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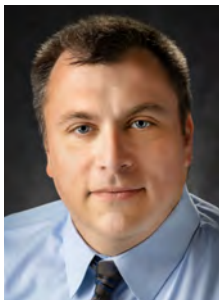
It's Time to Take Action—For You, Your Family & Colleagues



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FEATURES

Cover photo by Ryan Winner

For the editors here at Firehouse, it's almost a daily headline that a firefighter succumbs to his or her battle with job-related cancer. Sometimes that diagnosis comes just days before their death and sometimes it's a years-long battle before they pass away. The deaths, blamed on years of being a smoke eater, leave families, colleagues and friends with heartache and sorrow and a sense of uncertainty about firefighting.

One of the resounding comments I hear from firefighters who have been diagnosed with cancer is: "If I knew then what I know now, I would have…" and when they trail off, it is about donning SCBA, wearing dirty gear or cleaning themselves up after a job. It is understandable that many of you who have been responding to fires for more than a decade were not aware of the carcinogenic threats you faced when contents were burning. But over the last 10 years, numerous research efforts have illustrated how dangerous smoke can be to you.

So now is the time to act. Talk with your brother and sister firefighters, your officers and chiefs about what you can do to reduce the risks you face when it comes to the deadly smoke and off-gassing that occurs at and following fires, big and small. Ensure that your SOGs are up to date, that you've got extra clothes and the equipment to decontaminate on your rig and that, as a crew and department, you're all-in on the concept. You need to watch out for one another and be sure to read not only the articles here, but the stories of your peers—firefighters who have battled and are currently battling cancer.

Firehouse thanks our Keystone Sponsor, MSA, and all our Cornerstone Sponsors for helping fund this important project! Stay safe.

— Peter Matthews, Firehouse Editor-in-Chief

Reinforcing the Support

To help bolster the efforts of organizations leading the fight against occupational cancer, Firehouse is making a financial contribution to the Firefighter Cancer Support Network (FCSN) and the National Fallen Firefighters Foundation's (NFFF) First Responder Center for Excellence. These organizations provide unparalleled support to the firefighters—and their families—impacted by cancer.

For more information about these organizations, visit:

Firefighter Cancer Support Network

Firefightercancersupport.org

FRCE
FIRST RESPONDER
Center for Excellence

Firstrespondercenter.org

SURVIVOR STORIES: IN THEIR OWN WORDS

IN THIS ISSUE

Read extended survivor stories and view video interviews in the digital version of the *Cancer Awareness & Prevention* supplement at **tinyurl.com/cancer-awareness-2019.**

Combating the Cancer Emergency

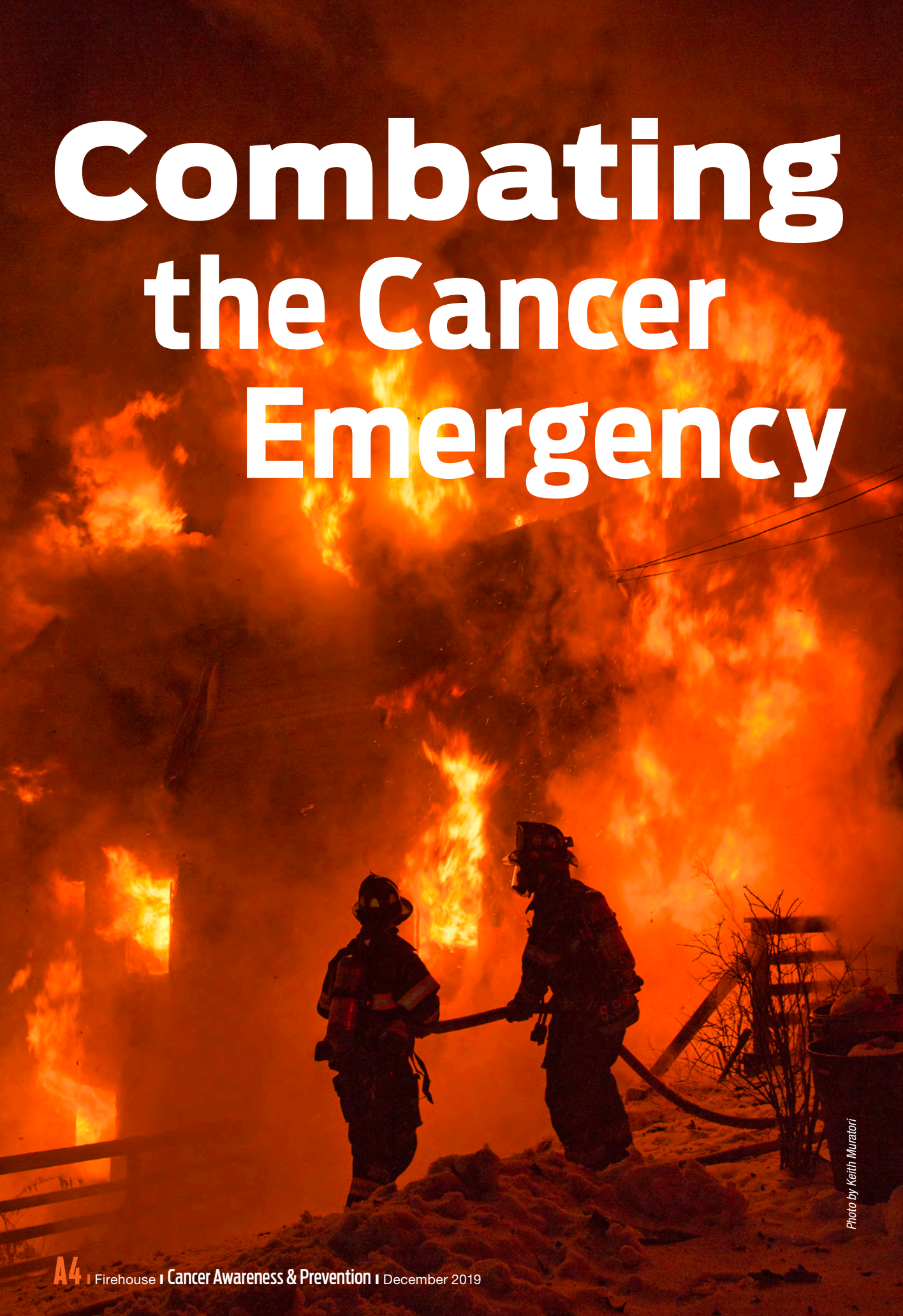


Photo by Keith Muratori

How a new research tool and data will fight cancer

By The National Institute for Occupational Safety and Health (NIOSH)

When a 9-1-1 call comes in, firefighters don't hesitate to respond. They jump on their rigs, head to the emergency scene and quickly handle the problem. Yet, as the alarm sounds about a truly dire emergency within the firefighter community—workplace exposure to toxins and chemicals that lead to higher rates of cancer—some firefighters are slow to respond.

