SCIENCE & RESEARCH

IAFF Cancer Screening Guide

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Section 1: Cancer Screenings

What is a cancer screening?

Cancer screening is the process of testing individuals for specific types of cancer before symptoms appear. The goal of screening is to detect cancer early when it is more treatable and potentially curable. Screenings can help identify cancers at earlier stages, which may help in significantly improving the chances of successful treatment and survival outcomes. Screening is typically recommended for individuals who are at higher risk for certain types of cancer based on factors such as age, gender, lifestyle behaviors (e.g. diet, smoking, alcohol), and occupation.[1]

Why is it important to screen for cancer among fire fighters?

Fire fighters face unique health risks due to the nature of their work and are routinely exposed to toxic smoke, chemicals, and carcinogenic substances, which can increase their likelihood of developing certain types of cancer. These occupational exposures place fire fighters at a higher risk than the general population, which makes screening an essential part of their overall health care.

By detecting cancer early through tools like screening, fire fighters can catch the disease at stages when may be most treatable. Early detection provides fire fighters with an opportunity to begin treatment before the cancer advances, potentially preventing more severe health complications, and improving long-term outcomes.

What types of cancers can be screened for?

Screenings offer an opportunity to focus on cancers that are most associated with the firefighting profession, taking into account both occupational exposure and general risk factors such as age, sex, and family history. Importantly, current research will contribute to making these screenings more accurate and expanding to screening for different types of cancers. It is important to understand how these screenings are conducted and what cancers they can account for. These screenings may include:

- **Skin cancer**: Due to occupational exposures fire fighters are at an increased risk for skin cancers, including melanoma, basal cell carcinoma, and squamous cell carcinoma. Annual skin checks are essential to monitor for any unusual growths or changes in existing moles or skin lesions.

[1] Moleyar-Narayana P, Leslie SW, Ranganathan S. Cancer Screening. In: StatPearls. Treasure Island (FL): StatPearls Publishing; May 31, 2024.

- **Lung cancer**: Fire fighters are routinely exposed to smoke and toxic fumes, increasing risks for lung cancers. Screening for lung cancer is also particularly relevant for fire fighters with a history of significant smoke exposure. This often includes low-dose CT scans for those who meet certain criteria, such as a smoking history.
- **Prostate cancer**: Currently, prostate cancer screening is recommended annually for male fire fighters, beginning at age 50 (or age 40, if at high risk) and continue annually. This typically includes blood tests (PSA) and digital rectal exams (DRE)
- **Breast cancer**: Both male and female fire fighters should perform regular self-examinations to check for signs of breast cancer. Female fire fighters typically begin mammograms at age 40 and are recommended to be continued every other year, in which annual mammography is indicated.
- **Colon cancer**: Screenings for colon cancer are recommended starting at age 40, but certain tests will vary depending on age. Depending on risk factors, screening may include stool tests (FOBT or FIT), flexible sigmoidoscopy, or colonoscopy.

Section 3 of this document discusses cancer screening in detail in accordance with recommendations and guidelines from NFPA 1582.

Section 2: Annual Fire Fighter Physical Exam

Why annual fire fighter physicals are important for overall health

Fire fighter physicals are critical for maintaining overall health and well-being. These exams provide an opportunity for early detection of potential health issues, allowing for timely intervention and preventing more severe conditions from developing. The physically demanding and high-risk nature of firefighting means that fire fighters are at increased risk for conditions such as heart disease, respiratory problems, and injuries.[2] Routine physical exams help ensure that any potential emerging health problems are identified and addressed before they affect the fire fighter's ability to perform their duties and ensures that they are equipped with information and tools to help.

Additionally, fire fighter physicals contribute to overall wellness by helping fire fighters maintain a healthy lifestyle. These exams can serve as opportunities to discuss health promotion strategies such as nutrition, exercise, and smoking cessation, and to encourage fire fighters to engage in preventive care. This proactive approach supports long-term health, reduces risks of chronic diseases, and enhances the fire fighter's ability to perform and meet the physical demands of their job.[3]

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[2] National Institute for Occupational Safety and Health (NIOSH). Fire Fighter Safety and Health. Centers for Disease Control and Prevention. Updated January 5, 2024. Accessed February 1, 2025. https://www.cdc.gov/niosh/centers/firefighter-safety-and-health.html

[3] Gonzalez DE, Lanham SN, Martin SE, Cleveland RE, Wilson TE, Langford EL, Abel MG. Firefighter Health: A Narrative Review of Occupational Threats and Countermeasures. Healthcare (Basel). 2024 Feb 8;12(4):440. doi: 10.3390/healthcare12040440. PMID: 38391814; PMCID: PMC10888326.

