

Memorandum



DATE February 24, 2017

TO Honorable Members of the Public Safety Committee:
Adam Medrano (Chair), B. Adam McGough (Vice Chair), Sandy Greyson, Tiffinni A. Young,
Jennifer S. Gates, Philip T. Kingston

SUBJECT **Dallas Fire-Rescue Cancer Awareness & Prevention**

On Monday, February 27, 2017, you will be briefed on Cancer Awareness & Prevention by Lieutenant Brian Boyd, Dallas Fire-Rescue Department. The briefing materials are attached for your review.

Please contact me if you have any questions or need additional information.



Eric D. Campbell
Assistant City Manager

[Attachment]

cc: Honorable Mayor and Members of the City Council
T.C. Broadnax, City Manager
Larry Casto, City Attorney
Craig D. Kinton, City Auditor
Rosa A. Rios, City Secretary
Daniel F. Solis, Administrative Judge
Kimberly Bizzor Tolbert, Chief of Staff to the City Manager

Mark McDaniel, Acting First Assistant City Manager
Jill A. Jordan, P.E., Assistant City Manager
Joey Zapata, Assistant City Manager
M. Elizabeth Reich, Chief Financial Officer
Sana Syed, Public Information Officer
Elsa Cantu, Assistant to the City Manager – Mayor & Council
Directors and Assistant Directors

Dallas Fire-Rescue Cancer Awareness & Prevention

**Public Safety Committee
February 27, 2017**

**Brian Boyd, Lieutenant
Dallas Fire-Rescue Department
City of Dallas**



Objectives

- Define the scope of the cancer problem in the fire service
- Discuss the increase in toxic agents in today's fire environment
- Identify routes of exposure to cancer-causing agents
- List common firefighter exposures to carcinogens
- Review Workers Comp and Cancer Presumptive Laws
- DFR Preventative Measures

Presentation Overview

- Cancer is a very real part of the fire service especially given the chemical make up of combustibles today. The types of materials burning in fires have changed drastically over the last several years.
- The organic slow burning fires of the “good old days” are gone. What firefighters face today is a volatile mix of deadly chemicals known to produce cancer causing carcinogens when burned.

Scope of Cancer in the Fire Service

- Studies are finding higher incidents of cancer in firefighters compared to the general population.
- Cancer is one of the most dangerous threats to the health and safety of firefighters.
- Pinpointing the exact cause of cancer is difficult because firefighters are not exposed to just one agent.

Scope of Cancer in the Fire Service

- Firefighters are susceptible to more than one type of cancer.
- Carcinogen exposure occurs through inhalation as well as skin absorption.
- Some cancer studies are also noting far more aggressive cancers, such as brain cancer, at a younger age than the general population.

Cancer in the Fire Service

Studies have demonstrated higher rates of multiple types of cancers in firefighters compared to the general American population including:

*Cancer Risk Among Firefighters: A Review and Meta-Analysis of 32 Studies; Grace K. LeMasters

| TYPE OF CANCER | RISK * |
|------------------------|-------------------------|
| TESTICULAR CANCER | 2.02 TIMES GREATER RISK |
| MULTIPLE MYELOMA | 1.53 TIMES GREATER RISK |
| NON-HODGKIN'S LYMPHOMA | 1.51 TIMES GREATER RISK |
| SKIN CANCER | 1.39 TIMES GREATER RISK |
| BRAIN CANCER | 1.31 TIMES GREATER RISK |
| MALIGNANT MELANOMA | 1.31 TIMES GREATER RISK |
| PROSTATE CANCER | 1.28 TIMES GREATER RISK |
| COLON CANCER | 1.21 TIMES GREATER RISK |
| LUKEMIA | 1.14 TIMES GREATER RISK |
| BREAST CANCER | PRELIMINARY STUDIES |

Toxicity of Today's Homes



- Modern residential fires have more in common with hazmat incidents than with legacy house fires.
- Approximately 84,000 chemicals are being used commercially today in building construction and contents.
- Vehicle and Dumpster fires also can contain many of the same chemicals as residential structure fires.



Routes of Exposure

- Two routes of greatest exposure: lungs and dermal absorption
- Skin easily absorbs chemicals
- Permeability increases with temperature



Common Exposure to Carcinogens

- During the overhaul process
- Soot particles
- Diesel engine exhaust



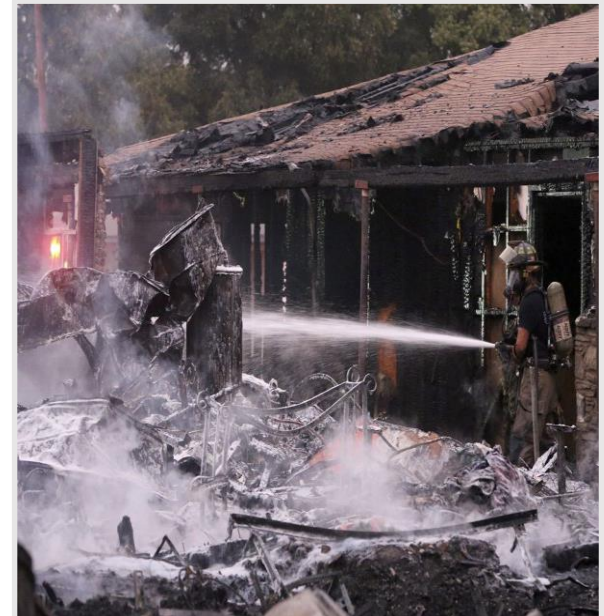
Exposure During Overhaul

- Today's synthetic and plastic household items present a risk to firefighters even after the fire is out.
- Smoldering materials release chemicals that firefighters continue to breathe and absorb.