From rank-and-file firefighters to fire departments and health professionals, we're behind in addressing the growing plague facing our profession. There can no longer be any doubt about the seriousness of the cancer emergency. After all, more firefighters die from occupational cancer each year than they do in a fire. Numerous studies show that firefighters' exposure to smoke and other chemical products released from burning materials increases the risk of diseases and mortality, including cancer, heart disease and cardiovascular disease.

Firefighters recognize that the danger of their profession goes beyond the hazards of running into a burning building. But far too many firefighters seem to write off some of the more complex dangers and risks. Perhaps they accept them as just part of the job. Or they assume it will never happen to them.

Firefighters would never take that attitude toward helping a citizen in our community. It is time for us to change our thinking about the risks we face. The entire fire service community must come together to solve our professional emergency. It has a central role to play in addressing the crisis, a part that no one else can play, and every firefighter and fire department must now act.

The birth of the National Firefighter Registry

It is time to become active participants in gathering the data needed to better understand the problem. While the correlation between workplace exposures and the growing number of cancer cases among firefighters is clear, more information about these health risks is needed. Only with additional, more in-depth study will we be able to tackle the crisis.

Fortunately, an essential groundbreaking research tool is now being developed. To better understand the link between on-the-job exposure to toxins and cancer, Congress directed the Centers for Disease Control and Prevention to create the National Firefighter Registry (NFR). The NFR will provide the critical information needed to improve our understanding of cancer so we can better protect the health of firefighters.

The goal of the NFR is to become the world's largest database of health and occupational information for firefighters.

The goal of the NFR is to become the world's largest database of health and occupational information for firefighters. This database could be used to track and analyze the incidences of cancer, and to search for common links to help the public safety community, researchers, scientists and medical professionals find better ways to protect firefighters and other first responders as they help keep their communities safe.

"A national cancer registry will go a long way towards answering the many questions still out

Continued on page A8

Firefighters can start tracking their exposures automatically in the National Fire Operations Reporting System (NFORS) Exposure Tracker available now and downloadable free from app stores. The NFORS Exposure Tracker is a private data gathering tool that creates a career diary for individual firefighters.

Q&A

The National Firefighter Registry

Key questions and answers about a critical new research initiative

1. What is the National Firefighter Registry (NFR)?
The NFR will be a large database of health and occupational information for firefighters that can be used to analyze and track the incidences of cancer and search for common links to help the public safety community, researchers, scientists and medical professionals find better ways to protect those who protect our communities.

With voluntary participation from firefighters, the privacy-protected National Firefighter Registry will include information about demographics, work assignment and exposure, and relevant health and medical details to monitor, track and improve our knowledge about cancer risks for firefighters, especially those linked to work-place exposures.

2. Why was the NFR created?
Studies of cancer in firefighters, including a study published by the National Institute for Occupational Safety and Health, found that firefighters may have a greater risk of some types of cancer. But many of these studies did not include volunteer firefighters or enough female and minority firefighters. NFR will add information on members of these groups, providing a broader cross-section between firefighters, and track more data from a larger sample of the firefighter population to gain greater insights into the connection of the firefighter occupation and cancer.

3. How will the NFR help firefighters?
It will provide critical information needed to protect the health of firefighters. By learning more about the rate of cancer among firefighters, we might find that some groups of firefighters or response activities have a greater risk of cancer than others due to exposure, geography, gender or other factors. We also may learn more about certain protective measures that are associated with reducing the risk of cancer.

4. What is NIOSH?
The National Institute for Occupational Safety and Health is the part of the Centers for Disease Control and Prevention responsible for researching workplace illness and injury.

5. How do I enroll?
Enrollment is not yet open, but there will be an opportunity in the near future for all firefighters to enroll. The target date to begin enrollment is the fall of 2020. NIOSH will keep their webpage updated as the enrollment period approaches.

6. Can a firefighter enroll if they have never had cancer?
Yes. In fact, cancer-free firefighters are just as critical to making the NFR a success as those who have cancer. NIOSH would like all firefighters to be part of the NFR, not just those who have cancer or other illnesses. Anyone who has ever been a firefighter should join the NFR. This means all active and retired firefighters, including volunteer, paid-on-call, part time and career firefighters are strongly encouraged to join the NFR.

7. Do firefighters have to join the NFR?
No. Being part of the NFR is completely voluntary, and no one can make a firefighter join. NIOSH needs your consent for you to be part of the NFR. However, participation is strongly encouraged, because it will help improve the health and safety of the firefighter community today and in the future. The NFR is your opportunity to leave a legacy for those who follow you.

8. How will the data be collected?
We will collect information from firefighters through web-based surveys, well-known exposure tracking applications and fire department records after obtaining consent from each firefighter. Long term, NIOSH will monitor potential cancer diagnoses for firefighters enrolled in the NFR by linking information with state cancer registries.

9. Do firefighters need to contact NIOSH if they have cancer?
No. NIOSH will be able to track information related to cancer by linking individual firefighters' information with state cancer registries. Firefighters should consult with their doctor if they have any concerns about their health and to ensure that, if you are diagnosed with cancer of any kind, you are entered into your state cancer registry.

10. How will the registry be used?
Data from the NFR will be matched with information from national and state databases to track cancer cases or find out about causes of death among firefighters. Researchers will use these data to compare the risk of cancer among firefighters to that of the rest of the U.S. population.

11. Will NIOSH share information collected for the NFR?
No personal information about any individual firefighter ever will be shared. However, the overall or aggregate findings from the NFR will be shared with the public and researchers using the database.

To repeat, any information that identifies an individual will not be shared with any outside organizations, including fire departments, unions, elected officials or other researchers without permission of the registry participant.

For more information on the NFR visit www.cdc.gov/niosh/firefighters/health.html or contact NFRegistry@cdc.gov.

A WIDOW'S STORY

"The brotherhood is more of a familyhood for me."