Why annual physical exams are important for cancer detection

According to the IAFF Line-of-Duty-Death Database, cancer is the leading cause of occupational death among fire fighters, which is likely due to the many carcinogenic exposures associated with the occupation. Certain cancers among fire fighters have also been shown to occur at a younger age [4,5] and with higher mortality rates.[6]

The physical exam serves as a critical tool for detecting warning signs or symptoms that could indicate cancer. For example, changes in weight, skin lesions, or unexplained fatigue can be early red flags for certain types of cancer. Certain regular laboratory tests and screenings help identify changes in biomarkers or abnormal findings that may suggest the need for further investigation. Because fire fighters are at higher risk for occupational cancers, annual exams provide an opportunity for vigilant monitoring of their health, ensuring that any potential issues are detected and addressed promptly.

Exam findings and laboratory tests that can be associated with cancer

Several physical exam findings and laboratory tests can serve as early indicators of cancer.[7] Here are some key examples of what healthcare providers look for during fire fighter physicals and factors that fire fighters should share with their healthcare team:

- **Weight Loss, Fatigue, Malaise**: Unexplained weight loss, persistent fatigue, or a general feeling of malaise (discomfort or illness) can be early symptoms of various cancers, including gastrointestinal and hematologic cancers. These symptoms often present in cancers that are difficult to detect until they have reached an advanced stage. During the annual physical, fire fighters are typically asked about any unexplained changes in weight or persistent fatigue, and this information can guide further investigation if needed.
- **Irregular Moles, Skin Lesions**: A physical exam will typically include a thorough skin check to monitor for irregular moles, changes in existing moles, or new growths on the skin. Abnormalities such as asymmetry, irregular borders, uneven coloring, or changes in size can be early indicators of melanoma or other types of skin cancer. Any suspicious findings will typically be referred for dermatological evaluation or biopsy.
- **Focal Neurological Findings**: Neurological symptoms such as imbalance, tremors, muscle weakness, or abnormal vision/hearing tests can signal potential neurological cancers, including brain tumors. During a physical exam, fire fighters undergo a basic neurological

[4] Pinheiro PS, Koru-Sengul T, Zhao W, et al. Distinct Prostate Cancer Survival Outcomes in Firefighters: A Population-Based Study. Cancers (Basel). 2024;16(7):1305. Published 2024 Mar 27. doi:10.3390/cancers16071305

[5] Jakobsen J, Veierød MB, Grimsrud TK, Fosså SD, Hammarström B, Kjærheim K. Early detection of prostate cancer in firefighters: a register-based study of prognostic factors and survival. Occup Environ Med. 2022 Mar;79(3):200-206. doi: 10.1136/oemed-2021-107622. Epub 2021 Sep 11. PMID: 34510005; PMCID: PMC8862087.

[6] Laroche E, L'Espérance S. Cancer Incidence and Mortality among Firefighters: An Overview of Epidemiologic Systematic Reviews. Int J Environ Res Public Health. 2021 Mar 3;18(5):2519. doi: 10.3390/ijerph18052519. PMID: 33802629; PMCID: PMC7967542.

[7] Quaife SL, Forbes LJ, Ramirez AJ, Brain KE, Donnelly C, Simon AE, Wardle J. Recognition of cancer warning signs and anticipated delay in help-seeking in a population sample of adults in the UK. Br J Cancer. 2014 Jan 7;110(1):12-8. doi: 10.1038/bjc.2013.684. Epub 2013 Oct 31. PMID: 24178761; PMCID: PMC3887291.

evaluation, which can detect these warning signs. If any abnormal findings are noted, further tests such as imaging or referral to a neurologist may be necessary.

- **Abnormal Blood Work:** Blood tests can reveal abnormalities that might indicate cancer or other health conditions. For instance, an elevated white blood cell count could be a sign of leukemia or lymphoma. Abnormal thyroid-stimulating hormone (TSH) levels may suggest thyroid cancer or other thyroid conditions. Elevated liver enzymes could indicate liver cancer or other liver diseases, while the presence of blood in the urine may point to bladder or kidney cancer, prompting referral to a specialist for further investigation.
- **Abnormal Findings on Spirometry or Radiologic Imaging**: Spirometry, a test to measure lung function, is crucial for fire fighters due to their exposure to smoke and other harmful particles. Abnormal results may indicate respiratory issues that could be caused or exacerbated by occupational exposures. Similarly, radiologic imaging such as X-rays or CT scans may uncover abnormalities in the lungs or other organs that could suggest the presence of cancer. Imaging those at higher risk plays an important role in early detection.

In addressing these key areas during an annual fire fighter physical exam, healthcare providers will be better equipped to investigate and detect early signs of cancer and take proactive steps in managing fire fighters' health. These exams are for monitoring overall health and ensuring that fire fighters can continue performing their vital duties safely.

Section 3: NFPA 1582 And Cancer Screenings

Brief overview of NFPA 1582

The National Fire Protection Association (NFPA) 1582, Standard on Comprehensive Occupational Medical Program for Fire Departments, provides guidelines for the medical evaluation of fire fighters to ensure they are fit for duty. The primary goal of NFPA 1582 is to maintain fire fighter health and safety by detecting and addressing potential medical conditions that could impair their ability to perform essential job tasks. This annual medical exam is a comprehensive evaluation that includes a physical examination, screenings, imaging, bloodwork, and specialized tests (e.g. EKG stress test, audiogram, pulmonary function test) all aimed at ensuring fire fighters are in optimal physical health to face the demanding nature of their job.

