange a convenient interview time. Messages will include a toll-free response number so that the respondent may call at their convenience. When no personal contact is made, no message system is available, and there is no indicator of an incorrect number, the interviewer will typically spread their call attempts over a longer time period and will commonly make more than 10 contacts. The interviewers will make no more calls than is necessary to complete the desired interviews. Due to privacy concerns, the questionnaire will only be administered to the individual treated in the ED. Interviewers will comply with CPSC contract requirements as approved by OMB.

Upon reaching the injured/exposed firefighter, the interviewer will read the participant a statement summarizing the elements of informed consent, including a reminder that all information the respondent shares will be protected by the Privacy Act (Appendix B). If the respondent does not opt out, the telephone script will confirm their willingness to participate by asking, “Would you please help us by answering some questions?” A positive response to this question will be deemed to serve as the respondent’s verbal consent to participate. Once a person agrees to participate and meets the inclusion criteria, the interviewer will continue with the questionnaire. If a potential participant opts out by calling in advance or at the time of initial contact by telephone, their contact information will be destroyed.

## **VARIABLES/INTERVENTIONS**

### ***Variables***

Data collected through the interviews will include detailed information in the following topical areas: nature, causes, and contributing factors of occupational injuries and exposures to firefighters; injury and exposure events and factors related to the events (including use of personal protective equipment); characteristics and work backgrounds of injured and exposed firefighters; and outcomes and impacts of firefighter injuries and exposures.

### ***Study Instruments, Including Questionnaires, Laboratory Instruments, and Analytic Tests***

The primary data collection component of this study involves firefighter follow-back telephone interviews using the fully vetted follow-back instrument found in Appendix B. Similar mechanisms have been successfully used by NIOSH to provide 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. The survey instrument that will be used to capture detailed information from injured and exposed firefighters was developed in fiscal year (FY 2016). The survey was reviewed by the project team as well as scientific and subject matter experts for both content and structure. It was pilot tested on nine injured firefighters. Final revisions were made based on the pilot test results.

### ***Training for All Study Personnel***

Routinely collected NEISS-Work data are gathered by trained abstractors who participate in regular refresher courses and receive materials to supplement training. As part of the larger NEISS data collection efforts, abstractor training is directly overseen by CPSC. NEISS-Work abstractors receive

training on the confidential nature of the data and rules they must follow to maintain that confidentiality. In addition, all CPSC-contracted telephone interviewers must have human research protection training and adhere to CPSC-established rules to maintain data confidentiality including annual training on the protection of personal identifiable information. Additional details regarding the steps taken to insure data confidentiality during the telephone interview data collection process can be found in Appendix C.

NEISS-Work telephone interviews are administered by experienced telephone interviewers under contract to CPSC. Prior to initiating the study, NIOSH will provide the telephone interviewers with training specific to this study. This training will involve reviewing the questionnaire and clarification of any questions the interviewers have. Additionally, all CPSC-contracted telephone interviewers are trained on the confidential nature of the specific data that they will be collecting and will be required to adhere to CPSC established rules to maintain data confidentiality. The telephone interviewers will use a Computer Assisted Telephone Interviewing (CATI) system to collect and input the data. Use of this computerized method of data collection helps ensure that the correct logic and skip patterns are being followed during survey administration. The software used will also be programmed to alert interviewers of inaccurate data input.

## **DATA HANDLING AND ANALYSIS**

### ***Data Analysis Plan***

Data analysis for this study will include quantitative and qualitative data analysis. All firefighters treated in EDs for work-related injuries identified from the routine NEISS-Work data will be analyzed and a case series approach will be used to describe a subset of these data where we were able to obtain completed interviews. Quantitative results will be presented for both the routine NEISS-Work data as well as the interview data in frequency tables for important outcomes such as demographics, diagnoses, affected body parts, events, outcomes, and training.

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).

### ***Data Collection***

The follow-back questionnaire (Appendix B) that will be used was developed by the study team and pilot tested on nine firefighters. The NIOSH study team also developed firefighter case criteria to identify firefighter injuries and exposures from the routinely collected NEISS-Work data. To select firefighter cases, CPSC will complete an automated keyword search for indicators of firefighters by using customized SAS programs. Firefighter cases identified will be provided to the CPSC contracted telephone interviewers. Data from the interviews will be captured in the CATI system.

### ***Information Management and Analysis Software***

The CATI software used by CPSC is The Survey System. This system will be used for designing the electronic data collection screens, including automated skip patterns, and collection of the data itself. Data collected through the CATI software will be exported to SAS for data analysis purposes.

### ***Data Entry, Editing and Management, Including Handling of Data Collection Forms, Different Versions of Data Storage and Dispositions***

CPSC will upload contact information for potential respondents to a secured file transfer location. The contract interviewer will download the contact information to a CPSC encrypted laptop. Once the telephone interview data are collected using The Survey System, electronic files will be uploaded to a secured file transfer location for CPSC. CPSC will remove all patient contact information and subsequently transfer the data to NIOSH via a secured electronic file transfer. All transfers will be done on a schedule to be determined at a later date. Once received by NIOSH, the data will be stored in secured network directories that will only be accessible through password-protected computers. The interview data will be maintained as a restricted data set in compliance with the CDC, NIOSH, and DSR sensitive data handling policies. Because of the inherent cost of these data and their intrinsic value to researchers, upon completion of the intended research, SST will maintain the data as “active” files for up to five years. Subsequently, the data will be maintained as archived protected data files for up to 15 years. Final disposition will be handled in accordance with federal recordkeeping requirements.

### ***Quality Control Assurance***

There will be three aspects to monitoring and ensuring the quality of the telephone interview data. The first involves The Survey System software that will be used for data entry. The electronic collection tool developed in the software will only allow acceptable response parameters and will include automated skip patterns. The second will be to confirm that all firefighters captured in NEISS-Work who meet the study criteria described on page 9 are offered the opportunity to participate in the survey. This will be assessed by systematically monitoring incoming NEISS-Work cases. The third aspect is performing quality assurance checks on the data. An automated program will be designed to conduct standardized checks for inconsistencies in the quantitative data. Routine data checks will also be performed for individual case records to confirm the qualitative data.

### ***Bias in Data Collection***

It is acknowledged that this study population contains only injuries and exposures treated in EDs. Thus, the population survey is not equally representative of all occupational injuries requiring medical treatment. This population bias will be acknowledged in all publications and presentations.

While not applicable to the interview data, the national estimates produced from the analysis of the routine NEISS-Work data have the potential to be biased for occupations or industries that are not geographically distributed throughout the U.S. due to the small sample size and the hospital selection method. However, because the distribution of firefighters generally follows the same population trends as used for the sample design, no a priori biases because of the hospital sample are expected for firefighter injury estimates for larger areas that are more likely to have paid firefighters. Conversely, for smaller areas more likely to have volunteer firefighters, the medical record for these workers may not reflect their volunteer work that produced the injury or exposure as their usual occupation or industry may be identified.

There is potential that study results may be affected by a social desirability bias leading to participants responding to questions in a way that they perceive will be viewed favorably by others. This bias will be minimized by not asking the respondent for the name of their employer or other obvious identifying information and reassuring them of the confidential nature of their responses.

Recall bias will potentially affect the study results as the data are being collected retrospectively. However, much effort will be put into minimizing this bias by interviewing the firefighters soon after the ED treatment for their injury or exposure. It is expected that the length of elapsed time between the time of treatment and interview will average approximately 45 days.

### ***Intermediate Reviews and Analysis***

NIOSH will be responsible for tracking all data and conducting regular quality assurance checks.

### ***Limitations of the Study***

Coverage of NEISS-Work and of this study is limited to persons treated in EDs for injuries and exposures. Thus, the resulting data will not describe all of the injuries and exposures occurring to firefighters. However, at the present time, this surveillance system offers the best potential for capturing details regarding firefighter injuries and exposures from a national perspective and from a source that is inclusive of both career and volunteer firefighters. All products from this project will explicitly acknowledge that the scope is limited to ED-treated injuries and exposures.

In 2020, it was determined that this study is limited by lower than expected case count due to a low telephone interview response and insufficient cases are being collected to report data or calculate national estimates. Consequently, NIOSH will present the results in a case series format.

## **HUMAN SUBJECTS CONSIDERATIONS**

### ***Participants***

This is a descriptive analysis of data collected following the injury or exposure and treatment of firefighters. Potential participants for this study are described in detail in sections above titled ‘Description and Source of Study Population’ and ‘Case Definitions/Inclusion Criteria/Justification of Exclusion of Sub-Segment of Population’ on page 9.

### ***Potential Risks***

While we do not anticipate any potential risks from any part of this study, the largest potential for risk would be related to a breach in confidentiality from either NIOSH or project staff or the CPSC contracted telephone interviewers. We have conducted at least seven similar NEISS-Work follow-back studies, none of which resulted in adverse effects on respondents from an accidental disclosure of confidential information. Use of this trusted methodology, combined with the implementation of multiple safeguards described within this protocol, indicate that a breach of confidential information is very unlikely to occur at any point in this study.

### ***Identifying, Managing, and Reporting Potential Risks***

The NIOSH project staff will notify CDC and CPSC immediately upon: (1) discovering any breach or suspected breach of security; (2) discovering any unauthorized disclosure of the confidential information; or (3) receipt of any legal, investigatory, or other demand for access to the confidential information in any form. Should any of these issues occur, project progress will be halted until approval is received from CDC and CPSC to resume project activities. In addition, the IRB will be informally notified within two working days of an incident and formally notified within two weeks of an incident. Proven violation of release of confidential information related to or obtained from the data is cause for immediate termination of data access.

### ***Protection against Risks***

We have many safeguards in place to minimize the risk of a breach of confidential information. Based on past successful NEISS-Work follow-back studies, 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. Upon completion of the interview study, all contact information will be destroyed. Data transfers between CPSC and CPSC contract interviewers and between CPSC and NIOSH will occur using a secured data file transfer location. CPSC will remove all patient contact information from the data received by NIOSH. While NIOSH will not collect personally identifiable information in the interview, information collected in the routine NEISS-Work surveillance data and the interviews has potential for indirect identification of individuals.

