FIRE FIGHTER CANCER/MENTAL HEALTH EDUCATION AND PREVENTION

2018 METROPOLITAN FIRE CHIEFS CONFERENCE
WHAT DO WE KNOW?

Fire Fighter cancer rates compared to the U.S. cancer rates

Greater number of diagnoses and deaths in Firefighters

More cases amongst younger Firefighters

Cancer rates increase with amount of fires and time spent at fires
WHAT DO WE KNOW?

FIRE FIGHTERS ARE AT MUCH HIGHER RISK FOR CONTRACTING CANCER

- Testicular Cancer
- Multiple Myeloma
- Non-Hodgkins Lymphoma
- Skin Cancer
- Prostate Cancer
- Malignant Melanoma
- Brain Cancer
- Leukemia
WHAT SHOULD WE BE DOING?
WHAT SHOULD WE BE DOING?

- Curriculum Development for Firefighter Training Programs
- NFPA 1001 – Standard for Fire Fighter Professional Qualifications
- Education embedded in wellness programs
- Engaging national organizations to promote culture change

633.35 Firefighter training and certification.—

(3) Initial training for both career and volunteer firefighters shall include training related to cancer and mental health risks within the fire service as a requirement for obtaining Firefighter Certificate of Compliance.
The findings of several previous studies on fire fighter cancer have documented that fire fighters are at an increased risk for contracting occupational cancer. These studies cut across international boundaries with participation from Nordic, Australian, and U.S. fire fighters, and underscore the stark reality regarding the risk of occupational cancer in the fire service.

In 2015, the National Institute for Occupational Safety and Health (NIOSH) completed a study on fire fighter cancer in collaboration with researchers at the National Cancer Institute and the University of California at Davis Department of Public Health Sciences. The study was supported by the U.S. Fire Administration and included nearly 30,000 fire fighters from San Francisco, Philadelphia, and Chicago fire departments. Findings indicated that fire fighters are at a greater risk of contracting certain types of cancer.

The NIOSH study recommends that the fire service should have an increased focus on educating and advocating for safe work practices and procedures. These practices should include training on the proper use of protective clothing and self-contained breathing apparatus (SCBA) during all phases of fire response.

The fire service is responding to the challenge of fire fighter cancer and working to protect its members in a myriad of ways. One particular resource is a white paper titled Taking Action Against Cancer in the Fire Service published by the Firefighter Cancer Support Network with 11 recommended preventative actions. These recommendations, along with other pro-active initiatives being advocated across the fire service, promise to minimize the impact of cancer on the fire service. Suggested best practices include:

- Use SCBA from initial attack to finish of overhaul
- Conduct gross field decontamination of PPE to remove as much soot and particulates as possible
- Utilize Wet-Naps or baby wipes to remove as much soot as possible from head, neck, jaw, throat, underarms and hands immediately, while on the scene
- Change your clothes and wash them immediately after a fire
- Shower thoroughly after a fire
- Clean your PPE, gloves, hood and helmet immediately after a fire
- Do not take contaminated clothes or PPE home or store them in your vehicle
- Decontaminate fire apparatus interior after a fire
- Keep bunker gear out of living spaces and sleeping quarters
- Stop using tobacco products
- Apply sunscreen or sun block
- Install washer extractors to clean PPE after a fire
- Issue a second set of firefighting PPE to lessen the likelihood of wearing contaminated PPE
- Direct source capture systems to remove vehicle exhaust from stations

Another campaign aimed at confronting cancer in the fire service has been the effort to pass fire fighter cancer presumption legislation. Cancer presumption legislation has been enacted in more than 30 states in the U.S. and at least 10 provinces in Canada. Each state or province varies in the number and types of fire fighter cancers covered. In many cases legislation is either limited, constrained, or not passed at all due to the fear of increased liability on the state or provincial government.
CANCER IN THE FIRE SERVICE

OVERVIEW | OCCUPATIONAL RISKS | HOW TO REDUCE RISKS
Overview

- 14% more likely to be diagnosed with cancer than the general population
- Leading cause of firefighter deaths
- Accounts for 60% of line of duty deaths
- Risks may be underestimated due to healthy worker effect
Overview

- 8 Researchers
- 3 Universities
- Meta-Analysis 32 Studies

Additional Studies
- Cervical
- Hodgkin's Disease (females)
- Digestive
- Respiratory
- Mesothelioma
- Prostate
- Melanoma
- Non-Melanoma Skin Cancer
- Urinary