The guidelines outlined in NFPA 1582 take into account the physical and mental stresses fire fighters face, including heavy lifting, working in hazardous conditions, exposure to toxic chemicals, and extreme temperatures. These tasks, while essential for their role, put fire fighters at risk for various health conditions, including cardiovascular disease, musculoskeletal injuries, respiratory issues, and certain cancers. As such, NFPA 1582 stresses the importance of regular health check-ups to detect any potential problems early.

Where do NFPA 1582 cancer screening recommendations come from?

The cancer screening recommendations in NFPA 1582 are based on the guidelines set forth by prominent organizations including the **U.S. Preventive Services Task Force (USPSTF)** and the **American Cancer Society (ACS)**, and input from physicians, scientists, fire fighter leaders, and representatives from the firefighting community. USPSTF and ACS develop evidence-based, expert-reviewed guidelines that form the foundation for NFPA's tailored recommendations for fire fighters.

The USPSTF is an independent panel of medical experts that reviews the latest research and provides recommendations for preventive health services, including cancer screenings. Their guidelines, based on scientific evidence, are aimed at detecting cancer at early, treatable stages in the general population. NFPA 1582 aligns with these general recommendations but adjusts them to reflect the unique risks faced by fire fighters, including occupational exposures to carcinogenic substances like smoke, chemicals, and other toxicants. NFPA also includes recommendations for additional cancer screenings beyond those recommended by the USPSTF.

The ACS is another key organization that shapes NFPA's screening recommendations. The ACS focuses on cancer prevention, early detection, and treatment, and provides guidance for both the general public and high-risk groups such as fire fighters. The ACS emphasizes the importance of early detection and offers lifestyle recommendations to help reduce cancer risk, including advice on smoking cessation, diet, and exercise.

One key distinction between the general guidelines provided by the USPSTF, ACS and NFPA 1582 lies in the **age** at which screening begins. NFPA 1582 often recommends earlier screening for fire fighters due to their heightened exposure to carcinogens in the workplace. For example, the **USPSTF** recommends **colon cancer screening** to begin **at age 45 for the general population**,[8] while **NFPA 1582** recommends discussing stool-based screening for colon cancer **starting at age 40 for fire fighters**.[9] This earlier recommendation takes into account the additional occupational cancer risks fire fighters face, such as inhaling known carcinogens in the line of duty. Similarly, **USPSTF** recommends screening for **prostate cancer** among men **starting at age 55**,[10] while **NFPA 1582** recommends discussion of prostate specific antigen (PSA) testing with all male fire fighters **beginning at age 50** (or earlier at age 40, if at high risk).[11]

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[8] USPSTF Recommendation Summary: "The USPSTF recommends screening for colorectal cancer in all adults aged 50 to 75 years." https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening.

[9] NFPA 1582: 7.7.13 Colon Cancer Screening. "7.7.13.1 Stool-based blood testing risks and benefits shall be discussed with all members above the age of 40, or earlier if clinically indicated."

[10] USPSTF Recommendation Summary: "For men aged 55 to 69 years, the decision to undergo periodic prostate-specific antigen (PSA)-based screening for prostate cancer should be an individual one. Before deciding whether to be screened, men should have an opportunity to discuss the potential benefits and harms of screening with their clinician and to incorporate their values and preferences in the decision."

[11] NFPA 1582: 7.7.14 Prostate Cancer. "7.7.14.1 Due to increased prostate cancer risk, the fire department physician shall discuss the risks and benefits of prostate cancer screening, including prostate-specific antigen (PSA) testing, with all male firefighters beginning at age 50 and annually thereafter… 7.7.14.2. For firefighters who are at a higher risk for prostate cancer (e.g., African-Americans or where one or more first-degree relatives have been diagnosed with prostate cancer at an early age), the physician shall discuss the risks and benefits of prostate cancer screening, including PSA testing, beginning at age 40 and annually thereafter."

For **lung cancer**, NFPA 1582 follows the USPSTF and National Comprehensive Cancer Network (NCCN) recommendations for screening starting **at age 50 for those who have smoked at least 20 pack-years**.[12] Thus, per NFPA 1582, a fire fighter who has never smoked may not warrant an annual low-dose CT scan for lung cancer screening.

It is worth noting however that in a 2024 statement published in the *American Journal of Industrial Medicine,* the **Collegium Ramazzini**, an international academy of world-renowned occupational medicine physicians and environmental scientists, recommends an annual low-dose chest CT scan for individuals **with history of occupational and environmental exposure to lung carcinogens**.[13] Per the Collegium's recommendations, a fire fighter, who has never smoked cigarettes, should still be offered annual lung cancer screening, given the occupational and environmental exposures.