—Lillian Carney, widow of Josh Carney, Midway Fire Rescue, Pawleys Island, SC

Josh Carney was a battalion chief at Midway Fire Rescue in Pawleys Island, SC, from 2000 to 2017. He was 41 years old when he was diagnosed with stage IV melanoma in June 2017. He passed away on Oct. 19, 2017. Lillian Carney, Josh's wife of 20 years, today runs the Carney Strong Initiative, a non-profit which assists fire departments with occupational cancer prevention through education and the donation of decontamination supplies. More information can be found at carneystrong.org.

Can you describe Josh's cancer journey?

The beginning of 2017, we noticed a small bump on the back of his head, under the skin. It almost looked like an ingrown hair. Though it wasn't going away, at that point it was the only one so we didn't think anything of it. A few months go by and now there are a few more on his head, neck and upper torso. No symptoms or other changes in his body. Another month goes by and the one on his head had grown and a few more appeared so we scheduled an appointment with his primary care physician who referred Josh to a general surgeon to remove the one from his head. On June 21, 2017, the general surgeon advised Josh that he lit up like a Christmas tree on the inside and without a doubt had cancer. In the beginning of July we met with an oncologist who determined it was stage IV melanoma. The treatment plan was every three weeks of immunotherapy for the body and three weeks of daily direct brain radiation. The beginning of October included follow-up tests to check the treatment progress. Though the brain tumors shrunk from the radiation, the immunotherapy wasn't working. In fact, the tumors had spread throughout more of his body. We were told there would be no more treatment, no clinical trials he would be eligible for and he had weeks, if that, to live. One week later he passed away.

How did the fire service support your family after your husband's passing?

The support of his brothers and sisters started well before he passed away. From the moment he shared the news with his shift, his brothers and sisters were lined up to care for our daughter, do the yardwork, chauffeur Josh to appointments, bring dinner to our home and come over for football Sundays.

After Josh passed away, the support remained. There are still many of his brothers and sisters—from his department and others from across the country—that call or text every month to check in on us. My daughter and I are still a part of not just the shift family, but the department family. If I need help around the house with something, I call one guy, and he finds someone from the department that is available to help. It has been two years since Josh passed away, and though there have been some new faces at the fire department that never worked with Josh, they embrace our family with love. The brotherhood is more of a familyhood for me.

What advice do you have for firefighters facing cancer?

My random thoughts and advice for all *with or without* a cancer diagnosis:

- Life insurance, separate from the employer, is important.
- If there is a change in your body, no matter how insignificant, get it checked. Talk to your primary care physician. You know your body better than anyone. Don't wait to make the appointment when it's convenient.
- There is no excuse not to have a will.
- It is okay to talk to someone about your feelings. Whether a firefighter or a spouse, talking to someone regularly is good for you. Whether that be a chaplain, counselor or friend.
- Sleep is underrated and should be higher on everyone's priority list. Sleep and rest play a significant role in your health and healing.
- Take the picture. Smile and make the memories. After you are gone, that is all that your family has left.
- Life is better with you in it. Do your decon.

Josh had a few things he would often say around the firehouse that made an impact on his brothers and sisters, and in our daily lives, that we hold onto. He would say: "Don't *try* to do your best. Instead put in every ounce of effort in your body, and DO your best," and, "Do your job. Don't worry about what the other guy is doing, worry about you." By sharing our family cancer story, pushing for cancer prevention through our non-profit organization, allowing others to see inside the life of a firefighter widow, I know Josh's death serves a greater purpose. He is not here anymore to teach the new guys, or share his knowledge of the fire service, but he is still here through us, so that others may learn; so that others make it to retirement and beyond.

Continued from page A5

there regarding exposure and cancer," says Dr. Kenny Fent, the NFR team leader and an industrial hygienist at the National Institute for Occupational Safety and Health (NIOSH). "We're just laying the groundwork now, but in the long run, we want to help prevent these cancers."

For the NFR to work and be of value, firefighters must participate in it, providing individual information about themselves that, when combined with data from thousands of other firefighters, will collectively tell us what we need to know. Firefighters must provide the initial data needed to solve this scourge. Only through the action of a broad cross-section of firefighters will we be able to gain a better understanding of cancer and how to attack the problem.

Every fire department and fire station should discuss what actions they may be able to take now to address cancer within their department.

While participation in the NFR is voluntary, all firefighters—career and volunteer, active and retired, those who have had or currently have cancer and those who have never received the diagnosis—should take part.

Every major organization involved in fire services is partnering with the NFR to educate and motivate firefighters to sign up. These groups understand the severity of the problem facing firefighters and the importance of making the NFR work. And they know that only through widespread participation of firefighters will we have the kind of accurate data needed.

"The bigger the sample for this registry, the better the ability to study specific subtypes of cancer," said NIOSH lead epidemiologist for the registry, Dr. Miriam Siegel. "We could more accurately say what risk factors, what behaviors, what exposures are most related to increasing the risk of cancer."

With broad participation, the NFR will be able to:

- Track cancer incidences (including rare types of cancer) among the full range of firefighters throughout the U.S.
- Explore possible different cancer risks among specific groups of firefighters, including women, minorities and sub-specialties of the fire service.
- Investigate whether the cancer risk is improving or worsening among more recent firefighters.
- Evaluate how exposures, including large or unusual incidents, relate to firefighters' cancer risk.
- Gauge how control interventions relate to firefighters' cancer risk.

By providing vital information about health and work experiences, firefighters will play a critical role in helping to understand more about the health risks the profession faces and potentially help future generations of firefighters.

Scientists, health researchers and other specialists are now doing the initial work needed to develop the database, building the infrastructure, ensuring that the right information will be collected, and creating a complex system that will provide the data researchers need. The actual enrollment of individual firefighters is expected to begin in the fall of 2020.

Fighting back

In the meantime, there are steps every firefighter can take today to help solve the growing cancer crisis. Firefighters should educate themselves about the cancer risks facing themselves and their co-workers. Every fire department and fire station should discuss what actions they may be able to take now to address cancer within their department.

Firefighters can also start tracking their exposures automatically in the National Fire Operations Reporting System (NFORS). The NFORS Exposure Tracker is available now and downloadable free from app stores. The NFORS Exposure Tracker is a private data gathering tool that creates a career diary for individual firefighters. It provides secure data entry and storage for users and will be leveraged to enroll firefighters into the NFR once that database is up and running.

Firefighters didn't cause the problem of higher incidences of cancer in their ranks. And they certainly cannot be blamed for insufficient medical knowledge about the problem that currently exists. But firefighters will need to play a central role in solving the problem. Researchers can't do it without them. To combat cancer, we will need firefighters to participate in the NFR. And the more who do, and the faster they sign up, the better off retired, current and future firefighters will be.

