UPDATE

# LAVENDER RIBBON REPORT

## Best Practices for Preventing Firefighter Cancer













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NATIONAL VOLUNTEER FIRE COUNCIL
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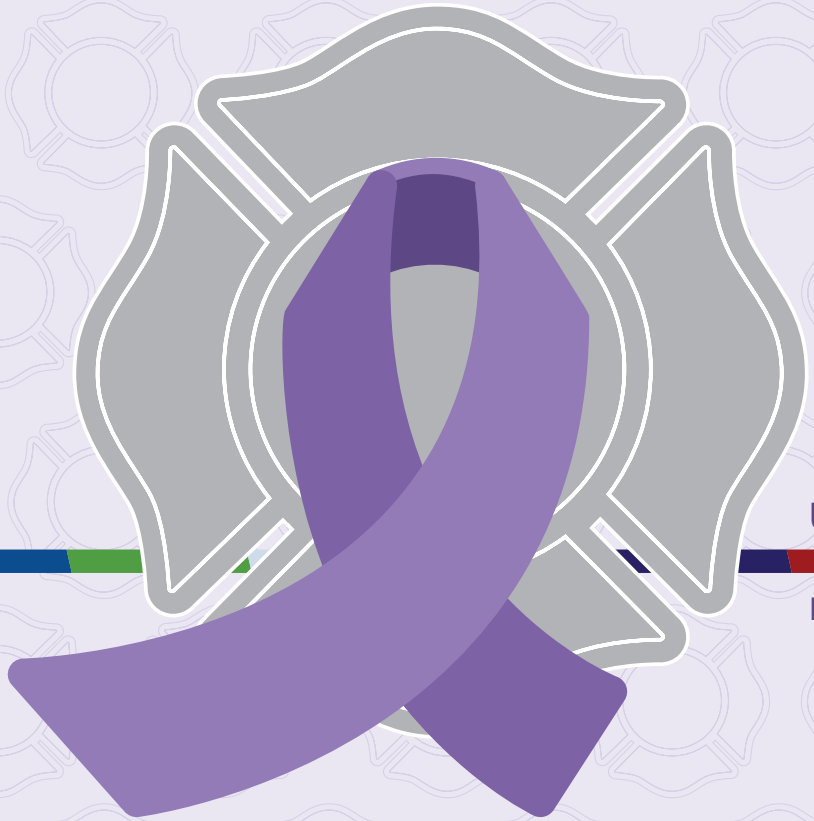
Volunteer & Combination Officers Section
IAFC INTERNATIONAL FIRE CHIEFS ASSOCIATION
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# LAVENDER RIBBON REPORT

# BEST PRACTICES

## for Preventing Firefighter Cancer

### 11 ACTIONS TO MITIGATE THE RISK OF CANCER



**UPDATE**

**Release date: September 2021**

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# Foreword

*By Chief John M. Buckman III*

As a firefighter, your chances of contracting cancer increase when you breathe the products of combustion into your lungs.

The goal of today's fire service leaders should be to do business with those who want to do the right thing and wear their PPE when operating near or in the hot zone. It should be to focus on the people who believe it is in their best interest to reduce their exposures to carcinogens. Why would you increase your personal health risk? Why would you not want to see your children grow up? Why? I ask again! Why? Do not be selfish – protect yourself. Wear your SCBA all the time when you are close to the hot zone and when you are in the hot zone. The more influence the leader has, the closer you can come to the tipping point. When you are nearing the tipping point, it will become a little easier to convince the non-believers to come in. But to reach the tipping point you will have to repeat your message over and over again to reach success.

And that message is: Do the right thing, for the right reason, for yourself, family, friends, and your brother and sister firefighters by following the best practices laid out in the ***Lavender Ribbon Report*** for reducing your risks of occupationally caused cancer.

## Why?

With all the catastrophes occurring throughout the world, WHY does firefighter cancer remain a significant health and welfare threat to firefighters and their families?



Most of the answer to the WHY question is due to the independence of the firefighter. Firefighters in many cases believe they wear a Superman cape. The reality is our PPE/SCBA does nothing to protect us from the risk associated with firefighter cancer when we do not wear it completely and correctly.

We continue to see photos on many fire service websites that depict firefighters in smoky environments without their PPE/SCBA fully on.

Firefighters also believe, for the most part, that it will not happen to them. Yet for an increasing number of firefighters, being diagnosed with firefighter occupational cancer will be one of the worst days in your life. Cancer is the six-letter word you do not want to hear from your doctor. The successful treatment of firefighter occupational cancer has improved over the years, but the treatment of cancer is brutal to your body. Even if you survive, you will never be completely cured of firefighter occupational cancer. Yes, you can be declared clear annually at your checkup, but there will always be that concern that the cancer will come back, and you will have to go through the brutal treatments again.

The information in this ***Lavender Ribbon Report Update***, as well as the original ***Lavender Ribbon Report***, is intended to save your life. Your family and friends need you; your children want to see their mother or father come home after a shift or a call.

When in the moment, we just do not think one little fire, or one dose of a chemical, will impact our health and wellness tomorrow, next year, or the next decade. However, it is a fact that continued exposures to carcinogens will have a cumulative effect that results in the fateful diagnosis of firefighter occupational cancer.

STOP exposing your body unnecessarily to carcinogens.

Protect yourself for those that know you and love you.



**About the Author:** John M. Buckman III served as a German Township (Indiana) fire chief managing volunteers for 35 years. In 1996, he was selected by Fire Chief magazine as Fire Chief of the Year. He served as the Indiana Fire Academy Director for 15 years. He was President of the International Association of Fire Chiefs from 2001-2002. He has received the Indiana Governor's Meritorious Service Award, the National Volunteer Fire Council Lifetime Achievement Award, and the President's Award from the International Society of Fire Service Instructors. He was one of the founders of the IAFC's Volunteer and Combination Officer Section and the National Fire Academy Alumni Association. He currently serves as Education Coordinator for the International Association of Fire Chiefs' Volunteer and Combination Officers Section. He is the Director of Government and Regional Outreach for IamResponding. He has authored over 150 articles in various publications. He has published three books and six photography books. He is most proud of the title "pawpaw." He and his wife, Leslie, have spent 28 years together. They have four daughters, six grandchildren and two great grandchildren.





# Introduction

Cancer is a leading health risk facing firefighters, largely due to the chemicals and carcinogens they are exposed to while on the job. To address this growing threat, a joint cancer committee of the International Association of Fire Chiefs' Volunteer and Combination Officers Section and the National Volunteer Fire Council, along with support from other fire service leaders and organizations, released the 11 Best Practices for Preventing Firefighter Cancer in 2017. This was followed in 2018 by the ***Lavender Ribbon Report: Best Practices for Preventing Firefighter Cancer***, which broke down each best practice and provided actionable items to help firefighters and fire service leaders take the necessary precautions to mitigate the risks of occupationally caused cancer.

Occupationally caused cancer is something that can be prevented. The 11 actions highlighted in the ***Lavender Ribbon Report*** are critical for mitigating and lessening the risks to our nation's firefighters. But the work is not done. Departments – and individual firefighters – have to accept and implement the best practices into their everyday operations in order for them to be effective.

This update to the ***Lavender Ribbon Report*** takes things a step further by providing letters, essays, articles, and best practices from fire service leaders across the country on why this is so important and how to successfully implement the best practices for reducing firefighter cancer risks. Use this update in conjunction with the original ***Lavender Ribbon Report*** to make your department safer and to better protect yourself and your crew from the anguish that comes with a firefighter cancer diagnosis.

To Our Fire Service Family,

Firefighters knowingly and willingly take numerous, calculated risks to save lives and property every day. As the fire service sought to mitigate many of these risks, personal protective equipment was developed, and technology deployed to reduce exposure to known dangers. And yet, it's only in recent years that the fire service has come to fully understand the risks posed by exposures to harsh chemicals and carcinogens through surface toxins.

Firefighters may be exposed to these dangerous toxins in many ways, including in the smoke and residue from a burning or recently burned structure and off-gassing from their gear and equipment. Toxins can be breathed in, absorbed through the skin, or ingested if a firefighter eats something before properly decontaminating. These exposures are contributing to the growing cancer epidemic facing firefighters today.

And yet, there is great hope. Firefighter cancer doesn't have to be yet another calculated risk – it can be a preventable risk. You can do more than cross your fingers and hope that it doesn't happen to you or that your family doesn't have to suffer the fear and heartbreak that accompanies every cancer diagnosis. The ***Lavender Ribbon Report*** and this update lay out clear, actionable steps every firefighter can take to reduce exposures to carcinogens and prevent the cancers they may cause.

The National Volunteer Fire Council, the International Association of Fire Chiefs' Volunteer & Combination Officers Section, and our partners have worked deliberately and diligently to develop and deliver these seminal guides on preventing firefighter cancer to the fire service. With knowledge comes power. This report provides the knowledge every firefighter needs to make meaningful changes to reverse the epidemic of firefighter cancer. It is our hope that every reader will find that power within these pages and take the necessary actions to protect themselves and their crew.

Sincerely,



**Sarah Lee**
Interim Chief Executive Officer
National Volunteer Fire Council

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Dear Firefighters,

Occupational cancer can be wiped out of the fire service, but it will take you, your crew members, your officers, and the public to see that no one suffers from the ravages of this disease in our fire service family. Occupational cancer is an enemy that we can defeat. The ***Lavender Ribbon Report*** was the result of a lot of hard work on the part of many in the fire service who know all too well what cancer does to us. You may be reading this report for the first time; you may be a new recruit; or you may be from the smallest department in the nation – it does not matter – because cancer can strike anywhere and at any time.

When my father started in the fire service, gearing up was generally not standard because the objects that were burning at that time were primarily wood and paper-based products. When I started in the fire service, dirty gear was a source of pride. Today these things are just not acceptable. Our fires are burning hotter because of the chemically-based plastics that are in use in nearly every product in our homes, our businesses, and our vehicles. When these products burn, they change chemical composition. Now more than ever you must wear your gear – and wear it properly. Now more than ever you must keep your gear clean. This is how we keep our firefighters alive and away from the dreaded cancer.

In this report you will see recommendations for departments to proactively engage in training and on scene operations that will keep our firefighters safe. There can be no excuses. You cannot say that we are a small department and cannot implement the recommendations of this report – to do so does nothing but put your firefighters at risk. You can change the culture of the fire service to one where cancer is rarely seen. You do this one crew, one station, and one department at a time. No department should have to deal with a firefighter getting cancer from the job. No firefighter or their family should have to suffer, but they will continue to do so unless YOU – each of YOU – begin the process to change how we do things. Finally, we have to educate the public about how important these initiatives are. Our firefighters are answering calls around the clock and around the calendar. The public appreciates the work of the fire service. When we make them aware of the problem with cancer in the fire service, suddenly being able to buy new gear, being able to establish screening programs in departments, and being able to buy on-site laundry equipment is no longer out of reach.

I couldn't be prouder to be a part of this report and the giants in the fire service that have produced it – not for them, but for US. May God continue to bless you and may God bless your fire department every day and in every way.

Sincerely yours,

Steven W. Hirsch

**Steve Hirsch**
Chairman
National Volunteer Fire Council

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Members of the Fire and Emergency Service,

In 2018, the IAFC's Volunteer and Combination Officers Section partnered with the National Volunteer Fire Council to produce the original ***Lavender Ribbon Report: Best Practices for Preventing Firefighter Cancer***. We received a lot of positive feedback on the report and then produced additional resources focused on cancer prevention such as the ***Best Practice*** posters and a webinar series on implementing successful cancer prevention practices. Now we are proud to announce the release of the update to the original ***Lavender Ribbon Report***. As time has passed, more studies, stories, and information have been shared about responders and the risks of cancer. It is our duty to keep this important report updated and bring it forward to our fellow firefighters and emergency responders.

In this report you will find some relatively easy and inexpensive practices you can incorporate into your SOPs and SOGs to improve the safety of your members. You also will read stories about firefighters diagnosed with cancer and how it impacted their lives as well as those around them including their loved ones.

I encourage you to read the report in its entirety and pass it along to all firefighters and emergency personnel in your station, department, city/town/county, and region. Help us spread the word about ways to help prevent the rising cancer numbers in the fire and emergency service. We are doing better when it comes to cancer awareness, but there is room for improvement. This report is aimed at helping departments continue to improve.

I want to thank everyone who helped contribute to this report. My ask of you is to pass this information on and hold your members accountable to use safe and smart practices for preventing cancer. We, as the fire and emergency service, need to stand up, recognize the avoidable risks that can lead to cancer on the job, and implement necessary changes. We have lost too many lives to cancer that may have been avoided with proper cancer prevention practices in place.

Stay safe and thanks for all you do to help the fire service, your community, and your members. The IAFC appreciates you!

Sincerely,



**J. Robert "Rob" Brown, Jr.**
Chief Executive Officer and Executive Director
International Association of Fire Chiefs

Volunteer & Combination Officers Section
of the International Association of Fire Chiefs
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Members of the Fire and Emergency Service,

It is hard to believe the ***Lavender Ribbon Report*** was originally released in 2018 as a collaboration between the Volunteer and Combination Officers Section of the International Association of Fire Chiefs and the National Volunteer Fire Council, and how much has changed in three short years. The fire service working collaboratively with our partners from academia, research institutions, and government entities continue to research and publish best practices for cancer prevention. While we have made some great strides, there continues to be a need to heed these recommendations and continue the research on the exposures firefighters face in performance of their careers, both as paid and volunteer professionals.

Volunteer firefighters and smaller combination departments are no different than our brothers and sisters in metropolitan departments. We face the same carcinogenic exposures. Collectively, we must do a better job of tracking our exposures to assist our partners in research to better protect ourselves at all levels. Tracking is not just for active interior firefighters, but also those who serve in peripheral fireground positions and may not have the same PPE as those in interior positions.

This update to the ***Lavender Ribbon Report*** brings focus to the collaboration efforts in cancer prevention, provides information to improve our organizations, and informs us on how to take better care of our personnel by lowering our risk and exposures to occupational cancer. Together, as a united group, we can prevent and protect our members from occupational exposures of carcinogens.

This past year has challenged us in many ways, but together we have collectively persevered and continued to build our resiliency. This same effort is needed to reduce our risk, heighten our awareness, and protect our personnel through education and advocacy regarding occupational cancers.

Stay safe,



**Charles M. Flynn**
Chair, Volunteer and Combination Officers Section
International Association of Fire Chiefs

## Tribute to Chief James P. Seavey Sr.

*By Past Chief Brian F. McQueen*



James P. Seavey Sr.

As I have the privilege to write this tribute to the original co-author of the ***Lavender Ribbon Report***, Chief James Seavey Sr., I only have to think of the opening words of the Simon and Garfunkel song, Sounds of Silence, to realize that even though Jim is gone, he will never be forgotten.

**Hello darkness, my old friend**
**I've come to talk with you again**
**Because a vision softly creeping**
**Left its seeds while I was sleeping**
**And the vision that was planted in my brain**
**Still remains**
**Within the sound of silence**

Chief Seavey, or Jim (or Jimmy) as his friends called him, passed away on September 4, 2018, after several years of battling non-Hodgkin lymphoma. He was only 58. He had so much life left in him, but cancer had other plans.

Jim was the consummate volunteer, having served in many leadership positions in local, state, and national fire associations. I had the pleasure of meeting Jim while we both represented the National Volunteer Fire Council at the first meeting of the National Firefighter Cancer Alliance. We had something else in common too – we were both in a battle of our lives with non-Hodgkin lymphoma, and it was through this battle that we became the "Cancer Dudes." Our mission was easy, provide education so that no other firefighters will suffer from cancer due to a lack of information.

**"To say I miss Jim Seavey would be an understatement."**

Past Chief Brian McQueen

Jim was a motivator and a shaker. He led by example. His leadership in the cancer committees of the IAFC's Volunteer and Combination Officers Section and the National Volunteer Fire Council was pivotal to the development of the best practices in fighting the cancer epidemic and the subsequent ***Lavender Ribbon Report***, bringing together experts in the field to make sure no one must suffer through a preventable cancer diagnosis ever again.

Jim Seavey was a good friend of mine. He was a mentor to not only me, but so many of us in the fire service. To say I miss him is an understatement. He left behind his wife, Mary, and his son, Jimmy Jr. along with so many others in the NVFC and VCOS families. So it goes without saying that this update to the ***Lavender Ribbon Report*** provides its readers the knowledge and love Chief Seavey Sr. had for his brother and sister firefighters and those facing an occupational cancer diagnosis.

# Letter from Mary Seavey

As I held his hand and we walked into the chemotherapy lab for the first time in April 2013, we both gazed at a large room, filled with 30 cubicles, each station with two chairs…one for the patient, one for the companion… Thirty IV poles with tubing and multiple bags of fluid, strategically hung in order of infusing, and each cubicle was full…it was only 7:15am. I looked up into his big brown eyes and whispered, "We can turn and run now, we don't have to do this, let's leave, get back in the car and head to the beach."

