



APPLICATION FORM

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 2, 2017.** Please include this application form with electronic entry.

PROGRAM INFORMATION

County: _____

Program Title: _____

Program Category: _____

CONTACT INFORMATION

Name: _____

Title: _____

Department: _____

Complete Mailing Address: _____

Telephone: _____ Website: _____

Email: _____

SIGNATURE OF COUNTY ADMINISTRATOR OR CHIEF ADMINISTRATIVE OFFICER

Name: _____

Title: _____

Signature: _____

National Association of Counties Award Proposal - 2017

1. Organization Name: Chesterfield County Fire and EMS
2. Organization Contact: Edward L. Senter, Jr.
3. Position with Organization: Fire Chief
4. Email: senterl@chesterfield.gov
5. Phone: (804) 751-4726
6. Describe the project: Toxic Exposure Reduction Program

Abstract

The Chesterfield County (VA) Department of Fire and EMS (CFEMS) has initiated a Toxic Exposure Reduction Program to decrease the occurrence of firefighter exposure to carcinogens and other toxic materials that they encounter due to occupational hazards. At its inception, the organization wanted to develop a comprehensive approach to this identified problem that was multi-faceted and was both dynamic and scalable as the department grows and the body of developing research of this subject evolves.

To develop this program, the organization assembled a cross-sectional workgroup of firefighters and fire officers to conduct research and recommend organizational changes and best practices to reduce the exposure of toxins for operational personnel. This was a daunting task as the science that supported this research has been continuously developing within the fire service.

The resulting outcome was a change in organizational practices that has reduced exposure risk and has changed how firefighters live and work while on duty. Resulting from the efforts of this employee workgroup, these new practices include limiting exposure to known carcinogens in the fire station environment as well as innovative decontamination methods used at incident

scenes and the training grounds to reduce exposure to products of fire combustion which have now been proven to be highly carcinogenic. Based on the science and research upon which these changes were made, it is anticipated that the current generation of young firefighters will receive much less exposure to toxic and potentially carcinogenic materials over the course of their career. This will result in people retiring healthier than past generations of firefighters and in potentially reduced costs to municipal and state governments based on existing cancer presumption laws which have been enacted within a number of states.

The Problem

Within the past decade multiple scientific studies have shown a correlation between firefighters and higher rates of various cancers, including rare forms of cancer in the general population that were found to be more prevalent in firefighters. Specifically, a defined population study and analysis of fire service personnel was performed by Dr. Grace LeMasters in 2006 in which she and a group of doctors analyzed 32 previous studies that evaluated cancer risk among firefighters. The results of the analysis showed firefighters had a greater risk of certain types of cancer than the general population. Based on other studies like the LeMasters study, and in conjunction with the early data analysis, CFEMS leadership determined that a focus group would be necessary to fully explore a toxic exposure reduction program.

Program Description

Chesterfield County Fire and Emergency Medical Services provides fire and EMS emergency response services in a suburban county of 446 square miles in central Virginia. Serving a population of over 330,000 people, the combination department is staffed with career and volunteer personnel providing services from 22 fire stations and four volunteer rescue

squads. CFEMS staffs 22 engines, 5 ladder trucks, and 14 fulltime EMS transport units and the volunteer rescue squads supplement the system with an additional 4-6 ambulances during evening and weekend hours.

The CFEMS Toxic Exposure Group (TEG) was formed in August of 2014 comprised of a cross section of members from the organization along with participation from other regional fire departments. A workgroup was established to examine current CFEMS work practices in and around toxic environments, with the stated goal of reducing work-related illnesses including cancer, thyroid disease, and respiratory illness due to acute and cumulative occupational exposure. The primary objectives of this team were to conduct research, develop best institutional practice recommendations, and to provide guidance and recommendations on organizational changes needed to achieve the stated goal. The TEG utilized research from organizations such as the United States Fire Administration (USFA), Fire Smoke Coalition, Underwriters Laboratories, International Association of Firefighters, National Institute of Occupational Health (NIOSH), National Fire Protection Association (NFPA), and the Centers for Disease Control (CDC). The research sought to examine current atmospheric monitoring practices, personal protective equipment (PPE) use and storage, decontamination practices, fire station practices, and fire ground tactics that potentially expose members to toxic environments.

The TEG workgroup's primary focus was to develop recommendations to reduce potential exposure to products of combustion during the pre-incident, active, and post-incident phases of responses to fire incidents. After reviewing early research outcomes, the workgroup members determined that the exposure potential to firefighters from toxic chemicals and carcinogens comes in two predominant routes of absorption into the body; through the lungs and via dermal absorption through the skin. The research performed by the TEG considered

personnel uniforms and PPE, personal hygiene practices, apparatus and equipment, the emergency incident scene, and post fire practices and decontamination. Based on a thorough evaluation of current department policies and procedures, available research on toxic exposure, recommended best practices from organizations such as cancer support networks, NIOSH, USFA, and others, the TEG workgroup made several recommendations to senior department leadership as considerations for implementing a toxic exposure reduction policy and procedure.

