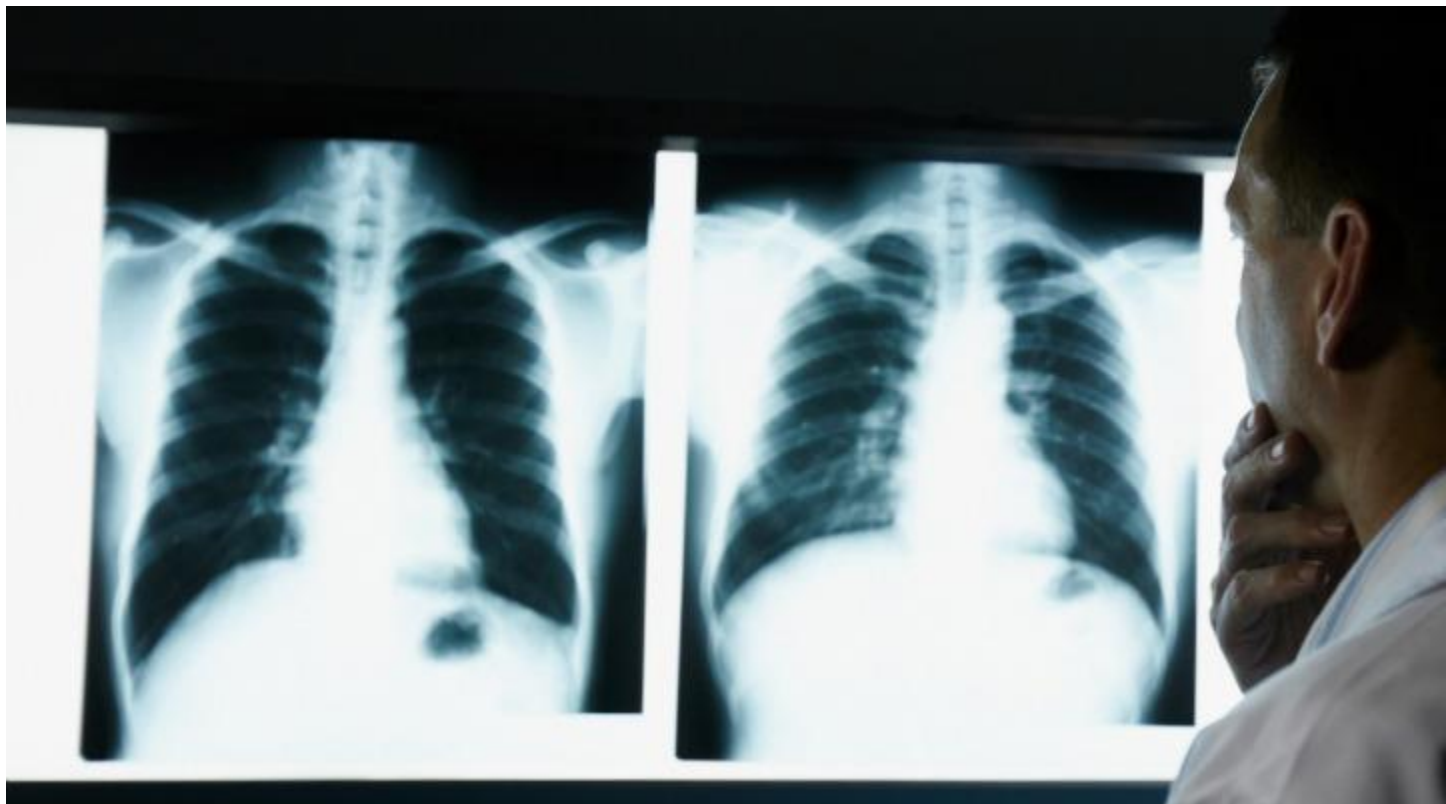


CANCER: THE INVISIBLE FIREFIGHTER KILLER



Cancer is a terrifying diagnosis and an illness that has recently been revealed to pose a great threat to members of the fire service. As firefighters we are exposed to significant carcinogenic chemicals and vapors on a daily basis. These exposures are taking their toll.