Interview data received by NIOSH will be stored in a secure network directory only accessible through password-protected computers. Interview data will be maintained as a restricted data set in compliance with the CDC, NIOSH, and DSR sensitive data handling policies. Data will only be handled by those authorized to view the data and will be protected to prohibit overt and inadvertent release of individual patient or hospital information. Manuscripts or other releases will undergo confidentiality reviews prior to release to unauthorized individuals (internal or external to NIOSH). NIOSH and CPSC have long and established histories of human subject protection. CPSC protections and the NIOSH DSR data confidentiality requirements and procedures in conjunction with applicable federal laws will ensure strong protection against the risks noted above.

### ***Risks/Benefit Ratio***

As noted above, the largest potential for risk would be related to a breach in confidentiality from either NIOSH project staff or the CPSC contracted telephone interviewers. Reasonable and appropriate protections as described in this protocol will be implemented for data storage and data analysis so that risks related to confidentiality will be no more than minimal. Furthermore, identifiers and individual results will not be incorporated in the products produced for dissemination. Hence, the risk to human subjects is minimal. There is no direct benefit for participating in this study. However, the knowledge gained from the data collected from the study participants will be invaluable in improving the health and safety of this workforce. Thus, on the basis of regulation 21 CFR 56.111(a)(2) & 45 CFR 46.111(a)(2), the “risks to subjects are reasonable in relation to anticipated benefits....and the importance of the knowledge that may reasonably be expected to result.”





### ***Informed Consent***

We are requesting a waiver of the need for signed informed consent on the basis of regulation 45 CFR 46.11(c)(2) that states “(2) That the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context.” The research could not be easily carried out with the requirement of a written consent as this would require additional work and follow-through on the part of the respondent because there will be no in-person contact during the study.

Participation in this study has no more than minimal risk to participants as extensive precautions are taken to protect the confidentiality 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 this has never occurred during multiple follow-back studies that we have conducted using the same methodology, we anticipate that it is very unlikely to occur at any point during this study. Additionally, we will implement many safeguards, as described in this protocol, to prevent such an occurrence.

A waiver of signed informed consent will not adversely affect the rights and welfare of the participants, as they will still receive all required elements of informed consent in print and verbally at the time of interview. Upon being selected for the study, CPSC will mail each potential respondent a letter that contains the required elements of informed consent (Appendix A). The letter will further provide the potential participant instructions on opting out of the telephone interview study by calling a toll-free number. At the time of the interview, a verbal informed consent will be read to participants. Participants will be told that they should have received a letter explaining the research study and how their privacy will be protected (Appendix B). They will then be informed that there are four key elements of informed consent that must be reviewed with them. During the opening script of the interview, 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 it is the choice of the potential participant to participate.

There will be no additional pertinent information to provide to participants when their role in the study is over. Data will not be shared with persons outside of the CPSC and NIOSH study team. The procedures involved in data collection for this study (telephone interviews) would not normally require written consent outside of the research context. Currently, the OMB-approved interview studies conducted by CPSC on a regular basis do not require written consent.

The readability of the letter being mailed to potential participants is at the 9th grade level on the Flesch-Kincaid scale. For potential participants who have difficulty reading this letter, the elements of informed consent will be reemphasized prior to beginning the interview.

## ***Records Management***

This project is expected to generate data. As required, there will be several provisions in place to manage and protect the data collected and obtained through this project. First, 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. Data users must have a demonstrated need for NEISS-Work data access, receive appropriate supervisory approvals, sign a data use agreement, participate in annual confidentiality training, and submit all NEISS-Work draft publications and presentations to the NEISS-Work project officer for a confidentiality review prior to product release. Security and confidentiality 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 attain 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. 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 will be developed.

Due to the highly confidential nature of the telephone interview data and the need to maintain the 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 confidentiality requirements. Data shared with an individual external to NIOSH will be de-identified to the extent possible to further insure confidentiality protections.

## **DISSEMINATION, NOTIFICATION, AND REPORTING OF RESULTS**

### ***Notifying Participants of Their Individual Results***

Since the data are collected from information reported by participants, participants are aware of the content of their individual data. Thus, there is no need to provide individual data reports.

### ***Notifying Participants of Study Findings***

Project products will be disseminated to the USFA, the NFPA, other firefighter organizations, researchers interested in firefighter injury and exposure research, and health and safety personnel whose domain includes firefighters. Methods of dissemination may include a peer-reviewed publication, a



trade journal article, and/or fact sheets. While the participants will not be contacted individually, if they have continued to be active in the firefighter community since their injury or exposure, they will likely have access to the products produced as a result of this project.

### ***Anticipated Products or Interventions Resulting from the Study and Their Use/Disseminating Results to Public***

It is anticipated that project results will be disseminated through the use of a peer-reviewed publication, a trade journal article, and/or fact sheets. These products will describe injuries and exposures to the firefighters and suggest areas in need of further research and/or prevention activities.

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## APPENDIX A – Letter to potential respondents



### PRE-INTERVIEW LETTER FOR POTENTIAL SUBJECTS

U.S. CONSUMER PRODUCT SAFETY COMMISSION  
4330 EAST-WEST HIGHWAY  
BETHESDA, MD 20814

date

Project number: «Tkno»

«Title» «FirstName» «LastName»  
«Address1»  
«City», «State» «PostalCode»

Dear «Title» «LastName»:

Because of your recent medical history, we are asking you to take part in a study about injuries and exposures to fire fighters. The goal is to prevent occupational fire fighter injuries and exposures in the future. This study is being conducted by the National Institute for Occupational Safety and Health (NIOSH), a federal agency that studies worker safety and health. NIOSH is part of the Centers for Disease Control and Prevention (CDC).

All work-related visits seen in the Emergency Department at «HospName» are reported to the U.S. Consumer Product Safety Commission (CPSC). CPSC shares these data with NIOSH. These data are used only for research. CPSC records show that you were treated on «Treatmentdate» in the «HospName» Emergency Department. We may call you to ask questions about your injury or exposure. If you agree to take part in this phone interview, it should take about 30 minutes. There is no reimbursement or direct benefit to you for taking part in this study. The Occupational Safety and Health Act of 1970 authorizes data collection for this study. This study is supported by the International Association of Fire Fighters and the National Volunteer Fire Council.

Your answers to the questions will be kept private to the extent allowed by law. Your answers or any facts that might point to you indirectly will not be reported or published. Your answers may be given to contractors working on this study. They may also be given to other researchers who plan to perform further studies.

While it is very unlikely to occur at any point in this study, a loss of privacy that may lead to mental stress is the only known danger to taking part in this study. Physical injury or harm is not likely. If you are harmed, medical care will not be provided. If you are harmed because of any actions of an interviewer contracted by CPSC, you could file a claim against the contractor.

**This study is voluntary. You may choose to be in the study or not. You may choose to answer any or all questions. You may drop out any time for any reason without consequences to you.**

If you do *not* want us to contact you for an interview, call CPSC at (800) 638-8095, extension 7431 within 10 days of getting this letter. Please leave a message. In your message, include your name and the project number at the top of this letter.

Your name, address, and phone number will only be used to get in touch with you for this study. Your name, address, and phone number will be deleted when the interview is completed, if you refuse to participate, or if you cannot be reached within 60 days.

We hope you will help us with this important research so we can reduce injuries and exposures to fire fighters. **If you have questions about this study, call the principal investigator, Suzanne Marsh, at (304) 285-6009.** For questions about your rights, your privacy, or potential harm, contact the CDC/NIOSH Chair of the NIOSH Institutional Review Board (IRB) in the Human Research Protection Program at 513-533-8591.

Thank you for your time.

Respectfully,

A handwritten signature in black ink that reads "Tom Schroeder". The signature is fluid and cursive, with a long horizontal stroke at the end.

Tom Schroeder  
Statistician, Division Director  
Division of Hazard and Injury Data Systems  
U.S. Consumer Product Safety Commission



**APPENDIX B – *Questionnaire***

## Fire Fighter Injuries/Illnesses/Exposures

Questionnaire # \_\_\_\_\_

This is the Fire Fighter Injuries/Illnesses/Exposures Survey

Tasknum - Enter task number

\_\_\_\_\_

Instruct\_1. **Bold type** indicates what should be read to the respondent. Instructions for the interviewer or frequently asked questions will be prefaced by “**Interviewer:**” and are written in non-bold type.

**Interviewer:** Please do not read choices to yes/no questions or give examples unless explicitly instructed to do so. Do not read the “Refused” or “Don’t Know” choices. If the respondent is unsure, read applicable interviewer notes if available. Otherwise, say, “Please give me the answer you think is best.”

Instruct\_2. **Interviewer:** Prior to calling the respondent, please review their case and complete the following.

Name - **Interviewer:** Complete before dialing.

What is your name? (Interviewer's first and last name)

\_\_\_\_\_

tx\_date - **Interviewer:** Complete before dialing.

Enter the month, day, year of treatment.

Month (MM)     \_\_\_\_\_  
Day (DD)        \_\_\_\_\_  
Year (YY)        \_\_\_\_\_

### Interview Introduction

**Hello. My name is (interviewer name). I am calling for the National Institute for Occupational Safety and Health, also known as NIOSH. In the last few weeks, you should have received a letter explaining a research study on injuries and illnesses involving fire fighters. This study has no connection to workers’ compensation. As the letter indicated, we are gathering information on injuries and illnesses among career and volunteer fire fighters who were injured or became ill while performing fire fighting duties. You were chosen for this study from emergency department records. I understand that on \_\_\_/\_\_\_/\_\_\_ you were treated in the emergency department for an incident that occurred at work.**

1) Is this correct?

- a. Yes
- b. No

*\*Programming note: If 1 = a, SKIP to Consent*

*\*Programming note: If 1 = b, GOTO 2*

2) Were you recently treated on a different day in a hospital emergency department?