Thus, while NFPA 1582 relies heavily on the guidelines from the USPSTF, the specific cancer risks and occupational exposures of fire fighters are factored into the NFPA's recommendations. Screening recommendations, including NFPA 1582 guidelines, are subject to further revisions and updates as more research is conducted by the scientific community. The section below describes the cancer screenings included in NFPA 1582 in more detail.

Oral Cavity and Nasopharyngeal Cancer

Fire fighters' exposure to carcinogens like smoke and other chemicals can increase the risk of oral cavity and nasopharyngeal cancers. Routine screening for these cancers includes an annual physical exam with a **focus on the head and** neck.[14] In addition to the general physical examination, fire fighters should also have regular **dental check-ups** to monitor for any abnormalities in the oral cavity that could indicate the early stages of cancer. Early detection is critical because cancers of the oral cavity and nasopharynx are often diagnosed at later stages, reducing treatment success.

Thyroid Cancer

Exposure to certain chemicals and radiation may increase the risk of developing thyroid cancer, particularly in individuals who have worked in environments with heavy chemical exposure. NFPA 1582 recommends annual physical exams to check for **palpable thyroid nodules**.[15] Fire fighters should be monitored for any abnormal findings in the neck area, and any **suspicious lumps**

[12] NFPA 1582: 7.7.15 Lung Cancer Screening. "7.7.15.1 Low-dose computed tomography (LDCT) shall be performed annually on firefighters ages 50–74 who have at least a 20-pack-per-year smoking history and currently smoke or have quit within the past 15 years."
[13] Markowitz S, Ringen K, Dement JM, et al. Occupational lung cancer screening: A Collegium Ramazzini statement. Am J Ind Med. 2024;67(4):289-303. doi:10.1002/ajim.23572
[14] NPFA 1582: "7.7.19 Oral Cancer Screening. 7.7.19.1 The entire mouth shall be examined for signs of oral and oropharyngeal cancer."
[15] NFPA 1582: "7.7.20 Thyroid Cancer Screening. 7.7.20.1 Physical exam for palpable nodules shall be part of the annual physical examination."

should be investigated further with imaging or a biopsy if necessary. Early detection of thyroid abnormalities can lead to timely interventions that significantly improve prognosis.

Skin Cancer

Fire fighters are at an increased risk of skin cancer, especially due to various fireground exposures such as ultraviolet (UV) radiation from the sun, diesel exhaust, and carcinogenic substances in smoke and soot. NFPA 1582 recommends an **annual comprehensive skin assessment**,[16] particularly for fire fighters who spend significant time outdoors. This assessment should include the entire body with a focus on the face, neck, and hands. Fire fighters should be trained to perform self-exams regularly to check for any new moles, lesions, or changes in existing skin marks. If any abnormal findings are identified, fire fighters should be referred for further dermatological evaluation or biopsy as needed.

Breast Cancer

While breast cancer is more commonly associated with women, male fire fighters are also at risk due to exposure to certain carcinogens. Both male and female fire fighters should conduct **annual self-breast exams** to check for any changes or lumps in the breast tissue. For female fire fighters, NFPA 1582 recommends **biennial mammograms** starting at **age 40**, with annual mammograms after age 50.[17] Women with a family history of breast cancer may need to begin screening earlier. Mammography is a proven method for detecting breast cancer early, and annual screenings can significantly improve outcomes for women at higher risk.

Lung Cancer

Fire fighters may be at risk of developing lung cancer due to their exposure to carcinogenic substances in smoke and soot. NFPA 1582 recommends annual lung cancer screening for fire fighters beginning **at age 50 who have a 20-pack-year smoking history** and **continue to smoke or have quit within the past 15 years**.[18] The preferred screening method is low-dose computed tomography (LDCT), which has been shown to reduce lung cancer mortality in high-risk populations. Screening should continue annually for those at high risk until they have been smoke-free for 15 years or are too ill to benefit from further screening.

[16] NFPA 1582: 7.7.21 Skin Cancer Screening. “Physical exam of a member’s skin shall be conducted annually for evidence of cancer.”
[17] NPFA 1582: 7.7.8 Mammography. “7.7.8.1 Mammography shall be performed on each female member bi-annually for those over the age of 40 and annually for those over the age 50 or as clinically indicated.”
[18] NFPA 1582: 7.7.15 Lung Cancer Screening. “7.7.15.1 Low-dose computed tomography (LDCT) shall be performed annually on firefighters ages 50–74 who have at least a 20-pack-per-year smoking history and currently smoke or have quit within the past 15 years.”

Prostate and Testicular Cancer

Prostate cancer is one of the most common cancers among men, and fire fighters are not exempt from the risk. NFPA 1582 recommends discussing the risks and benefits of **prostate-specific antigen (PSA)** testing for male fire fighters **starting at age 50**. For African American men or those with a family history of prostate cancer, annual PSA testing **can start at age 40**, since they are at higher risk.[19] Annual testicular cancer screening can be performed either by the healthcare provider or through **self-examination**.[20] Both prostate and testicular cancer often grow slowly, and early detection through regular screening provides options for treatment that can prevent cancer from progressing to more advanced, harder-to-treat stages.