Recent studies have indicated that firefighters have twice the risk of developing certain cancers when compared to the general population. The statistics are scary, but this information has brought light to the risks and provided direction for preventing and avoiding exposure to dangerous carcinogens.

The Dangers of Firefighting

Firefighting is inherently dangerous. We know the potential dangers we face when the bell goes off; however, cancer may not be one of the risks we think about while responding to a call. Unlike fire rolling above us or buildings collapsing around us, cancer is an unseen danger we often don't acknowledge until it's too late. Unfortunately, we must now recognize the real threat that cancer poses to all members of our profession.

Our job has the potential to expose us to a great number of dangerous chemicals and carcinogens. This exposure potential has only increased over the years as construction and furniture materials have evolved from wood, wool and cotton to synthetics and plastics, which are made from a wide array of chemicals, including petroleum byproducts.

As these modern furnishings heat and burn, they off-gas the chemicals from which they are made, including benzene, formaldehyde and other carcinogens. The resulting chemical laden smoke creates a toxic rich environment.

As firefighters, when we enter the space to extinguish the fire, we are immersed in this toxic smoke and gas. Protecting our respiratory system with positive pressure SCBA's does not completely protect us. The chemical carcinogens adhere to our turnouts and other gear. Once we are out of the fire environment we are still susceptible to absorbing these toxins through our skin and inhaling them as they continue to off-gas from our gear.

California Technical Bulletin 117

Another probable contributor to firefighter cancer is California Technical Bulletin 117, which required flame retardant chemicals to be applied to all foam-filled furnishings in California. Even if you are not on the west coast you need to be concerned, as the reach of this requirement went far beyond California. Due to furniture manufacturing practices, it was deemed easier to apply the flame retardant chemicals to ALL furniture being shipped in North America instead of creating a separate manufacturing line just for California. As a result, nearly all foam-filled furniture sold in the United States over the past several decades has contained this toxic chemical.

The controversy over CA TB 117 is far too wide to discuss in depth in this article; however, there is a suspected correlation between exposure to this off-gassing chemical and some rare, aggressive cancers that have stricken firefighters at an alarming rate. The Chicago Tribune won a Pulitzer Prize for their investigative serious on the subject, which was the basis of the documentary, *Toxic Hotseat*. This documentary is an excellent overview of the history and controversy of CA TB 117, including its suspected role in the cancer and subsequent deaths of firefighters from San Francisco Fire Department and other fire departments around the nation.

In addition to contents constructed of plastics and synthetics and furnishings falling under CA TB 117, today's firefighters are also being exposed to dangerous materials in older structures, such as asbestos. All of these exposures have proven to have great influence on the development of cancer in firefighters.

The Initial Data on Firefighters and Cancer

In 2010, the National Institute for Occupational Safety and Health (NIOSH) initiated a study to evaluate the cancer risk of firefighters. The study spanned 4 years and the sample size included over 30,000 career firefighters serving in Chicago, Philadelphia and San Francisco between 1950 and 2010. This was the largest study of firefighters ever completed.

The study served to identify whether or not firefighters are at a higher risk of developing cancer related to their exposures on the job. Deaths related to cancer was examined as well specific cancers types involved. Researchers took into consideration the types and number of fire runs, use of protective equipment and diesel exhaust controls.

The initial findings of the study were published in November 2013 and they weren't pretty. The NIOSH study found that "fire fighters may be at higher risk of digestive, oral, respiratory, and urinary system cancers than the general population." Additionally, firefighters experienced more cancer cases and cancer deaths than previously expected. The study found that firefighters are twice as likely to develop malignant mesothelioma, which is related to asbestos exposure. This study was the first to identify an excess of mesothelioma in US firefighters.

The initial press release in November 2013 stated that the next phase in the study is to identify the relationship between the specific exposures and specific cancers of firefighters in the study.

Phase Two of the Study – Firefighters and Cancer

Phase two of the study is currently in the works. Right now, researchers are focusing on comparing the health effects among firefighters with higher exposure and those with less exposure.

The study is evaluating firefighters' exposure and the relationship to cancer. This involves reviewing employment history of study participants and the number of fire runs during their career. Phase II is expected to be published in early 2015. It is anticipated to provide more information about what types of exposures may lead to specific cancers.