- a. Yes
- b. No

*\*Programming note: If 2 = a, GOTO to 3*

*\*Programming note: If 2 = b, END interview*

### 3) What day was that?

Month (MM)     \_\_\_\_\_  
Day (DD)        \_\_\_\_\_  
Year (YY)        \_\_\_\_\_

*\*Programming note: If date is within 21 days of recorded date, GOTO Consent*

*\*Programming note: If date is greater than 21 days from recorded date, END interview*

**Consent - The letter you received explained how we will protect your privacy. I am required to tell you four things that were mentioned in this letter:**

- (1) Taking part in this study involves a small risk to your privacy, but we take many steps to prevent that risk.**
- (2) There is no direct benefit or reimbursement for taking part in this study.**
- (3) Your answers to our questions will be kept private to the extent allowed by law. Your name, address, nor anything else that could identify you will never be associated with the information you give and will not be in any records held by NIOSH.**
- (4) If you have questions about the study or you feel you were harmed, you may call Suzanne Marsh, CDC project officer, at 304-285-6009. For questions about your rights, your privacy, or harm to you, contact the Chair of the NIOSH Institutional Review Board in the Human Research Protection Program at 513-533-8591.**

**I would like to ask you some questions about your incident. Your participation is particularly important to us because you represent a number of fire fighters who were not selected for interview. This interview takes about 30 minutes. The information that you provide will be used for prevention purposes only and does not have any bearing on the worker's compensation process or benefits. This study is voluntary. You may choose to be in the study or not. You do not have to answer any questions you do not want to. You can end the call at any time without any consequences.**

### 4) Would you please help us by answering some questions?

- a. Yes
- b. No

*\*Programming note: If 4 = a, SKIP to Instruct\_3*

*\*Programming note: If 4 = b, GOTO 5*

**5) I assure you that everything you tell us will be kept private and will only be used to study how to prevent injuries and illnesses on the job. Your participation is very important and will benefit fire fighters. Would you please reconsider helping us?**

- a. Yes
- b. No

*\*Programming note: If 5 = a, SKIP to Instruct\_3*

*\*Programming note: If 5 = b, GOTO 5*

**6) I understand that this may be a bad time. May I call back another time?**

- a. Yes
- b. No

*\*Programming note: If 6 = a, note preferred time and call back later*

*\*Programming note: If 6 = b, END interview*

**Screen - Assess whether respondent was working as a fire fighter/EMS worker at the time of injury/illness/exposure**

1) **At the time of the incident that sent you to the emergency department, were you assigned as...? (Read categories.)**

- a. **Both a fire fighter and an EMT or paramedic (GOTO 2)**
- b. **A fire fighter only (GOTO 2)**
- c. **An EMT or paramedic only**
- d. **Neither a fire fighter nor an EMT or paramedic**

*\*Programming note: If 1 = c or d, END interview*

2) **At the time of the incident, what type of fire fighter were you? (Read categories.)**

- a. **A volunteer fire fighter**
- b. **A part-paid or on-call fire fighter (GOTO 3)**
- c. **A career fire fighter (GOTO 3)**
- d. **DON'T KNOW**

*\*Programming note: If 2 = a, SKIP to Instruct\_3*

*\*Programming note: If 2 = d, END interview*

3) **What type of department was it? (Read categories.)**

- a. **A Federal department**
- b. **A state department**
- c. **A county department**
- d. **A city department**
- e. **A private or industrial department**
- f. **DON'T KNOW**

**Instruct\_3. I will be asking you questions related to your visit to the emergency department on [date]. These questions refer to the emergency department as the ED.**

**Injury/illness/exposure (IIE) description**

1) **Tell me about why you went to the ED?**

**Interviewer:** If respondent hesitates, ask the following: "What happened that sent you to the ED?"

**Interviewer:** If respondent suggests that there was more than one reason, ask the respondent to describe the reason that was related to their fire fighter duties.

**Interviewer:** If respondent suggests that there was more than one reason related to their job, ask the respondent to describe the reason they felt was more serious.

**Interviewer:** If not included in the description, use the following questions as prompts:

- (1) What were you doing when your injury or exposure happened?
  - (2) Were your activities part of your job duties?
  - (3) Where were you? In a building? Outside of a building? On a road?
  - (4) Thinking about equipment other than personal protective equipment, what equipment were you using?
- 

**2) Throughout the rest of the interview, we want to use one word to refer to why you went to the ED. Which of these words works best: injury, illness or exposure?**

**Interviewer:** If the respondent hesitates or says don't know, say the following: There is no right or wrong answer. Choose the word that best describes why you went to the ED.

- a. Injury
- b. Illness
- c. Exposure
- d. REFUSED

*\*Programming note: the answer from 2 will only be used as a fill-in for the remainder of the survey [IIE] but will not be used for data analysis.*

*\*Programming note: If 2 = d, END interview*

Instruct\_4. Thank you for telling me about why you went to the ED. I'm going to ask you additional questions about your [IIE]. Some questions may repeat information you've given me, but I need to ask them as they appear.

\*Programming note: If 2 (IIE description) = a, GOTO 1

\*Programming note: If 2 (IIE description) = b, SKIP to 2

\*Programming note: If 2 (IIE description) = c, SKIP to 3

**Injury/illness/exposure characteristics**

1) **Approximately what time did your [IIE] occur?** (Unknown = 99)

**Interviewer:** If the respondent does not indicate, ask whether the time is AM or PM.

Time \_\_\_\_\_

AM/PM \_\_\_\_\_

\*Programming note: If 2 (IIE description) = a, GOTO 2

\*Programming note: If 2 (IIE description) = b, SKIP to 3

\*Programming note: If 2 (IIE description) = c, SKIP to 4

2) [If 2 (IIE description) = a] **What was your injury?**

\_\_\_\_\_

\*Programming note: If 2 (IIE description) = a, SKIP to 5

3) [If 2 (IIE description) = b] **What was your illness?**

\_\_\_\_\_

\*Programming note: If 2 (IIE description) = b, SKIP to 8

4) [If 2 (IIE description) = c] **What were you exposed to?**

\_\_\_\_\_

5) **What part of your body was most affected by your [IIE]?**

\_\_\_\_\_

6) **Were any other parts of your body affected?**

a. Yes (GOTO 6)

b. No

c. DON'T KNOW

\*Programming note: If 5 = b or c, SKIP to 7

7) [If 5 = a] Please describe the other parts of your body affected by your [IIE].

---

8) What treatment did you receive in the ED for your [IIE]?

---

9) Now I'm going to read you a list of sources people use to pay medical bills. Please tell me which source you THINK you will use to pay your ED bill.

**Interviewer:** If respondent suggests that they have two or more payers, ask "Which of these do you think will pay the larger part of the bill?"

- a. Worker's Compensation
- b. Health insurance
- c. Yourself, also called out-of-pocket
- d. Another source
- e. None
- f. DON'T KNOW

*\*Programming note: If 9 = a, b, c, e, or f, SKIP to Instruct\_5*

10) Please tell me the source you think you will use to pay your ED bill.

---



Instruct\_5. I'd now like to ask you some questions about your specific duties at the time of your [IIE] and additional details about the incident that you were involved in.

*\*Programming note: If 2 (Screen) = a, SKIP to 3*

**Incident characteristics**

1) [If 2 (Screen) = b or c] **How many hours was the shift you were working when your [IIE] occurred? Was it...?** (Read categories.)

- a. 8 hours
- b. 10 hours
- c. 12 hours
- d. 24 hours
- e. 48 hours
- f. 72 hours
- g. Other (GOTO 2)
- h. DON'T KNOW

*\*Programming note: If 1 = a, b, c, d, e, f, or h, SKIP to 3*

2) [If 1 = g] **Please tell me how many hours the shift you were working was?**

---

3) **Were you on a call when your [IIE] occurred?**

**Interviewer:** If the respondent asks whether responding to or returning from a call is included, please say the following: A call includes responding or returning from a call and time on scene.

- a. Yes (GOTO 4)
- b. No

*\*Programming note: If 3 = b, SKIP to 26*

4) [If 3 = a] **What type of call were you on when your [IIE] occurred? Was it a...?** (Read categories.)

- a. Working fire including structural, vehicle, or brush
- b. Medical
- c. Motor vehicle, that did not involve a working fire
- d. Alarm, including fire or CO, that did not involve a working fire
- e. Public assistance
- f. Another type (GOTO 5)

*\*Programming note: If 4 = a, SKIP to 6*

*\*Programming note: If 4 = b, c, d, or e, SKIP to 8*

5) [If 4 = f] Please describe the call.

---

*\*Programming note: If 4 = f, SKIP to 8*

6) [If 4 = a] What type of working fire was it? (Read categories.)

- a. Structure
- b. Wildland, brush, grass, or wildland urban interface
- c. Vehicle
- d. Another outside fire (e.g., trash)
- e. Some other type of fire (GOTO 7)

*\*Programming note: If 6 = a, b, c, or d, SKIP to 8*

7) [If 6 = e] Please describe the type of fire.

---

8) Please tell me whether or not you were in any of the following locations when your [IIE] occurred.

	Yes (1)	No (2)	Programming note
a) At the station			GOTO 8b
b) Getting in or out of a vehicle			If (8a = 1) AND (8b = 1), SKIP to 11 If (8a = 2) AND (8b = 1), SKIP to 8d If (8a = 1 or 2) AND (8b = 2), GOTO 8c
c) In a vehicle			If (8a = 1) AND (8c = 1), SKIP to 11 If (8a = 1) AND (8b = 2) AND (8c = 2), SKIP to 9 If (8a = 2) AND (8c = 1 or 2), GOTO 8d
d) On scene			If ((8b = 1) OR (8c = 1)) AND (8d = 1 or 2), SKIP to 11 If ((8b = 2) AND (8c = 2)) AND (8d = 1) AND (4 = a) SKIP to 24 If ((8b = 2) AND (8c = 2)) AND (8d = 1) AND (4 NE a), SKIP to Instruct_6 If (8a = 2) AND (8b = 1 or 2) AND (8d = 2), GOTO e
e) In some other place			If 8e = 1, SKIP to 10
f) DON'T KNOW			If 8f = 1, SKIP to Instruct_6

9) [If (8a = 1) AND (8b = 2) AND (8c = 2)] Please tell me what you were doing.