Cervical Cancer

For female fire fighters, cervical cancer screening is essential to detect abnormal changes in cervical cells that could lead to cancer. NFPA 1582 recommends **Pap smears** for women between the ages of 21 and 65, with testing every 3 years. Alternatively, for those who prefer a longer testing interval, a Pap smear with HPV testing every 5 years is recommended.[21] Routine screening and early detection of abnormal cells can significantly reduce the risk of cervical cancer, which is often preventable with timely intervention.

Colon Cancer

Colon cancer is one of the most common cancers among both the general population and fire fighters. NFPA 1582 recommends discussion of risks and benefits of **stool-based tests** (FOBT or FIT) **starting at age 40** for fire fighters. In terms of visual exams for colon cancer screening such as **colonoscopy** and sigmoidoscopy, NFPA 1582 recommends starting **at age 45**.[22]

The recommended intervals for stool-based and visual exams are as follows:

- **Fecal occult blood test (FOBT)** or **fecal immunochemical test (FIT)** every year
- **Stool DNA-FIT test** every 1 to 3 years
- **Flexible sigmoidoscopy** every 5 years
- **Colonoscopy screening** every 10 years (until age 75)

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[19] NFPA 1582: 7.7.14 Prostate Cancer. "7.7.14.1 Due to increased prostate cancer risk, the fire department physician shall discuss the risks and benefits of prostate cancer screening, including prostate-specific antigen (PSA) testing, with all male firefighters beginning at age 50 and annually thereafter… 7.7.14.2. For firefighters who are at a higher risk for prostate cancer (e.g., African-Americans or where one or more first-degree relatives have been diagnosed with prostate cancer at an early age), the physician shall discuss the risks and benefits of prostate cancer screening, including PSA testing, beginning at age 40 and annually thereafter."

[20] NFPA 1582. 7.7.17 Testicular Cancer Screening. "7.7.17.1 A baseline examination shall be performed by a health care provider."

[21] NFPA 1582. 7.7.16 Cervical Cancer Screening. "Female firefighters shall be screened for cervical cancer with cytology (i.e., Pap smear) every 3 years from ages 21 to 65 or, for firefighters who want to lengthen the screening interval, with high-risk human papillomavirus (HPV) testing with or without cytology every 5 years."

[22] NFPA 1582. 7.7.13 Colon Cancer Screening. "7.7.13.1 Stool-based blood testing risks and benefits shall be discussed with all members above the age of 40, or earlier if clinically indicated. 7.7.13.2 Visual exams (e.g., colonoscopy, CT colonoscopy, or flexible sigmoidoscopy) or stool-based testing shall be recommended to all members ages 45 to 75, or earlier if clinically indicated and repeated at regular intervals."

If any of these tests show abnormal results, further investigation, including a **biopsy**, is typically recommended to evaluate the colon for signs of cancer or precancerous polyps. Regular screenings can help catch potential issues early, allowing for timely removal of polyps before they can develop into cancer, or for the early detection of colon cancer, which can significantly improve treatment outcomes.

Why are some cancers regularly screened for while others are not?

Not all cancers have routine screening tests that have been proven to be effective for early detection. For instance, cancers such as **ovarian, pancreatic, or brain cancer** are more difficult to screen for effectively, and there is currently no routine screening method recommended for the general population.[23] In contrast, breast and colon cancers are routinely screened due to the effectiveness of the screening tests and their ability to detect cancer at an early stage, when treatment is most likely to be successful.

The lack of screening methods for some cancers is often due to challenges in detecting them early, limitations of existing tests, and limitations of treatment (e.g., intervention does not change the outcome). For example, ovarian and pancreatic cancers are often diagnosed at advanced stages because they typically do not present obvious symptoms until the disease has progressed. On the other hand, cancers such as **breast** and **colon** cancer have well-established screening methods—**mammography** and **colonoscopy, respectively**—that are proven to reduce mortality rates by detecting the cancers early.

Examples of cancers not regularly screened for include:

- Brain cancer (all types)
- Neuroblastoma
- Retinoblastoma
- Esophageal cancer
- Neuroendocrine cancer
- Gallbladder and bile duct cancer
- Liver cancer
- Kidney cancer
- Uterine cancer
- Penile cancer
- Bone cancer
- Soft tissue sarcoma
- Lymphoma
- Leukemia
- Multiple myeloma

[23] Centers for Disease Control and Prevention (CDC). Cancer Prevention and Screening. Accessed February 1, 2025. https://www.cdc.gov/cancer/prevention/screening.html#cdc_generic_section_6-other-types-of-cancer

These cancers lack routine screening methods due to the challenges in early detection, and at this time there are no widely accepted tests that can identify them early in asymptomatic individuals.