Of course, we did not leave, instead his strength and our faith won over my immediate first reaction.

Five long years later of treatment, doctors, hospitals, chemo, rehab facilities, wounds, infections, surgeries, pills, mouth sores, etc., his body could not fight any longer. The decision to grant his wish to be at home, in his bed, with his dog by his side, was finally the answer that felt the most gratifying in months. Control of his destiny, for the first time in a long time, was in our hands.

**Five long years later of treatment, doctors, hospitals, chemo, rehab facilities, wounds, infections, surgeries, pills, mouth sores, etc., his body could not fight any longer.**

Mary Seavey

Our journey ended in the early morning of September 4, 2018. We were surrounded by family and friends, and the bubble of love and support that enveloped our home could be seen from outer space. Pain was no longer the enemy; his spirit was free.

Never questioning "Why me?", he commented often that he never wanted to be forgotten. It is through the ***Lavender Ribbon Report*** he co-authored the last year of his life that we can and will preserve his goal to bring awareness to the fire service to both its current and future members about job-related cancers and prevention. This shall remain the capstone of what he would leave behind to be his true calling as a public servant, and to never be forgotten.

His Facebook banner quoted Joseph Campbell and surmised his final campaign most appropriately by saying, "We must be willing to let go of the life we had, so as to have the life that is waiting for us."

This was our journey…I am thankful for the continued care, love, and support from our fire service family and know that he will be in our hearts forever. Rest in peace and know your legacy will carry on.

Respectfully,
Mary A. Seavey

## Dedication to Heather Schafer



This update to the ***Lavender Ribbon Report*** is dedicated to Heather Schafer, who served as CEO of the National Volunteer Fire Council (NVFC) for 27 years before her unexpected death in March 2021.

Heather was a tireless champion for firefighter health and safety and worked to create and implement innovative programs that addressed key health and safety issues. During her tenure, the NVFC board formed the Health, Safety, and Training Committee to focus on these critical areas, as well as the Cancer Subcommittee as it became clear that cancer was emerging as one of the biggest health threats facing firefighters.

Heather was a guiding force behind the development of the 11 best practices for reducing occupational cancer risks in 2017. She worked with the NVFC board, International Association of Fire Chiefs' Volunteer and Combination Officers Section, the Fire Service Occupational Cancer Alliance, Firefighter Cancer Support Network, and California Casualty to get these best practices out to the volunteer fire service. These best practices were the basis of the ***Lavender Ribbon Report***, which was originally released in 2018.

In addition to her efforts to reduce firefighter cancer risks, Heather also spearheaded other health and safety programs, including the Heart-Healthy Firefighter program to reduce the leading cause of on-duty firefighter fatalities, heart attack, as well as the Share the Load program, which focuses on providing first responders with behavioral health support.

Heather's voice and vision on these critical health and safety issues will be missed, but her legacy will carry on.

# BEST PRACTICES for Preventing FIREFIGHTER CANCER

1. Full protective equipment (PPE) must be worn throughout the entire incident, including SCBA during salvage and overhaul.
2. A second hood should be provided to all entry-certified personnel in the department.
3. Following exit from the IDLH, and while still on air, you should begin immediate gross decon of PPE using soap water and a brush, if weather conditions allow. PPE should then be placed into a sealed plastic bag and placed in an exterior compartment of the rig, or if responding in POVs, placed in a large storage tote, thus keeping the off-gassing PPE away from passengers and self.
4. After completion of gross decon procedures as discussed above, and while still on scene, the exposed areas of the body (neck, face, arms and hands) should be wiped off immediately using wipes, which must be carried on all apparatus. Use the wipes to remove as much soot as possible from head, neck, jaw, throat, underarms and hands immediately.
5. Change your clothes and wash them after exposure to products of combustion or other contaminants. Do this as soon as possible and/or isolate in a trash bag until washing is available.
6. Shower as soon as possible after being exposed to products of combustion or other contaminants. "Shower within the Hour"
7. PPE, especially turnout pants, must be prohibited in areas outside the apparatus floor (i.e. kitchen, sleeping areas, etc.) and never in the household.
8. Wipes, or soap and water, should also be used to decontaminate and clean apparatus seats, SCBA and interior crew area regularly, especially after incidents where personnel were exposed to products of combustion.
9. Get an annual physical, as early detection is the key to survival. The NVFC outlines several options at **www.nvfc.org**. "A Healthcare Provider's Guide to Firefighter Physicals" can be downloaded from **www.iafc.org/healthRoadmap**.
10. Tobacco products of any variety, including dip and e-cigarettes should never be used at anytime on or off duty.
11. Fully document ALL fire or chemical exposures on incident reports and personal exposure reports.

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# Implementing the Best Practices: Choices Made by Local Fire and Elected Officials

The actions outlined in both the ***Lavender Ribbon Report (LRR)*** and the Firefighter Cancer Support Network's (FCSN) white paper ***Taking Action Against Firefighter Cancer*** can be implemented on the local and departmental level easily, and often with minimal costs. The benefits in reducing risks for firefighters are well-worth the initial investment. Having a firefighter leave the department due to a cancer diagnosis, and the subsequent physical, financial, and emotional toll cancer takes, is a far greater cost. The following outlines the actions from the LRR and FCSN, implementation costs, and what is required.

## LRR Best Practice 1

- Full personal protective equipment (PPE) must be worn throughout the entire incident, including a self-contained breathing apparatus (SCBA) during salvage and overhaul.
- **Implementation costs –** $0
- **What is required?** Written policy and procedures along with training and enforcement.

**FCSN Immediate Action 1:** Use SCBA from initial attack to finish of overhaul. (Not wearing SCBA in both active and post-fire environments is the most dangerous voluntary activity in the fire service today.)

## LRR Best Practice 2

- A second hood should be provided to all entry-certified personnel in the department.
- **Implementation costs –** $17 to $50 per member
- **What is required?** Purchase a second hood for all members or purchase a specific number of hoods for use as a cache.

## LRR Best Practice 3

- Following exit from the immediately dangerous to life or health (IDLH) and while still on air, you should begin immediate gross decontamination (decon) of PPE using soapy water and a brush if weather conditions allow. PPE should then be placed into a sealed plastic bag and placed in an exterior compartment of the rig, or if responding in personally owned vehicle (POV), placed in a large storage tote, thus keeping the off-gassing PPE away from self and passengers.
- **Implementation costs –** $150 for bucket, brush, soap per station for the decontamination process.
- **What is required?** Develop policy and procedures. Develop training program for implementation. Enforce compliance with policy and procedures.

**FCSN Immediate Action 2:** Do gross field decon of PPE to remove as much soot and particulates as possible.

**FCSN Immediate Action 6:** Clean your PPE, gloves, hood, and helmet immediately after every fire.

**FCSN Immediate Action 7**: Do not take contaminated clothes or PPE home or store it in your vehicle.

## LRR Best Practice 4

- Exposed areas of the body (neck, face, arms, and hands) should be wiped off immediately using wipes. Remove as much soot as possible from head, neck, jaw, throat, underarms, and hands immediately.
- **Implementation costs –** $25 per exposure event
- **What is required?** Purchase of baby wipes or similar items for each fire apparatus.

**FCSN Immediate Action 3:** Use wet nap or baby wipes to remove as much soot as possible from head, neck, jaw, throat, underarms, and hands immediately and while still on the scene.

## LRR Best Practice 5

- Change your clothes and wash them after exposure to products of combustion or other contaminants. Do this as soon as possible or isolate in a trash bag until washing is available.
- **Implementation costs –** $5,000 - $25,000 for the PPE washing and drying equipment
- **What is required?** Purchase of extractor machine and possibly dryer.

**FCSN Immediate Action 4:** Change your clothes and wash them immediately after a fire.

**FCSN Immediate Action 6:** Clean your PPE, gloves, hood, and helmet immediately after a fire.

## LRR Best Practice 6

- Shower as soon as possible after being exposed to products of combustion or other contaminants. "Shower within the hour."
- **Implementation costs –** $5,000 - $10,000
- **What is required?** Install shower facilities in fire stations that don't currently have them.

**FCSN Immediate Action 5:** Shower thoroughly after a fire.

**Special Implementation Consideration:**

LRR Best Practices 3, 5 and 6 to fully implement would require the availability of a second set of fire suppression bunker coat, bunker pants, hoods, gloves, and appropriate uniform clothing. For a fully career fire department, the staff will remain on duty to answer other 9-1-1 calls and some of those calls will require full PPE for each staff member.

Only one set of PPE can be washed at a time in the extractor. PPE dryers in some cases can dry multiple sets of PPE simultaneously.

**Special Implementation Cost –** $2,500 - $4,000 per member for complete structural fire gear

**Volunteer Staffed Implementation Cost –** 6–8 sets of full structural gear as a second set at $2,500 - $4,000 per set. This would be a cache of gear that would be purchased in the most common sizes of local members.

For volunteer and combination departments, an alternative to a complete set of interior fire suppression gear would be to purchase extrication gear. This gear is not used in interior operations under any circumstances.

In addition, departments may develop a "gear sharing" guideline when a second set of gear is needed for a limited period of time. This might include those volunteers who are not that active being asked to share their PPE.

**Alternative Implementation Cost –** $1,000 per member for extrication gear

## LRR Best Practice 7

- PPE, especially turnout pants, must be prohibited in areas outside the apparatus floor (i.e., kitchen, sleeping areas, etc.) and never in the member's household.
- **Implementation costs –** $10
- **What is required?** Develop policy and procedures, train members, and enforce the policy and procedures. Hang a sign that indicates where PPE cannot be worn.

**FCSN Immediate Action 9:** Keep bunker gear out of living and sleeping quarters.

## LRR Best Practice 8

- Wipes, or soap and water, should also be used to decontaminate and clean apparatus seats, SCBA, and interior crew area regularly, especially after incidents where personnel were exposed to products of combustion.
- **Implementation costs –** $25 per exposure event
- **What is required?** Purchase of baby wipes or similar items for each fire apparatus.

**FCSN Immediate Action 8:** Decon fire apparatus interior after fires.

## LRR Best Practice 9

- Get an annual physical, as early detection is the key to survival.
- **Implementation costs –** $300 - $1,100 per member, annually
- **What is required?** Secure a doctor to conduct the annual physical in accordance with NFPA standards.

**FCSN:** The following statement was made after the 11 Immediate Actions were listed. The importance of annual medical examinations cannot be overstated – early detection and early treatment are essential to increasing survival.

**Special Implementation Consideration:**

Volunteer and combination departments may be able to work with a local hospital or medical facility to donate an annual firefighter physicals program, or the local government may be able to provide the annual firefighter physicals program.

If firefighters are getting physicals through their own healthcare provider, they should give their provider the IAFC's Healthcare Provider's Guide to Firefighter Physicals to make sure they are aware of the special risks firefighters face.

## LRR Best Practice 10

- Tobacco products of any variety, including dip and e-cigarettes, should never be used on or off duty.
- **Implementation costs –** $0
- **What is required?** Develop a department no-tobacco policy and procedures, train members, and enforce the policy and procedures.

**FCSN Immediate Action 10:** Stop using tobacco products.

## LRR Best Practice 11

- Fully document all fire or chemical exposures on incident reports and personal exposure reports.
- **Implementation costs –** $0
- **What is required?** Develop policy and procedures, train members, and enforce the policy and procedures. Secure software to document exposures. There are several options available such as the National Fire Operations Reporting System (NFORS) or the exposure tracker from FirstForward (vaultexposuretracker.com). Some software can be free of charge.

**Additional Recommendations**

In addition to the above actions, the FCSN also advises the following:

**FCSN Immediate Action 11:** Use sunscreen or sun block.

- **Implementation costs –** a few dollars per bottle
- Encourage members to use sunscreen or sun block when outside.

The International Association of Fire Fighters (IAFF) recommends the following:

- **Diesel exhaust control devices**
    - **What is required?** Diesel engine exhaust emissions in fire stations and on scene will expose firefighters to health risks, including certain types of cancers as well as pulmonary and cardiac diseases. Fire departments should use NFPA-approved equipment to protect staff from diesel exhaust. Fire departments should take the appropriate action to understand and eliminate this exposure risk to their personnel. If an organization doesn't address diesel exhaust health risks,

firefighters may fall sick, and the organization may face a lawsuit for not protecting their employees or members. Thankfully, diesel exhaust source capture systems help fire departments reduce risk and aid in compliance with NFPA 1500, Standard for Fire Department Occupational Safety, Health, and Wellness Program. NFPA 1500 (Chapter 9) asks fire departments to contain all vehicle exhaust emissions to a level no less than 100 percent effective capture. This recommendation also complies with NIOSH's requirement to reduce emissions to the lowest feasible level to limit impact on firefighters' health. (Source: Robert Avsec for FireRescue1)

  - **Implementation/installation cost –** approximately $10,000 per apparatus for vehicle mounted diesel exhaust source capture system, or approximately $20,000 - $30,000 installed per apparatus for station mounted diesel exhaust source capture systems

- **Behavioral changes**
  - **What is required?** Ongoing education and awareness.
  - **Implementation costs** – time
- **Avoidance of hazards**
  - **What is required?** Ongoing education and awareness.
  - **Implementation costs –** time
- **Nutrition hazards**
  - **What is required?** Ongoing education and awareness.
  - **Implementation costs –** time
- **Detecting early cancer or precancerous conditions**
  - **What is required?** Ongoing education and awareness and annual medical evaluations.
  - **Implementation costs –** Costs vary. In some cases, this is covered by insurance.
- **Annual physicals**
  - **Implementation costs -** $300 - $1,100.

# Building on Progress: Best Practices for Preventing Firefighter Cancer

*By Deputy Assistant Chief Frank Leeb*

In the past several years, the fire service has come a long way and has taken action to reduce occupational cancer in the fire service. Armed with a tremendous amount of research, updated NFPA standards, and a greater mindfulness of the hazards of cancer, fire departments big and small have taken steps to best protect and educate their members and better manage the risk of cancer.

While this is not the time for a victory lap since we still have work to do, we can acknowledge the progress made as we are better prepared today than ever before to manage this risk. After all, managing risk is an important responsibility of our leaders, and part of this responsibility is managing risk caused from occupational exposure. Firefighting is inherently a dirty job. How can we best protect firefighters from contamination and cross contamination from occupational exposure to the toxic residue of the fireground? One way is to implement best practices, many of which are found in the pages of the ***Lavender Ribbon Report*** and expanded upon in this update.

When we evaluate best practices in the fire service for reducing occupational cancer, it is imperative that we combine the research, common sense, and data to make informed decisions. I call this data-driven decision making, which is to say, decisions that give us the greatest return on our investment after an evaluation of the above factors.

The NVFC/IAFC-VCOS ***Lavender Ribbon Report***, released in 2018, provided the fire service with 11 easy-to-follow best practices for preventing firefighter cancer. The ***Lavender Ribbon Report*** provided a roadmap of simple actions that can help manage cancer risk. The aim of this update is to build on the success of the original report and the success seen in the fire service. This will be accomplished by providing greater insight and context on best practices to further build onto these successes. It is about informed decision making and proactively taking appropriate action to reduce the risk factors of cancer in the fire service.

Let's start off with the following considerations.

According to the NFPA Glossary of Terms, 2021 Edition, Updated as of March 30, 2021; Preliminary Exposure Reduction is defined as "Techniques for reducing soiling and contamination levels on the exterior of the ensemble or ensemble element following incident operations."

This term, first used in NFPA Standard 1851, will also be further utilized in NFPA Standard 1585, Standard on Contamination Control, currently in development.

In addition to the term preliminary exposure reduction, we want readers to be aware this ***Lavender Ribbon Report*** uses the term gross decon.

## Preliminary Exposure Reduction – Leaving the Contamination on Scene

The immediate objective is to remove as much fireground contamination while still on scene (preliminary exposure reduction) and not take the contaminants back to the firehouse. Cleaning equipment on scene eliminates the need to take dirty equipment back to the firehouse and potentially cross contaminate additional locations. Done correctly, this will minimize exposure and cross contamination to the apparatus, the firehouse, and beyond.

Tools and equipment such as flashlights, Halligan bars, and self-contained breathing apparatus (SCBA) can often be adequately cleaned while still on scene. The hard surfaces are easier to clean than PPE such as bunker gear and hoods. These should be cleaned on scene whenever possible. This preliminary exposure reduction strategy is to leave the contamination on scene where we found it. Simply using soap and water will do the job.

Equipment that is traditionally stored inside the crew cab should be a priority for on scene preliminary exposure reduction. Placing dirty equipment inside the crew cab that has not been cleaned can potentially expose firefighters riding in the cab back to the firehouse.

Wiping down hard surfaces to remove contaminants that settle on these surfaces is also a prudent step. Ensuring dirty equipment is never stored inside the crew cab and the maintenance of a clean cab must be everyone's responsibility.

