



Memorandum

TO: PUBLIC SAFETY, FINANCE, AND
STRATEGIC SUPPORT COMMITTEE

FROM: Robert Sapien, Jr.

SUBJECT: SEE BELOW

DATE: May 7, 2018

Approved

Robert Sapien, Jr.

Date

5-8-18

**SUBJECT: FIRE DEPARTMENT FIREFIGHTER CANCER PREVENTION EFFORTS
ANNUAL REPORT**

RECOMMENDATION

Accept the annual report on Fire Department's firefighter cancer prevention efforts.

BACKGROUND

The Department provided its initial Fire Department Firefighter Cancer Prevention Status Report¹ to the Public Safety, Finance, and Strategic Support Committee on May 18, 2017. The report described current Fire Department efforts to prevent firefighter exposure to carcinogens through personal protective equipment improvements, changes to department policies, as well as consideration of the addition of a Safety Officer position. This second annual report provides an update on cancer prevention advancements achieved in 2017-2018.

Firefighters and Increased Risk of Cancer

In the course of their duties, firefighters are exposed to many known carcinogens. This may happen during structure fires, vehicle fires, vegetation fires, debris/garbage fires, hazardous materials incidents, vehicle accidents, or any of a wide variety of emergencies mitigated by firefighters. Firefighter exposure to products has become increasingly dangerous. For example, in 1960, the average residential fire would have been a slowly evolving fire, burning a structure made of wood and natural fabrics. Today's residential fire burns and expands rapidly, combusting engineered lumber, plastic, laminates, glues, electronics, synthetics, and a wide variety of other toxicants.

In the past decade, a variety of research studies have assessed cancer mortality (death) and morbidity (incidence) within the fire service as compared to the general population. Studies¹ have found that firefighters have a higher rate of cancers of the brain, digestive tract,

¹ May 18, 2017 Report: http://sanjose.granicus.com/MetaViewer.php?meta_id=634609.

genitourinary tract, and lymphohematopoietic organs (such as the lymph nodes, spleen, etc.). In a recent meta-analysis of 32 studies, significant excess risk was reported for brain, stomach, colon, rectum, prostate, testes, multiple myeloma and non-Hodgkin lymphoma. A review of 42 studies by The International Agency for Research on Cancer found significant risks for prostatic cancer, testicular cancer, and non-Hodgkin lymphoma. A 2013 study by the National Institute for Occupational Safety and Health tracked 29,993 firefighters and found increased mortality from lung, esophagus, intestine, rectum, and kidney cancers.

In early 2016, with heightened awareness from industry reports and internal cancer incidences, the Department engaged with San José Fire Fighters, IAFF Local 230, forming an ad hoc Cancer Prevention Committee. This committee provided recommendations toward reducing exposure to carcinogens, improving firefighter cancer awareness, providing necessary equipment and supplies, and improving medical surveillance and cancer screening.

ANALYSIS

Mitigating Cancer in the Fire Service

Carcinogens take the form of a solid, liquid or gas. In emergency incidents, both solids and liquids are often aerosolized as, for example, dust, smoke, soot, particulates, mists, or sprays. Firefighters have four possible routes of exposure to these carcinogens: inhalation, absorption, ingestion, and injection. The two that are believed to be related to the increased risk of cancer in the fire service are inhalation and absorption. Inhalation exposure occurs when the process of breathing exposes the firefighter's mouth, nasal cavity, throat, lungs, and other related organs to these substances. Absorption occurs when any exposed body part (skin, mucosal membranes, eyes) comes into direct contact with these substances. The eyes are especially sensitive, and while the skin provides some protection, the skin's ability to absorb increases 400 percent for every five degrees of increase in temperature.

Efforts to mitigate cancer risk in the fire service are focused upon reducing inhalation, absorption, and ingestion routes of carcinogen exposures (Other personal lifestyle changes are also encouraged, including improved diet, alcohol moderation, tobacco cessation, and exercise.). The fire service continues to identify industry best practices that will help reduce cancer risk, many of which the San José Fire Department already has implemented.

Actions Implemented by the Department before 2017-2018

Prior to the forming the Cancer Prevention Committee the Fire Department implemented several best practices including:

- Equipping every firefighter with their own Self Contained Breathing Apparatus (SCBA) mask;
- Providing a SCBA for every firefighter position;
- Adopting a “mandatory mask” rule requiring fire fighters to don SCBA under all conditions where there is respiratory exposure potential.

- Providing every firefighter with a second structural firefighting personal protective turnout ensemble, and providing professional cleaning and testing;
- Providing diesel exhaust removal systems in each fire station;
- Including ventilated personal protective equipment storage space in new fire station designs;
- Providing annual medical examinations that may help catch early symptoms of diseases;
- Establishing a database so firefighters can track their exposures to possible carcinogens;
- Specifying “Clean Living Areas” in fire stations to reduce contamination in station living areas;
- Implementing a 20-minute cool-down period immediately after a fire has been knocked down, allowing a large amount of gasses to be released before re-engaging firefighters for further overhaul;
- Reducing firefighter exposure through alternate firefighting and overhaul strategies;
- Compliance with a no-tobacco policy;
- Addition of a wide-brimmed hat to the approved uniform policy for UV protection;
- Implementing training on cancer prevalence, risk, and avoidance;
- Adopting policies regarding handling of hazardous materials and establishing a specialized Hazardous Incident Team (HIT).

Next Steps

In addition to the above actions already implemented, the Cancer Prevention Committee reviewed evolving laws and best practices and developed the following list of recommendations, some of which are policy driven and have no costs associated, and some of which may require additional equipment, resources, and funding. These items were received by Department Administration for further evaluation and/or implementation. The current status of these Committee recommendations are noted in italics following each item.