Every day firefighters don't think twice about running to the rescue of others. They see a crisis, quickly analyze the problem and work as a team to solve it. Soon they will be able to work as a team in another way to solve a problem facing themselves and their co-workers—a problem stemming from their selfless and heroic service to others.

The NFR will be an essential research tool. And it's a way for all firefighters and fire departments to work together to take action and save lives. ■

SURVIVOR STORY

"The days of coming back from a fire covered with soot and grime and not cleaning yourself and gear are gone."

—Chris Macias, Arlington, TX, Fire Department

Apparatus Operator Chris Macias has been with the Arlington Fire Department in Arlington, TX, for 20 years and has been in the fire service for 23 years. He was diagnosed with testicular cancer in 2013. He has been cancer-free for six years.

How did you learn you had cancer?

I had noticed my testicle getting larger over the last months leading into the holidays and knew something was not right. At first, I ignored it thinking the symptoms would subside, but deep down inside I knew something was not right and I had to get it looked at. I scheduled an appointment at the beginning of the year and the look on my doctor's face when he examined me pretty much told me what I knew all along. He mentioned that we wouldn't know for sure until further tests were performed but we both knew better.

Did you immediately link your diagnosis to your work in the fire service?

When I was first diagnosed with cancer, I didn't immediately link it to my work. To be honest with you, the only thing on my mind at the time was trying to figure out the plan of action for getting this out of me and trying to determine just how far along I was with this disease. I had a wife and two young kids at home and I couldn't believe this was actually happening to me…I was scared. I was given dates for the procedures that were to follow and realized the time periods between them were agonizingly long and spread out. It seemed everything was "in two weeks," which feels like an eternity when you have cancer inside you. I filled the time researching this disease, the treatments and causes. That is when I discovered the high rates of testicular cancer in the fire service and put two and two together.

How has cancer affected your life both on and off the job?

Cancer has affected my home life in that I try not to take things for granted anymore. I try to let the "little things" slide by the wayside and always make sure to kiss my wife and kids and tell them that I love them each day.

It also keeps me on edge with the thought that even though I am now cancer-free, there's always the possibility of the damn thing creeping back into my life again and that is a hard thought to shake…it occasionally keeps you up at night. On the job I try to educate anybody who will listen to me about the dangers of cancer in our occupation and try to instill in the new kids safer, cleaner ways of doing the job.

Is there anything you would like your fellow firefighters to know about facing cancer?

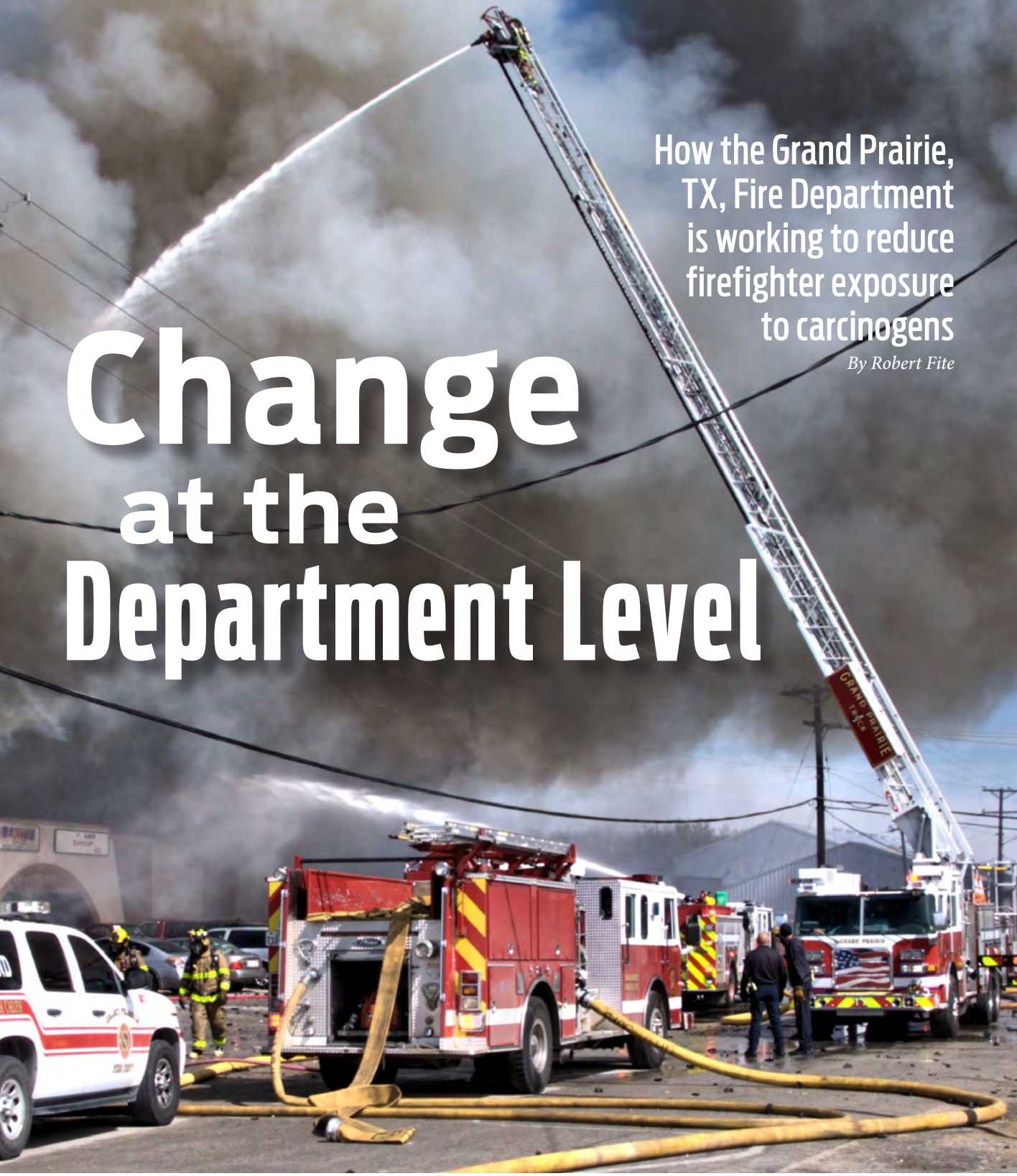
If there's anything I would like firefighters to know about facing cancer it's that you are surrounded by a huge family of brother and sister firefighters who are there to offer support and assist you with anything you may need—don't be too proud to ask for their help.

