



RESEARCH FOUNDATION

RESEARCH FOR THE NFPA MISSION

PROJECT SUMMARY

Economic Impact of Firefighter Injuries in the United States

31 October 2017

Background: According to NFPA's most recent study on firefighter injuries, 68,085 firefighter injuries were reported in the U.S in 2015. Of these, 29,130 occurred at the fireground. Strain, sprain, muscular pain resulted in more than half of the injuries received during fireground operations (53%) and non-fireground activities (60%). In addition to injuries, there were 8,350 documented exposures to infectious diseases (e.g., hepatitis, meningitis, HIV, other) in 2015. This amounts to one exposure per 2,500 emergency medical service runs by fire departments. There were an estimated 27,250 documented exposures to hazardous conditions (e.g. asbestos, chemicals, fumes, radioactive materials, other) in 2015. This amounts to one exposure per 40 hazardous condition runs by fire departments. In 2015, there were an estimated 16,600 collisions involving fire department emergency vehicles responding to or returning from incidents. This is the highest number of collisions since NFPA began collecting this information in 1990.

NFPA's firefighter injury studies indicate that although other loss indicators of the nation's fire problem are declining, the rate of firefighter injury per fire incident is not. A deeper understanding of the costs associated with these injuries will illuminate their impact on the nation's resources dedicated to fire safety and provide benchmarks to evaluate strategies to reduce these numbers in the future.

Research Goal: The overall goal of this project is to assess the economic impact of firefighter injuries in the United States. Building upon existing information on firefighter injuries available from NFPA and other sources, and the broader literature related to the indirect and direct costs of injuries, the project will: 1) characterize the annual number and types of firefighter injuries; 2) research both indirect and direct costs of these injuries borne by firefighters and their communities; 3) establish and utilize a framework to assess and benchmark these costs; and 4) communicate the results of this study broadly in the fire service community.

Project Tasks:

There are four primary tasks in this project. Each marks a point in the overall project timeline. NIST will lead the data collection, analysis, and documentation tasks. Research Foundation will lead the project oversight and information dissemination tasks.

1. Characterize the annual number and types of firefighter injuries

a. Perform literature review building upon existing information on firefighter injuries available from NFPA, and other sources, to comprehensively assess the current state of knowledge, and to identify measurement gaps.

b. Compile data from multiple sources (e.g., NFIRS, BLS, CDC/NIOSH) to generate statistics characterizing the current numbers of injuries, severity, surrounding circumstances and causal factors, and direct physical consequences (e.g., lost work time).

c. Update current statistics and address current knowledge gaps, as possible, with compiled data.

2. Research direct and indirect costs of these injuries born by firefighters and their communities

a. Perform literature review of existing research quantifying the economic consequences (both direct and indirect) of injuries, including literature on firefighter injuries and first-responders, as well as other sectors of the economy (e.g., construction, mining, forestry) with similar risk profiles. A focus will be the broader economic consequences placed on the injured, their department, and their community.

b. Compile data from multiple sources (e.g., BLS, NIOSH, insurance industry) (combined with data from Task 1) currently available to value the direct economic consequences (e.g., medical expenses, lost work days, workers' compensation).

c. Develop statistical models to measure indirect consequences (e.g., lost productivity, increased staff fatigue) of injuries using fire incident data (e.g., NFIRS).

d. Produce estimates of the annual economic consequences of firefighter injuries, documenting gaps and limitations based on the available data.

3. Establish and utilize a framework to assess and benchmark these costs

a. Develop framework to measure, benchmark, and track the annual economic consequences of firefighter injuries. The framework will be designed to balance accuracy with transparency and ability to replicate.

b. Validate framework approach for accuracy.

4. Communicate the results of this study broadly in the fire service community

Implementation: This research program will be conducted under the auspices of the Research Foundation in accordance with Foundation Policies and will be guided by a Project Technical Panel who will provide input to the project, recommend contractor selection, review periodic reports of progress and research results, and review the final project report.

Schedule: The final report will be available in summer of 2019.

About us:

About the Fire Protection Research Foundation

The [Fire Protection Research Foundation](#) plans, manages, and communicates research on a broad range of fire safety issues in collaboration with scientists and laboratories around the world. The Foundation is an affiliate of NFPA.



About the National Fire Protection Association (NFPA)

Founded in 1896, NFPA is a global, nonprofit organization devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards. The association delivers information and knowledge through more than 300 consensus codes and standards, research, training, education, outreach and advocacy; and by partnering with others who share an interest in furthering the NFPA mission. [All NFPA codes and standards can be viewed online for free.](#) NFPA's [membership](#) totals more than 65,000 individuals around the world.