- 1) **Ensure Department members understand the significance of carcinogen exposures and how they can minimize exposure risks.**
 - a. Training on cancer awareness. *Status: Implemented, ongoing*
 - b. Department-specific training, featuring department members who voluntarily offered to share their health issues with staff. *Status: No action*
 - c. Training on need for SCBA use rather than dust mask use during overhaul to reduce exposure. *Status: Implemented, ongoing*
 - d. Training on appropriate transportation and storage of personal protective equipment. *Status: Under evaluation*
 - e. Training on the need to use sunscreen and hats, as well as reduce overall exposure to sun. *Status: Implemented, ongoing*
 - f. Training to support other policy changes. *Status: Under evaluation*
- 2) **Minimize Department member exposure to known carcinogens during fires.**
 - a. Mandate use of SCBAs from initial attack through the finish of all overhaul. *Status: Implemented, ongoing*

- b. Accelerate crew rotation to minimize exposures, especially rotating out initial attack personnel. *Status: Under evaluation*
- c. Discontinue use of dust masks for overhaul. *Status: Implemented*

3) Minimize Department member exposure to known carcinogens after fires.

- a. Mandate “gross decontamination” of all personal protective equipment on scene immediately following each fire. *Status: Implemented, ongoing*
- b. Mandate removal and bagging of personal protective equipment for cleaning on scene immediately following each fire. *Status: Implemented, ongoing*
- c. Provide each Department member with a second set of structural gloves, a second structural hood, and a second structure helmet shroud so contaminated ones may be cleaned. *Status: Implemented*
- d. Issue cleaning wipes (e.g. “wet wipes”) to allow personnel to thoroughly clean soot and contaminated particles from around their airway to reduce inhalation and from their skin to reduce absorption. *Status: Implemented*
- e. Provide arson investigators with personal protective equipment appropriate for conducting arson investigations in structures that are still off-gassing carcinogens. *Status: Under evaluation*
- f. Issue a second set of wildland personal protective clothing (jacket, pants, gloves, shroud) to all department members so one set may be used for emergency response while the other is being decontaminated. *Status: Under evaluation*

4) Implement services to improve early cancer detection and provide support for firefighters with cancer.

- a. Evaluate opportunities to enhance annual physical assessments with additional blood tests, skin checks, screenings, or body scans as per recommended best practices. *Status: Under evaluation*
- b. Implement a cancer tracking database for active and retired firefighters, so the department has a better understanding of its cancer experience in order to focus mitigation efforts. *Status: No action*
- c. Replace the outdated and unreliable exposure tracking database with a contemporary reliable solution. *Status: Under evaluation*
- d. Develop a program similar to the San Francisco Firefighter Cancer Prevention Foundation, partner with the Firefighter Cancer Support Network, or identify other avenues to assist with early detection and department member support. *Status: No action*

Actions Implemented by the Department in 2017-2018

In 2017-2018, the Department took actions to advance cancer prevention recommendations. The 2017-2018 Capital Improvement Program included one-time funding of \$110,000 to purchase second sets of gloves and flash hoods for each responder, to enable cleaning of contaminated primary sets. This equipment has been purchased and will be issued in May 2018. Additionally, the Department implemented a new policy requiring fire ground decontamination, and issued decontamination kits to each response unit. This policy is intended to minimize carcinogen exposure through removal of contaminated personal protective equipment and cleansing of

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exposed skin areas. Lastly, the Department increased the number of locations where personnel may submit contaminated personal protective equipment for professional cleaning and inspection. The increased locations are intended to encourage staff to increase the frequency of cleaning personal protective equipment. Additionally, cleaning vendor pick-up/drop-off days were increased to two per week resulting in a 96-hour turnaround. The effectiveness of actions implemented in 2017-2018 will be evaluated in the coming year.

Department Safety Officer

In December of 2011, budget actions reduced the Fire Department's Safety Officer program and duties were reassigned amongst staff in the Bureau of Field Operations and the Bureau of Administrative Services. The primary duties of the Department Safety Officer position included Injury and Illness Prevention Program (IIPP) administration, oversight of the firefighter wellness and fitness programs, response to greater alarm emergencies as the Incident Safety Officer, accident and injury investigation, response to OSHA inquiries, and improving the Department's safety culture through safety communications. The most critical Safety Officer functions currently going unsupported are: the maintenance of the Department's safety culture through focused attention and communication through safety messages; identification of adverse safety trends; and continuous safety improvement. The 2018-2019 Proposed Operating Budget includes a management reorganization which, if approved by Council, will restore a Battalion Chief as the designated Department Safety Officer. Once filled, the Department Safety Officer will be responsible for monitoring cancer prevention work plan progress.

CONCLUSION

The Fire Department is committed to minimizing the impact of exposure to potentially hazardous materials on our personnel and as outlined above, has taken important steps towards improving education, prevention, and implementing best practices related to cancer prevention amongst firefighters. The Department's 2018-2019 work plan will continue to pursue adoption of industry best practices toward minimizing firefighter cancer risk.

/s/

ROBERT SAPIEN, JR.
Acting Fire Chief
San José Fire Department

For questions, please contact Robert Sapien, Jr., at 408-794-6952.

ⁱ Sources for information cited in Background and Analysis sections:

- [*Cancer Risk Among Firefighters: A Review and Meta-analysis of 32 studies*](#)
- [*Mortality and cancer incidence in a pooled cohort of US firefighters from San Francisco, Chicago and Philadelphia \(1950-2009\)*](#)
- [*Taking Action Against Cancer in the Fire Service*](#)
- [*Findings from a Study of Cancer among U.S. Fire Fighters*](#)