After almost two years of research and evaluation, careful consideration was given to recommendations proffered from the TEG workgroup and from those, CFEMS implemented a department policy and procedure in 2016 that defines a comprehensive organizational approach to toxic exposure reduction. In addition, awareness and training efforts were developed for department members to support the organizational practice changes directed from the documents. The basic components of these efforts focused on providing education on toxic environments and their hazards, allowing for a structure that had been on fire to cool down and off gas following a fire, the need for firefighters to wear self-contained breathing apparatus (i.e. air tanks) in all known and suspected toxic environments, increased emphasis on firefighter PPE decontamination prior to leaving a fire scene, attention to personal hygiene immediately after structure fires, and limiting people's exposure to diesel exhaust fumes in the fire stations.

Additional equipment to support the PPE decontamination and isolation efforts was purchased and added to department apparatus. The noted changes were instituted on the fire scenes and training grounds where firefighter exposure to toxic substances is also prevalent. With the education and increased awareness of department members of the toxic effects of exposures, compliance with the organizational practice changes was rapid and easily achieved.

Cost of the Program

To achieve the goal of decontaminating firefighters immediately after a fire response and prior to their return to the fire station, basic cleaning equipment totaling \$1900.00 was acquired. Additional Nomex™ protective hoods were purchased for a cost of \$13,000 as this one piece of structural firefighting PPE is suspected of causing exposure problems due to direct contact with the firefighter's head and neck areas. Personnel are encouraged to maintain a clean protective hood around their head and neck and the additional hoods were identified as necessary to achieve this result.

Due to the importance that the organization placed on this initiative, personnel assigned to the workgroup were removed from their normal duty assignment to permit them to concentrate exclusively on the project. Backfilling their open positions cost the department \$8,300.00. Training was achieved through video updates provided via the department's learning management system as well as through in-service (e.g. hands-on) training which is conducted semi-annually for all firefighters. The hands on training provided during in-service was integrated into live fire burn scenarios therefore there was no cost associated with practicing the new decontamination techniques under these conditions.

In total the organization allocated approximately \$23,200 to implement this important initiative. This is a low cost of investment relative to the cost of cancer treatments and related expenses for just one employee.

Results of the Program

Based on a high level of awareness and concern within the fire service about the dangers of toxic exposures, the firefighters of CFEMS quickly embraced the organizational changes that resulted from this project. Due to the prevailing science that was evident to the workgroup in the early stages of its work, several fire scene decontamination practices were instituted well prior to the final report and recommendations produced by the workgroup. This showed the members of the organization the importance that was placed on this effort and the concern that organizational leaders had to make their jobs safer and healthier.

Upon implementation of the practices associated with the workgroup recommendations, widespread acceptance was quickly evident. Since many of the practices are physical skills that must be employed (ex. decontamination of soiled structural firefighter PPE), it was relatively easy for supervisory personnel to monitor compliance. Based on feedback from the members, acceptance of and compliance with all aspects of the new or modified workplace practices was quickly achieved.

Specifically, personnel now have a standard practice at fire scenes to set up powerful ventilation fans in areas where firefighters are exiting toxic atmospheres to remove smoke and gases. Firefighters now rinse off their PPE prior to placing it in the enclosed apparatus cabs where it used to generate toxic byproducts that were inhaled by the personnel. And showering immediately after returning from a fire is now a common and accepted practice. These and the other practices that were developed as a result of this project are now engrained in the safety culture of CFEMS.

Worthiness of Award

While personal protection to toxic environments is not a new concept for employers or fire service organizations, the lengths to which CFEMS has gone to protect the members of the department demonstrates the kind of leadership necessary to evoke change in the profession. We hope our example can serve as a model for other organizations seeking to implement similar strategies based on their risk evaluation, risk exposure, and operational capabilities. Evidence of the growing focus on cancer prevention in the fire service, of which CFEMS is proud to be a part, was further demonstrated by the recent release of the Call for Collaboration to Reduce Firefighter Cancer from the Fire Service Occupational Cancer Alliance (FSOCA) in June of 2016. FSOCA states, with the number of firefighters affected by occupational cancer steadily increasing, improving education, outreach and prevention measures are imperative. The report calls for collaboration throughout the entire fire service and affiliated organizations to adopt steps that can reduce exposures, illnesses, and deaths related to cancer, and provide support for those affected by cancer.