Adding to that support, city governments and fire administrators are now recognizing the cancer dangers we as firefighters face in our careers. This means more help on the medical cost side and firefighters are not having to fight and prove the cancer was caused by the job when they are at the most vulnerable and scary point in their lives.

What's the biggest piece of advice you could give to readers?

Much has changed in the last six years since I was first diagnosed. The biggest piece of advice I have for firefighters on the job is be open to change. Old traditions are great but not when they needlessly put your life at risk. The days of coming back from a fire covered with soot and grime and not cleaning yourself and gear are gone.

When I first hired on, if your gear and helmet weren't dirty, that meant you weren't working hard enough. It's funny how that kind of bravado doesn't mean a hill of beans when you're lying on a radiation table getting zapped and asking yourself, "How the hell did I get here?" Trust me, I know.



Change at the Department Level

How the Grand Prairie, TX, Fire Department is working to reduce firefighter exposure to carcinogens

By Robert Fite

"We now know" is the phrase I have been communicating to our 235 firefighters for the past year. This phrase is related to the dermal absorption of smoke and carcinogens into our skin and how this correlates directly to the fire service cancer issue. If you have been on the rig for 20 or more years, you know wearing your SCBA and seatbelt has been beaten into us by our mentors, officers, policies, and just about every fire service publication since the 1990s. What we did not know, but we now know, is the dermal absorption of smoke at car fires, dumpster fires, grass fires, and most importantly structure fires slowly seeped into our skin, exacerbating an already borderline health crisis called cancer. Our PPE manufacturers have spent millions in research

on thermal protection, breathability, durability, and making sure our most valuable assets will survive a fire even in the most dire fire conditions. However, we all failed to realize the obvious, which is our PPE is not protecting us from the smoke, as our skin is like a sponge when we are sweating and trying to shed heat. We smell the smoke in our hair and on our skin for hours and sometimes days after a fire. At one time this was a badge of honor and now we know it is a portal for cancer.

A call to action

Living in the U.S., you have a 25 percent risk of fighting this cancer battle and in some metropolitan areas the risk is much higher depending on many other environmental and health factors. Almost every firefighter reading this article has a family member or friend who has fought the battle. Now enter the fire service and you instantly add 9 percent to that number, so we as a profession have around a 35 percent chance to deal with cancer personally. More studies are ongoing, and everything we wear and use on the fireground is being studied to minimize our exposures to the carcinogens in smoke, but unfortunately, we can only minimize the risk and not eliminate it.

So, "we now know" can and should be a call to action. I am hoping if you are reading this article, your department is already doing many, if not all, of the best practices. In 2018, we spent the latter half of the year educating our staff and firefighters about the various risks (inhalation, ingestion and absorption). We reviewed all of the major studies and attended multiple seminars and symposiums in an attempt to understand the data, so we could make a real difference in our firefighters' health by adopting what the fire service has identified as possible best practices in the cancer fight. These best practices are supported by all of the fire service acronyms to include the International Association of Fire Fighters (IAFF), the International Association of Fire Chiefs (IAFC), IACF Volunteer and Combination Officers Section (VCOS) and the National Volunteer Fire Council (NVFC).

Locally, the Dallas County Fire Chief's Association formulated a best practice model in an effort to help our Dallas County departments lead this fight and help educate their elected officials. Finally in 2019, we issued a change to our operations related to these best practices:

- All PPE and SCBA worn at all times if within the immediately dangerous to life or health (IDLH). Sounds simple but we all know what we do during overhaul and when we get fatigued.
- Turn off all apparatus that are not in use and make sure the windows are rolled up. Tremendous benzene levels are already in the smoke and why do we choose to make it worse with 8–10 apparatus running within 100 square yards of the fire scene?
- Mandatory personal exposure reduction (decon) with our decon system to immediately stop the off-gassing of our PPE.
- Mandatory use of a post-fire wipe immediately before entering rehab and throughout the duration of the fire.
- Mandatory glove and hood changes when exiting rehab. Hand and neck exposure are a main source of absorption, so we have multiple gloves and hoods to use.
- Fire crews involved in the fire fight and within the pressurized IDLH removed from the scene

Grand Prairie, TX, Fire Department crew are required to go through mandatory personal exposure reduction (decon) with the department's decon system to immediately stop the off-gassing of PPE.
Photos courtesy of the Grand Prairie Fire Department

In 2019 the Grand Prairie, TX, Fire Department issued a change to its operations, including mandatory use of a post-fire wipe immediately before entering rehab and throughout the duration of the fire.

and to a shower within 90 minutes. This has been a challenge for the incident commanders (IC), and we are looking for a better way, but they do their best. The purpose is to try to eliminate as much of the carcinogens off the skin before they are absorbed and processed in the renal system.

- Hose *not* loaded on the scene and rolled and placed into a bag for proper cleaning. Clean hose loaded at the station.
- All tools and SCBA cleaned before reloading *or* bagged and cleaned at station.
- All PPE except the helmet and boots are bagged and sealed on scene, and the crews don their second set of gear when they return to the station. Many of our firefighters carry a "go bag" and change clothes on scene as well.

The challenges

So as you can see, some of this is challenging and can be expensive. *Yes,* it is, and in Grand Prairie, our crews are out of service when they leave the scene due to their PPE issues, equipment contamination, or they need to get showered within the 90 minutes. Personally, I will stand up in front of any citizen and argue the health and wellness of our firefighters is *just* as important as the citizen's 9-1-1 call for help. We move other fire companies around the city to cover the gap to assist with this process in an effort to minimize response and reflex times. Fortunately, we are large enough to cover the gaps with other fire stations, and I certainly understand this is a major challenge for smaller departments. Our city manager knows our philosophy and 100 percent supports this mission, but I have spent a lot of time and energy educating the city council and city manager on the cancer issues within our profession, and I believe every fire chief should be doing this, especially if you have presumptive legislation and the cancer claim could be a worker's compensation claim.

