



# Advancing Health and Safety Training for Firefighters and First Responders

## DETR Story of Success

### Elizabeth Harman

Elizabeth Harman, a former career firefighter and paramedic in Fairfax City, VA, has a passion for protecting first responders from hazards while on the job. At age 16, Harman began volunteering in the field, eager to get engaged in her community and help people. Now, Harman is the assistant to the general president for the Grants Administration & Hazardous Materials Training Department at the International Association of Fire Fighters (IAFF).

Over the course of her career, Harman has witnessed the serious risks coupled with the firefighter profession. Firefighters routinely face heat, flames, physical and mental stress, high levels of carbon monoxide, and other chemical and biological hazards [while responding to emergencies](#) <sup>↗</sup> (<https://www.ncbi.nlm.nih.gov/pubmed/1587923>). As a result, [approximately 100 firefighters](#) <sup>↗</sup> (<https://www.cdc.gov/niosh/fire/>) are killed while on duty each year in the U.S., while [roughly 70,000 report injuries](#) <sup>↗</sup>



Elizabeth Harman previously served as assistant administrator of the Grant Programs Directorate with the Department of Homeland Security, Federal Emergency Management Agency (under the Obama Administration). In this role, she was responsible for the development, award, and closeout of more than 50 disaster and non-disaster grant and financial assistance programs. (Photo courtesy of Elizabeth Harman)

(<http://www.nfpa.org/news-and-research/fire-statistics-and-reports/fire-statistics/the-fire-service/fatalities-and-injuries/firefighter-injuries-in-the-united-states>)

Further, firefighters face [an increased risk of cancer](#) <sup>↗</sup> <sup>📄</sup> compared to the general population due to occupational exposures. These statistics highlight the need for training to help protect firefighters while on the job.

“Firefighters are focused on protecting other people’s health and safety,” Harman said. “However, they need to avoid falling into the hero complex, to ensure they take measures to protect and maintain their own health and safety while on the job.”

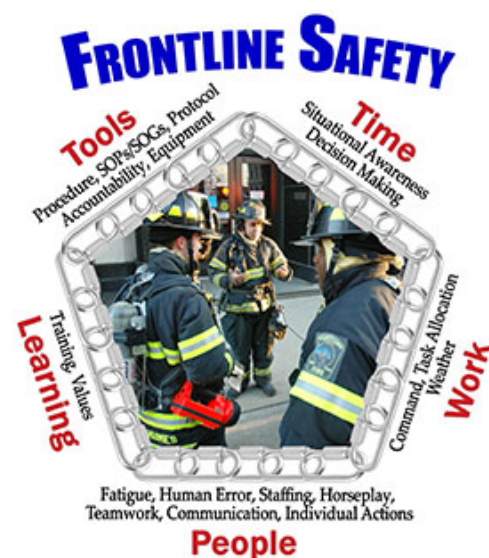
## Improving training for firefighters and other first responders

Through her work with IAFF, Harman facilitates training and oversees the development of training materials to better prepare firefighters and other first responders to safely handle hazardous materials. Due to its infrastructure, the IAFF has direct access to 3,200 state and local affiliates, which also rely on IAFF for resources and training. IAFF is [an awardee](https://www.niehs.nih.gov/careers/hazmat/awardees/iaff/index.cfm) (<https://www.niehs.nih.gov/careers/hazmat/awardees/iaff/index.cfm>) of the NIEHS Worker Training Program (WTP), receiving support through its [Hazardous Waste Worker Training Program](https://www.niehs.nih.gov/careers/hazmat/about_wetp/hwwt/index.cfm) ([https://www.niehs.nih.gov/careers/hazmat/about\\_wetp/hwwt/index.cfm](https://www.niehs.nih.gov/careers/hazmat/about_wetp/hwwt/index.cfm)), [HAZMAT Disaster Preparedness Training Program](https://www.niehs.nih.gov/careers/hazmat/about_wetp/hdpt/index.cfm) ([https://www.niehs.nih.gov/careers/hazmat/about\\_wetp/hdpt/index.cfm](https://www.niehs.nih.gov/careers/hazmat/about_wetp/hdpt/index.cfm)), and the [NIEHS/Department of Energy \(DOE\) Nuclear Worker Training Program](https://www.niehs.nih.gov/careers/hazmat/about_wetp/doe/index.cfm) ([https://www.niehs.nih.gov/careers/hazmat/about\\_wetp/doe/index.cfm](https://www.niehs.nih.gov/careers/hazmat/about_wetp/doe/index.cfm)).