Educating Ourselves

Firefighting is inherently dangerous; however, those dangers are not limited to the immediate physical risks we face in hostile fire environments. The invisible dangers that affect us long after we return to the station and even after we return home, can impact our future health and even the health of our families.

While we cannot completely eliminate all toxic or carcinogen exposures in our profession, with some careful thought, planning and follow-through we can minimize many unnecessary exposures. The important first step is educating ourselves about the dangers and the ways we can avoid or minimize them. The second, and most important step, is consistently implementing measures to minimize the invisible dangers we face.

There are many entities working to help firefighters minimize risk so we can continue to do our jobs as safely as possible. You can start educating yourself and your crew by reading articles and studies on cancer and firefighters. Some good places to start:

- Our companion article on the “Top Ten Ways to Avoid Firefighter Cancer.”
- [The Firefighter Cancer Support Network](#) (FCSN). It's a great resource of information for firefighters who want to learn more about how cancer affects our profession.
- Watch the documentary, *Toxic Hot Seat*.
- Overview of Firefighter Cancer Study: [Centers For Disease Control and Prevention \(CDC\) brief on cancer study](#).
- NIOSH Firefighter Cancer Study: [Firefighter Cancer Study](#).

What Can We Do To Protect Ourselves

There are precautions that can be taken to help decrease our exposure to dangerous carcinogens and to deal with them after we have been exposed.

1. Always wear your PPE and SCBA on fires (structure, vehicle or any other fire where applicable), including during overhaul.
2. Prior to leaving the fire scene, perform a gross decontamination to remove potentially toxic contaminants from your turnouts and gear.
3. Rinse and wipe off hands, arms, face, neck, etc. immediately after the fire.
4. After the fire, store turnout gear in a compartment OUTSIDE of the passenger cab to avoid unnecessarily inhaling off-gassing carcinogens.
5. Upon returning to the station (after EVERY call or outing), immediately hook up the Plymovent or use alternative exhaust mitigation methods to minimize exhaust fumes in the engine bay and living quarters.
6. If available, a second (clean) set of turnouts should be used upon returning to the station, and the contaminated turnouts should be thoroughly cleaned. If a second set of turnouts is not available and/or thoroughly cleaning turnouts is not an immediate option, care should be taken to clean as much of the contaminants off as possible, and turnouts should be hung in a well ventilated area away from crew or apparatus passenger compartment until proper cleaning is possible.
7. After returning to the station and outfitting your equipment, crew members should thoroughly shower to remove carcinogens from skin and hair, and then they should change into clean clothes.
8. Immediately clean contaminated clothing and gear at the station. Do not throw your contaminated clothing on your bed or in your locker where it will contaminate your bedding, other clothing or off-gas in the crew

quarters. Do NOT take contaminated materials, clothing or gear home where you will further expose yourself and your family to the carcinogens from the fire.

9. Do not wear or bring turnouts (dirty or clean) into living or sleeping areas. The days of stowing bunker pants next to the bed should be a thing of the past as the practice contaminates the living space and exposes crew members to off-gassing toxins while they sleep.

10. Document your exposures in either a PERS (Personal Exposure Reporting System) or a personal binder. At minimum, keep track of the date and time, run ID #, crew present, exposure or materials burning, duration of exposure, etc. Even though many departments are accepting a “presumptive” illness claim with cancer, we often have to “prove” we were exposed at work.

It is important to be on top of these developments. Continue to educate yourself and watch for the next phase of this study to be published. Fortunately, this study has raised awareness to the increasing cancer risks we face as firefighters, but it’s up to you to take care of yourself and share this information with your crew.

Maintaining situational awareness is a vital skill in our job. It is important to apply this skill when considering our exposures and implementing plans to avoid and minimize them.

More Information:

There are many entities working to help firefighters minimize risk so we can continue to do our jobs as safely as possible. **The Firefighter Cancer Support Network** is a great resource of information for firefighters who want to learn more.

For more information or to read the actual study take a look at these links:

<http://www.cdc.gov/niosh/firefighters/ffcancerstudy.html>

http://www.usfa.fema.gov/fireservice/firefighter_health_safety/health_fitness/cancer.shtm