Conclusion

While NFPA 1582 provides comprehensive guidelines for the cancers most relevant to fire fighters, it is important to note that not all cancers have routine screening methods that are universally recommended or effective. Some cancers, even those associated with firefighting, may not yet have approved or effective screening methods, especially for asymptomatic individuals. For example, while fire fighters are at higher risk for **multiple myeloma** and **lymphoma**, there are currently **no routine screening tests** for these cancers in the general population.

As a result, many fire fighters may seek additional screenings through **commercial cancer screening services**. These tests, such as **multi-cancer early detection tests (MCED)** and advanced imaging, are becoming more popular as additional methods to detect cancer at early stages. However, these services should not replace recommended screenings outlined in NFPA 1582. The following sections of this guide will address the role of these commercial screening tests and the potential risks and benefits in cancer surveillance for fire fighters.

Section 4: Commercial Tests and Services

As the need for and interest in early cancer detection becomes increasingly recognized, particularly for high-risk populations such as fire fighters, various commercial screening tests and services have emerged. These tests go beyond the traditional approaches to cancer detection, offering broader capabilities in identifying multiple types of cancers at early, more treatable stages. This section provides an overview of multi-cancer early detection (MCED) tests, diagnostic services, and advanced imaging technologies that could complement or enhance the standard cancer screenings recommended by NFPA 1582. These novel methods provide new opportunities for proactive health monitoring, potentially improving outcomes for fire fighters who are at increased risk for certain types of cancer due to their occupational exposures. However, it is important to note that most, if not all, of these tests are not covered by insurance and therefore will often need to be paid either by the employer or out-of-pocket of the individual.

What are MCED Tests?

Multi-cancer early detection (MCED) tests represent a significant advancement in cancer screening technology. Unlike traditional methods, which typically screen for one type of cancer at a time, MCED tests are designed to detect the presence of multiple cancers using a single

sample, usually blood.[24] These tests analyze molecular signals, such as DNA mutations or protein biomarkers, to identify potential cancers at an early stage, often before any symptoms have developed. The primary advantage of MCED tests lies in their ability to provide a more comprehensive approach to cancer screening, especially in high-risk populations like fire fighters, who face elevated risks due to their exposure to carcinogenic substances.

Given the diversity of cancers that can affect fire fighters, MCED tests may offer a valuable tool in identifying multiple cancers early, when treatment options are more effective. The following are examples of some MCED tests currently available on the market. A summary comparing the MCED tests is shown in Table 1 below, but it should be noted that prices and coverage may vary.

Examples of MCED Tests:

- **OneTest™** is a blood test that measures a panel of protein biomarkers linked to various types of cancers. While it does not predict lifetime cancer risk, the test detects tumor-associated proteins secreted by growing tumors. It can screen for a range of cancers, including lung, liver, ovarian, prostate, and kidney cancers. OneTest™ is not approved for general cancer screening but is marketed as a tool for early detection, and it can be administered annually.
- **Galleri®** is a next-generation MCED test developed by **GRAIL** that utilizes DNA methylation patterns in cell-free DNA (cfDNA) extracted from blood. This test is capable of detecting signals from over 50 types of cancers, including those of the colorectal, esophageal, mesothelioma, and lung regions. Galleri® helps pinpoint where in the body the cancer may originate and is designed to be used alongside traditional screening methods to enhance early detection.
- **ONCOblot®** detects a protein called **ENOX2**, which is expressed on the surface of malignant cancer cells. This test can screen for a broad range of cancers, including bladder, breast, colorectal, gastric, kidney, and lung cancers. It is particularly useful in confirming the presence of cancer or identifying the tissue of origin, and it can also be used for monitoring cancer recurrence.
- **IvyGene®** analyzes methylation patterns in blood-based DNA to detect early signs of certain cancers. Though it does not determine the cancer's tissue origin, IvyGene® has shown promise in identifying breast, colon, liver, and lung cancers. It is primarily marketed as a tool for confirming cancer presence and supporting other diagnostic methods.
- **Aristotle®** is an MCED test that uses mRNA technology to detect molecular signatures associated with cancers such as breast, ovarian, and colorectal cancers. The test claims to offer high sensitivity and specificity, making it an effective tool for early detection, particularly in individuals with a family history of these cancers. This test is available to asymptomatic individuals who are looking for proactive cancer screening.

[24] American Cancer Society. Multi-Cancer Early Detection Tests. Accessed February 3, 2025. https://www.cancer.org/cancer/screening/multi-cancer-early-detection-tests.html

- **Guardant** offers liquid biopsy tests that analyze blood samples for cancer-related mutations. These tests focus on identifying mutations in solid tumors, offering valuable insights for treatment decisions and monitoring for recurrence.