Changing tactics

Another change to mention that is really worthy of an entirely different conversation is related to our tactics. Our department is looking at the Tucson model and trying to consider "transitional attacks" more into our operations. I know, I know—this is quite the area of resistance in our culture, but I advocate that you can make all of the best practice changes mentioned earlier, and if we continue to place our men and women into a carcinogen-based situation, then they will still be exposed, thus the dermal absorption will still occur. Obviously, we cannot eliminate the exposures altogether due to rescues and other critical situations we face. However, we do enter the front door on occasion when we don't have to, and I will continue to challenge our fire officers and ICs on why, when appropriate. As you can expect, this causes some anxiety as we all have been brainwashed to think the best method of attacking the fire is from the inside. Not to mention our one main excuse for going inside is, "Well, Chief, what if someone was inside?" We could debate and write pages on this subject, so I will simply end by stating that no longer do we need to be an "aggressive" fire department but more a "responsible" fire department as "we now know" and we cannot pretend we don't know.

So what is your department doing to fight this battle? The next several years will be an interesting time for the U.S. fire service as more research and data hit our inbox. Our PPE is certain to change and improve and of course this means a budget impact. Our tools, hose and equipment will be easier to clean and safer to use while our apparatus are already nearing a clean diesel/clean cab concept.

This dermal absorption issue goes well beyond cancer and is possibly linked to Parkinson's and fertility issues. I just hope and pray that our culture and attitudes will change as much as our technology has and we embrace this battle and do everything in our power to keep our people safe and healthy. Two weeks ago, a battalion chief told me, "Fires are no longer fun, and we actually are now dreading when the structure fire tones goes off." I have thought about that conversation and can say that I am elated the troops are seeing a structure fire as a process related to their health and not a time to dig in and fight the beast. ■

Robert Fite has been a firefighter/paramedic since 1988 serving first in Lancaster, TX, and then in Richardson, TX. Prior to becoming fire chief for Grand Prairie, TX, in 2012, he served as the fire chief in Georgetown, TX, since 2009. Fite is very proud of the recent accomplishments of the Grand Prairie Fire Department to include receiving the American Heart Association Gold Award for the 5th year in a row, being named a Heart Healthy community by the North Central Texas Regional EMS Council, and receiving the highest insurance rating of an ISO 1. All three of these accomplishments have a direct impact on the quality of life and safety of our citizens.

Chief Fite is an executive fire officer graduate from the National Fire Academy, as well as a licensed paramedic and master firefighter. He has a master's degree in human resource management from Midwestern State University and a bachelor's degree in fire administration from Western Illinois University.

"Nobody will take care of you like you can."

— Troy Clark, Fort Worth, TX, Fire Department

Troy Clark has been an engineer with the Fort Worth, TX, Fire Department (FWFD) for 22 years, starting in 1997. In 2017, he was diagnosed with prostate cancer. Troy's father, Lynn Clark, a captain with FWFD, had cancer three times during his career and died on the job in 2000 at the age of 51.

What has your cancer journey looked like so far from diagnosis to treatment?

I was a little scared at diagnosis. Surgery was supposed to fix me...until it didn't. Then, doctors wanted to radiate me once a day for 39 days. I got a little more scared. I fired up the infamous Google to stumble upon "alternative, natural cancer treatment." A couple of other firefighters had unbelievable personal stories relating to this type of treatment. Shockingly, that is what I chose. I have always known about the three standard American cancer treatments: surgery, radiation and chemo. I now know there is a fourth! Holistic treatment. For almost a year now, my prostate-specific antigen (PSA) has been so low that it is considered undetectable. That makes me ecstatic and I feel great! I never had any signs or symptoms of cancer until a random PSA screening and my PSA was 26, when it is supposed to be less than one. Prostate cancer is one of the top three cancers related to firefighting. Men, get your PSA checked every year...no matter your age. Women, you have susceptible areas to check as well.

Troy Clark, right, pictured with his father, Captain Lynn Clark, who passed away on the job in 2000 at the age of 51.

When you were first diagnosed, did you immediately link it to your time in the fire service?

Multiple doctors thought I had prostatitis... until I didn't. My prostate cancer at age 41 was surprisingly super aggressive and required immediate surgery. My oncologist believes I might have had it for two years prior to diagnosis. I immediately thought that since my father had cancer, it meant that I would get it, too. My father was a FWFD firefighter for 30 years. He had cancer three times during his career and died on the job at age 51. I genetically tested negative, meaning I have no cancer genes. I knew then that it was from firefighting and I was mad. First, I was mad at our sub-par annual fire department physicals that included no cancer screening for me. Mistakenly, I relied only on my fire department annual physicals for more than 20 years. I was always "super healthy and super in-shape." Ultimately, I got mad at myself. I should have taken better care of myself.

What do you want current and future generations of firefighters to know about the risks they face on the job?

Whether it is your annual physical, physical fitness, mental wellness, lifestyle, diet, alcohol, tobacco, bunker gear cleanliness, SCBA use, etc....nobody will take care of you like you can. My dad was a well-respected fire captain. To most everyone he was a good friend and mentor—he would have a beer with you. He died in 2000, which seemed to be an era before the term "cancer related to firefighting." I know he could have taken better care of himself. I know I could have taken better care of myself. Along with many others, my dad didn't know what we know about today. I like when "old guys" say they work smarter, not harder. Well, it's time we *all* work smarter in the fire service! My attitude had to change reactively. I hope you can change yours proactively. As a firefighter, you have to work hard on your overall wellness. If you don't, our profession will work hard on you!

Watch Troy's video interview at tinyurl.com/cancer-awareness-2019. Thank you to Glen Ellman for his help with the video interview.

The Clean 15

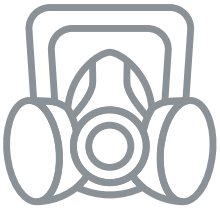
Make the commitment

By Frank Leeb

There has been a great deal of emphasis on reducing occupational exposure to fireground contamination. Firefighters are at an increased risk for cancer and other diseases that scientific research has linked to firefighting. The reality is that firefighting is a dirty job, and we will never eliminate all of the hazards we face. We can, however, minimize and manage these hazards. Individuals must make their own commitment to their health and well-being. Collectively, we must apply the same smart, aggressive approach that we already use with firefighting and extend that mindset to reduce our risk.

Frank Leeb has served the FDNY since 1992, currently serving in the rank of deputy chief. He is also a 35-year member of the East Farmingdale, NY, Fire Department. Leeb has 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 (CHDS). He serves as an advisory panel member for the UL Firefighter Safety Research Institute's (FSRI) "Study of Coordinated Attack in Acquired Structures" and is a principal on the NFPA Technical Committee Fire and Emergency Service Organization and Deployment-Career (NFPA 1710).