## Firefighter PPE

Soot is generally composed of lipid-soluble compounds such as PAHs (polycyclic aromatic hydrocarbons) that are on the contaminated PPE and equipment. This contamination can be washed off while on scene using soap and water and an industrial scrub brush, scrubbing hard enough to create bubbles. Current research on firefighter PPE decontamination demonstrated a median reduction of 85% during on scene wet decontamination.

While not specifically part of this research, equipment decontamination using this procedure prior to placing it back onto the fire truck is a prudent tactic that will likely yield similar results. Thoroughly washing equipment on scene takes little time to accomplish.





## Placing the Firefighter Back in Service First




First, take a shower and change into clean clothing as soon as possible upon return from a fire. This must be done prior to completing the cleaning of tools or washing the apparatus. The concept is to "place the firefighter back in service first" to minimize time spent exposed to harmful contaminants. This is especially prudent since preliminary exposure reduction actions likely already took place on scene. In my experience, I never left the scene of a fire without being ready to respond to another fire while returning to the firehouse. Every time, SCBA cylinders were changed on scene in preparation of the possibility of another response. It is about minimizing our exposure to fireground contaminants longer than operationally necessary. ***Simply stated – tools do not get cancer, firefighters do.***

## Firefighter Protective Hoods – Predictable is Preventable

The fact is that thyroid cancer has become one of the more prevalent firefighter cancers. In the FDNY, thyroid cancer has been identified as one of the most common cancers in firefighters that were not exposed to 9/11 toxins. While correlation does not necessarily imply causation, our protective hood directly contacts our skin in the neck area. This is the same area where our thyroid is located.

A protective hood that is not cleanly maintained allows any contaminates on our hood to be absorbed by or through our skin every time the protective hood is worn. We must change the practice of always wearing the protective hood around our neck such as during a non-fire response and ensure that dirty hoods are not kept in service.

Wash your protective hood following every exposure to minimize your risk. When you wash your hood, it is important to use medical gloves to minimize absorption through your hands. Exposure to a food on the stove response is enough to contaminate the protective hood to a degree where it should be washed. Overheated pots and pans often release carcinogens in the soot and gases that are produced.

Ideally, departments should provide members with a second hood. This enables the member to have a spare hood and allows the proper cleaning and drying of a contaminated hood. This is especially important in cold weather climates when wearing a recently washed, damp hood can exacerbate exposures to cold weather. A second hood also increases the likelihood that they will be washed as it is uncomfortable and less than ideal to wear a wet or damp hood.

Your thyroid is shaped like a small butterfly and is usually found inside the lower front of your neck. It's a gland that controls your metabolism. It also releases hormones that direct many functions in your body, including how you use energy, how you produce heat, and how you consume oxygen. Thyroid cancer develops when cells change or mutate. The abnormal cells begin multiplying in your thyroid and, once there are enough of them, they form a tumor. If it's caught early, thyroid cancer is one of the most treatable forms of cancer. In the early stage there are very few symptoms; however, as it grows the following may be symptoms: neck/throat pain, a lump in your neck, difficulty swallowing, vocal changes, hoarseness, and/or cough.



## Simple Actions that Collectively Add Up – Helmets, Boots, and Your Hands

Wash off bunker boots after a working fire. Bunker boots contribute significantly to cross contamination. Cleaning bunker boots with soap and water can greatly reduce the spread of contamination. The same can be said of your helmet, especially the inside liner of the helmet. It takes only a few minutes to wash the inside liner of your helmet with soap and water.

Thoroughly wash your hands after every response as well as before and after using the bathroom. This will minimize cross contamination to highly absorptive areas of the body. Keep using your SCBA. This includes during overhaul when firefighters are more likely to let their guard down and remove this important piece of equipment.

## Personal Responsibility

There are many small actions that firefighters can take today with little effort or cost. Truth is, we all must take personal responsibility for our health. Ensure you go for an annual medical exam or see a doctor when you do not feel right as well as follow up when necessary.

Track your exposures. There are now several options available such as the National Fire Operations Reporting System (NFORS) or the exposure tracker from FirstForward (vaultexposuretracker.com). Whatever option you choose, begin tracking your exposures today. You are your own best advocate. Responsibility for your health begins with you. It is what ensures you live long enough to be a mom, dad, brother, sister, aunt, uncle, grandmother, or grandfather. Each individual must make their own commitment to their health and well-being.

## After the Tour

The firehouse and apparatus are dirty work environments; both can harbor residual soot or other contaminants. Minimize this potential risk of cross contamination by showering prior to leaving the firehouse after your tour ends. This should be done regardless of the amount of firefighting activity during the tour.

## The Choice is Ours – Navigating the Iceberg

To be sure, there are many initiatives and steps fire departments must take to reduce occupational exposure to firegound contaminants. The data on firefighter cancers are sobering. Firefighters' increased cancer risk dictates that fire departments must be proactive to best protect their greatest resource, their firefighters.



Perhaps we are just seeing the tip of the iceberg – with many preventable cancers to realize. Will we continue to navigate around this danger and implement best practices, or will we navigate straight toward the iceberg? Recent progress indicates that many will steer around and navigate a path of best practices and healthy firefighters. The choice is ours.

## Smart, Aggressive Firefighters – Firefighting and Decontamination

The fire service has a long, storied, and strong culture. This culture is built on bravery and courage and defined by life preservation with smart, aggressive fire suppression. We need to extend this culture to taking care of ourselves after the fire is out. This includes on scene wet decontamination and showering and changing into clean station wear as soon as possible. This entails using gear bags to transport gear and never storing your gear in living areas of your firehouse or home. And, of course, this means strict compliance with SCBA use.

Additionally, leaders looking to protect their members should advocate for two sets of bunker gear, washers/extractors, exhaust capture devices on the rigs or in the firehouse, mandatory annual medicals, cancer screening, smoking and alcohol cessation programs, and physical fitness requirements.

It is vitally important to have leaders willing to take any prudent steps necessary to protect their firefighters. A prudent strategy for reducing occupational exposure to fireground contaminants can be adopted from our radiation exposure acronym ALARA. We want our exposure to be "as low as reasonably achievable." Collectively, we must take the same smart, aggressive approach that we already apply to firefighting and apply it to reducing our risk of cancer.

**About the Author:** Frank Leeb is a Deputy Assistant Chief in the Fire Department, City of New York (FDNY). He has been a member of the FDNY since 1992 and currently serves as the chief of the fire academy and chair of FDNY's Contamination Reduction Workgroup. Frank has been a member of the East Farmingdale Fire Department in Long Island, NY, since 1983. He holds a bachelor's degree in fire service administration from SUNY and a master's degree in security studies from the Naval Postgraduate School, Center for Homeland Defense and Security. He is a principal on the NFPA Technical Committee for Fire and Emergency Service Organization and Deployment-Career (NFPA 1710) and NFPA 1585, Standard on Contamination and Control.



**About the Artist:** Jim Yearsley is a 32-year veteran of the FDNY, currently serving as a lieutenant in Ladder 117 in the Astoria section of Queens. Jim is also a 40-plus year volunteer firefighter on Long Island, now with the East Farmingdale Fire Department where he previously served eight years as a chief officer. Jim was diagnosed with a World Trade Center cancer in 2017. Following treatment, Jim is currently in remission.



## What Will Cancer Do to You?

*By Chief John M. Buckman III*



For years I have talked about not becoming emotionally involved when commanding an incident. Command should make decisions based upon the facts, knowledge, and a gut instinct. However, in dealing with the firefighter occupational cancer issue, I think it is time to get emotional. I continue to see firefighters who still aren't proactive in carcinogen exposure reduction. It is a daunting task to consider how we will be able to motivate elected officials, fire chiefs, officers, and firefighters to take the appropriate action to reduce exposure to carcinogens.

**Be proactive at reducing your exposure to carcinogens.**

Firefighters are exposed to carcinogens every time they respond to a fire, hazardous materials spill, or other event. Still, with all the information provided to today's firefighters, many have not really bought into the decontamination process – both for their PPE and their skin. The firefighter culture still tolerates (and even honors) those who wear dirty gear as proof you are a real firefighter and not one of those who "hit it hard from the yard." Consider the decontamination process in your department after a fire. When do you see the decon bucket and brush along with soap and water come out after the fire has been declared under control or extinguished? Are all your firefighters properly going through the decon process?

Once, a union president invited me to come and watch their decontamination process. He was so proud of what the union and management had put together. All the pieces were in place. They bought the hardware. They did the training, and they were all ready to go. After about six months, I asked the labor leader how the decontamination process was going, and he was disappointed to tell me that it was not successful. He further stated the firefighters did not get it. They weren't listening. He was frustrated. What happened? The firefighters did not believe in it enough to do decontamination without being told or supervised. The battalion chief had the authority to make it happen but was too concerned about being the firefighters' friend instead of their boss.

**Wear your SCBA to preserve your health!**



If we are going to beat this attitude, it will take leaders with courage and strong shoulders to constantly be the boss and not the firefighters' friend when they don't decon their PPE and themselves after an exposure. Firefighter buy-in needs to be obtained through training, clear explanations of why this is important, and a shift in department culture that prides itself in clean gear and healthy members. It is pretty obvious when you look at photos of firefighters, that exposure to carcinogens continues to be a badge of honor.

Being diagnosed with firefighter occupational cancer will feel like you are entering a whole new world, and you are.

The new normal for your life will not be anything you probably thought about before. You will want to squeeze the most out of your life in a very compressed time frame. There will never be enough time to do all the things you will want to do once diagnosed with firefighter occupational cancer.

You will need more support from your family and friends than you ever thought you would need. There's no right or wrong way to feel. You will have to find ways to express your emotions. You will need family and friends around you not to remind you that you are sick but to make you laugh. You will need a support system, and it will need to be huge.

But isn't it better if you, your family, and your friends never have to go through all that in the first place? Cancer is a scary disease for anyone, but your risk doesn't have to be higher than anyone else's if you are proactive in protecting yourself from occupational hazards. You can reduce your chances of becoming a firefighter occupational cancer statistic by adopting the ***Lavender Ribbon Report*** best practices.

## Decon after every hot zone experience – it will help to preserve your health.

**Chemotherapy Challenges**

Nausea
Hair Loss
Anemia
Bruising

**Emotions experienced by those diagnosed with firefighter occupational cancer.**

Fear
Anger
Regret
Sadness
Wishing I Would Have Listened
Stress
Feeling Overwhelmed

In order to solve the cancer issue, we have to change our culture – how we view someone who doesn't comply with the common-sense rule of wearing your SCBA in a contaminated atmosphere effectively. We may have to banish the word "appropriate" in the context of wearing full PPE including SCBA. We are already dealing with such a narrow range of options related to wearing your PPE/SCBA. You either wear it or you don't; there is not much room in the middle. A good first step for change is being aware of unconsciously internalized excuses for why you justify wearing your PPE/SCBA.



**About the Author:** John M. Buckman III served as a German Township (Indiana) fire chief managing volunteers for 35 years. In 1996, he was selected by Fire Chief magazine as Fire Chief of the Year. He served as the Indiana Fire Academy Director for 15 years. He was President of the International Association of Fire Chiefs from 2001-2002. He has received the Indiana Governor's Meritorious Service Award, the National Volunteer Fire Council Lifetime Achievement Award, and the President's Award from the International Society of Fire Service Instructors. He was one of the founders of the IAFC's Volunteer and Combination Officer Section and the National Fire Academy Alumni Association. He currently serves as Education Coordinator for the International Association of Fire Chiefs' Volunteer and Combination Officers Section. He is the Director of Government and Regional Outreach for IamResponding. He has authored over 150 articles in various publications. He has published three books and six photography books. He is most proud of the title "pawpaw." He and his wife, Leslie, have spent 28 years together. They have four daughters, six grandchildren and two great grandchildren.



For every 5 degree increase in body temperature, your skin absorption rate for carcinogens is increased by 400%.

firefightercancersupport.org

# BEST PRACTICE #1



Photos courtesy of Lauralee Veitch

**#1** Full protective equipment (PPE) must be worn throughout the entire incident, including SCBA during salvage and overhaul.

Download the *Lavender Ribbon Report: 11 Best Practices for Preventing Firefighter Cancer*, and more cancer prevention resources by visiting these websites. **www.nvfc.org/cancer** | **www.vcos.org/BeatFFCancer**

Volunteer & Combination Officers Section

NVFC NATIONAL VOLUNTEER FIRE COUNCIL FIRE • EMS • RESCUE

# Why Full Personal Protective Equipment?

*By Past Chief Brian F. McQueen*



Firefighters provide life-saving services to local communities throughout this country. Unfortunately, these efforts come with risks, sometimes known and sometimes unknown. As fire service leaders develop a better understanding of the occupational cancer in our profession, they develop actions necessary to lessen the hazards their teams face on a daily basis. Over the past six years, major fire service organizations across our nation have been instrumental in developing behaviors to protect their firefighters on and off the job. Understanding the causes and developing steps that firefighters can take to mitigate the threats and reduce their risks for cancer will allow them a better chance for a longer career in the fire service. Failing to prepare is preparing to fail.

The first step in meeting this goal is to be sure that full PPE, including SCBA, is worn throughout the entire incident, including salvage and overhaul. Researchers have found that the inhalation hazard is one of the major cancer risks *(Taking Action Against Cancer, 2013, p. 3)*. It is each firefighter's responsibility to properly and fully wear their PPE. The January 2020 New York State Department of Health report stated that "The smoke released by any type of fire is a mixture of particles and chemicals produced by incomplete burning of carbon-containing materials. All smoke contains carbon monoxide, carbon dioxide, and particulate matter. Smoke can contain many different chemicals, including aldehydes, acid gases, sulfur dioxide, nitrogen, oxides, polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, styrene, metals, and dioxins." You might say that the fire environments that we enter can be classified as a hazardous materials incident knowing the chemicals found in the fires of today.

## Don't just wear the t-shirt – wear the PPE!




On January 14, 2016, Jeff Rossen and Josh Davis told those watching The TODAY Show that "research shows that 30 years ago, you had about 17 minutes to escape a house fire. Today it's down to three to four minutes." Evidence proves that newer homes, open concepts in design, and the furniture found in the homes of today burn faster. John Drengenberg explained: "The backing on your carpet is synthetic, your drapes are synthetic, the couch, the pillows are synthetic."

It is important that fire service leadership understand these dangers and utilize programs developed by the National Volunteer Fire Council, IAFC's Volunteer and Combination Officers Section, and the Firefighter Cancer Support Network to mitigate issues firefighters face in their daily responses to fires in their districts.

The proper use of full PPE throughout the entire incident is the first step in reducing the cancer risk at fires. This includes but is not limited to helmet, coat, bunker pants, hood, gloves, and self-contained breathing apparatus. Realizing the unique challenges that some fire departments face, leadership from within using the top-down bottom-up method need to re-examine their SOPs/SOGs and best practices to ensure that they are doing all that they can to reduce exposure risks.

Building a safety culture that focuses on protecting those we walk into battle with will provide dividends in the future for your department, your firefighters, and their families.



**About the Author:** Brian F. McQueen is a retired volunteer fire chief of the Whitesboro Fire Department in Whitesboro, New York. He is a 43-year member of the volunteer service. McQueen is a retired public school educator spending most of his time as a principal and a district-level school administrator. Chief McQueen serves his department as a captain in their training division and has also served Oneida County as a deputy fire coordinator, which allowed him to develop and carry out the training of the fire service in Oneida County. He is a retired director of the Firemen's Association of the State of New York (FASNY) and currently represents FASNY as the New York State director to the National Volunteer Fire Council. Chief McQueen is a coauthor of the original ***Lavender Ribbon Report***.



Your future depends on your actions today.
Wear all your PPE every day.




Being prepared includes wearing all your PPE.



Changing behavior starts at training. Instructors set the example that others will follow.




Chiefs have a duty to protect their firefighters even when it is not always the popular action to take.

# BEST PRACTICE #2



Photo courtesy of Fire-Dex, LLC.



Photo of the Cobra BarriAire Gold Particulate Hood. Courtesy of PGI, Inc. Green Lake, WI.

## #2 A second hood should be provided to all entry-certified personnel in the department.

Volunteer & Combination Officers Section

Download the *Lavender Ribbon Report: 11 Best Practices for Preventing Firefighter Cancer*, and more cancer prevention resources by visiting these websites. **www.nvfc.org/cancer** | **www.vcos.org/BeatFFCancer**

NVFC NATIONAL VOLUNTEER FIRE COUNCIL FIRE • EMS • RESCUE

# This Firefighter's Cancer Story

*By Chief Dennis Compton, Ret.*

I am blessed with a fire service career that has spanned more than 50 years. Like many other firefighters, cancer became an ongoing challenge for my family and me. My personal experience with cancer began with my annual physical in July of 2012. As usual, I had my blood work done before my physical, so all that remained for me in this yearly process was to show up at the doctor's office, complete my physical, and move along to another year. Unfortunately, that was not to be the case.