---

*\*Programming note: If (8a = 1) AND (8b = 2) AND (8c = 2), SKIP to Instruct\_6*

**10) [If 8e = 1] Please tell me where you were when your [IIE] occurred.**

---

*\*Programming note: If (8b = 1) AND (8e = 1), GOTO 11*

*\*Programming note: If (8b = 2) AND (8e = 1), SKIP to Instruct\_6*

**11) [If 8b = 1 OR 8c = 1] What type of vehicle was it? (Read categories.)**

- a. A fire apparatus or fire vehicle**
- b. An ambulance or medic unit**
- c. A personal vehicle**
- d. Another type (GOTO 12)**

*\*Programming note: If 11 = a, SKIP to 13*

*\*Programming note: If (11 = b) AND (8b = 1), SKIP to Instruct\_6*

*\*Programming note: If (11 = b) AND (8b = 2), SKIP to 20*

*\*Programming note: If (11 = c) AND (8b = 1), SKIP to Instruct\_6*

*\*Programming note: If (11 = c) AND (8b = 2), SKIP to 19*

**12) [If 11 = d] Please describe the vehicle.**

---

*\*Programming note: If (11 = d) AND (8b = 1), SKIP to Instruct\_6*

*\*Programming note: If (11 = d) AND (8b = 2), SKIP to 19*

**13) [If 11 = a] What type of fire apparatus was it? (Read categories.)**

- a. An engine**
- b. A heavy rescue**
- c. A tanker or tender truck**
- d. A ladder truck**
- e. A brush truck**
- f. A utility vehicle**
- g. A command vehicle**
- h. Another type (GOTO 14)**

*\*Programming note: If (13 = a, b, c, d, e, f, or g) AND (8b = 1), SKIP to Instruct\_6*

*\*Programming note: If (13 = a, b, c, d, e, f, or g) AND (8b = 2), SKIP to 15*

**14) [If 13 = h] Please tell me what type of fire apparatus it was.**

---

*\*Programming note: If (13 = h) AND (8b = 1), SKIP to Instruct\_6*

*\*Programming note: (f (13 = h) AND (8b = 2), GOTO 15*

**15) [If 11 = a] What was your location in the fire apparatus when your [IIE] occurred? Were you in the...?**  
(Read categories.)

- a. Driver seat
- b. Front officer seat
- c. Jumpseat
- d. Tiller
- e. Another location (GOTO 16)

*\*Programming note: If 15 = a, b, c, or d, SKIP to 20*

**16) [If 15 = e] Please describe your location.**

---

*\*Programming note: If 11 = a, SKIP to 20*

**17) [If 11 = b] What was your location in the ambulance or medic unit when your [IIE] occurred? Were you in the...?** (Read categories.)

- a. Driver seat
- b. Front passenger seat
- c. Patient compartment
- d. Another location (GOTO 20)

*\*Programming note: If 17 = a, b, or c, SKIP to 20*

**18) [If 17 = d] Please describe your location.**

---

*\*Programming note: If 11 = b, SKIP to 20*

**19) [If 11 = c or d] Were you driving the vehicle when your [IIE] occurred?**

- a. Yes
- b. No

**20) [If 8c = 1] What were you doing at the time your [IIE] occurred? Were you....?** (Read categories.)

- a. Responding or going to a call
- b. Returning from a call (GOTO 21)
- c. Doing something else

*\*Programming note: If 20 = a, SKIP to 23*

*\*Programming note: If 20 = c, SKIP to 22*

**21) [If 20 = b] Were you assisting in transporting a patient from a call?**

- a. Yes
- b. No

*\*Programming note: If 20 = b, SKIP to 23*

**22) [If 20 = c] Please tell me what you were doing.**

---

**23) At the time of your [IIE], were lights or sirens being used by the vehicle you were in?**

- a. Yes
- b. No

*\*Programming note: If 8c = 1, SKIP to Instruct\_6*

**24) [If 4 = a AND 8d = 1] I am going to read you a list of activities that you may have been doing when your [IIE] occurred. Please tell me which activity you were doing. (Read categories.)**

- a. Search and rescue
- b. Forcible entry
- c. Ventilation
- d. Fire attack
- e. Salvage and overhaul
- f. Driver operator, chauffeur, or engineer
- g. Incident management
- h. Another activity (GOTO 25)

*\*Programming note: If 24 NE h, SKIP to Instruct\_6*

**25) [If 24 = h] Please describe the activity you were doing when your [IIE] occurred.**

---

*\*Programming note: If 4 = a AND 8d = 1, SKIP to Instruct\_6*

**26) [If 3 = b] What activity were you performing at the time of your [IIE]? Was it....? (Read categories.)**

**Interviewer:** If any part of respondent's answer includes training, choose answer c.

- a. Station activity (GOTO 27)

- b. Physical fitness activity at the station**
- c. Training**
- d. Another activity**

*\*Programming note: If 26 = b, SKIP to 28*

*\*Programming note: If 26 = c, SKIP to 29*

*\*Programming note: If 26 = d, SKIP to 30*

**27) [If 26 = a] Please describe the station activity you were doing.**

---

*\*Programming note: If 26 = a, SKIP to Instruct\_6*

**28) [If 26 = b] Please describe the physical fitness activity you were doing.**

---

*\*Programming note: If 26 = b, SKIP to Instruct\_6*

**29) [If 26 = c] Please describe the training that you were participating in.**

---

*\*Programming note: If 26 = c, SKIP to Instruct\_6*

**30) [If 26 = d] Please describe the activity that you were doing.**

---

Instruct\_6. I'm now going to ask you a series of questions related to the incident that led to your [IIE]. Not all of the scenarios will apply to your situation.

**Event-specific characteristics**

**Overexertion and strains**

1) Overexertion or strains may result from excessive physical effort, an awkward body posture, or repetitive motion. This type of injury does not involve heat stress. Did your [IIE] involve an overexertion or strain?

- a. Yes (GOTO 2)
- b. No (SKIP to 1 in Exposure to heat, smoke, or toxic agents)
- c. DON'T KNOW (SKIP to 1 in Exposure to heat, smoke, or toxic agents)

2) I am going to read you a list of activities. Please tell me whether or not you were doing any of these activities when your [IIE] occurred.

	Yes	No
a) Going up or down stairs		
b) Getting into or out of a vehicle		
c) Turning a corner or negotiating a turn		
d) Twisting		
e) Working above shoulder level		
f) Working below waist level		
g) Walking on a rough or uneven surface such as an uneven floor or a steep bank		
h) Rushing to complete a task		
i) Using an awkward posture or movement because of the space you were in		
j) Walking or stepping on a surface that was not dry		
k) Transferring, carrying, or lifting a person		
l) Transferring, carrying, or lifting equipment		

\*Programming note: If 2 = j only or with any other response, GOTO 3

\*Programming note: If (2 NE j) AND (2 = k only or with any other response), SKIP to 5

\*Programming note: If (2 NE j) AND (2 NE k) AND (2 = l only or with any other response), SKIP to 6

\*Programming note: If (2 NE j) AND (2 NE k) AND (2 NE l), SKIP to 9

3) [If 2 = j only or with any other response] **You told me the surface you were walking on was not dry. What was on that surface?** (Read categories.)

- a. Water
- b. Ice
- c. Snow
- d. Grease
- e. Another substance (GOTO 4)

f. DON'T KNOW

*\*Programming note: If (3 NE e) AND (2 = k only or with any other response), SKIP to 5*

*\*Programming note: If (3 NE e) AND (2 NE k) AND (2 = l only or with any other response), SKIP to 6*

*\*Programming note: If (3 NE e) AND (2 NE k) AND (2 NE l), SKIP to 9*

4) [If 3 = e] **Please describe what was on the surface when your [IIE] occurred.**

---

*\*Programming note: If (2 NE k) AND (2 = l only or with any other response), SKIP to 6*

*\*Programming note: If (2 NE k) AND (2 NE l), SKIP to 9*

5) [If 2 = k only or with any other response] **You told me you were transferring, carrying, or lifting a person at the time of your [IIE]. Was that person overweight or obese?**

- a. Yes
- b. No
- c. DON'T KNOW

6) **Were there other persons assisting you with the transfer, carry, or lift?**

- a. Yes (GOTO 7)
- b. No
- c. DON'T KNOW

*\*Programming note: If (2 = l) AND (7 = b or c), SKIP to 8*

*\*Programming note: If (2 NE l) AND (7 = b or c), SKIP to 9*

7) [If 6 = a] **How many were assisting you?**

NumPersons \_\_\_\_\_

*\*Programming note: If 2 NE l, SKIP to 9*

8) [If 2 = l only or with any other response] **You told me you were transferring, carrying, or lifting equipment at the time of your [IIE]. Please describe the equipment.**

---

9) **Prior to this [IIE], did you have a sprain, strain, or repetitive motion injury to the same part of your body?**

- a. Yes
- b. No
- c. DON'T KNOW



**Exposure to heat, smoke, or toxic agents**

- 1) Fire fighters are often exposed to heat, flames, and smoke. Fire fighters may also be exposed to other toxic agents including carbon-monoxide, poison ivy, or harmful gases. Were you exposed to heat, smoke, or other toxic agents when your [IIE] occurred?
- a. Yes (GOTO Instruct\_7)
  - b. No (SKIP to 1 in Exposure to a potentially harmful substance)
  - c. DON'T KNOW (SKIP to 1 in Exposure to a potentially harmful substance)

Instruct\_7. I'm now going to ask you some additional questions about your exposure.

- 2) I am going to read you a list of items you may have been exposed to when your [IIE] occurred. Please tell me whether or not you were exposed to any of the following. (Please select all that apply) (Read categories.)
- a. Heat
  - b. Flames
  - c. Carbon monoxide
  - d. Poison ivy
  - e. Something else
  - f. DON'T KNOW

*\*Programming note: If 2 = e only or with any other response, GOTO 3*

*\* Programming note: If (2 NE e) AND 6 (Incident characteristics) = d, e, or blank, SKIP to 1 in Exposure to a potentially harmful substance*

*\* Programming note: If (2 NE e) AND 6 (Incident characteristics) = a, b, or c, SKIP to Instruct\_8*

- 3) [If 2 = e only or with any other response] Please describe what you were exposed to.

---

*\* Programming note: If 6 (Incident characteristics) = d, e, or blank, SKIP to 1 in Exposure to a potentially harmful substance*

Instruct\_8. I'm now going to ask you some additional questions about the fire incident that you were involved in when you were exposed.

*\*Programming note: If 6 (Incident characteristics) = a, GOTO 4*

*\*Programming note: If 6 (Incident characteristics) = b, SKIP to 12*

*\*Programming note: If 6 (Incident characteristics) = c, SKIP to 22*

- 4) [If 6 (Incident characteristics) = a] Earlier you told me you were on the scene of a structure fire. What type of structure was it? (Read categories.)
- a. A 1 or 2 family dwelling, including mobile home
  - b. A multi-family dwelling
  - c. Non-residential or commercial (GOTO 5)

- d. Other
- e. DON'T KNOW

*\*Programming note: If 4 = a, b, or, e, SKIP to 7*

*\*Programming note: If 4 = d, SKIP to 7*

5) [If 4 = c] **Please describe the non-residential or commercial structure.**

---

*\*Programming note: If 4 = c, SKIP to 7*

6) [If 4 = d] **Please describe the type of structure.**

---

7) **Where were you at the time of your [IIE]? Were you....?** (Read categories.)