Table 1. Comparison of Multi-Cancer Early Detection (MCED) Tests

Test	Company	Sensitivity	Specificity	Price
Aristotle[25]	Stage Zero	55.6-100%	99%	Varies, can cost up to $2000
Galleri Test[26]	GRAIL	51.5%	99.5%	$949
IvyGene[27]	IvyGene	84% for breast, colon, liver, or lung cancer	90%	$400
ONCOblot[28]	ONCOblot Labs	Not provided	Not provided	Varies based on physician, but can cost up to $1,700
OneTest[29]	Gene Systems 2020	82% in males, 62% in females	80%	$189

***Sensitivity** is the ability of a test or instrument to yield a positive result for a subject that has that disease while **specificity** is the ability of the test or instrument to obtain normal range or negative results for a person who does not have a disease.[30] Highly sensitive tests will lead to positive findings for patients with a disease, whereas highly specific tests will show patients without a finding, having no disease.

Diagnostic Services

In addition to MCED tests, several companies provide diagnostic services tailored for early cancer detection. These services often combine physical exams with additional screening tests that complement the standard cancer screenings recommended by **NFPA 1582**. Below is a comparison of two prominent diagnostic services, **Life Scan Wellness Centers** and **United Diagnostic Services (UDS)**, which offer specialized cancer screenings and medical evaluations for fire fighters.

- **Life Scan Wellness Centers:** Life Scan offers a range of ultrasound integrated **comprehensive wellness** exams and **occupational health services**, including physicals,

[25] StageZero Life Sciences. Aristotle Test. Accessed February 1, 2025. https://www.stagezerolifesciences.com/aristotle-test.html
[26] GRAIL. Galleri Test. Published 2023. Accessed February 1, 2025. https://grail.com/galleri-test/
[27] IvyGene Labs. The Science of the IvyGene Test. Published 2019. Accessed February 1, 2025. https://www.ivygenelabs.com/science-publications/
[28] ONCOblot Labs. *Blood Test for Cancer*. Published 2023. Accessed February 1, 2025. https://oncoblotlabs.com
[29] GeneSystems. *OneTest*. Published 2020, updated 2023. Accessed February 1, 2025. https://onetestforcancer.com
[30] Shreffler, J., & Huecker, M. R. (2023). Diagnostic Testing Accuracy: Sensitivity, Specificity, Predictive Values and Likelihood Ratios. In *StatPearls*. StatPearls Publishing.

cancer screenings, and advanced diagnostic tests. As of the time this document was created, their offerings include lung screening, mammography, and colorectal screenings (such as hemoccult tests for colon cancer). Life Scan also incorporates behavioral health screenings, which are essential for monitoring fire fighters' psychological well-being.

- **United Diagnostic Services (UDS):** UDS provides a full suite of diagnostic services designed to detect early signs of cancer. As of the time this document was created, these include **ultrasound screenings**, heart screenings, and lung cancer screenings. Additionally, UDS offers prostate cancer screenings (PSA) and thyroid evaluations, which may be valuable for fire fighters.

Both services offer diagnostic tests that are aligned with the **NFPA 1582** guidelines, but some additional tests, such as PSA testing and thyroid evaluations, are not in the NFPA 1582 framework unless specified for individual cases. A summary of the two diagnostic services, along with notes on how they align with NFPA 1582, is shown in Table 2 below.

Table 2. Comparison of Life Scan Wellness Centers and United Diagnostic Services

Company	Physical Examination	Laboratory Tests	Imaging	NFPA 1582 Compliance
Life Scan Wellness Centers	- Vital signs - Head, eyes, ears, nose, and throat (HEENT) - Neck - Cardiovascular - Pulmonary - Breast - Gastrointestinal - Hernia - Lymph nodes - Neurological - Musculoskeletal - Skin - Vision and hearing	- Hemoccult test (colon cancer screening) - Urinalysis - Full lipid panel (total cholesterol) - Diabetes tests (hemoglobin A1C and glucose) - Comprehensive Metabolic Panel (24 panel) - Complete blood count - Thyroid panel - Men: Prostate Specific Antigen (PSA) prostate cancer marker - Women: CA-125 ovarian cancer marker	- Echocardiogram - Aorta and aortic valve - Carotid arteries - Thyroid - Liver - Gallbladder - Spleen - Kidney - Bladder - Pelvic (ovaries and uterus) - Prostate and testicular	**Physical Examination**: NFPA 1582 compliant. **Blood Analysis**: Partial. NFPA 1582 doesn't recommend regular thyroid, PSA, or CA-125 screening.[31] For hemoccult testing, the NFPA 1582 recommends discussing with the medical provider beginning at age 40.[32] For PSA, the NFPA 1582 recommends individual discussion with the medical provider beginning at age 40 for high-risk individuals and at age 50 for all others.[33] **Imaging**: No. NFPA 1582 does not recommend additional routine imaging for other cardiovascular disease or cancer screening. Exceptions include recommended screening colonoscopy for fire fighters beginning at age 45 and annual low-dose lung computerized tomography (CT) surveillance for fire fighters ages 50-74 who have at least a 20-pack-year smoking history and currently smoke or have quit within the last 15 years.[34]
United Diagnostic Services	- Vital signs - Head, eyes, ears, nose, and throat (HEENT) - Neck - Cardiovascular - Pulmonary - Breast - Gastrointestinal - Hernia - Lymph nodes - Neurological - Musculoskeletal - Skin - Vision and hearing	- Complete blood count - Electrolytes - Renal function - Glucose - Liver function tests - Full lipid panel (total cholesterol) - Urinalysis	- Echocardiogram - Carotid arteries - Abdominal aortic aneurysm (AAA) - Thyroid - Abdominal and bladder - Pelvic - Testicular - Mammography	**Physical Examination**: NFPA 1582 compliant. **Blood Analysis**: NFPA 1582 compliant. Includes complete blood count, electrolytes, renal function, glucose, liver tests, and more. **Imaging**: No. NFPA 1582 doesn't recommend additional routine imaging, but exceptions include colonoscopy at age 45 and annual low-dose lung CT for smokers aged 50-74. **Yes** for mammography: Recommended for women over 40 bi-annually and over 50 annually.[35]