Although I wasn't experiencing any symptoms or problems, my doctor was concerned about one of my lab results, so he suggested that I follow-up with a specialist (oncologist). The test result that drew his attention was actually within the "normal range," but it was elevated compared to my physical a year earlier. My initial evaluation with the oncologist was in August, and during the evaluation, he found a small tumor. He, too, was somewhat (but not significantly) concerned and scheduled a biopsy in September just to check things out as thoroughly as possible. The results of the biopsy came back a few days later, and of course, I received a follow-up phone call from the oncologist. I was taken by surprise when he began to explain that I had cancer and would require intervention – sooner rather than later. Seventeen of the 20 needle biopsies he had taken came back from the lab malignant.

It was literally one test after another as my wife, family, and I prepared for what we knew would be an invasive surgery and a long process during the next couple of months. My surgery took place on December 12, 2012. I was down for the count for about a month and a half but thought I would bounce back quicker than most – but I was wrong! My surgeon said it could take as long as a couple of years before I was completely back to my normal self. I admit that I scoffed at his prediction – but he wasn't that far off. I was active during the recovery time but didn't have the energy or stamina I had previously enjoyed.

So off I went into the cycle that many other cancer patients had gone through in one form or another. I think everyone gets a little anxious when it's time to go in for their scheduled cancer screen, and that was heightened for me when my very first screen after surgery (March 2013) was a false positive. It took a while to confirm the "false" part of that result, which was difficult for me and my wife. We chose not to tell the rest of the family until the test could be re-administered and the results confirmed. Thank God my follow-up test was clear.

For the first three years after my December 2012 surgery, I was screened every 90 days. For the next two years after that, the screens were every six months. Then, after completing my five-year cancer screen in 2017, the cycle changed to once a year for the rest of my life. There weren't any signs that my cancer was still present at that time, and I was thrilled by the news that I was "cancer-free."

My next cancer screen was scheduled in December 2018, and the result was a gut punch. Sadly, the results indicated that my cancer had returned. This was six years post-surgery. This news began another journey of regular testing, scans, and visits to the specialist. I even went back to my original surgeon from 2012 for his opinion, which was consistent with my current specialist. On the same day that I am writing this story, I had a doctor's appointment for a scan and evaluation. My levels had not improved, nor had they further declined. For us, that is good news.

**"I consider myself one of the fortunate ones (so far) when it comes to my cancer experience."**

Chief Dennis Compton

I consider myself one of the fortunate ones (so far) when it comes to my cancer experience. The course of action we initially selected (although radical) still seems to have been the right decision. From the very beginning of this story in July of 2012, the support Sher and I have received from our family, friends, doctors, hospital staff, the Phoenix and Mesa Fire Departments and their unions, the National Fallen Firefighters Foundation (NFFF), the International Fire Service Training Association (IFSTA), the Congressional Fire Services Institute (CFSI), and the fire service as a whole, has been incredible. The cards and emails wishing me well meant more than most could imagine – and the prayers provided by so many are heartwarming. When we are experiencing challenges in our lives, we don't necessarily expect all of that support – but we sure appreciate it! Being a member of the fire service is truly a blessing for all of us, and this situation has been a clear reminder of that for me and my family.

Like so many firefighters who have been diagnosed with cancer, mine too was found during my annual physical. Again, I was not experiencing any symptoms at that time. In fact, I didn't begin to have symptoms until just a couple of weeks before my surgery. As the scientific research continues to show, the rate of certain cancers (including mine), is significantly higher in firefighters than within the general public. The fire service needs to continue to do all it can to prevent exposures, train our firefighters, improve our equipment, rethink tactics and strategy. WE must not forget to provide a means for our members to be monitored regularly for occupational diseases (such as cancer) throughout their careers and even into retirement.

## "I love life, but I hate cancer."

Chief Dennis Compton

Once a person is diagnosed with cancer, life as they knew it changes. It's not only a life-threatening experience at the time, but the road ahead with all of the tests, surgeries, treatments, and worries can be quite difficult. I now believe that once diagnosed, you never get completely cured of cancer, because even though it's no longer in your body – it remains in your memory – with concern that it might return.

But I found that there is good that has come from my cancer experience. Life is precious; time has more value; love is more treasured; friends and family are more appreciated. Priorities seem to have shifted; and the definition of what constitutes a "big deal" definitely changed.

I love life – but I hate cancer!



**About the Author:** Dennis Compton was the fire chief in Mesa (Arizona) for six years and assistant fire chief in Phoenix (Arizona), where he served for 28 years. Chief Compton is a current member and past chairman of the board of the International Fire Service Training Association. He has also served as chairman of the Congressional Fire Services Institute's National Advisory Council. He is past chairman of the National Fallen Firefighters Foundation Board of Directors, during which time, he led the creation of the Fire Service Occupational Cancer Alliance. Chief Compton is also the past secretary of the International Public Safety Data Institute Board of Directors and was a co-founder and co-chairman of the National Fire Service-Based EMS Advocates Coalition.



Gear should be deconned after every exposure,
no matter how much or how little exposure.

# BEST PRACTICE #3





**#3** Following exit from the IDLH, and while still on air, you should begin immediate gross decon of PPE using soap water and a brush, if weather conditions allow. PPE should then be placed into a sealed plastic bag and placed in an exterior compartment of the rig, or if responding in POVs, placed in a large storage tote, thus keeping the off-gassing PPE away from passengers and self.

Volunteer & Combination Officers Section

Download the *Lavender Ribbon Report: 11 Best Practices for Preventing Firefighter Cancer*, and more cancer prevention resources by visiting these websites. **www.nvfc.org/cancer** | **www.vcos.org/BeatFFCancer**

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# Firefighter Decon – Standard Operating Procedure

*By Deputy Chief Seth Barker and the Florence (Kentucky) Fire/EMS Department*

## Definitions

- **Gross Decontamination –** Actions taken at the fire scene to remove as much soil and contamination as possible without actually taking the clothing apart and cleaning it in an extractor.
- **Wet Decontamination –** The use of soap and water to wash and rinse contaminants from firefighting PPE.
- **Dry Decontamination –** The use of a dry brush to remove contaminants from firefighting PPE.

## Responsibility

The incident commander (IC) has the responsibility and authority to implement all provisions of this guideline. It shall be the responsibility of the IC to ensure that the appropriate level and type of decontamination is performed on firefighters and equipment involved with training, suppression, overhaul, and investigative activities before returning to quarters.

The IC has the responsibility of announcing the location of where decontamination will occur, ensuring personnel are compliant with this guideline, and developing a personnel release schedule that limits out of service time while units return to quarters for personal showers. Decontamination should be set up in close proximity to the area where firefighters are exiting the immediately dangerous to life or health (IDLH) environment to make decontamination practical.

It shall be the responsibility of the company officer (CO) to ensure that all company personnel take the appropriate measures to protect against respiratory exposure prior to removing SCBA face pieces during training, suppression, overhaul, and investigation activities. Wearing SCBA from the initial attack through completion of overhaul provides the best respiratory protection from inhalation hazards.

The CO shall monitor personnel for exposure to the products of combustion and ensure decontamination of PPE and skin occurs on scene. The CO shall comply with the personnel release schedule to limit out-of-service time as personnel return to quarters to shower.

It shall be the responsibility of the CO, engineer, and firefighters to ensure that all PPE and equipment used in training, suppression, and overhaul activities has had on-scene gross decontamination prior to reporting to rehab or leaving the incident.

It shall be the responsibility of the individual firefighters to ensure that they receive decontamination prior to returning to quarters after training, suppression, and overhaul activities.

## General

The purpose of gross decontamination is to remove contaminants as soon as possible following the exposure to, and limit the firefighter's further contact with, contamination. If a firefighter continues to wear their PPE following the structural fire, then the exposure is prolonged.

Immediate wet decontamination is essential to reducing contaminates that may have settled on your PPE. Therefore, wet decontamination is required anytime your PPE has been exposed to products of combustion or other contaminates, or if the IC, battalion chief, or CO deems it necessary. Every effort should be made to wet decontaminate as soon as possible, preferably while still on scene.

During cold or inclement weather or if there is a concern regarding the process of soaking firefighters while performing a wet decontamination which could create further problems, a dry decontamination process may be necessary.

The decontamination area will be equipped with the following to allow for gross decontamination at the scene for both wet and dry circumstances:

- Five-gallon buckets
- Body wipes
- Mild dish soap
- Spray bottles
- Heavy-duty brushes
- Garden hoses with adapters and nozzles
- Latex gloves



## Procedure

The decontamination station will be set up by any engine company close to where firefighters are exiting the IDLH environment. The following procedures will determine the level and type of decontamination to be performed.

- **Levels of Decontamination**
  - **Light Exposure –** Exposure to dry products of combustion for a short duration.
    - **Decontamination requirements –** Dry decontamination.
  - **Moderate to Heavy Exposure –** Exposure to interior firefighting or exterior operations while working in close proximity to the fire for longer durations.
    - **Decontamination requirements –** Wet decontamination.
    - **Cold/inclement weather –** Dry decontamination.

## Types of Decontamination:

### Wet Decontamination

If conditions and circumstances allow for thorough decontamination procedures, follow the steps below to complete gross decontamination on firefighters and other fire department personnel exiting an IDLH environment.

**While still on air and fully encapsulated the firefighter will:**

- Close all pockets and flaps.
- Have any large debris or contaminants (i.e., drywall or insulation) brushed off.
- Rinse the PPE with a garden hose starting at the helmet and moving down the body with a focus on the collar, armpits, hands, and between the legs. The SCBA and boots will also be rinsed. The goal is to keep the PPE operationally dry on the interior but rinsed as clean as possible on the exterior. Handlines produce too much water and will soak turnout gear.
- Spray the PPE with a solution of dish soap and water from head to toe and front to back.
- The PPE will be scrubbed with enough pressure to produce suds and the focus should be on the collar, armpits, hands, and between the legs. The SCBA will also be scrubbed.
- A second rinse will be completed from top to bottom and front to back.
- Remove and rinse helmet.
- Remove gloves and replace with latex gloves.
- Carefully remove hood.
- Unhook regulator and remove face piece.
- Wipe off face, neck, and hands with body wipes.
- Report to rehab if established.

**Dry Decontamination**

During cold/inclement weather or if there is concern regarding the process of soaking firefighters while performing a wet decontamination, the following steps at a minimum will be completed to gross decontaminate firefighters and other fire department personnel exiting an IDLH environment.

- Working from the head down, brush off all large particles from the PPE.
- Remove gloves and replace with latex gloves.
- Use damp towels or body wipes to clean the area around the firefighter's face piece to suspend any particulate matter.
- Attempt to remove all of the visible contaminants before doffing any part of the PPE.
- Wipe off face, neck, and hands with body wipes as the environment allows.
- Report to rehab if established.

## In-Station Final Decontamination and Cleaning

Firefighters may obtain temporary replacement turnout gear from the spare inventory if necessary. The goal of wet decontamination, however, is to keep PPE operationally dry on the interior but rinsed as clean as possible on the exterior.

PPE will be washed once the spare PPE is made available. If dry decontamination was performed, the PPE will be washed no later than at the end of the shift. Wash PPE outer shells separate from inner layers.

All firefighters may be issued a second hood. This additional hood will allow firefighting personnel to wash and dry one hood after every use, thus allowing a clean hood for use at all times. The areas of the scalp and angle of the jaw are among the most absorbent areas of the body. The hood must be kept as free of contaminants as possible.

Personnel will shower thoroughly and change into a clean duty uniform as soon as possible. The goal is to "shower within the hour."

Firefighters should wash all equipment and hose involved with fire suppression and/or overhaul activities with soap and water as soon as possible. This includes cleaning the cab or compartment in which the contaminated gear was transported back to the station.

Surfaces in the cab of the apparatus should be wiped clean with wet paper towels to remove as much contaminant matter as possible prior to washing with soap and water.

Personnel should wash their duty uniforms at the fire station.

No turnout gear or contaminated gear/clothing/equipment will be allowed in living quarters of the station.



**About the Author:** Seth Barker is the Deputy Chief of Operations for the Big Sky Fire Department in Big Sky, Montana. Chief Barker is a logistical coordinator for FireFighterCloseCalls.com and has contributed to the 16 Life Safety Initiatives for the National Fallen Firefighters Foundation. He is vice chair of the Cancer Alliance Committee for the IAFC's Volunteer and Combination Officers Section. He is a featured author in ***Fire Rescue Magazine*** and delivers multiple courses on preplanning your community in an all-hazard discipline environment. Barker holds the Live Fire Instructor certification and the Training Officer Credential through the International Society of Fire Service Instructors (ISFSI). He is part of the curriculum development team that produced projects funded by Assistance to Firefighters grants in partnerships with Underwriters Laboratories and ISFSI that included Principals of Modern Fire Attack, Safe Law Enforcement Fire Ground Operations, and Understanding and Fighting Basement Fires. Barker is a Blue Card Instructor, has served as an instructor for the Montana State Fire Service Training School, and is a Modern Fire Behavior Instructor. He serves as the ISFSI 1st Vice President. Chief Barker holds the Fire Officer and Chief Training Officer Designation from the Center for Public Safety Excellence. He recently received the Jim Blankenship Award from the Montana State Fire Chiefs' Association for excellence in fire training.

## National Fire Protection Association Cancer Resource

The National Fire Protection Association (NFPA) has a 2-page document titled ***FACT SHEET: Cancer Risk in Firefighting***. We encourage you to post this in your fire stations. Send this information out to all your firefighters and share with others. Cover this important information at training events.

https://www.nfpa.org//-/media/Files/Code-or-topic-fact-sheets/FactSheetFFLungCancer.pdf

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# BEST PRACTICE #4





**#4** After completion of gross decon procedures, and while still on scene, the exposed areas of the body (neck, face, arms and hands) should be wiped off immediately using wipes, which must be carried on all apparatus. Use the wipes to remove as much soot as possible from head, neck, jaw, throat, underarms and hands immediately.

Volunteer & Combination Officers Section

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## What is the Smoke Hiding?

*By Firefighter Dylan Evans*

We all know the classic movie scene where the firefighter runs into a burning building with his jacket open and no facepiece on to put a fire out or save someone, but is that really safe? Many studies are researching what exactly is burning up when a house catches on fire. It may surprise you to know what gets released into the air during a routine house fire. The smoke from a house fire can contain many dangerous or life-threatening chemicals and particulates. Although firefighter turnout gear does a great job of protecting firefighters from immediate dangers, the importance of protecting firefighters from the dangers after the fire is out must be stressed more than it is currently.

Being in the fire service myself, the dangers brought about are very present to me and my brothers and sisters in the fire department. Although our gear is great at protecting us from the fire, it does not do such a great job at blocking particulates from getting to us. Many chemicals are released by a fire in many forms. Potential for respiratory toxicity are specific concerns for firefighters. These concerns may include:

> "(1) asphyxiants (such as carbon monoxide, carbon dioxide, and hydrogen sulfide), (2) irritants (such as ammonia, hydrogen chloride, particulates, nitrogen oxides, phenol, and sulfur dioxide), (3) allergens, and (4) carcinogens (such as asbestos, benzene, styrene, polycyclic aromatic hydrocarbons, and certain heavy metals)." (Fabian, et al.)

These are just a few of the many chemicals that firefighters must deal with on a daily basis. Most if not all chemicals presented in the UL report ***Firefighter Exposure to Smoke Particulates*** (Fabian, et al.) are immediately life-threatening if inhaled. Now imagine having the particles of all those chemicals stuck on and in gear that you repeatedly put on three or more times in a day. During the UL study, researchers collected smoke samples from the knock-down and overhaul stage of the firefighting process, along with samples of replaceable items of clothing such as gloves and hoods worn in the fire used for the study. The findings were as follows:

> "Combustion of the materials generated asphyxiants, irritants, and airborne carcinogenic species that could be potentially debilitating. The combination and concentrations of gases produced depended on the base chemistry of the material:
>
> - All of the materials formed water, carbon dioxide, and carbon monoxide.
> - Styrene based materials formed benzene, phenols, and styrene.
> - Vinyl compounds formed acid gases (HCl and HCN) and benzene.
> - Wood based products formed formaldehyde, formic acid, HCN, and phenols.
> - Roofing materials formed sulfur gas compounds such as sulfur dioxide and hydrogen sulfide." (Fabian, et al.)

Reading this report, it is easy to see that the burning of any material can release deadly gases and particles which can be very dangerous for anyone going in or even getting close to a fire of any kind.