- a. Inside the structure
- b. Outside the structure
- c. DON'T KNOW

8) **Were there civilians in the structure that was on fire?**

- a. Yes
- b. No
- c. DON'T KNOW

9) **Was there an incident commander on scene when your [IIE] occurred?**

- a. Yes
- b. No
- c. DON'T KNOW

10) **I am going to read you a list of factors that may have contributed to your IIE. As I read each one, please tell me whether or not the factor contributed to your [IIE].** (Please select all that apply) (Read categories.)

- a. Collapsing or falling object
- b. Changes to the direction or flow path of the fire
- c. Lost, caught, trapped, or confined
- d. Another factor
- e. DON'T KNOW

*\*Programming note: if 10 = d only or with any other response, GOTO 11*

*\*Programming note: if 10 NE d, SKIP to 1 in Exposure to a potentially harmful substance*

11) [If 10 = d or with any other response] **Please describe any other factors that contributed to your [IIE].**

---

*\*Programming note: if 6 (Incident characteristics) = a, SKIP to 1 in Exposure to a potentially harmful substance*

12) [If 6 (Incident characteristics) = b] **Earlier you told me you were on scene of a wildland, brush, or grass fire. What type of area did the fire occur in?** (Read categories.)

- a. **An area without residents, largely still wild and undisturbed**
- b. **Rural, farm area, or heavily timbered area**
- c. **In a city, large town, or suburb**
- d. **Other (GOTO 13)**
- e. **DON'T KNOW**

*\*Programming note: if 12 = a, b, c, or e, SKIP to 14*

13) [If 12 = d] **Please describe the area where the fire occurred.**

---

14) **Was the fire a prescribed burn?**

- a. Yes
- b. No
- c. Don't Know

15) **What response activity were you doing when your [IIE] occurred? Were you doing...?** (Read categories.)

- a. **Initial attack**
- b. **Suppression**
- c. **Mop-up**
- d. **Another activity (GOTO 16)**
- e. **DON'T KNOW**

*\*Programming note: If 15 = a, b, c, or e, SKIP to 17*

16) [If 16 = d] **Please describe your activity.**

---

17) **What type of wildland fire fighter crew were you on at the time of your [IIE]? Were you on...?** (Read categories.)

- a. **A handcrew**
- b. **An engine crew**
- c. **Jumper or Rapeller**
- d. **Management overhead**
- e. **Another type (GOTO 18)**

- f. Not part of a crew
- g. DON'T KNOW

*\*Programming note: If 17 = a, b, c, d, f, or g, SKIP to 19*

**18) [If 17 = e] Please describe your crew type.**

---

**19) Was there an incident commander on scene when your [IIE] occurred?**

- a. Yes
- b. No
- c. DON'T KNOW

**20) I am going to read you a list of factors that may have contributed to your IIE. As I read each one, please tell me whether or not the factor contributed to your [IIE]. (Please select all that apply) (Read categories.)**

- a. Changes to the direction or flow path of the fire
- b. Falling object, including a snag or rock
- c. Equipment such as chainsaw, hand tools, or drip torch
- d. All-terrain vehicle
- e. Other motor vehicle
- f. Another factor
- g. DON'T KNOW

*\*Programming note: If 20 = f only or with any other response, GOTO 21*

*\*Programming note: If 20 NE f, SKIP to 1 in Exposure to a potentially harmful substance*

**21) [If 20 = f only or with any other response] Please describe any other factors that contributed to your [IIE].**

---

*\*Programming note: If 6 (Incident characteristics) = b, SKIP to 1 in Exposure to a potentially harmful substance*

**22) [If 6 (Incident characteristics) = c] Earlier you told me you were on scene of a vehicle fire. What type of vehicle was on fire? (Read categories.)**

- a. An automobile or passenger vehicle including a pick-up truck
- b. A commercial vehicle including a bus or tractor trailer
- c. Another type (GOTO 23)
- d. DON'T KNOW

*\*Programming note: If 22 = a, b, or d, SKIP to 24*

**23) [If 23 = c] What type of vehicle was it?**

---

24) Was there an incident commander on scene when your [IIE] occurred?

- a. Yes
- b. No
- c. DON'T KNOW

**Exposure to a potentially harmful substance**

- 1) Fire fighters may be exposed to other potentially hazardous substances not related to a fire scene. These hazardous substances may include bodily fluid either from direct contact or indirect contact with a patient or other person. Were you exposed to a potentially hazardous substance?
- a. Yes (GOTO Instruct\_9)
  - b. No (SKIP to 1 in Falls/Slips/Trips)
  - c. DON'T KNOW (SKIP to 1 in Falls/Slips/Trips)

Instruct\_9. I'm now going to ask you some additional questions about your exposure to a potentially harmful substance. Some of these questions may duplicate previous questions but I must ask them as written.

- 2) [If 1 = a] Please tell me whether your exposure occurred from any of the following. (Please select all that apply) (Read categories.)
- a. Being stuck by a needle
  - b. Being coughed or spit on
  - c. Another way (GOTO 3)
  - d. DON'T KNOW

\*Programming note: if 2 = a, SKIP to 8

\*Programming note: if 2 = b or d, SKIP to 4

- 3) [If 2 = c] Please describe how the exposure occurred.
- 

- 4) What potentially harmful substance were you exposed to? Was it....? (Please select all that apply) (Read categories.)
- a. Blood
  - b. Respiratory secretions
  - c. Urine, feces, or other biological waste
  - d. Another substance, including chemicals (GOTO 5)
  - e. DON'T KNOW

\*Programming note: if 4 = a, b, c, or e, SKIP to 6

- 5) [If 4 = d] Please describe the other potentially harmful substance that you were exposed to.
- 

- 6) I am going to read you a list of possible parts of your body that may have been exposed. As I read each body part, please tell me whether or not that part of your body was exposed. (Please select all that apply) (Read categories.)
- a. Eyes

- b. Mouth or nose
- c. Skin
- d. Whole body
- e. Some other part
- f. DON'T KNOW

*\*Programming note: If 6 = e only or with any other response, GOTO 7*

*\*Programming note: If 6 NE e, SKIP to 8*

7) [If 6 = e only or with any other response] **Please describe the parts of your body that were exposed.**

---

8) I am going to read you a list of activities. Please tell me whether or not you were doing any of these activities when your [IIE] occurred.

	Yes	No
a) Patient care		
b) Moving a patient		
c) Restraining a patient		

**Falls/Slips/Trips**

**1) Did you fall off of or through something, like a weak floor or a hole, when your [IIE] occurred?**

- a. Yes
- b. No (GOTO 2)
- c. DON'T KNOW (GOTO 2)

*\*Programming note: If 1 = a, SKIP to 3*

**2) Did your [IIE] involve a slip, trip, stumble, or loss of balance?**

- a. Yes (GOTO 3)
- b. No (SKIP to 1 in Transportation)
- c. DON'T KNOW (SKIP to 1 in Transportation)

*\*Programming note: If (1 = a or 2 = a) AND (1 (Overexertion and strains) = a), SKIP to 11*

**3) I am now going to read you a list of activities. Please tell me whether or not you were doing any of these activities when your [IIE] occurred.**

	Yes	No
a) Going up or down stairs, steps, or curb		
b) Getting into or out of a vehicle		
c) Turning a corner or negotiating a turn		
d) Walking on a rough or uneven surface such as an uneven floor or a steep bank		
e) Rushing to complete a task		
f) Walking or stepping on a surface that was not dry		
g) Transferring, carrying, or lifting a person		
h) Transferring, carrying, or lifting equipment		
i) Pushing, pulling, or dragging something		

*\*Programming note: If 3 = f only or with any other response, GOTO 4*

*\*Programming note: If (3 NE f) AND (3 = g only or with any other response), SKIP to 6*

*\*Programming note: If (3 NE f) AND (3 NE g) AND (3 = h only or with any other response), SKIP to 9*

*\*Programming note: If (3 NE f) AND (3 NE g) AND (3 NE h) AND (3 = i), SKIP to 10*

*\*Programming note: If (3 NE f) AND (3 NE g) AND (3 NE h) AND (3 NE i), SKIP to 11*

**4) [If 3 = f only or with any other response] You told me that the surface you were walking on was not dry. What was on that surface? (Read categories.)**

- a. Water
- b. Ice
- c. Snow
- d. Grease



- e. **Another substance** (GOTO 5)
- f. **DON'T KNOW**

*\*Programming note: If (4 NE e) AND (3 = g only or with any other response), SKIP to 6*  
*\*Programming note: If (4 NE e) AND (3 NE g) AND (3 = h only or with any other response), SKIP to 9*  
*\*Programming note: If (3 NE e) AND (3 NE g) AND (3 NE h) AND (3 = i), SKIP to 10*  
*\*Programming note: If (3 NE e) AND (3 NE g) AND (3 NE h) AND (3 NE i), SKIP to 11*

- 5) [If 4 = e] **Please describe what was on the surface when your [IIE] occurred.**

---

*\*Programming note: If 3 = g only or with any other response, SKIP to 6*  
*\*Programming note: If (3 NE g) AND (3 = h only or with any other response), SKIP to 9*  
*\*Programming note: If (3 NE g) AND (3 NE h) AND (3 = i), SKIP to 10*  
*\*Programming note: If (3 NE g) AND (3 NE h) AND (3 NE i), SKIP to 11*

- 6) [If 3 = g only or with any other response] **You told me that you were transferring, carrying, or lifting a person at the time of your [IIE]. Was that person overweight or obese?**

- a. Yes
- b. No
- c. **DON'T KNOW**

- 7) **Were there other persons assisting you with the transfer, carry, or lift?**

- a. Yes (GOTO 8)
- b. No
- c. **DON'T KNOW**

*\*Programming note: If (3 = h) AND (7 = b or c), SKIP to 9*  
*\*Programming note: If (3 NE h) AND (3 = i) AND (7 = b or c), SKIP to 10*  
*\*Programming note: If (3 NE h) AND (3 NE i) AND (7 = b or c), SKIP to 11*