15 Tips to



1

Always use your SCBA, including when operating at car fires, dumpster fires and during overhaul. The SCBA provides the best respiratory protection from inhalation hazards.

2

Take a shower and change into clean station wear as soon as possible after returning from a fire. This should be done prior to cleaning tools. The concept is to "place the firefighter back in service first" to minimize time spent exposed to harmful contaminants.

3

Wash off bunker boots after a working fire. Boots contribute significantly to cross-contamination.

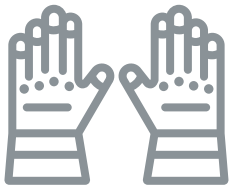
4

Keep hard surfaces inside the crew cab of the apparatus clean. Contaminants are known to settle on these areas, contributing to cross-contamination.

5

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.

Minimize Risk



6

Remove PPE—such as hoods and gloves—in a manner that minimizes cross-contamination. Think of contaminated firefighting gloves as you would blood-soaked medical gloves.

7

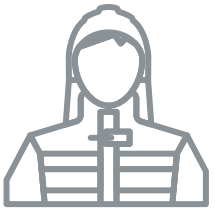
Don't overlook your helmet. Wash the inside liner of your helmet with soap and water.

8

Use gear bags when transporting PPE to minimize cross-contamination. Do not store bunker gear in your car or home.

9

Wash your dirty gear. Dirty gear demonstrates that you are naïve to the risks posed by fire-ground contaminants.



10

Don't use a contaminated hood or leave one around your neck following a fire. This greatly increases exposure around the neck, one of the most absorptive areas of the body.

11

Practice healthy lifestyle choices. Exercise regularly; limit or avoid alcohol, tobacco products and red meat intake; and always use sunscreen.

14

Shower prior to leaving the firehouse after your tour ends, regardless of the amount of firefighting activity during the tour. This minimizes the risk of cross-contamination.

13

Perform on-scene decontamination of contaminated gear and equipment following a working fire to remove soot, which is composed of harmful compounds that can cause cancer and other illnesses.

12

Ensure diesel exhaust capture systems are working properly and used. Diesel is a known carcinogen.

15

Maintain and strictly enforce "no bunker gear zones" in all living areas of the firehouse.

Photo by Chris Stowe

Where We've Been... and Where We're Going

A look at current research and initiatives that document and combat firefighter cancer

By Ed Klima

To learn more about current research projects please visit firstrespondercenter.org/cancer/research.

As firefighters, we are often consumed with activities and life at the department level. Many firefighters are unaware of the various initiatives that have been or are underway related to firefighter cancer research and reduction. The following provides an overview of the Fire Service Occupational Cancer Alliance and some of the research projects its members are currently working on.

History of the Fire Service Occupational Cancer Alliance

At the 2014 National Fallen Firefighters Foundation (NFFF) Firefighter Life Safety Summit, better known as TAMPA2, participants consistently identified the need to address occupational diseases, especially cancer, as a priority for the fire service over the next decade. That fall, Chief Dennis Compton, then chairman of the board of the NFFF, began to plan a meeting to address that recommendation. He anticipated a dozen or so people would be involved. Interest grew, and in mid-January of 2015, 85 people attended the Cancer Prevention Strategy Meeting in Washington, D.C. There, researchers presented on the findings of recent firefighter cancer research including a study of World Trade Center firefighters, the challenges of firefighter occupational exposure research, future research needs, actions that can be taken to reduce the risk of cancer, and an update on state presumptive laws and the Zadroga Act. During breakout sessions at that meeting, attendees also established a set of recommendations in three categories:

1) Awareness and Prevention
2) Research Needs
3) Partnership Opportunities

Following the initial meeting, a steering committee was created and convened to develop an action plan to fulfill the recommendations of what was by then known as the Fire Service Occupational Cancer Alliance (FSOCA). The steering committee was charged with 1) delineating potential action items; 2) identifying organizational support; and 3) defining a suggested starting timeframe for each action item, noting that many of the action items would include ongoing activities.

This action plan was further fleshed out and approved during a meeting of the full FSOCA in October 2015. Since then, the FSOCA has held a series of meetings to continually evaluate and update the action plan. The FSOCA's mission is **educate** the fire service about occupational cancers, **prevent** the disease by disseminating best practices to reduce risk and exposures, and **support** our brothers and sisters after they receive a diagnosis.

In September 2017, the FSOCA held the first-ever Fire Service Occupational Cancer Symposium to provide researchers with an opportunity to deliver to a broad audience the state of the science regarding fire service occupational cancers. In addition, they had the opportunity to disseminate best practices that will enable fire service attendees to transition the known scientific evidence about

occupational cancer into actionable activity, including changing policies and/or procedures, strategy and tactics to prevent exposures. The symposium was attended by more than 600 fire service and research community members. Since the symposium the FSOCA has held regional cancer seminars across the country in a continued effort to present current research and best practices.

Research overview

Fire Fighter Cancer Cohort Study

This is a 30-year overall study now in year four, supported by multiple funding sources and being conducted with an impressive consortia of researchers primarily led by the University of Arizona, University of Miami and the National Institute for Occupational Safety and Health (NIOSH).

The study is collecting information on exposures and other risk factors, while also collecting repeat measures on subclinical effects (e.g. epigenetic endpoints) that may be precursors to cancer. This study design provides a means for investigators to assess the effect of current firefighting practices and exposures on epigenetic endpoints in the short term (current study) and onset of disease in the long term (through follow-on studies). Chemicals to be evaluated include known human carcinogens such as benzene, formaldehyde, some polycyclic aromatic hydrocarbons (PAHs) and diesel engine exhaust, as well as halogenated compounds (chlorinated and brominated flame retardants, perfluorocarbons, etc.), which may also have carcinogenic effects. Evaluation of early biomarkers of effect, such as epigenetic changes associated with cancer pathways and increased cancer risk, can provide information on which current exposures are associated with cancer effects in firefighters as well as the toxic mechanisms involved. This information is essential to guide interventions to reduce the most important carcinogenic exposures and develop treatment options to potentially reverse carcinogenic effects in their early stages. *For more information regarding this study, please visit ffccs.org.*

University of Miami Firefighter Cancer Initiative

The Firefighter Cancer Initiative (FCI) was launched in 2015 through a state of Florida appropriation. The primary goals of FCI are to better document and understand the excess burden of cancer among Florida firefighters and identify novel, evidence-based methods for reducing risk. The initiative is led by a multidisciplinary team of scientists, healthcare practitioners and occupational health and safety experts and uses community-engaged approaches to ensure that firefighters' voice and occupational experience is reflected throughout all aspects of program planning and implementation.