1. Multiple Myeloma
2. Non-Hodgkin’s Lymphoma
3. Prostate Cancer
4. Testicular Cancer
Cancer in the Fire Service: Eric Patrie
## Overview

### WHAT
- Polycyclic aromatic hydrocarbons (PAHs)
- Volatile
- Asbestos
- Diesel

### Where
**Where are firefighters exposed?**
- On the scene
- At the station
- In route

### How
**How are firefighters exposed?**
- Inhalation
- Absorption
- Ingestion
Increasing awareness of occupational risks and cancer

Rookie and experienced firefighters are concerned with cancer risks

Risk factors fall into two categories:
- Direct (on scene, at station, in route)
- Indirect factors (diet, exercise, sleep)

Firefighters are leading change in Florida and in the United States
Even when using PPE as required, firefighters may test “+” for carcinogens in their system. Agents could be absorbed through skin during fire suppression or inhaled when doffing gear.

↑ risks when:

- PPE and SCBA are not worn properly or consistently
- Completing overhaul without SCBA and/or PPE

“99+ % of smoke particles collected during overhaul were less than 1 micron in diameter. Of these 97+ % were too small to be visible by the naked eye suggesting that “clean” air was not really that clean”

PPE Off-Gassing

- PPE collects contaminants during fire
- Contaminants continue off-gassing from PPE even after a fire, extending inhaled exposure:
  - Doffing of gear
  - Rehab, if near PPE
  - Transporting gear in engine cab
- Higher temperatures can accelerate off-gassing
Occupational Risks: At the Station

**Diesel exhaust**

- Classified by multiple organizations as “potential” or “likely” carcinogenic
- Classified by IARC as carcinogenic
- Exposure occurs when trucks run in closed bays without proper ventilation
- Can contaminate gear, ice machines, and other items stored in the bay area
Occupational Risks: In Route

Transporting contaminated gear in cab:

- Extends exposure to harmful contaminants via PPE off-gassing
- Contaminates the cab
Bunker Gear Transfer: The Invisible Danger
Occupational Risks: Other Risk Factors

- Smoking
- Poor Diet
- Sedentary Behavior
- Disrupted Sleep Patterns
- Obesity
Reducing Risks: On the Scene

- Wear PPE and SCBA during all phases of **firefighting** and **overhaul**
- Set up rehab in cold zone away from dirty gear
- Complete post fire on scene gross decon
- Clean exposed areas before eating/drinking or after handling contaminated gear
- Implement on scene hood swap program
Reducing Risks: In Route

Clean Cab Concept

- Do not store fire fighting equipment in apparatus cab
- Store equipment and gear in curbside compartments, if available
- Clean apparatus cab at least once per month

Avoid cross contaminating personal vehicles and other areas.
Do not store or transport exposed gear in personal vehicle!

Reducing Risks: At the Station

Diesel Exhaust Reduction

- Open garage doors before starting vehicles
- Don't run vehicles in closed bays
- Reduce time vehicle operates in bay area
- Keep bay doors open at least 10 minutes after a vehicle runs in bay
- Keep doors between the garage and other areas of the fire house closed
- Store gear away from engines in a separate ventilated room
- Implement protocols to reduce spread of contaminants at the station
- Install engine exhaust removal systems and filters

**Resource:** For the list above and more ideas, see Controlling Diesel Exhaust Exposure Inside Firehouses publication from www.fireengineering.com for more ideas
Reducing Risks: At the Station

- Shower within hour of returning from incident
- Keep gear away from living quarters
- Keep lockers located in well ventilated areas
- Practice routine gear cleaning in house
- Schedule professional gear cleaning
- Obtain second set of gear

Image from Firehouse Magazine’s “Continental Gear Washers/Dryers Often Qualify for AFG Grants” (2018)
Reducing Risks: Other Factors

- Improve Dietary Habits
- Improve Sleep Habits
- Increase Activity
- Maintain a Healthy Weight
- Quit Smoking
- Improve Sleep Habits
WHAT SHOULD WE BE DOING?

- Curriculum Development for Firefighter Training Programs
- NFPA 1001 – Standard for Fire Fighter Professional Qualifications
- Education embedded in wellness programs
- Engaging national organizations to promote culture change
- Legislative efforts
- Initial training for both career and volunteer firefighters shall include training related to cancer and mental health risks within the fire service as a requirement for obtaining Firefighter Certificate of Compliance.