- 8) [If 7 = a] **How many were assisting you?**

NumPersons \_\_\_\_\_

*\*Programming note: If (3 NE h) AND (3 = i), SKIP to 10*  
*\*Programming note: If (3 NE h) AND (3 NE i), SKIP to 11*

- 9) [If 3 = h only or with any other response] **You told me that you were transferring, carrying, or lifting equipment at the time of your [IIE]. Please describe that equipment.**

---

**10) [If 3 = i only or with any other response] You told me that you were pushing, pulling, or dragging something. Please describe what it was.**

---

**11) Was there an obstacle in your way when your [IIE] occurred?**

- a. Yes (GOTO 12)
- b. No
- c. DON'T KNOW

*\*Programming note: If 4 (Incident Characteristics) = a) AND (11 = b or c), SKIP to 13*

*\*Programming note: If 4 (Incident Characteristics) NE a) AND (11 = b or c), SKIP to 1 in Transportation*

**12) [If 11 = a] Please describe the obstacle.**

---

*\*Programming note: If 4 (Incident Characteristics) = a, GOTO 13*

*\*Programming note: If 4 (Incident Characteristics) NE a, SKIP to 1 in Transportation*

**13) Was your vision obscured by smoke?**

- a. Yes
- b. No
- c. Don't Know

**Transportation**

- 1) A motor vehicle incident includes incidents where the vehicle that you were in swerved, stopped suddenly, or overturned. These incidents may involve a collision where the vehicle you were in was struck by another vehicle or struck an object, person, or animal. Motor vehicle incidents also include situations where a person is outside of a vehicle and is struck. Did your [IIE] involve a motor vehicle incident?
- a. Yes (GOTO Instruct\_10)
  - b. No (SKIP to 1 in Violence)
  - c. DON'T KNOW (SKIP to 1 in Violence)

Instruct\_10. I'm now going to ask you some additional questions about your motor vehicle incident. Some of these questions may duplicate previous questions but I must ask them as written.

- 2) [If 1 = a] I am going to read you a list of events that may have led to your [IIE]. As I read each one, please tell me whether or not the event contributed to your [IIE]. (Please select all that apply) (Read categories.)
- a. The vehicle you were in struck another vehicle
  - b. The vehicle you were in was struck by another vehicle
  - c. The vehicle you were in struck a fixed object
  - d. The vehicle you were in rolled over
  - e. The vehicle you were in swerved or stopped suddenly (\*Programming note: If 2 = a - e, SKIP 2f)
  - f. You were not in a vehicle and you were struck
  - g. Something else (GOTO 3)

\*Programming note: If 2 = a, b, c, d, or e, SKIP to 4

\*Programming note: If 2 = f, SKIP to 8

- 3) [If 2 = g] Please describe the incident.

---

\*Programming note: If 8c (Incident characteristics) = 1, GOTO 4

\*Programming note: If 8c (Incident characteristics) NE 1, SKIP to 9

- 4) [If 8c (Incident characteristics) = 1] Was anyone in the vehicle serving as incident commander when your [IIE] occurred?
- a. Yes
  - b. No
  - c. DON'T KNOW
- 5) Were you wearing a seatbelt when your [IIE] occurred?
- a. Yes
  - b. No (GOTO 6)

*\*Programming note: If 5 = a, SKIP to 12*

6) **Why were you not wearing a seatbelt? Was it because....?** (Read categories.)

- a. You did not have time to put it on
- b. You could not buckle it due to bunker gear
- c. A seatbelt was not available
- d. You were in a position not designed for occupants
- e. You were providing patient care
- f. Another reason (GOTO 7)
- g. DON'T KNOW

*\*Programming note: If 6 = a, b, c, d, e, or g, SKIP to 12*

7) [If 6 = f] **Please tell me why you weren't wearing a seatbelt.**

---

*\*Programming note: If 2 = a, b, c, d, e, or g, SKIP to 12*

8) [If 2 = f] **Please tell me what you were doing when you were struck by a vehicle.**

---

9) **Was an incident commander on scene when your [IIE] occurred?**

- a. Yes
- b. No
- c. DON'T KNOW

10) **Was a temporary traffic control pattern change made prior to your [IIE]?**

- a. Yes (GOTO 11)
- b. No

*\*Programming note: If 10 = b, SKIP to 12*

11) [If 10 = a] **Were there cones or other temporary barriers used to establish the traffic pattern?**

- a. Yes
- b. No

12) **I am going to read you a list of factors that may have contributed to your IIE. As I read each one, please tell me whether or not the factor contributed to your [IIE].** (Please select all that apply) (Read categories.)

- a. Weather conditions
- b. Road conditions
- c. Lighting conditions

- d. Problems with a vehicle
- e. Another factor
- f. DON'T KNOW

*\*Programming note: If 12 = a, GOTO 13*

*\*Programming note: If (12 NE a) and (12 = b), SKIP to 14*

*\*Programming note: If (12 NE a) AND (12 NE b) AND (12 = c), SKIP to 15*

*\*Programming note: If (12 NE a) AND (12 NE b) AND (12 NE c) AND (12 = d), SKIP to 16*

*\*Programming note: If (12 NE a) AND (12 NE b) AND (12 NE c) AND (12 NE d) AND (12 = e), SKIP to 17*

*\*Programming note: If 12 = f, SKIP to 1 in Violence*

**13) [If 12 = a] Please describe the weather conditions.**

---

*\*Programming note: If 12 = b, GOTO 14*

*\*Programming note: If (12 NE b) AND (12 = c), SKIP to 15*

*\*Programming note: If (12 NE b) AND (12 NE c) AND (12 = d), SKIP to 16*

*\*Programming note: If (12 NE b) AND (12 NE c) AND (12 NE d) AND (12 = e), SKIP to 17*

*\*Programming note: If 12 NE b, c, d, or e, SKIP to 1 in Violence*

**14) [If 12 = b] Please describe the road conditions.**

---

*\*Programming note: If 12 = c, GOTO 15*

*\*Programming note: If (12 NE c) AND (12 = d), SKIP to 16*

*\*Programming note: If (12 NE c) AND (12 NE d) AND (12 = e), SKIP to 17*

*\*Programming note: If 12 NE c, d, or e, SKIP to 1 in Violence*

**15) [If 12 = c] Please describe the lighting conditions.**

---

*\*Programming note: If 12 = d, GOTO 16*

*\*Programming note: If (12 NE d) and (12 = e), SKIP to 17*

*\*Programming note: If 12 NE d or e, SKIP to 1 in Violence*

**16) [If 12 = d] Please describe the problems with the vehicle.**

---

*\*Programming note: if 12 NE e, SKIP to 1 in Violence*

**17) [If 12 = e] Please describe the factors that contributed to the incident when your [IIE] occurred.**

---

Violence

1) **Assault or violent incidents may include hitting, verbal assaults, and threats, even if harm was not intended. Did your [IIE] involve an assault or violent incident by a person?**

- a. Yes (GOTO Instruct\_11)
- b. No (SKIP to 1 in Struck by Object)
- c. DON'T KNOW (SKIP to 1 in Struck by Object)

Instruct\_11. **I'm now going to ask you some additional questions about the incident you were involved in when your [IIE] occurred.**

2) [If 1 = a] **Harm can be intended or unintended. Do you think the person intended to harm you?**

- a. Yes
- b. No
- c. DON'T KNOW

3) **Verbal assault includes abusive language, threats of violence or injury, and gestures. Did you experience a verbal assault?**

- d. Yes
- e. No
- f. DON'T KNOW

4) **Physical assault includes unwanted physical contact including slapping, hitting, pushing, or kicking. Did you experience physical assault?**

- a. Yes
- b. No
- c. DON'T KNOW

*\*Programming note: If 3 = b AND 4 = b, GOTO to 5*

*\*Programming note: If 3 NE b OR 4 NE b, SKIP to 6*

5) [If 3 = b AND 4 = b] **Please describe the assault or violence you experienced.**

---

6) **Were police present at the time of the incident?**

- a. Yes
- b. No (GOTO 7)
- c. DON'T KNOW

*\*Programming note: If 6 = a or c, SKIP to 8*

7) **Were police called when the incident occurred?**

- a. Yes
- b. No
- c. DON'T KNOW

**8) Was a police report made because of the incident?**

- a. Yes
- b. No
- c. DON'T KNOW

**9) Was a weapon used by the person who assaulted you?**

- a. Yes (GOTO 9)
- b. No
- c. DON'T KNOW

*\*Programming note: If 9 = b or c, SKIP to 11*

**10) [If 9 = a] Please describe the weapon or weapons used.**

---

**11) Do you suspect the person who assaulted you was under the influence of alcohol?**

- a. Yes
- b. No
- c. DON'T KNOW

**12) Was there more than one person who assaulted you?**

- a. Yes (GOTO 13)
- b. No
- c. DON'T KNOW

*\*Programming note: If 12 = b or c, SKIP to 14*

**13) [If 12 = a] How many?**

---

**14) The person who assaulted you may have been a patient, a family member of a patient or just a bystander. Please tell me who the person or persons were.**

---

**15) Were you wearing a bullet proof vest when your [IIE] occurred?**

- a. Yes
- b. No (GOTO 16)
- c. DON'T KNOW

*\*Programming note: If 15 = a or c, SKIP to 1 in Struck by object*

**16) Was a bullet proof vest available to you?**

- a. Yes
- b. No
- c. DON'T KNOW



**Struck by object**

1) Injuries may be caused by getting struck or hit by an object, such as a tool, a piece of equipment, falling glass, debris, or other material. This does not include physical assaults by another person or incidents involving motor vehicles. Were you struck or hit by an object when your [IIE] occurred?

- a. Yes (GOTO 2)
- b. No (SKIP to 1 in Contact w/objects)
- c. DON'T KNOW (SKIP to 1 in Contact w/objects)

2) [If 1 = a] Please describe the object that you were struck or hit by.

---

3) Please describe the factors that contributed to your [IIE].

---

**Contact w/objects**

1) Injuries may also occur when you come into contact with an object. This includes stepping on a nail, running into a piece of furniture, or grabbing a hot or electrically charged object. Did your [IIE] involve contact with an object?