When the chemicals like sulfur dioxide, hydrogen cyanide, carbon dioxide, and many more escape in a fire, the firefighter is exposed to major health risks such as cancer and leukemia. The risk of cancers in firefighters are much higher than that of an average civilian. A study released in ***Occupational and Environment Medicine*** looked at career firefighters in San Francisco, Chicago, and Philadelphia. The results are surprising. "Among 19,309 male firefighters eligible for the study, there were 1,333 cancer deaths and 2,609 cancer incidence cases." (Daniels, et al.) Out of 19,000 firefighters, almost 4,000 of them have either died or are battling cancer from their profession. And that's only three fire departments out of the entire United States.

In an article by Dr. Sara Jahnke, she states, "When Dr. Doug Daniels and his team at NIOSH investigated cancer diagnoses and death among firefighters in Chicago, Philadelphia, and San Francisco, they found that firefighters were nine percent more likely to contract cancer and at 14 percent higher risk of dying from cancer than the general population." (Jahnke) Jahnke also reported that firefighters have over double the chance of contracting mesothelioma compared to the general population. In addition, many firefighters are tobacco users, be it cigarettes, chew, or now vapes, but studies have shown that "smokers are more than 100 times more likely to develop different types of lung cancer compared to non-smokers. Firefighters who smoke face both the exposure risks and the smoking risks." (Jahnke) The risk of cancer from smoking alone is high, then add the risks from firefighting and your chances increase dramatically for contracting lung or other cancers.

Many studies have been done to prove that firefighting and cancer have ties to each other. A group of researchers reviewed 32 of these studies and found that there are many types of cancers for which firefighters have an increased risk.

> "The findings indicated that firefighters had a probable cancer risk for multiple myeloma with a summary risk estimate (SRE) of 1.53 and 95% confidence interval (CI) of 1.21–1.94, non-Hodgkin lymphoma (SRE = 1.51, 95% CI = 1.31–1.73), and prostate (SRE = 1.28; 95% CI = 1.15–1.43). Testicular cancer was upgraded to probable because it had the highest summary risk estimate (SRE = 2.02; 95% CI = 1.30–3.13). Eight additional cancers were listed as having a "possible" association with firefighting." (LeMasters, et al.)

In other words, the risk for firefighters contracting cancer is higher than the risk for cancer in the general public. Those risks must be taken seriously – more and more firefighters will die from cancer each year until changes are made. Although the National Fire Protection Association (NFPA) provides standards to help departments maintain the health and safety of their firefighters, that does not mean that all departments in the U.S. follow these standards or practice the safest ways of protecting their personnel.

Knowing the risks firefighters face every day, we must come up with new and better ways to combat particulate and long-term diseases like cancer and mesothelioma. National organizations such as the NFPA try to keep up with the new technology and ideology behind protecting firefighters by introducing many prevention techniques such as on scene gross decon and hoods to prevent particulates from reaching the neck region while working a fire. A study conducted at the University of Illinois Fire Service Institute looked at PPE contamination in a fire and the effectiveness of decon procedures. The study had firefighters fight a two-room fire and overhaul just like a routine house fire. Look at Figure 1 in the ***Results*** section:
www.tandfonline.com/doi/full/10.1080/15459624.2017.1334904

The graphic shows the PAH contamination levels on non-decontaminated turnout jackets after two fires. The PAH levels before the first fire are almost nonexistent, and after the first fire they shoot up to eight for the firefighter going into the building to attack the fire. This shows how important turnout gear really is, how much we need to stress the importance of properly wearing it, and how critical decontaminating it is after each fire.

The study found that the use of an on scene gross decontamination proved to be very effective.

> "Contamination on turnout gear increased with each fire response if not decontaminated. Three types of field decontamination methods were evaluated and wet-soap decon was found to be the most effective at removing PAH contamination from turnout gear. Commercial cleansing wipes also showed some benefit at removing PAH contamination from neck skin." (Fent, et al.)

The use of gross decon and cleansing wipes greatly decreases the PAH contamination on turnout gear and skin itself, therefore lowering the risk of contracting cancer or other diseases from smoke.

While the research supports the need for proper use of PPE and subsequent decon procedures, one barrier to implementation is the mind-set firefighters have about dirty, or "salty," gear. The word "salty" in the fire service is a dangerous word. When a firefighter goes to many fires and their helmet gets heated and burned and their gear is so dirty you can't see the reflective pieces anymore, that's what's called salty. For many years, every firefighter's goal was to have dirty, "salty" looking gear because they considered it a badge of honor. They thought the dirt and grime and broken-down gear showed the blood, sweat, and tears you pour into the job. In an article by firefighter cancer survivor Brian McQueen, he writes:

> "I often wonder if the non-Hodgkin lymphoma that was found growing in my neck was attributed to my failure to clean my hood. Throughout much of my time in the fire service, it was seen as a badge of courage to have the dirtiest hood, gear, and helmet hanging in your locker. You thought that new members came into the station thinking you were the workhorse in your department." (McQueen)

He went on to say that even 15–20 years ago, firefighters would deem it unnecessary to wear some of their PPE, such as their hoods. He continued, "We now know the face and neck are significant areas of dermal exposure, so wearing a hood is a needed layer of protection. We also know that toxins cling to fabric, so putting back on a dirty, contaminated hood presents its own exposure risks." (McQueen) Armed with this knowledge, McQueen introduced a "second hood policy" into his fire department, where if your first hood is dirty you have a backup to wear so you have time to clean your other hood. The fire service is making headway with understanding the cancer risks and realizing that dirty, "salty" gear is a hazard not an honor, but we still have a long way to go.

Tradition can only bring you so far. As we learn more about the hazards we face, we need to find newer, safer ways to fight fires and protect ourselves. The statistics and information on smoke and the chemicals and particulates in it grows every day. We must keep our gear and personnel up to date on it if we want to stay ahead and prevent further contractions of deadly diseases such as cancer. If we can teach members of the fire service to the new discoveries and studies, we will see a steady decline in cancer among firefighters.

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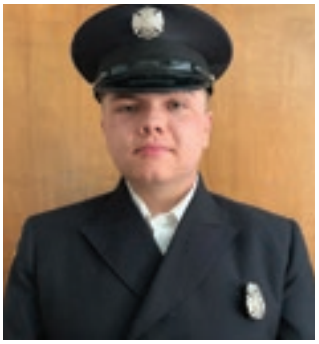
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**About the Author:** Dylan Evans is a volunteer firefighter in New Hartford, New York. He is a graduate of New Hartford High School and currently attends Mohawk Valley Community College for business administration. Evans is an interior firefighter, currently in his NYS EMT-B class. Evans has been recognized with the New Hartford Fire Department firefighter of the year award.






Consider purchasing a particulate resistant hood for additional protection against exposure to carcinogens.

# BEST PRACTICE #5



Photos courtesy of Christophe Cheroret

**#5** Change your clothes and wash them after exposure to products of combustion or other contaminants. Do this as soon as possible and/or isolate in a trash bag until washing is available.

Volunteer & Combination Officers Section

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Disconnect your air supply only after you have exited the hot zone.

# BEST PRACTICE #6




**#6** Shower as soon as possible after being exposed to products of combustion or other contaminants. "Shower within the Hour".

Volunteer & Combination Officers Section

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# Advocate for Yourself

*By Chief Mahlon Irish, Jr.*

My story of living with prostate cancer began in February 2014 when I was 58 and getting my annual firefighter physical. I mentioned to my primary healthcare professional that I had some discomfort in my hip joints, particularly when I tried to cross my legs. She didn't mention anything to me, but fortunately, she ordered a PSA (prostate-specific antigen) test – a simple blood test. She also did a DRE (digital rectal exam), which she told me was negative.

When the results of the PSA came back, she called and said, "I need to talk to you about your blood test result." She told me that there is a "possibility" that I may have prostate cancer, but she couldn't be sure, so she referred me to a urologist to follow up. My PSA was 40.1 and normal should be 4.0 or less.

I made an appointment with the urologist, and he wanted to see me almost immediately. On the day of the appointment, he did the DRE again and had the same opinion as my primary doctor. No apparent issues. However, his review of the PSA was that it was definitely elevated. He said we should do a needle biopsy of the prostate to see if there is anything actually going on.

The biopsy was two days later. It was uncomfortable, but it needed to be done. The pathology of the biopsy took about a week.

I was called to meet with the urologist when he got the results. When I got into his office, he asked if I had anyone with me, and I said no. I knew this wasn't a good sign. He got right to the point and said that I had prostate cancer and that we had a few treatment options.

Due to knowing some of the physical side effects of the surgical option, I said I wanted to get a second opinion. With a good friend of mine going with me, I made the trip to New York City to meet with a Memorial Sloan-Kettering Cancer Center physician. This doctor again did the DRE and said that that didn't indicate any issues. However, upon review of the PSA and the biopsy pathology, he told me a different story. I will never forget his statement to me: "If you do not have this removed, it will kill you. Of all the prostate cancers, this is one of the worst."

I asked him how this could be. There is no history in my family on either side of prostate cancer back to my grandfathers. Our discussion led to what I did for work, and I told him I was a retired firefighter and that I have been a volunteer firefighter for 40 years. He said that there was a 95% probability that's where it came from. Later in this journey, I had a genetic test, and that came back negative for the gene that could cause the cancer. So, firefighting seemed to be the most likely cause.

With all this information, I chose to have surgery by the DaVinci robot to have my prostate removed. This was June 16, 2014. The surgery was minimally invasive, and I was in the hospital for only a day and a half. Recovery was going to take about a month, and I had a catheter that whole time to avoid infection. I couldn't drive or do many things for myself, so my family had to step in and help me out.

The day of the surgery was a major life-changer, but I wasn't going to realize that for a few months. It gave me a new normal, and I would NEVER be able to go back to the old normal. There would be some major physical changes along with mental issues due to the physical issues.

I was placed on a medication called Eligard® at the time of diagnosis. This drug is a testosterone suppressant as prostate cancer feeds on it. This treatment is called Androgen Deprivation Treatment, ADT for short. But this

drug also has a number of side effects that really suck. Hot flashes, night sweats, loss of muscle mass, breast enlargement, genital shrinkage, mood swings, and body hair loss.

I hated these side effects, so I decided to go off the Eligard to see what my body did naturally with the disease seeing my cancerous prostate had been removed. I was off the medication for six months and the PSA began to rise, going up to 15.4. With this information, I went back on the medication.

Because of the rise in PSA, the urologist recommended that we do a radioactive trace skeletal scan and organ scan. The results showed metastatic cancer in a few lymph nodes and spots in the pubic bone. I told the urologist that I wanted to be referred to a radiation oncologist so that I could hit this head on with radiation.

I was referred to a couple of radiation oncologists, and they both wanted to do treatment with drugs and not radiation. I told both that I was only going to do radiation as the spots were small. One of the oncologists finally agreed, so that's the one I went with.

This resulted in 39 daily radiation treatments to try and stop the spread of the cancer. I am one to advocate for myself and asked the oncologist what we could do next. He referred me to a medical oncologist who recommended to continue with the Eligard and start another medication called Xgeva® for bone health. I spoke at length with the medical oncologist and asked what other treatments were available. He said we could try one called Provenge®, which is an immunotherapy that teaches my own immune system to fight the particular type of cancer that I have.

This treatment required three blood draws called leukapheresis. These were each about four hours long and the needles that were required to accomplish this were 17-gauge metal. That meant that I wouldn't be able to move for the time it took to get the necessary quantity of white blood cells to be treated.

Once the blood was drawn, it was sent to a lab to be treated and then returned to my oncologist office to be infused like a regular IV into my body. This took about an hour. There were three of these treatments, each one week apart.

At this time, the bone and organ scans were ordered again, and they now showed extended metastatic cancer in several places in the skeletal system but no new cancer in the organs. I asked, "What's next?"

We decided to do a treatment called Xofigo®, Radium 223 Dichloride. This is a radioactive medication that is injected into my body once a month for six months. It is designed to attach to the cancer cells in the skeletal system and block the testosterone from entering and feeding the cancer cells.

It takes a few months for both the Provenge and the Xofigo to take effect and show signs of working. After both of these, several months later, the skeletal and organ scans were repeated and this time the skeletal scan indicated that the treatments had worked and the cancer had not spread. In fact, some had disappeared.

I was also put on an oral medication called Xtandi® to help control the feeding of the cancer on the testosterone. This drug blocks the testosterone from being able to enter the cancer cells.

To help reduce the cancer growth, I made the choice to change some of my lifestyle habits. I began to take walks, eventually progressed to jogging, then joined a gym and began almost daily exercise. I changed my diet by cutting out a lot of carbs, no fast foods, no added sugars, more cruciferous vegetables, and pretty much cut out snacking.

These changes allowed me to run 5K races to benefit prostate cancer research as well as several 9/11 memorial stair climbs in full turnout gear, including the SCBA. I was 64 for the last virtual climb.

The unfortunate side of this journey is the side effects of the continued use of the medications along with the results of the surgery can sometimes be mentally challenging. I have lost the ability to get a natural erection. The only way to accomplish an erection is by a drug called Edex®, which is an injection I must give myself in the base of the penis. It's also over $200 per dose. None of the pills, such as Viagra or Cialis, work for me.

I have no libido, I still have night sweats, I have lost considerable muscle mass, quite a bit of body hair, I have the breast enlargement, genital shrinkage, and mood swings. All because of medications.

Fast forward seven years from diagnosis. I turned 65 in January, and I am currently in remission for four years. I will be on the Eligard, Xgeva, and a Xtandi medications for the remainder of my life. I feel grateful that both the medical and radiation oncologists tell me that with the medications, and the changes I made in my lifestyle, I'm in very good shape for the type and amount of cancer that I have.

There is also a huge financial impact of cancer. To date the total cost is just over $1.2 million. The Eligard is $4,579 every three months, the Xgeva is $5,178 every month, the Xtandi is $14,500 every month. Provenge was almost $127,000 for the three treatments, and the Xofigo was $271,926 for six treatments.

My recommendation to ALL firefighters is to get screened for various cancers starting at least at age 40. But you may have to be forceful and persistent to get some healthcare professionals to do testing. What you need to tell them is that you're a firefighter and as a profession we are at a nine percent higher risk of developing cancer and are 14% more likely to die from our cancers than the general population that we serve.

ADVOCATE FOR YOURSELF!



**About the Author:** Mahlon Irish, Jr. joined Homer (New York) Fire Department as volunteer in 1974. He rose through the ranks serving in all fire line officer positions which culminated in two separate terms as fire chief with the last term being 2017-2021. He also served three years as president of the department. He worked as a career firefighter in Ithaca, New York from 1991-2012. He retired as a lieutenant of engine 9. He has been a New York State (NYS) fire instructor from 1984 to present. He has been involved in curriculum development of several courses, and he has been an instructor for recruit firefighter classes at the NYS Fire Academy for many years. He was appointed to the County Fire Advisory Board and served as chairman for 20 years. He is now enjoying camping with Ariel (his Beagle) and working on a collection of 17 antique fire apparatus.

# BEST PRACTICE #7




Photo courtesy of Christophe Cheroret

**#7** PPE, especially turnout pants, must be prohibited in areas outside the apparatus floor (i.e. kitchen, sleeping areas, etc.) and never in the household.

Volunteer & Combination Officers Section

Download the *Lavender Ribbon Report: 11 Best Practices for Preventing Firefighter Cancer*, and more cancer prevention resources by visiting these websites. **www.nvfc.org/cancer** | **www.vcos.org/BeatFFCancer**

NVFC NATIONAL VOLUNTEER FIRE COUNCIL FIRE • EMS • RESCUE

# Keeping PPE Out of Living Areas

*By Chief Jeff Cash*

As if cancer wasn't bad enough, with the COVID-19 pandemic, fire departments are beginning to see even more importance being tied to proper cleaning and storage of all forms of PPE.

Simply stated, we should make this a mindset and cultural shift concerning the fire station living areas. Cultural change is the #1 life safety initiative from the National Fallen Firefighters Foundation's Everyone Goes Home program. To be successful in implementing a culture shift, we need to define the need for change to our members and get buy in from leadership, management, supervision, and our membership. Having our firefighters accept accountability and make healthy personal behavior choices are keys to success.

Cultural change is the #1 life safety initiative from the National Fallen Firefighters Foundation's Everyone Goes Home program. To be successful in implementing a culture shift, we need to define the need for change to our members and get buy in from leadership, management, supervision, and our membership. Having our firefighters accept accountability and make healthy personal behavior choices are keys to success.

The National Fire Protection Association (NFPA) has set the standard for PPE in NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting. The 2020 edition includes new terms that expand on techniques for properly maintaining and cleaning gear, including sanitization, gross decontamination, and cleaning facilities. Section 9.1.6 states that, "Issued ensembles and ensemble elements shall not be allowed in living quarters. Contaminated or soiled clothing shall not be transported in the cab of fire department apparatus when not being worn for operational duties unless placed in an airtight protective case or bag to prevent cross contamination."