Each year, IAFF trains thousands of firefighters and other first responders on ways to protect themselves and their communities by recognizing and addressing the threats of hazardous materials (HazMat), such as chemical, biological, and radiation hazards. The IAFF offers HazMat training through various customizable [programs and courses](#) [↗](http://client.prod.iaff.org/#page=hazmat_trainingprograms) ([http://client.prod.iaff.org/#page=hazmat\\_trainingprograms](http://client.prod.iaff.org/#page=hazmat_trainingprograms)), including “Hazardous Materials Technician,” “Confined Space Rescue,” and “Frontline Safety.”

The course curricula provide guidance on how to recognize hazards, practice defensive actions, and use standards from the Occupational Safety and Health Administration and the National Fire Protection Association. The courses offer a focus on training all levels of firefighters and other first responders, and are customized to address the specific needs of each target population. Courses are developed and taught by highly trained firefighters who bring valuable, first-hand experience to the classroom.

“One strength of our program is the capacity to move away from pen and paper, and get trainees out of their seat, active, and engaged,” Harman said. IAFF training starts with online modules providing context and background information to maximize time spent in the classroom. During in-person training sessions, participants gain hands-on instruction on how to properly put on and take off personal protective equipment (PPE), conduct appropriate air monitoring, perform emergency decontamination, and use [HazSim](http://www.hazsim.com/emergency-response-training/) [↗](http://www.hazsim.com/emergency-response-training/) (<http://www.hazsim.com/emergency-response-training/>), a device that simulates gas, chemical, and radioactive environments.



IAFF developed the frontline safety model (pictured above) as a visual to promote workplace safety within the service of firefighting. Tools, time, learning, work, and people are all critical elements to ensure safety, and a break in this chain increases the potential for a dangerous incident to occur. (Photo courtesy of IAFF)

An additional strength of IAFF’s training program is the focus on examining trainees’ thoughts and beliefs about safety. During many of the in-person sessions, trainees are invited to take a personal safety survey; discuss the truths and myths associated with firefighter safety; and examine their own beliefs about safety. This self-reflection promotes an awareness of how personal decisions are made about safety (e.g., how or whether to wear PPE), and provides an opportunity to give perspectives on workplace safety.

“Good training can help firefighters and other first responders to avoid taking shortcuts while on the job. However, the training is only as good as the individual, supervisor, and leadership,” said Harman. “Major catastrophes and fatalities often occur because a decision was made to avoid a protective measure, and take a shortcut. For this reason, understanding and further cultivating a culture of workplace safety is key to ensuring every worker comes home safe.”

### **Making an impact in the field for first responders**

Under Harman’s leadership, the IAFF training program has made a significant impact. According to course evaluations, trainees gain improved knowledge of a variety of hazardous materials situations, such as identifying potential risks and taking appropriate defensive actions. In observing trainees, supervisors report signs of improved knowledge, attitudes, and capabilities on the job.

Furthermore, feedback from trainees shows that IAFF training directly impacts decisions made in real-world scenarios. For example, in 2016, a fuel truck hauling 2,800 gallons of diesel fuel crashed and spilled about 300 gallons of diesel onto a roadway in Jacksonville, FL. In response, a HazMat operations team was deployed who had previously received the IAFF HazMat training. Due to the training received, the team was able to recognize the importance of risk assessment, container identification, ground and bonding, and unified command. As a result, the team safely and successfully resolved the handling of a few thousand gallons of diesel.

Recognizing how effective training makes an impact in the field, Harman is committed to further advancing IAFF’s work to ensure first responders maintain their health throughout their career. “While we can’t control the fact that first responders face dangers while on a busy highway, facing an active shooter, or dealing with other occupational exposures, we can teach them to be as safe as possible in those environments,” said Harman.



In the picture above, an IAFF trainee practices using a HazSim device. The device can simulate over 17 different types of gases, providing an interactive and effective method of HazMat training.

(Photo courtesy of IAFF)