- a. Yes (GOTO 2)
- b. No
- c. DON'T KNOW

*\*Programming note: If (1 = b or c) AND ((1 in Overexertion = a) OR (1 in Exposure to heat = a) OR (1 in Exposure to potentially harmful substance = a) OR (1 in Falls/Slips/Trips = a) OR (1 in Transportation = a) OR (1 in Struck by Object = a)), SKIP to Instruct\_12*

*\*Programming note: If (1 = b or c) AND ((1 in Violence = a, b, or c) AND (none of the other events were chosen), SKIP to Instruct\_13*

*\*Programming note: If (1 = b or c) AND (none of the other events were chosen), SKIP to Instruct\_13*

2) [If 1 = a] Please describe the object that you contacted when your [IIE] occurred.

---

3) Please describe the factors that contributed to your [IIE].

---

*\*Programming note: If 2h (Overexertion and strains) = 1 OR 3e (Falls/Slips/Trips) = 1, SKIP to Instruct\_12*

4) When your [IIE] occurred, were you rushing to complete a task?

- a. Yes
- b. No

c. DON'T KNOW

**Personal Protective Equipment**

Instruct\_12. Now I have some questions about any personal protective equipment or PPE you may have been using or wearing when your [IIE] occurred. Even though you have already described the incident, I do not want to overlook any important details.

1) Please tell me whether or not you were wearing any of the following PPE.

	Yes	No
a) Protective gown		
b) Goggles or safety glasses for medical care		
c) Surgical mask not for fires		
d) Latex or other type of disposable medical gloves		
e) Bunker coat		
f) Bunker pants		
g) Helmet		
h) Fire fighting gloves		
i) Extrication gloves		
j) Self-contained breathing apparatus or SCBA		
k) SCBA mask		
l) Protective hood		
m) Goggles or face shield for fire fighting or extrication purposes		
n) High-visibility vest		
o) Boots		
p) Brush suit or nomex		
q) DON'T KNOW		

\*Programming note: If 1o = 1, GOTO 2

\*Programming note: If 1o NE 1 AND (Exposure to heat AND fire type = wildland), SKIP to 4

\*Programming note: If 1o NE 1 AND (fire type NE wildland) AND 1j = 1, SKIP to 5

\*Programming note: If 1o NE 1 AND (fire type NE wildland) AND 1j NE 1, SKIP to 9

\*Programming note: If 1q = 1, SKIP to Instruct\_13

2) [If 1o = 1] You told me that you were wearing boots. Did the boots fit?

a. Yes

b. No (GOTO 3)

\*Programming note: If 1 = a AND (Exposure to heat AND fire type = wildland), SKIP to 4

\*Programming note: If 1 = a AND (fire type NE wildland) AND 1j = 1, SKIP to 5

\*Programming note: If (fire type NE wildland) AND 1j NE 1, SKIP to 9

**3) Were the boots too large?**

- a. Yes
- b. No

*\*Programming note: If (Exposure to heat AND fire type = wildland), GOTO to 4*

*\*Programming note: If (fire type NE wildland) AND 1j = 1, SKIP to 5*

*\*Programming note: If (fire type NE wildland) AND 1j NE 1, SKIP to 8*

**4) I understand that you were exposed to heat, flames, or smoke during a wildland fire. At the time of your [IIE], were you using a fire shelter?**

- a. Yes
- b. No

*\*Programming note: If 1j = 1, GOTO 5*

*\*Programming note: If 1j NE 1, SKIP to 9*

**5) [If 1j = 1] You told me that you were wearing an SCBA. Were you using the SCBA at the time your [IIE] occurred?**

- a. Yes
- b. No
- c. DON'T KNOW

**6) Was the SCBA inspected on a regular basis?**

- a. Yes
- b. No
- c. DON'T KNOW

**7) Was the SCBA equipped with an integrated personal alert safety system or PASS?**

- a. Yes
- b. No
- c. DON'T KNOW

*\*Programming note: If 5 = a, GOTO 8*

*\*Programming note: if 5 = b or c, SKIP to 9*

**8) [If 5 = a] Who was the manufacturer of the SCBA?**

---

*\*Programming note: If 8c (Incident characteristics) = 1, SKIP to Instruct\_13*

**9) Did you need any PPE that was NOT available?**

- a. Yes (GOTO 10)
- b. No
- c. DON'T KNOW

*\*Programming note: If 9 = b or c, SKIP to 11*

**10) Please describe the PPE that you needed.**

---

**11) Was the PPE that you were wearing appropriately donned?**

- a. Yes (GOTO 12)
- b. No
- c. DON'T KNOW

*\*Programming note: If 11 = b or c, SKIP to 13*

**12) Please explain what PPE was not appropriately donned.**

---

**13) Were there any problems with any of the PPE that you were wearing or using that may have contributed to your [IIE]?**

- a. Yes (GOTO 14)
- b. No
- c. DON'T KNOW

*\*Programming note: If 13 = b or c, SKIP to Instruct\_13*

**14) Please describe the problems.**

---

**Injury/exposure outcome**

Instruct\_13. I'm going to ask some questions about follow-up care and problems related to your [IIE] that you may have experienced after your visit to the ED.

1) **After your ED visit, did you have any follow up care from a healthcare provider for your [IIE]?**

- a. Yes (GOTO 2)
- b. No
- c. DON'T KNOW

*\*Programming note: If 1 = b or c, SKIP to 3*

2) [If 1 = a] **Please describe your additional care after your ED visit, including the type of professional who performed the treatment and what type of treatment you received.**

---

3) **Have you returned to your fire fighting duties?**

- a. Yes
- b. No (GOTO 4)
- c. DON'T KNOW

*\*Programming note: If 3 = a, SKIP to 6*

*\*Programming note: If 3 = c, SKIP to 9*

4) [If 3 = b] **Why have you not returned? Is it because you.....? (Read categories.)**

- a. **Are still recovering**
- b. **Were fired or let go**
- c. **Quit**
- d. **Haven't returned for another reason (GOTO 5)**
- e. DON'T KNOW

*\*Programming note: If 4 = a, b, c, or e, SKIP to 9*

5) [If 4 = d] **Please describe the reason you have not returned to your fire fighting duties.**

---

*\*Programming note: If 4 = d, SKIP to 9*

6) [If 3 = a] **After your [IIE], when did you feel well enough to return to your fire fighter duties? (Read categories.)**

- a. **The same day your [IIE] occurred**
- b. **The day following your [IIE] or your next scheduled workday**

- c. Within 2 days to one week
- d. Within 2 to 4 weeks
- e. More than 4 weeks
- f. DON'T KNOW

*\*Programming note: If (3 = a) AND (6 = c, d, or e), GOTO 7*

*\*Programming note: If 6 = a, b, or e, SKIP to 9*

7) [If (3 = a) AND (6 = c, d, or e)] **In the 7 days after your [IIE], how much did your [IIE] limit your ability to do normal fire fighting duties?** (Read categories.)

- a. Not at all
- b. Very little
- c. Somewhat
- d. Quite a lot

*\*Programming note: If 1 (Exposure to a potentially harmful substance) = a, SKIP to 10*

8) **Examples of normal activities that you may do at home include cooking, inside or outside chores, or child care. In the 7 days after your [IIE], how much did your [IIE] limit your ability to do normal activities at home?** (Read categories.)

- a. Not at all
- b. Very little
- c. Somewhat
- d. Quite a lot

9) **Some people will experience permanent disability, long-term pain, limited movement, or difficulties in participating in daily activities due to their [IIE]. As of today, do you continue to have any of these effects from your [IIE]?**

- a. Yes (GOTO 10)
- b. No
- c. DON'T KNOW

*\*Programming note: If 10 = b or c, SKIP to 11*

10) [If 9 = b] **Please describe the affects you are experiencing as a result of your [IIE].**

---

11) **What recommendation would you make to your fire department to prevent other fire fighters from experiencing an [IIE] like yours?**

---

**Employment questions**

Instruct\_14. Now, I would like to ask you some specific questions about your job and your department.

1) **What was your job title when your [IIE] occurred? Were you....? (Read categories.)**

- a. **A fire fighter recruit or a probationary member**
- b. **A fire fighter**
- c. **An officer (GOTO 4)**
- d. **Some other title**
- e. **DON'T KNOW**

*\*Programming note: If 1 = a, b, or e, SKIP to 4*

*\*Programming note: If 1 = d, SKIP to 3*

2) [If 1 = c] **Please specify the rank that you held.**

---

*\*Programming note: If 1 = c, SKIP to 4*

3) [If 1 = d] **Please describe your job title.**

---

4) **I am now going to read you a list of possible certifications that you may have. Please tell me whether or not you have any of the following.**

	Yes	No	
a) <b>Fire fighter I</b>			
b) <b>Fire fighter II</b>			
c) <b>Apparatus driver or operator</b>			
d) <b>Fire officer, any level</b>			
e) <b>Hazmat, any level</b>			
f) <b>Wildland fire fighter, any level</b>			
g) <b>Technical rescue, any type</b>			
h) <b>Paramedic</b>			
i) <b>EMT, any level</b>			
j) <b>Emergency medical responder</b>			
k) <b>DON'T KNOW</b>			

*\*Programming note: If 2 (Screen) = a or b, GOTO to 5*

*\*Programming note: If 2 (Screen) NE a or b, SKIP to 6*

5) [If 2 (Screen) = a or b] **In the past 12 months, about how many total hours of fire fighting training have you participated in? (Unknown = 999)**

NumTrainHours \_\_\_\_\_

6) In the past 12 months, have you participated in live fire training?

- a. Yes
- b. No
- c. DON'T KNOW

7) On average, how many working fire calls of any type do you run in a MONTH? (Unknown = 999)

NumFireCalls \_\_\_\_\_

8) On average, how many calls, other than working fire calls, do you run in a WEEK? (Unknown = 999)

NumNFireCalls \_\_\_\_\_

9) At the time of your [IIE], about how many years total had you worked, either as a volunteer or career fire fighter? (Unknown = 99)

Years \_\_\_\_\_  
Months \_\_\_\_\_

10) When your [IIE] occurred, about how many years had you worked with the department you were with either as a volunteer or career fire fighter? (Unknown = 99)

Years \_\_\_\_\_  
Months \_\_\_\_\_

11) When your [IIE] occurred, did the department have a procedure for reporting occupational injuries, illnesses, or exposures?

- a. Yes
- b. No
- c. DON'T KNOW

12) Did your department have a respirator fit-test program?