Soot Particles

- The first reported form of occupational cancer was attributed to exposure to soot.
- Prolonged exposure to soot on the skin is a hazard.
- The neck area is one of the most likely areas to become contaminated.
- If not removed, contaminated exterior surfaces and inner layers of PPE can result in exposure well after the fire.



Exposures during Overhaul

Chemicals found during the overhaul phase:

- Formaldehyde
- Asbestos
- Benzene
- Arsenic
- Ethyl Benzene
- Polynuclear Aromatic Hydrocarbons
- Polycyclic Aromatic Hydrocarbons
- Acetaldehyde
- Styrene
- Coal-Tar Pitch
- Diesel Exhaust
- Vinyl Chloride
- Hydrogen Cyanide



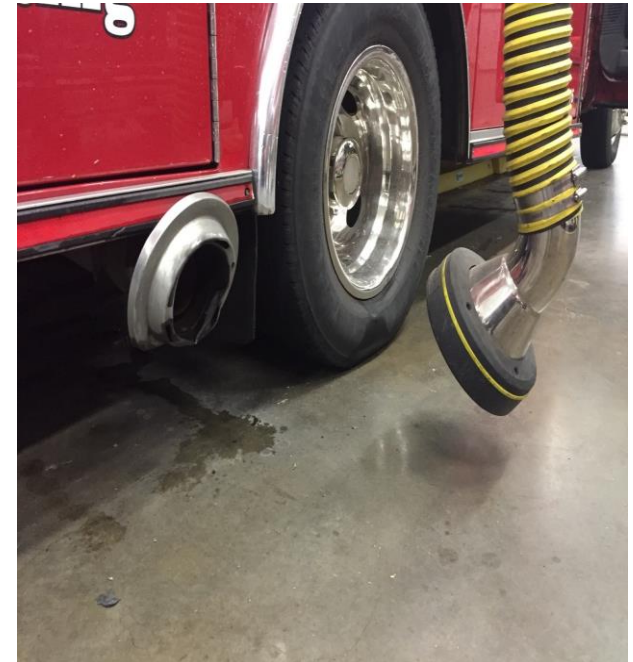
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Diesel Engine Exhaust

- On June 12, 2012, the International Agency for Research on Cancer (IARC) classified diesel engine exhaust as a Group 1 carcinogen.
- Exposure is associated with an increased risk of lung cancer.
- Exhaust can also cause other types of cancer:
 - Bladder
 - Leukemia
 - Other cancers of the blood (non-Hodgkin's lymphoma and multiple myeloma).

Diesel Engine Exhaust

- Walls and furniture at the fire station reveal an incredible amount of exhaust particles.
- Diesel particles are inhaled and absorbed every shift.
- PPE stored in the apparatus bay is exposed to exhaust if not contained in an enclosed locker.



Cancer Presumption Laws

- Presumptive illness law for the state of Texas – Government code, title 6, subtitle a, chapter 607
- Section 607.055 applies to the types of cancer that may be caused by exposure to heat, smoke, radiation or a known or suspected carcinogen as determined by the International Agency for Research on Cancer (IARC).
- Section 607.052 describes the applicability of this code:
 1. Member must be a full time professional firefighter for more than 5 years.
 2. Regularly respond to calls involving fires or firefighting.
 3. Responded to an incident with documented release of radiation or suspected carcinogen.

Cancer Presumption Laws

- Expanded access to workers' compensation or other disability-related benefits.
- Statutorily creates a presumption that the firefighter contracted cancer while performing his or her firefighting duties.
- The firefighter is presumed to be eligible for benefits unless the employer proves that the members cancer was not caused by his or her firefighting duties.
- Without the presumption, a firefighter must first prove that his or her cancer was caused by their firefighting duties before receiving benefits.

Cancer Presumption Laws

- The firefighter diagnosed with an occupational disease or condition covered by a presumptive disability law would be entitled to:
 - Payment of medical bills
 - Disability retirement benefits
 - Workers comp benefits
 - Lost wages or benefits for spouse/family as the situation allows.

Workers Compensation

- The City's third party administrator (adjusting company) makes the determination as to whether the illness will be covered.
- If a claim is denied, firefighters can appeal the denial through the State Workers Compensation system.
- During the appeals process members must use their accrued leave for any time missed from work and use their health insurance for any medical care for the injury/illness.

Prevention

- Cancer awareness and prevention is currently integrated into training
- Regular cleaning of firefighting Personal Protective Clothing is conducted.
- All fire stations are equipped with Plymovent diesel exhaust removal systems
- Firefighters have been issued a second hood



Prevention

Wellness Fitness Initiative

- Goals of the program are to identify possible life threatening illnesses/diseases, reduce injuries and promote overall better health.
- The leading cause of death in firefighters is cardiovascular events followed by cancer.
- Early detection is the key to remission or a cure.

Prevention

Wellness Fitness Initiative

- Members are placed into one of three categories upon completion of the physical: Fit for duty, Conditional Duty or Limited Duty.
- Since 2008, the program has placed 409 members on conditional or limited duty.
- Since implementation, members rated fit for duty increased from 84% to 97%.
- Members rated conditional or limited duty has decreased from 16% to a low of 3.5%.

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