Online searches can also provide sample documents and resources to help enforce this best practice. The Fire Service Occupational Cancer Alliance has created the "Fire Service Cancer Toolkit." It is an excellent resource for departments that includes safety tips for storage, training, educational resources, and sample SOPs/SOGs on cancer prevention including not allowing PPE into our firehouses. The toolkit can be found on the First Responder Center for Excellence cancer page, or downloaded directly at https://www.firstrespondercenter.org/wp-content/uploads/2020/09/Cancer-Toolkit-v6.pdf.

Some fire departments are even taking cleaning and decontamination to a whole new level that helps to minimize exposure. These departments are building separate decontamination facilities in conjunction with their new firehouses to keep not only contaminated PPE out of the building, but apparatus as well. For more on this, check out the Firehouse article "A Detached Decontamination Building Examined" by Brian Harris and Ron Lindroth about the facilities for the Central Valley Fire District of Belgrade, Montana. https://www.firehouse.com/stations/article/21164953/fire-station-architects-tca-architecture-planning-station-design-a-detached-decontamination-building-examined

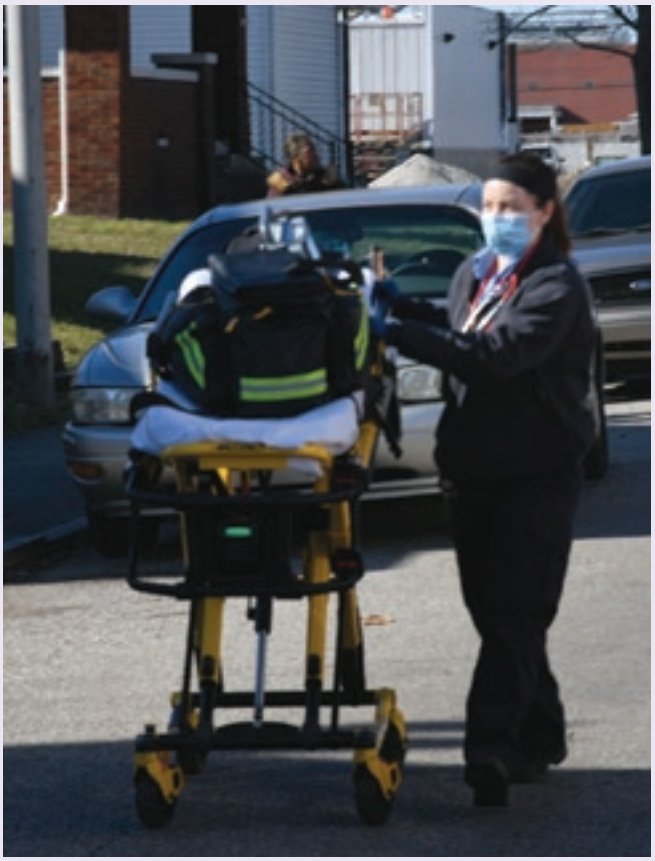


**About the Author:** Chief Jeff Cash has been in the fire service for over 40 years serving in both the volunteer and career sectors. He is a North Carolina director and the secretary/treasurer on the National Volunteer Fire Council Board of Directors and is a past president of the North Carolina State Firefighters' Association. He represents the NVFC on the NFPA 1021 Committee and the IAFC Safety, Health & Survival Section, and has testified before Congressional committees on fire service issues on two occasions. Chief Cash has served as the fire chief of the Cherryville (North Carolina) Fire Department since 1986 and is a North Carolina certified firefighter, EMT, rescue technician, fire officer, arson investigator, fire code enforcement officer, and instructor.




Wear your PPE the way it was designed to be worn; all snaps and buckles should be closed, and skin should be covered.



Other emergency personnel and bystanders should remain far enough back, so they are not exposed to carcinogens.

# BEST PRACTICE #8



Photo courtesy of Christophe Cheroret

**#8** Wipes, or soap and water, should also be used to decontaminate and clean apparatus seats, SCBA and interior crew area regularly, especially after incidents where personnel were exposed to products of combustion.

Volunteer & Combination Officers Section

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## Results from the Boston Firefighter Cancer Screening Survey

In October 2002, an explosion ignited a nine-alarm blaze at the Sithe power station in South Boston. The 231 firefighters who extinguished the fire were saturated with heavy petroleum distillate oil.

An unusually high number of the fire's early responders subsequently were diagnosed with cancer. To increase awareness of the importance of cancer screening and early detection among this group of firefighters, who were exposed to high rates of carcinogens, Dana-Farber Cancer Institute and the Harvard T.H. Chan School of Public Health partnered with the Boston Fire Department to assess the level of cancer screening the Sithe firefighters received and to make recommendations for screening tests that can detect cancer early, which can result in more successful treatment.

Health Communication Core worked with Emily Sparer, PhD, to develop a report of aggregated results from the Boston Firefighter Cancer Screening Survey. Reported screening rates for skin, colorectal, lung, and prostate cancer are visually displayed alongside recommendations by the United States Preventive Services Task Force and the International Association of Fire Chiefs. Firefighters who completed the survey also had the opportunity to receive individualized feedback on specific cancer screening tests recommended for them.

Download the report at https://healthcommcore.org/resources-researchers/sharing-results-boston-firefighter-cancer-screening-survey.

# BEST PRACTICE #9



**#9** Get an annual physical, as early detection is the key to survival. The NVFC outlines several options at www.nvfc.org. "A Healthcare Provider's Guide to Firefighter Physicals" can be downloaded from www.fstaresearch.org/resource/?FstarId=11591.

Volunteer & Combination Officers Section

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# The Heart-Healthy Firefighter

*By Past Deputy Chief Kevin D. Quinn*

In June 2016, the National Volunteer Fire Council (NVFC) Training Summit was held in Grapevine, Texas. Early one morning, prior to the start of the sessions, I noticed NVFC Board members Jim Seavey (Maryland) and Brian McQueen (New York) discussing some serious business. They were jotting down notes, perhaps on a breakfast napkin or two. I didn't want to approach them as they looked quite serious and had work that needed to be done. As I attempted to walk by them, they pulled me into their conversation. At that time, I was serving as the chairman of the NVFC. They were working on an idea that was the beginning of the ***Lavender Ribbon Report***.

A mere nine months after those initial napkin notes, we (IAFC/VCOS and the NVFC – with the support of many corporate partners) published the ***Lavender Ribbon Report***. After that meeting in Texas, I dubbed Brian and Jimmy "my cancer dudes." I am so proud of this work and the difference the campaign has made in those first few years. Sadly, James Perrine "Jim" Seavey Sr. lost his battle with cancer on September 4, 2018. We lost one of our "cancer dudes." Yet, Jim's passing pushes us to do more to protect our emergency responders from exposure to those deadly carcinogens. With this update to the ***Lavender Ribbon Report***, we hope to drive home the message to the entire fire service to motivate them to make changes that protect themselves, their crew, and their families.

I am honored to be a part of this message, and I do so in Jim Seavey's name.

Most firefighters, emergency medical personnel, and rescue providers pride themselves on being ready for the next call. They participate in many hours of training, build up on-the-job experience in all kinds of emergencies, and work to prepare their department and community for disasters. But what many forget to take into consideration is whether their bodies are truly ready for the rigors of emergency response. How many responders regularly take stock of their own health to make sure they are physically prepared for the challenges that lie ahead?

## Why Heart Health is a Concern for Firefighters

Firefighters routinely face extreme environments that may include intense heat and exposure to toxins. Add to that the high stress levels of response, significant exertion, and heavy gear, and you have conditions that are tough even for the healthiest individuals. Because of the nature of being an emergency responder, there are also factors such as interrupted sleep patterns, going from long periods of down time to sudden periods of high adrenaline and stress, and, especially for volunteers, lack of spare time that can lead to unhealthy habits such as eating poorly or not exercising. Year after year, the number one cause of on-duty deaths for firefighters in the United States is heart attack.

## My Firefighter Physical Saved My Life

You've probably heard the general assertion that firefighter physicals save lives. They can provide early detection, and thus critical early treatment, of life-threatening diseases including cancer and heart disease. With cancer and heart disease two of the leading health threats facing firefighters, why wouldn't you want to keep on top of your health through an annual physical?

Yet let me take that assertion a step further – I can personally attest to why an annual medical evaluation is critical for early detection. I strive to be healthy by eating right and exercising, yet I was completely unaware that I had an underlying heart condition. I had no symptoms and no reason to believe I had heart disease. In July 2016, I traveled to a fire department in North Carolina to learn about their annual physicals program and how other departments may be able to adopt a similar program. While there, I received a firefighter-specific physical and the results led to more tests that uncovered my heart condition.

Immediately following the firefighter physical, I had a battery of cardiac tests and procedures and ended up having quadruple bypass surgery. My cardiologist exclaimed that I had what is traditionally known as a "widow-maker." The surgeon stated, "Kevin, you don't know what good feels like until I change out your vessels," and he was right. After the bypass surgery to correct the problem, I am now back serving my fire department at full capacity. Without this surgery, I could have easily suffered a heart attack or other impairment, perhaps while on the scene or performing my duties as a firefighter. This would have endangered not only me, but also those I serve with and potentially those I was trying to save. Thankfully, we'll never know what would have happened, but I truly believe I owe my life to the early detection I received as part of the firefighter physical. A true blessing to my family, the fire department has provided me a second chance at life. All firefighters should have a quantifiable firefighter-specific annual physical.

## What You Can Do

The key to making sure a firefighter doesn't suffer death or disability due to a heart attack or other heart related illnesses is prevention. Identifying and managing risk factors, early detection of existing problems, and making lifestyle changes to lessen risks are all ways to protect a firefighter from tragic outcomes. Some responsibility should be taken at the department level. Leadership should embrace healthy behaviors among personnel and create a supportive atmosphere.

The same is true when it comes to occupational cancer. Identifying the exposure risks and taking steps at both the department and individual levels to mitigate and prevent those exposures is critical in preventing tragic outcomes. The ***Lavender Ribbon Report*** provides an important guide for specific actions to take, but it is up to each of us to follow-through on those actions.

## Early Detection is Key

Early detection of potential health problems is a big factor in protecting firefighters and emergency responders. Heart disease risk factors such as high cholesterol, high blood pressure, diabetes, and others can be discovered during routine health evaluations and subsequently managed. For a cancer diagnosis, finding the cancer early improves the prognosis and treatment options substantially. Tell your healthcare provider that you are an emergency responder so they can better advise you based on your specific situation. Early detection of illnesses such as heart disease and cancer can mean the difference between positive and negative outcomes.

**About the Author:** Kevin D. Quinn is a retired deputy chief from the Union Fire District in Rhode Island, where he continues to serve as an active firefighter. Quinn first joined the fire service in 1976. He is the past president of the Rhode Island State Firemen's League and serves on the boards of the National Fallen Firefighters Foundation, Home Fire Sprinkler Coalition, and National Fire Academy Board of Visitors. Quinn has represented Rhode Island on the National Volunteer Fire Council Board of Directors since 1983, and is the past chair and current first vice chair of the organization.



### Firefighter Cancer Awareness and Prevention: Cancer Screenings

The International Association of Fire Fighters and the Firefighter Cancer Support Network have developed guidance for cancer screenings. The report gives guidance to firefighters, officers, chiefs, and elected officials on when firefighters should be screened for various cancers.

Lung, skin, breast, cervical, testicular, prostate, colorectal, bladder, oral and thyroid cancers are covered in the document available at www.iaff.org/wp-content/uploads/FFCancer_CancerScreenings.pdf.



Being physically fit helps lead to a longer life.

# BEST PRACTICE #10



**#10** **Tobacco products of any variety, including dip and e-cigarettes should never be used at anytime on or off duty.**

Volunteer & Combination Officers Section

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Check out the article, Reducing Cancer Risks through Lifestyle Choices, by Dr. Sara Jahnke on page 10 at www.nvfc.org/wp-content/uploads/2020/08/Firefighter-Strong-2020.pdf.

### Foreword to the FASNY-Northwell Health Volunteer Firefighter Cancer Study

*By Bob Thomas*

**Numbers matter, and numbers do not lie.**

The following cancer research study, conducted by FASNY and Northwell Health, provides the numbers all firefighters need to know. The sobering fact, proven by this analysis is, **the risk of occupational cancer is the same, whether you are a volunteer or career firefighter.**

Take the time to read and understand the study. Let the numbers sink in. Ask yourself, what can I do today to help reduce the risk of occupational cancer in my department? How can I take the information presented in the ***Lavender Ribbon Report*** to make change immediately?

The numbers do not lie, but you have the power to change the numbers in the future.

**About the Author:** Bob Thomas is a member of the Lavender Ribbon Report Subcommittee and Vice President of Ward Diesel Filter Systems.

## FASNY-Northwell Health Volunteer Firefighter Cancer Study

*By Dr. Jacqueline Moline and the FASNY-Northwell Health Cancer Study Team*
*(Excerpted from March 26, 2021, article in Volunteer Firefighter Magazine)*

The Firemen's Association of the State of New York (FASNY) and occupational medicine researchers at Northwell Health have joined together to conduct the first all-volunteer firefighter cancer research study in the United States. From 2017-2019, we contacted over 1,700 volunteer and combination fire departments in New York state (NYS) to offer them an opportunity to participate in the study. The research methods that have been used successfully to determine cancer incidence in studies of career firefighters were used to identify cancers diagnosed among volunteer firefighters who served in NYS. The study goals were to:

1. Determine whether cancer diagnoses or cancer deaths occur more frequently among NYS volunteer firefighters than in the general population.
2. Provide estimates for the types of cancers and the numbers of cancers expected to occur among volunteer firefighters in NYS, in order to support cancer prevention and screening programs.

### Recruiting Fire Departments

The first step involved obtaining accurate contact information for all NYS fire departments, for which the NYS Office of Fire Prevention and Control (OFPC) records provided a starting point. Additional in-depth searching of fire department and fire association web sites was needed to obtain up-to-date information for department leadership. We started with email, phone, and fax outreach in several counties, but in April 2018 we rolled out a massive direct mailing with an invitation to participate to every fire department and fire district in the state. We also presented at local, regional, and state meetings and fire expos; created web sites with ready access to information about the study; and spread the word via social media, magazines, and newspaper articles.

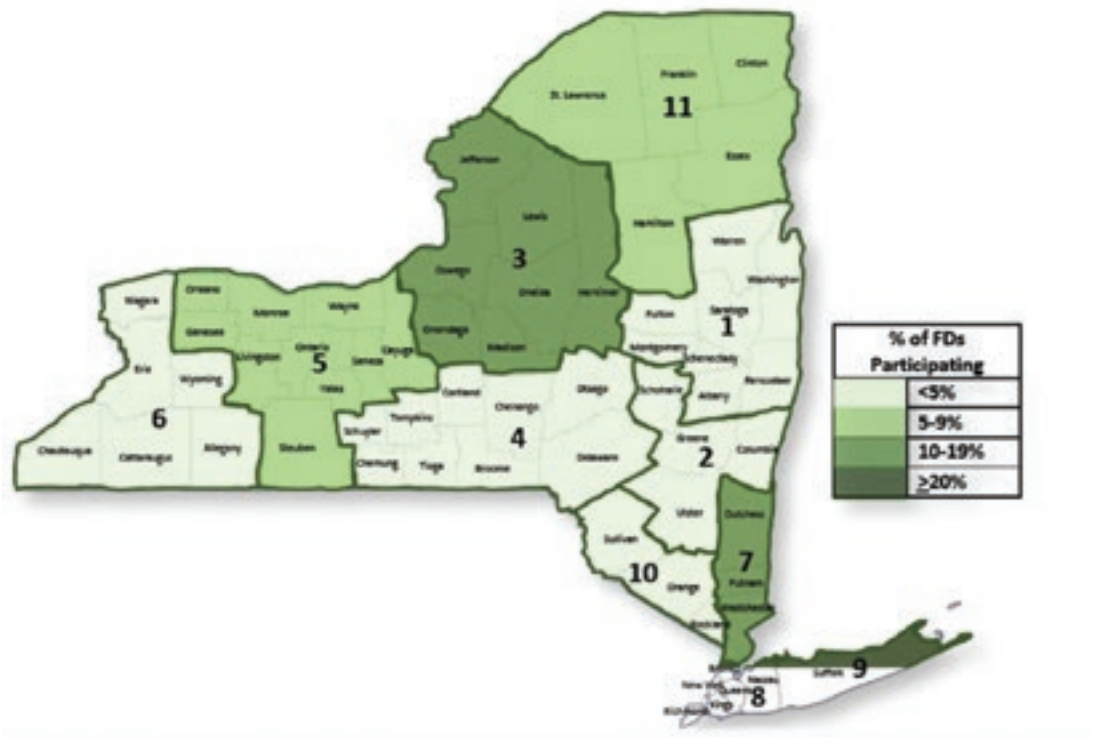
## What Kind of Information was Collected From Fire Departments?

With invaluable assistance from FASNY, fire chiefs, and commissioners, we created and utilized a variety of methods for data submission, from electronic methods like secure online databases, to more traditional methods, which involved mailing or faxing paper forms.