- a. Yes
- b. No
- c. DON'T KNOW

Instruct\_15. For the next series of statements, please think about when your [IIE] occurred and the department that you were with. For each statement, do you strongly agree, slightly agree, neither agree nor disagree, slightly disagree, or strongly disagree.

13) Fire fighter personnel input was well received by your department.

**Interviewer:** If the respondent hesitates, please re-read the categories below.



- a. Strongly agree
- b. Slightly agree
- c. Neither agree nor disagree
- d. Slightly disagree
- e. Strongly disagree

**14) Your department did a good job of training new personnel.**

**Interviewer:** If the respondent hesitates, please re-read the categories below.

- a. Strongly agree
- b. Slightly agree
- c. Neither agree nor disagree
- d. Slightly disagree
- e. Strongly disagree

**15) Your department did a good job of providing periodic training to all personnel.**

**Interviewer:** If the respondent hesitates, please re-read the categories below.

- a. Strongly agree
- b. Slightly agree
- c. Neither agree nor disagree
- d. Slightly disagree
- e. Strongly disagree

**16) The officers at your department supported your daily efforts.**

**Interviewer:** If the respondent hesitates, please re-read the categories below.

- a. Strongly agree
- b. Slightly agree
- c. Neither agree nor disagree
- d. Slightly disagree
- e. Strongly disagree

**17) You received appropriate feedback about your performance.**

**Interviewer:** If the respondent hesitates, please re-read the categories below.

- a. Strongly agree
- b. Slightly agree
- c. Neither agree nor disagree
- d. Slightly disagree
- e. Strongly disagree

**18) In your department, it was difficult to discuss errors.**

**Interviewer:** If the respondent hesitates, please re-read the categories below.

- a. **Strongly agree**
- b. **Slightly agree**
- c. **Neither agree nor disagree**
- d. **Slightly disagree**
- e. **Strongly disagree**

**19) Your department was a good place to work.**

**Interviewer:** If the respondent hesitates, please re-read the categories below.

- a. **Strongly agree**
- b. **Slightly agree**
- c. **Neither agree nor disagree**
- d. **Slightly disagree**
- e. **Strongly disagree**

**20) The culture at your department made it easy to learn from the errors of others.**

**Interviewer:** If the respondent hesitates, please re-read the categories below.

- a. **Strongly agree**
- b. **Slightly agree**
- c. **Neither agree nor disagree**
- d. **Slightly disagree**
- e. **Strongly disagree**

**21) At your department, it was difficult to speak up if you perceived a problem with safety.**

**Interviewer:** If the respondent hesitates, please re-read the categories below.

- a. **Strongly agree**
- b. **Slightly agree**
- c. **Neither agree nor disagree**
- d. **Slightly disagree**
- e. **Strongly disagree**

**22) Morale at your department was high.**

**Interviewer:** If the respondent hesitates, please re-read the categories below.

- a. **Strongly agree**
- b. **Slightly agree**
- c. **Neither agree nor disagree**
- d. **Slightly disagree**
- e. **Strongly disagree**

**23) You had the training to do your job safely.**

**Interviewer:** If the respondent hesitates, please re-read the categories below.

- a. **Strongly agree**
- b. **Slightly agree**
- c. **Neither agree nor disagree**
- d. **Slightly disagree**
- e. **Strongly disagree**

**24) At your department, personnel were hesitant to report errors due to fear of punishment.**

**Interviewer:** If the respondent hesitates, please re-read the categories below.

- a. **Strongly agree**
- b. **Slightly agree**
- c. **Neither agree nor disagree**
- d. **Slightly disagree**
- e. **Strongly disagree**

**Current health status and demographics**

Instruct\_16. I'm now going to ask a few questions about yourself.

1) In what month and year were you born?

Month (MM) \_\_\_\_\_  
Year (YYYY) \_\_\_\_\_

2) In the past 12 months, have you had any other injuries or exposures related to your duties as a fire fighter that required more than first aid treatment?

- a. Yes
- b. No
- c. DON'T KNOW

3) In the past 12 months, have you had a medical examination?

**Interviewer:** If the respondent asks, please let the respondent know that any physical counts.

- a. Yes
- b. No
- c. DON'T KNOW
- d. REFUSED

4) About how much do you weigh without shoes? (Unknown = 999)

Weight \_\_\_\_\_

5) About how tall are you without shoes? (Unknown = 999)

Feet \_\_\_\_\_  
Inches \_\_\_\_\_

6) Please tell me which of the following best describes the highest level of education you completed. (Read categories.)

- a. Did not complete high school
- b. High school or GED
- c. Some college, including current college student
- d. College degree
- e. Graduate degree
- f. Other (GOTO 7)
- g. DON'T KNOW

*\*Programming note: If 6 = a, b, c, d, e, or g, END interview*

7) [If 6 = f] Please describe the highest level of education you completed.

---

**8) Are you of Hispanic, Latino, or Spanish origin?**

**Interviewer:** If the respondent hesitates or says don't know, say the following: This includes people from, or descended from, Spain, Mexico, Puerto Rico, Cuba, The Dominican Republic, or from Central or South America. Hispanics or Latinos may be of any race.

- a. Yes
- b. No
- c. DON'T KNOW
- d. REFUSED

**9) Which of the following race or races describe you. (Please select all that apply) (Read categories.)**

- a. **White**
- b. **Black or African-American**
- c. **Asian**
- d. **Native American or Alaska Native**
- e. **Native Hawaiian or Pacific Islander**
- f. **Other**
- g. DON'T KNOW
- h. REFUSED

**Thank you for your participation. We greatly appreciate your cooperation.**

*End interview*

## **APPENDIX C – Interview process**

As an independent federal agency, the U.S. Consumer Product Safety Commission (CPSC) operates under the authority of the Consumer Product Safety Act [15 U.S.C. §§2051-2089]. In addition, CPSC must comply with the minimum information security requirements of the Federal Information Security Management Act (FISMA). Described below are the process and the information security controls in place for the transfer of personally identifiable information to CPSC contractors conducting computer assisted telephone interviews.

### **General telephone interview process**

- Step 1. On a weekly basis CPSC will upload contact information for each potential respondent to the CPSC WatchDox® secure file transfer location.
- Step 2. The contractor (i.e., manager/point of contact) will download the contact information to a CPSC encrypted laptop computer.
- Step 3. The contractor point of contact will assign specific cases to individual telephone interviewers and download/transfer the contact information to the interviewers' encrypted CPSC computers via a secure encrypted methodology (i.e., encrypted flash drive that is FIPS 140-2 compliant)
- Step 4. The interviewers will contact the potential respondents and complete the computer assisted telephone interview with a CPSC provided encrypted laptop. For completed interviews and potential respondents who could not be contacted or who refused to participate, the interviewers will log the interview status using a unique numeric case identifier.
- Step 5. On a weekly basis, the contractor point of contact will upload the completed interviews and status logs from the interviewers' CPSC-provided computers to their CPSC-provided computer and then via WatchDox to CPSC.
- Step 6. CPSC will transfer completed interviews and corresponding PDF, SAS, and Excel files to NIOSH via WatchDox secure file transfer.

### **Telephone interview contractor data security controls**

Contractors shall:

1. Ensure that all staff associated with the CPSC interview studies including managers and telephone interviewers complete federal government provided data confidentiality training upon initiation of the interview contract or initiation of an individual staff person's involvement with a particular contract. Training will reoccur at least annually.
2. Ensure that all staff associated with the CPSC interview studies including managers and telephone interviewers complete CPSC designated training on protecting human research participants.
3. Designate a primary point of contact to work with CPSC staff to implement the telephone interviews and to routinely receive personal contact information for interview respondents.

4. Provide CPSC with a company email address through which CPSC may notify the contractor of pending interviews and other contract related information.
5. Work with CPSC to establish download access for secure file transfer through WatchDox® or other FIPS 140-2 certified file transfer environment.
6. Conduct all information transfers, telephone interviews, and related tasks with any potentially identifiable personal information by using the CPSC provided laptop computers.
7. Conduct all telephone interviews by using the Creative Research Systems' Survey System software or other appropriate computer assisted interview software provided on the CPSC laptops.
8. Ensure that the contractor's designated point of contact disseminates personally identifiable information (i.e., the contact information for potential respondents) to contractor staff who will complete the interviews by using FIPS 140-2 compliant encrypted methodology. No transfer of any CPSC interview study related materials containing potentially identifiable personal information shall be done by non-secure methodology (e.g., paper printouts or email).
9. Ensure that completed interviews are transferred internally within the contracting firm by using FIPS 140-2 compliant encrypted methodology and that transfers of completed interviews and interview status information to CPSC by WatchDox secure file transfer.
10. Ensure that all interviews are conducted in a secure environment. Contractors shall not conduct any aspect of the telephone interview studies in a public location or other location where an unauthorized individual may have access to potentially identifiable personal information.
11. Follow CPSC requirements for computer patch and security updates and archival/destruction of personally identifiable information at required intervals.

#### **CPSC telephone interviewing computer data security controls**

1. Only CPSC provided laptop computers meeting the United States Government Configuration Baseline shall be used by contractors conducting CPSC computer assisted telephone interviews and/or receiving potentially identifiable personal information related to such interviews.
2. CPSC laptop computers shall have full disk encryption in compliance with NIST SP800-111 (currently Symantec software).
3. CPSC laptop computers shall have active firewall and anti-virus data security software (currently Kaspersky software).
4. CPSC laptop computers in use by contractors shall have security updates on a regular basis as prescribed by CPSC IT security staff.
5. User access to the CPSC laptops is limited to authorized contractor staff with individual passwords required.

#### **CPSC file transfer security controls**

1. CPSC obtains potentially identifiable personal information from medical record abstractors at participating hospital via a secure information transfer using CPSC computer hardware at the transmitting and receiving end.
2. CPSC transfers data to and receives data from other federal agencies and contractors by using the FIPS 140-2 compliant WatchDox secure file transfer system.

#### **General data security controls**

1. CPSC provides to interview contractors only sufficient information required to contact individual respondents and complete the assigned interview.
2. CPSC notifies each potential respondent by mail of the impending interview and gives them a two week period during which they may opt out of the study. No individual contact information is provided to the interview contractor until the two-week opt out period has expired.
3. Upon completion of interviews and/or determination that an interview cannot be completed, the contact information is destroyed. Contact information for individuals selected for the study is not provided to NIOSH.

Other respondent confidentiality and data protections are described in the NIOSH IRB approved study protocols.