The FSOCA's mission is educate the fire service about occupational cancers, prevent the disease by disseminating best practices to reduce risk and exposures, and support our brothers and sisters after they receive a diagnosis.

Since its launch, scientists have worked closely with firefighters on the development and implementation of various projects, including the annual cancer survey, educational curriculum, and environmental sampling program, among others. The initiative now includes departments from across the state of Florida and is continually working on expanding its reach to ensure representation from a diverse set of departments, regions and firefighters. *For more information on the initiative, please visit umiamihealth.org/sylvester-comprehensive-cancer-center/research/firefighter-cancer-initiative.*

North Carolina State University

Current NFPA 1851 advanced washing procedures remove 40 percent or less of potentially carcinogenic contaminants found in turnout gear after firefighting smoke exposure. After-wash contaminants can migrate from turnout suits and transfer to skin. Semi-volatile compounds can off-gas, exposing firefighters to low-level sustained doses of toxic vapors. Better cleaning methods, to extract residual smoke and fireground contaminants, at reasonable cost and with less damage to gear, will reduce firefighter cancer risks. This project is led by North Carolina State University (NCSU) with collaborative support from the Fire Protection Research Foundation (FPRF). Funding for this project is through a three-year DHS/FEMA Assistance to Firefighters Grant (AFG) with a targeted completion date of September 2021. This research will develop deep-cleaning methods to remove residual smoke and vapor carcinogens present in turnout material components after conventional washing.

Additional projects

In addition to these larger studies, researchers also continue to work on smaller studies, such as the effects of saunas on fire service personnel and determining the effectiveness of current contamination reduction practices. While much has been accomplished in the past decade, there is still much to be done in the future. ■

Ed Klima joined the First Responder Center for Excellence (FRC) as its first managing director in 2017 where he manages the daily activities of the FRC. Klima is a certified emergency manager with more than 27 years of public safety experience as a firefighter, hazardous material technician, EMT, fire inspector and fire officer. Klima holds two bachelor's degrees from the University of Delaware as well as a master's in public safety management from Saint Joseph's University.

"I thought it was something that happens to other people, but not me."

—Tim Bush, Maple Grove, MN, Fire Department

Tim Bush started his career as a paid on-call firefighter with the Eagan, MN, Fire Department in 1992. In 2008, he became a "two-hatter" firefighter when he was hired as a career assistant fire chief with the Maple Grove, MN, Fire Department. He is currently the fire chief and emergency management director for the city of Maple Grove. In 2018, he was diagnosed with malignant melanoma.

How did you learn you had cancer?

In April of 2018, I completed a firefighter physical following guidelines recommended by the International Association of Fire Chiefs (IAFC) and published by Firefighter Safety Through Advanced Research (FSTAR). At that time, I received a clean bill of health. In late summer of 2018, I began to experience symptoms that I believed were associated with a hemorrhoid. I believed the situation would resolve itself given a little time and patience. When that didn't happen, I went to my primary care provider who thought I might have a large skin tag. They referred me to a colorectal surgeon. An MRI and PET CT scans showed a cancerous tumor with lymph node involvement, and a biopsy confirmed cancer.

When you were first diagnosed, did you immediately link the cancer to your work in the fire service?

Initially, I was told to expect a squamous cell form of cancer not related to skin cancer. Minnesota has an initiative to educate firefighters about cancer, cardiac events and mental health issues facing the fire service. I knew that firefighters have a higher risk of certain cancers, so I checked several sources regarding firefighters and cancer risks. Still, I wasn't sure about how it related to firefighting. My biopsy results, however, revealed malignant melanoma which, according to the Firefighter Cancer Support Network, is one of the types of cancer firefighters experience in greater numbers than the general population.

How have your brother and sister firefighters supported you since your diagnosis?

When you start cancer treatment, providers ask if you have resources for transportation, household tasks and expenses. I felt like I suddenly had 100 firefighters getting in line to offer their help. It's very nearly overwhelming to have so many brothers and sisters in the fire service reaching out to ask what they can do to help. I was extremely fortunate because a deputy chief and a captain took charge of coordinating volunteer help. That was huge. Early on you don't know what you'll need and you don't know what to tell people.

Is there anything you would like firefighters to know about facing cancer?

Firefighters need to know that cancer is very real. I thought it was something that happens to other people, but not me. However, the advancements in the treatment of cancer are happening at a blinding rate of speed. An oncologist at the Mayo Clinic told me that the advancements in treatment of melanoma are happening so fast, that even Mayo has a hard time keeping up. It is extremely important to select the right providers and the right treatment plan. Firefighters need to be smart about their job. That means staying out of hazard zones without proper protective equipment. Use your air not only for initial attack, but use it for overhaul and any operation that may cause exposure to aerosols, vapors and fine dusts. Decontaminate yourself before rehydrating or eating anything. It means completing gross decontamination before leaving the fire scene and cleaning turnout gear after events. Wash off potential contamination from your person as soon as possible and that includes taking a shower after responding to fires.

Although Tim is not cancer-free, his tumor is gone and his lymph nodes have returned to normal. He has an area in his throat that shows up in PET CT imagery that his team of doctors is working to figure out. He will continue immunotherapy treatment for at least six months, but it could also be as long as two more years. Read more of Tim's interview at tinyurl.com/cancer-awareness-2019. Follow Tim's story on YouTube at tinyurl.com/teq3vc3.

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Firehouse would like to thank the following sponsors for their support of this important project to help educate members of the fire service about cancer awareness and prevention.

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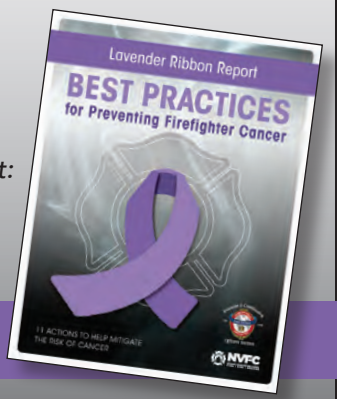
11 Actions to Prevent Firefighter Cancer

The National Volunteer Fire Council and International Association of Fire Chiefs' Volunteer and Combination Officers Section have released a new guide highlighting 11 actions you can take to protect you and your crew from firefighter cancer.



Download the *Lavender Ribbon Report: Best Practices for Preventing Firefighter Cancer* today!

www.nvfc.org/cancer

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