Participating departments submitted general departmental and training event information as well as personnel records for as many past and present members as possible, including full name, date of birth, address, race, ethnicity, and service details. Upon completion, departments were asked to complete an optional feedback survey. The OFPC provided National Fire Incident Reporting System (NFIRS) data for 2012-2016 fire runs activity. No health information was requested from the departments; all data about cancer was determined through linkage with NYS Cancer Registry records maintained by the NYS Department of Health.

## Participating Fire Departments

Of the 1,732 eligible departments, 218 (13%) enrolled in the study, but 135 (7.8%) ultimately submitted data. Departments that declined or withdrew reported organizational barriers (i.e., lack of time or staff to extract information or lack of requested information from personnel records) and ethical/legal concerns (i.e., doubts about releasing identifiable information for firefighters).




**Proportion of Eligible NYS Volunteer Fire Departments that Submitted Data (% of FDs Participating), by County, July 2017–July 2019**

Participating fire departments represent 46 counties from every region of NYS, with the highest participation rates in Nassau and Suffolk Counties where over 20% of eligible fire departments submitted data. As seen in the table below, most were all-volunteer (128, 94.8%), with a small proportion being combination departments (7, 5.2%).

## NYS Volunteer Fire Departments Participating in the FASNY-Northwell Health Fire Department Survey (N=135)

| Fire Department Characteristic | Number Of Fire Departments | % |
|---|---|---|
| **Type of fire department:** | | |
| Volunteer (>85% membership volunteers) | 128 | 94.8 |
| Combination (volunteers and some paid career members) | 7 | 5.2 |
| **Fire department jurisdiction:** | | |
| Fire District | 88 | 65.2 |
| Village Fire Department | 24 | 17.8 |
| Independent Fire Company | 23 | 17.0 |
| **Fire department provides EMS:** | | |
| Yes | 95 | 70.4 |
| No | 40 | 29.6 |
| **Current # active volunteer firefighters in department:** | | |
| ≤20 | 10 | 7.4 |
| 21-50 | 43 | 31.9 |
| 51-100 | 43 | 31.9 |
| ≥101 | 26 | 19.3 |
| Missing | 13 | 9.6 |
| **Average number of fire runs (any type) per year (2012-2016):** | | |
| ≤15 | 35 | 25.9 |
| 26-25 | 34 | 25.2 |
| 26-50 | 39 | 28.9 |
| ≥51 | 27 | 20.0 |
| **Average number of structure fire runs per year (2012-2016):** | | |
| 0-5 | 26 | 19.3 |
| 6-10 | 28 | 20.7 |
| 11-15 | 23 | 17.0 |
| 16-25 | 27 | 20.0 |
| ≥26 | 31 | 23.0 |
| **Average number of live fire training events per year:** | | |
| 0 | 11 | 8.2 |
| 1-5 | 72 | 53.3 |
| 6-10 | 32 | 23.7 |
| ≥11 | 15 | 11.1 |
| Missing | 5 | 3.7 |

| | | |
|---|---|---|
| **Fire department uses aqueous film-forming foam (AFFF):** | | |
| Yes | 90 | 66.7 |
| No | 45 | 33.3 |
| **Fire department responded to the World Trade Center site:** | | |
| Yes | 43 | 31.9 |
| No | 91 | 67.4 |
| Missing | 1 | 0.7 |
| **Number of firefighters' personnel records submitted to the study:** | | |
| 0-50 | 51 | 37.8 |
| 51-100 | 37 | 27.4 |
| 101-200 | 20 | 14.8 |
| ≥201 | 27 | 20.0 |
| **Number of firefighters' personnel records sent for linkage with NYSCR:** | | |
| 0-50 | 65 | 48.2 |
| 51-100 | 28 | 20.7 |
| 101-200 | 22 | 16.3 |
| ≥201 | 20 | 14.8 |

*a* Membership # reported in the National Fire Department Registry of the U.S. Fire Administration (USFA). https://apps.usfa.fema.gov/registry/download

*b* Incident Type summary data reported to NFIRS (National Fire Incident Reporting System) for 2012-16. http://www.dhses.ny.gov/ofpc/fire-incident-reporting-system/documents/summaryparticipation2006-2016.pdf

Using data for the current number of members and staff that were self-reported up to 2016 to the USFA registry of fire departments, we compared participating departments to eligible departments that did not participate; information was missing for 13 of the participating departments. Participating departments on average had a greater number of active volunteer firefighters, in particular, as well as a greater number of civilian employees and number of fire stations compared to departments that did not participate. This suggests that larger departments or districts may have found it easier to fulfill the requirements for data submission or obtain authorization to participate in the study.

Whenever possible, the study staff asked the departments that enrolled but formally withdrew from participation their reasons for not continuing in the study. The most frequent responses were related to reluctance of departmental leadership to release members' personnel information; that the required information was not readily available; or that they did not have enough time or staff available to compile the information. There may not be consistent, measurable fire department characteristics that predicted whether participation was completed; however, the feedback responses reinforced the importance of quality and availability of personnel records, and leadership willing to release information and able to dedicate time to compiling it. Smaller departments may rely on paper records, while larger departments reported using computer record management software and may have had staff or more members to help compile the rosters.

**Reasons given by fire departments who withdrew from participation (n=34)**

| Reason for withdrawing from participation | % of fire departments responding "Yes" (able to choose more than one reason ) |
|---|---|
| Do not want to release information | 25.7% |
| Do not have required information | 17.1% |
| Lack of staff to participate | 14.3% |
| Lack of time/too busy to participate | 11.4% |
| Board or higher-ups did not approve | 11.4% |
| Too much work to participate | 5.7% |
| Paper records | 2.9% |
| Legal concerns | 2.9% |
| Did not provide reason | 28.6% |
| Some other reason | 34.3% |

## Firefighters On The Master Roster

In the end, 135 departments submitted their fire department survey information; all of their information is included in the results for participating departments. Nine of these departments were unable to include the required personnel information, and the final number of fire departments with departmental rosters included in the master roster submitted for linkage analysis with the NYS Cancer Registry is 126. While personnel records were collected for over 18,000 individuals, two major reasons for exclusion of a record were missing information on date of birth and duplicate records submitted for an individual (whether from one department or multiple departments). Since the study population was restricted to adults 18 years of age or older, we needed to exclude persons born after 1998; we also excluded a small number of persons born before 1900. Information for the 14,821 eligible individuals included on the master roster submitted to the NYS Cancer Registry in late 2019 is shown in the table below.

Records were included for 13,073 men and 1,728 women who were members of a participating volunteer fire department. We classified their rank as an officer as well their position as volunteer firefighter, FF/EMS, EMS only, fire police, or unknown. Since the large majority of those with a known position were firefighters, for simplicity, the study population will be referred to as volunteer firefighters.

As seen in the table, the majority of the study population were males (88.3%), white (98.6%), non-Hispanic (97.8%) and roughly two-thirds were born after 1960. The average age when starting as a volunteer firefighter was 27.4 years. Reported position at the department (including 27% "unknown position") was 67.6% firefighters, 2.2% EMS-only, 1.3% FF/EMS, 1.7% fire police, and 0.2% other. Active members comprised 41.7% of the records included in the study population. Reported rank in the fire department shows that 2,038 (13.8%) were officers. Years of service were calculated using the end of service date reported (26% had a valid date) or, for those with a status that implies they are still members of the fire department, July 1, 2017. Average years of service had a wide range from less than one year to 88 years; the average was 17.2 years for those still members of the department compared to 11.6 years for former members who had an end date reported (including deceased members).

There were several significant but expected differences between the men and women firefighters in the study population. Men were older, with 34.7% born prior to 1960 compared to only 17.9% of women. Men started their fire service at a slightly earlier age than women (on average at age 27.3 years for men and 28.6 years for women). On average, men started their firefighter service in 1993, which was significantly earlier than the average of 2004 for women; as a result, estimated years of service in the fire department was more than double for men in the study population.

## NYS Volunteer Firefighters on the Master Roster Submitted for Linkage with the NYS Cancer Registry Records: Total Population and by Sex, Number (%)

| FIREFIGHTER CHARACTERISTICS | TOTAL STUDY POPULA N = 14,821 | Men n = 13,073 (88.3%) | Women n = 1,728 (11.7%) |
|---|---|---|---|
| **Year of birth:** | | | |
| 1900 – 1919 | 375 (2.5) | 358 (2.7) | 15 (0.9) |
| 1920 – 1939 | 1,104 (7.5) | 1,091 (8.4) | 10 (0.6) |
| 1940 – 1959 | 3,375 (22.8) | 3,091 (23.6) | 284 (16.4) |
| 1960 – 1979 | 5,106 (34.5) | 4,496 (34.4) | 606 (35.1) |
| 1980– 1998 | 4,861 (32.8) | 4,037 (30.9) | 813 (47.0) |
| **Race:** | | | |
| White | 5,874 (98.6) | 5,258 (99.9) | 615 (99.0) |
| Other | 83 (1.4) | 7 (0.1) | 6 (1.0) |
| Missing | 8,864 | 7,738 | 1,107 |
| **Ethnicity:** | | | |
| Hispanic | 72 (2.2) | 67 (2.3) | 5 (1.7) |
| Non-Hispanic | 3,149 (97.8) | 2,853 (97.7) | 296 (98.3) |
| Info Missing | 11,600 | 10,153 | 1,427 |
| **Age started as volunteer FF:** | | | |
| 14-19 y | 3,589 (24.2) | 3,296 (25.2) | 292 (16.9) |
| 20-24 y | 4,904 (33.1) | 4,215 (32.2) | 677 (39.2) |
| 25-34 y | 3,224 (21.8) | 2,890 (22.1) | 329 (19.0) |
| 35-44 y | 1,943 (13.1) | 1,695 (13.0) | 247 (14.3) |
| 45+ y | 1,161 (7.8) | 977 (7.5) | 183 (10.6) |
| **Average age started as FF** | 27.4 years | 27.3 years | 28.6 years |
| **Year started as volunteer FF:** | | | |
| ≤ 1970 | 1,869 (12.6) | 1,832 (14.0) | 32 (1.9) |
| 1971 – 1980 | 1,435 (9.7) | 1,386 (10.6) | 49 (2.8) |
| 1981 – 1990 | 1,838 (12.4) | 1,687 (12.9) | 150 (8.7) |
| 1991 – 2000 | 2,452 (16.5) | 2,146 (16.4) | 304 (17.6) |
| 2001 – 2010 | 3,550 (24.0) | 3,057 (23.4) | 491 (28.4) |
| ≥ 2010 | 3,677 (24.8) | 2,965 (22.7) | 702 (40.6) |
| **Years of service:** | | | |
| If ended service (n=3,916) | | | |
| **Average length of service** | 11.6 years | 13.1 years | 4.7 years |
| Still in service (n=10,748) | | | |
| **Average length of service** | 17.2 years | 18.2 years | 8.7 years |
| **Officer rank:** | | | |
| Yes | 2,038 (13.8) | 1,954 (15.0) | 84 (4.9) |
| No | 12,783 (86.2) | 11,114 (85.0) | 1,643 (95.1) |
| **Job Title/Position as Volunteer:** | | | |
| Firefighter | 10,023 (67.6) | 9,081 (69.5) | 932 (53.9) |
| FF/EMS | 188 (1.3) | 131 (1.0) | 57 (3.3) |
| EMS only | 327 (2.2) | 150 (1.1) | 177 (10.3) |
| Fire police | 256 (1.7) | 233 (1.8) | 23 (1.3) |
| Other position | 23 (0.2) | 21 (0.2) | 2 (0.1) |
| Unknown position | 4,004 (27.0) | 3,457 (26.4) | 537 (31.1) |
| **Status in FD (at time of study):** | | | |
| Active | 6,187 (41.7) | 5,574 (42.6) | 607 (35.1) |
| Inactive | 2,495 (16.8) | 2,181 (16.7) | 311 (18.0) |
| Former member | 4,562 (30.8) | 3,967 (30.3) | 592 (34.3) |
| Exempt | 488 (3.3) | 413 (3.2) | 75 (4.3) |
| Honorary | 95 (0.6) | 895 (0.7) | 6 (0.4) |
| Other status | 48 (0.3) | 45 (0.3) | 3 (0.2) |
| Unknown status | 946 (6.4) | 804 (6.2) | 134 (7.7) |

## "All Hands" On Analysis

The preliminary linkage analysis with NYS Cancer Registry records from 1976–2018 found 1,053 first primary cancers diagnosed among firefighters in our study population; an updated linkage analysis through 2020 is currently underway, and our final study analyses will be based on the updated results.

The table below shows the proportion of the 1,053 cancers by site (major organ system) found in the NYS volunteer firefighters from 1976–2018.

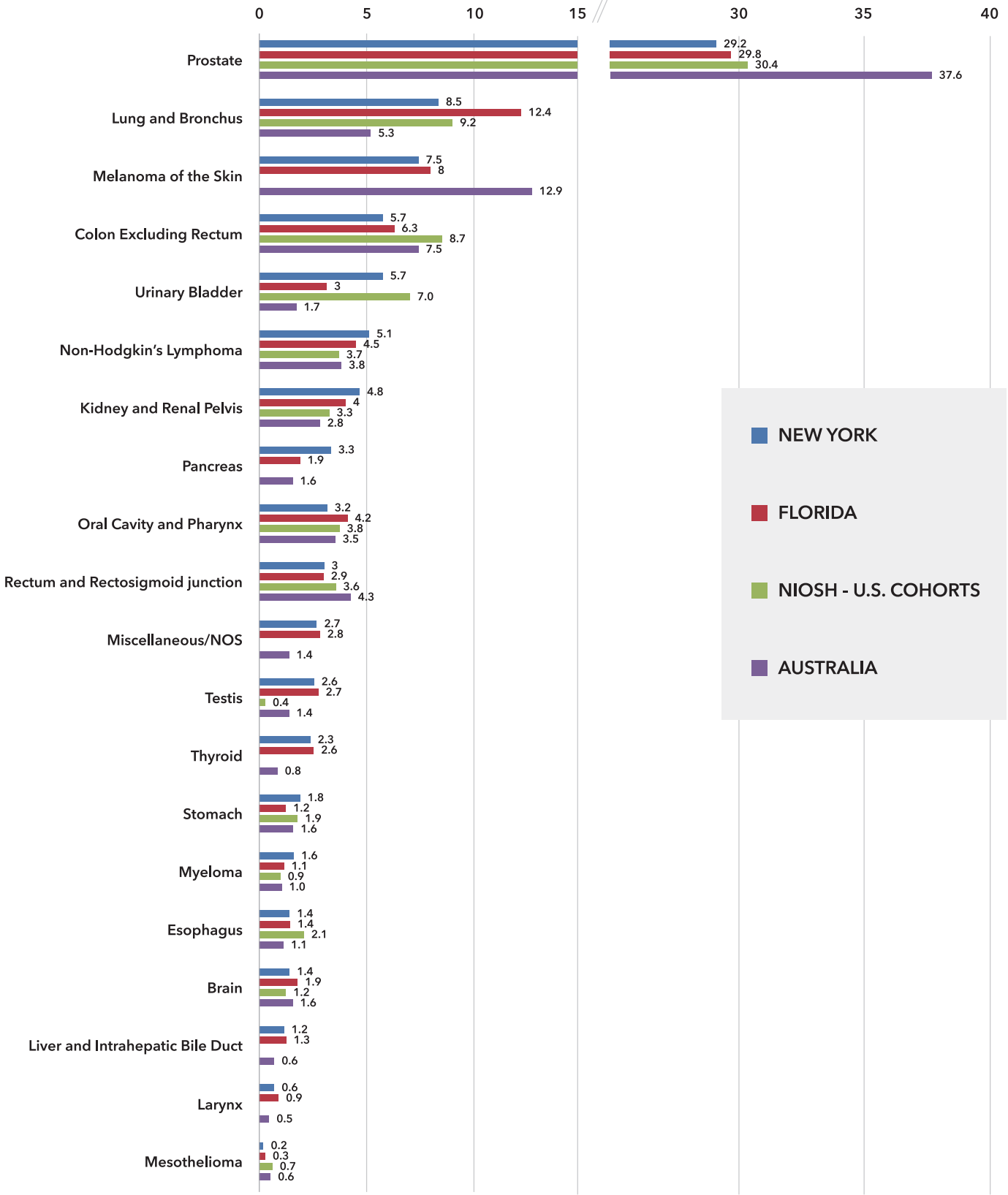
For female firefighters in our study, breast cancer, female genital cancer, and melanoma of the skin were the most commonly diagnosed cancers. For male firefighters in our study, the most commonly diagnosed cancers were prostate cancer, followed by lung and bronchus, melanoma of the skin, colon excluding rectum, bladder, non-Hodgkin lymphoma, and kidney or renal pelvis cancer.

We compared the proportions of cancers found in our study with the proportions reported in other recent published studies of cancer in career firefighters in the U.S.[1] and volunteer firefighters in Australia[2, 3]; although prostate cancer and melanoma of the skin were particularly common in Australian volunteers, the proportions in these studies are consistent with the most frequently diagnosed cancers in our study population (see figure below). Increased incidence of cancer at these sites was found among firefighters in the National Institute for Occupational Safety and Health's pooled-cohorts study by Daniels, et. al.[4] or the meta-analysis by LeMasters, et. al.[5]

As the analysis of cancer incidence in our study population progresses, firefighter characteristics, as well as fire department and geographic factors, will be taken into account and examined for trends in risk. Although we were unable to collect data on other known risk factors for cancer like smoking, work in high-risk occupations, or family history, we expect the pattern of these factors among volunteer firefighters to be similar enough to the general population group used for comparison that the results will be unbiased.

| **Site of Cancer**<br>Cancers by site (major organ system) sorted from highest to lowest frequency in the FASNY-Northwell Health Volunteer Firefighter Cancer Study, men and women combined, 1976–2018 | %<br>of all cancers<br>diagnosed |
|---|---|
| Male Genital System (Prostate, Testes and Other) | 30.3 |
| Digestive Tract (Colon, Rectum, Pancreas, Liver, Stomach, Esophagus, Other) | 16.5 |
| Urinary System | 10.5 |
| Hematopoietic System (Leukemia, Lymphoma, Myeloma) | 9.8 |
| Respiratory System (Lung, Bronchus, Larynx) | 9.2 |
| Skin (Melanoma and Other, Excluding Basal and Squamous Cell) | 8.0 |
| Oral Cavity and Pharynx | 3.0 |
| Female Breast | 2.8 |
| Endocrine System (Thyroid and Other) | 2.7 |
| Nervous System (Brain and Other) | 1.6 |
| Female Genital System (Uterus, Ovaries and Other) | 1.4 |
| Soft Tissue Including Heart | 1.2 |
| Miscellaneous | 3.0 |
| ALL CANCERS | 100.0 |

## Most Common Cancers Diagnosed in Four Recent Studies of Firefighters (sorted from highest to lowest % in male NYS volunteer firefighters)



## Field Decontamination Kits



The *Lavender Ribbon Report* from the International Association of Fire Chiefs' Volunteer and Combination Officers Section (VCOS) and the National Volunteer Fire Council (NVFC) thoroughly outlines the best practices for consistent use of personal protective equipment (PPE) and post-incident decontamination. To help spread the knowledge from this important resource and other prevention initiatives (and as a study participation incentive), our study team developed and raffled an on-scene decontamination/contamination reduction kit. The kit was assembled in a five-gallon pail and included step-by-step instructions for performing field decontamination, as well as a detailed supply list for reordering. We randomly chose 12 winning departments for the raffle in July 2019.

The kits and educational messages were well-received by those who learned about them and by those who won the raffle. Information about assembling these kits and effective decontamination protocols can be found on the study website. https://feinstein.northwell.edu/institutes-researchers/institute-health-innovations-outcomes-research/northwell-health-firefighter-cancer-study/field-decontamination-methods

## Main Findings of the FASNY-Northwell Health Volunteer Firefighter Cancer Study

- Cancers occurring in this all-volunteer firefighter population are consistent with the findings from previous studies of increased risks for specific cancers among career firefighters.
- The results of this study provide unique and important data that:
  - Highlight the importance of continued surveillance of all firefighters.
  - Strengthen the ongoing efforts to prevent and mitigate carcinogen exposures by using effective PPE and reducing post-fire contamination.
- Several of the most frequently diagnosed cancers can be detected and treated early through regular screening by your healthcare provider.

## What's Next?

Our future analyses will rely on obtaining updated cancer incidence and mortality data for our population as well as cancer mortality rates for the general NYS population for the study period. We need this information to compare the cancers and deaths observed in the study population to what would be expected if risk is equal to the general population. We will also examine fire department data (fire runs, training exposures), firefighter characteristics (age, service details), community-level health indicators, and time trends.

We are very grateful to the leadership and members of the NYS volunteer fire departments for their support and participation in this study.

**References:**


1. Lee et al. 2020. Cancer risk among career male and female Florida firefighters: Evidence from the Florida Firefighter Cancer Registry (1981-2014). Am J Ind Med. 2020;63:285–299.
2. Glass et al. 2017 Mortality and cancer incidence among male volunteer Australian firefighters. Occup Environ Med. 2017; 74: 628-638.
3. Glass et al. 2019 Mortality and cancer incidence among female Australian firefighters. Occup Environ Med. 2019; 76: 215-221.
4. Daniels RD, et al. 2014. Mortality and cancer incidence in a pooled cohort of U.S. firefighters from San Francisco, Chicago and Philadelphia (1950-2009). Occup Environ Med 2014; 71:388–397
5. LeMasters G, et al. 2006. Cancer risk among firefighters: a review and meta-analysis of 32 studies. J Occup Environ Med. 2006; 48: 1189-202.



Documenting your exposure to potential carcinogens could be valuable if you contract cancer in the future.

# BEST PRACTICE #11



## #11

**Fully document ALL fire or chemical exposures on incident reports and personal exposure reports.**

Volunteer & Combination Officers Section

Download the *Lavender Ribbon Report: 11 Best Practices for Preventing Firefighter Cancer*, and more cancer prevention resources by visiting these websites. **www.nvfc.org/cancer** | **www.vcos.org/BeatFFCancer**

NVFC NATIONAL VOLUNTEER FIRE COUNCIL FIRE • EMS • RESCUE

# I Never Thought it Would Happen to Me – Never Say Never!

*By Past Chief Brian F. McQueen*

As a member of the volunteer fire service for 43 years here in New York State, I've had the opportunity to meet so many dedicated leaders and boots-on-the-ground firefighters with a passion to help others. To say I am blessed is an understatement. When the chips are down, the fire service family will be there to pick them up. This battle with occupational cancer brought me close to so many. One of those was Chief James Seavey Sr., who lost his battle with non-Hodgkin lymphoma. While he may have left us, his legacy of educating those boots-on-the-ground firefighters to the dangers of cancer will forever live on.

**On December 24, 2013, Sarah and I went to the ENT doctor's office, went into his exam room, the doctor came in, opened his folder, looked us in the eyes, and the message he gave us was disturbing. He said: "Brian, you have cancer…B-cell, non-Hodgkin lymphoma." He then closed the folder and walked out the door.**

My life with cancer began in September of 2013 when I discovered a lump on the left side of my neck. I didn't think it was really an issue, so I ignored it for a few weeks. But in October I noticed the lump was growing, and I brought it to the attention of my wife, Sarah. I had been having issues with allergies, and I thought the lump may have been from that. Sarah encouraged me to see my physician just to be sure. She wanted me to be checked before we left for vacation.

So, an appointment was made and Dr. Taylor ran me through a scan just to be sure and provided me with some penicillin to fight off any infection. Dr. Taylor wanted me to come back after vacation if it did not resolve itself through medication. It did not, and all through our vacation with friends, I checked the neck area and no change had occurred.

Upon arrival home, I was informed that an appointment with an ear, nose, and throat (ENT) doctor was needed. A visit to the ENT's office and a brief evaluation led me to the next step in the journey, which was a short needle biopsy at a local hospital. Two weeks later we went back to the ENT to evaluate the biopsy, only to find out that in December I had to go to another hospital for a long needle biopsy. Still, through all of this testing, the word cancer was never mentioned.

On December 24, 2013, Sarah and I went to the ENT's office. The doctor came in, opened his folder, looked us in the eyes, and the message he gave us was disturbing. He said, "Brian, you have cancer…B-cell, non-Hodgkin lymphoma." He then closed the folder and walked out the door. At that very moment, our lives changed. Sarah and I looked at each other, hugged, and cried our eyes out. As we walked out of the office hand-in-hand, we knew the battle that we were about to face was bigger than any football game that I had coached or fire that I had fought. How in the world would we tell our son and his wife? How would we tell our friends? It was a Christmas I will never forget.

As I walked into the fire station the day after being diagnosed, I will never forget the look on our assistant chief's face as he looked at me and said, "Are you feeling okay?" I had to inform my fire service family of the news. Thankfully, he went home and told his wife, who was a teacher in the building where I retired as principal. The husband of her teacher's aide had throat cancer and they went to Memorial Sloan Cancer Center (MSKCC); he remains cancer free to this day. We had some thinking to do as a family.

After the holidays, and much discussion with my family and friends, I contacted MSKCC to see if I could get an appointment with an oncologist. The next day, the process began; shipping records and testing to them for review, appointments made, and the road to recovery began.

Sarah and I made the trip to New York City and met with five oncologists who drilled us on so many questions about my health, my occupation, and my volunteer work. They spent two hours with us obtaining the information. Upon completion of their questioning, they sent us on our way and asked us to return in three hours to meet again. At that time, we met with one oncologist, Dr. Yahalom, and his nurse, who spent quite a bit of time with us and confirmed the diagnosis. We were told that B-cell non-Hodgkin lymphoma is one of the fastest-growing cancers in the fire service. Yes, I had occupational cancer. That was tough to hear. The job I love, protecting my community, could be killing me?

Sarah and I knew right then that we needed to accept the challenge. We all know that each and every day we will face challenges in our lives and in our profession. They make us stronger… and without them, life becomes somewhat meaningless...basically because we have nothing to compare the good times to. These challenges come in many forms. This challenge was to BEAT CANCER.

**Betsy and Dan Schwertfeger sent along 25 cards, each with a picture in it, of the times that we had together and each day the card had a reason why I couldn't give up the battle. I even had one of my elementary school students, Michelle Gibbs, who was teaching in NYC, stop in and spend some time with us. It was those simple things that helped me get through this battle.**

We had to live in New York City in a hotel for seven weeks as I underwent Intensified Modulated Radiation Therapy five days a week for 45-minutes each day. Before each treatment, Sarah and I would attend noon mass at St. Patrick's Cathedral. It gave me a chance to speak with God in a way that I always should have. I would come back to the hotel just wanting to sleep for hours. Sarah was my rock and my strength. I would receive calls each evening from my son, Ryan, and his wife, Erin. I would look forward to them every day. My friends Betsy and Dan Schwertfeger sent along 25 cards, each with a picture in it, of the times that we had together and each day the card had a reason why I couldn't give up the battle. I even had one of my elementary school students, Michelle Gibbs, who was teaching in NYC, stop in and spend some time with us. It was those simple things that helped me get through this battle.

After completing my cancer treatments, I returned home. I had to go back in six months, then each year for three years to be examined. After the fifth year, I now go back every two years. Those months leading up to any follow-up exam are tough on me and my family.

It was 2014 when I had my last treatment, but the stigma of the cancer diagnosis never leaves you. There are nights I have trouble falling asleep. I stare at the ceiling and have pictures of the IRT machine hovering over me wondering if the cancer will ever come back. Each and every day, I feel the left side of my neck and wonder if the cancer will return. It's not a habit, it's a reassurance that changing my lifestyle, changing the way that I fight fires and take care of myself while on the scene and off, become a priority in my life. The post-traumatic stress (PTS) I have from cancer is one that will be in the forefront of our battle for years to come. Firefighters dealing with cancer may have symptoms of PTS at any point from diagnosis through treatment, after treatment is complete, or during possible recurrence of the cancer.

But through this all, the cancer diagnosis taught me so much. It taught me how precious life can be. It taught me how important your family and friends are. I realize now that tomorrows are never promised, and each and every day I place my feet on the ground is a gift from God. I realize that the torch has been picked up to educate our firefighters to the dangers we face, and our families face, to the cancer epidemic in our fire service today.



**About the Author:** Brian F. McQueen is a retired volunteer fire chief of the Whitesboro Fire Department in Whitesboro, New York. He is a 43-year member of the volunteer service. McQueen is a retired public school educator spending most of his time as a principal and a district-level school administrator. Chief McQueen serves his department as a captain in their training division and has also served Oneida County as a deputy fire coordinator, which allowed him to develop and carry out the training of the fire service in Oneida County. He is a retired director of the Firemen's Association of the State of New York (FASNY) and currently represents FASNY as the New York State director to the National Volunteer Fire Council. Chief McQueen is a coauthor of the original ***Lavender Ribbon Report***.



Reduce your exposures to carcinogens to protect those you love so that you can live a long and healthy life.

Members of the Fire and Emergency Service,

It is a well-known fact that cancer has become an epidemic in the fire service. For more than 10 years, we have been talking about what we believe may be contributing to the increasing number of firefighters who have been diagnosed with this diabolical disease. Scientists, PPE manufacturers, industrial hygienists, doctors, and others have taken aim at understanding why an average of one in three firefighters contracts cancer. They study the chemical content of modern-day combustibles that we encounter at a fire, they look at the way our stations are designed, how our gear is protecting (or not protecting) us, how our fire trucks are being built, and how we can get the latest and greatest screening exams to hopefully detect early cancers. Further, when you look at the catalog of courses at any fire trade show, at least 30% of the presentations relate directly to cancer awareness, prevention, and education.

Yet, despite these efforts, each and every day, we see images of firefighters doing careless things and taking unnecessary risks – jeopardizing their health and well-being. Worse yet, after reading the comments on social media posts, the people acting irresponsibly are lauded as heroes or "leadership experts," simply because they work for some large agency. It is my belief that these folks present the most significant threat to the promulgation of better firefighter health standards and the establishment of best practices.

In my time in the fire service, I have never seen such a reform come over our trade, particularly from each respective discipline. Part of the rapid change is because reputable leaders have championed the cause of cancer prevention and awareness and made it a priority in anything they teach or train. They have recognized that cancer is no longer a theoretical problem, but rather an imminent threat to each person who wears the badge. A worldwide effort has been made to evaluate each aspect of our job and try to make it safer, yet some refuse to stand up and lead. As a leader in the fire service, you must be able to make unpopular decisions. Unsafe behavior, like not wearing your SCBA during overhaul, or using tobacco products, or failing to connect the diesel exhaust capture system, or failing to wash your turnout gear, or not showering within an hour after a fire, or wearing your PPE in the living quarters, or failing to get your annual medical exam, must not be overlooked but instead stopped immediately.

As a fire service professional, are you prepared to deal with someone in your agency that gets diagnosed with cancer? Have you given careful thought and consideration to what you will do when (not if) this happens to someone in your department? What will you say? What CAN you say or do? What will you tell your membership? How will you support their spouse and/or family? What does your workers' compensation system process look like for cancer victims? What documents do you need to provide to ensure financial stability of your member? How can you assist during treatment? If you can't answer these questions, or if you haven't even thought about these questions, you are setting yourself and your department up for failure.

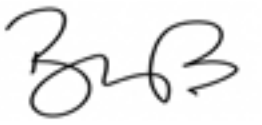
Some of the smartest people in the world are studying cancer in the fire service and how we can minimize the risks of this disgusting disease. Significant developments related to PPE design, station construction, medical

treatments, and many other cancer issues are being brought into the spotlight regularly. But what are YOU doing to reduce your risk of occupational cancer? What is YOUR agency doing to reduce the risk? Have you developed SOGs for fireground decontamination? How about standards for overhaul after a fire? Does your department have cancer in mind when designing/remodeling fire stations? Does your apparatus specification committee consider exhaust placement when configuring equipment storage in cabinets? How about PPE storage on the apparatus? Do you have a second set of turnout gear? Do you have a SOG for cleaning your PPE? Do you have a cleaning standard for the cab of the apparatus, not just the equipment?

The list of questions goes on and on, but if you are reading this and can't answer any of the aforementioned questions, look in the mirror, you may see the problem. As firefighters, it is our responsibility to engage in safe practices with everything that we do. There are times that the benefit may outweigh the risk, but not when it comes to safety and prevention. We must always remember the primary mission of the fire department, which is to protect the lives of those who encounter peril. It is, however, not an excuse to behave recklessly and irresponsibly – and it is certainly not a license to overlook bad behavior just for the sake of retaining your popularity.

It is my hope that you will never have to experience someone being diagnosed with cancer, but if you do, know that you are not alone. The Firefighter Cancer Support Network (firefightercancersupport.org) has hundreds of people across this country that are ready, willing, and able to assist you and your department should you be diagnosed with cancer. Together, we can make a difference.

Sincerely,



Bryan Frieders
President
Firefighter Cancer Support Network

# NVFC EXECUTIVE COMMITTEE

The National Volunteer Fire Council (NVFC) Executive Committee is comprised of the following members:

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2020-2021

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Mesa Fire and Medical Department

National Fallen Firefighters Foundation

Safety, Health and Survival Section of the IAFC

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The Fire Service Occupational Cancer Alliance

The International Association of Fire Chiefs Board of Directors

Firefighter Cancer Support Network

Washington Township Fire Department

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NATIONAL VOLUNTEER FIRE COUNCIL
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Volunteer & Combination
IAFC INTERNATIONAL FIRE CHIEFS ASSOCIATION
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