[31] NFPA 1582. 7.7.20 Thyroid Cancer Screening. "7.7.20.1 Physical exam for palpable nodules shall be part of the annual physical examination."
[32] NFPA 1582. 7.7.13 Colon Cancer Screening. "7.7.13.1 Stool-based blood testing risks and benefits shall be discussed with all members above the age of 40, or earlier if clinically indicated. "7.7.13.2 Visual exams (e.g., colonoscopy, CT colonoscopy, or flexible sigmoidoscopy) or stool-based testing shall be recommended to all members ages 45 to 75, or earlier if clinically indicated and repeated at regular intervals."
[33] NFPA 1582. 7.7.14 Prostate Cancer. "7.7.14.1 Due to increased prostate cancer risk, the fire department physician shall discuss the risks and benefits of prostate cancer screening, including prostate-specific antigen (PSA) testing, with all male firefighters beginning at age 50 and annually thereafter. 7.7.14.2 For firefighters who are at a higher risk for prostate cancer (e.g., African-Americans or where one or more first-degree relatives have been diagnosed with prostate cancer at an early age), the physician shall discuss the risks and benefits of prostate cancer screening, including PSA testing, beginning at age 40 and annually thereafter."
[34] NFPA 1582. 7.7.15 Lung Cancer Screening. "7.7.15.1 Low-dose computed tomography (LDCT) shall be performed annually on firefighters ages 50–74 who have at least a 20-pack-per-year smoking history and currently smoke or have quit within the past 15 years. 7.7.15.2 Screening shall be discontinued once a firefighter has not smoked cigarettes for 15 years or is too ill to benefit."
[35] NFPA 1582. 7.7.8 Mammography. "7.7.8.1 Mammography shall be performed on each female member bi-annually for those over the age of 40 and annually for those over the age 50 or as clinically indicated."

Imaging Tests

Imaging tests such as **CT scans**, **MRIs**, and **ultrasounds** are important tools for detecting tumors and abnormalities. Although these tests are not routinely recommended for cancer screening under NFPA 1582, they may play a role in evaluating fire fighters who are at high risk or who have been identified through other screenings as needing further investigation.

- **Total Body CT or Ultrasound:** While imaging tests like total body CT scans and ultrasounds can detect tumors or abnormalities, they are not universally recommended for routine screening under NFPA 1582. While these tests can detect potential cancerous growths early, their use is generally considered when symptoms are present or when other diagnostic methods suggest the need for further investigation.[36] Additionally, CT scans do expose individuals to radiation, which is a significant risk that should be considered before pursuing this type of test.
- **Full-body MRI scans**: Prenuvo and Ezra, companies that offer full-body MRI scans, have been touted for their ability to detect a variety of tumors across the body. Although these scans can uncover potential cancerous growths, the American College of Radiology does not routinely recommend them for patients unless clinical evaluation indicates their necessity.[37] These MRI scans are emerging technologies that may provide additional insight into the early detection of cancers.
- **DermaSensor:** Dermasensor is an FDA-approved app that uses AI technology to analyze photographs of skin lesions for potential skin cancers, particularly melanoma.[38] This system supports physicians in diagnosing skin cancers by providing high-resolution imaging and tracking changes in moles or lesions over time.
- **iCAD:** iCAD is an AI-powered mammography system that enhances traditional mammogram readings using artificial intelligence. This technology aims to improve the accuracy of breast cancer detection and potentially could be used in conjunction with routine mammograms.

Other Novel Tests

In addition to the commercial screening tests and imaging services described above, other novel cancer detection technologies are being developed, including breath-based tests and scent-detection methods.

[36] American Academy of Family Physicians (AAFP). Choosing Wisely: Cancer Screening. Accessed February 1, 2025. https://www.aafp.org/pubs/afp/collections/choosing-wisely/250.html
[37] American College of Radiology (ACR). ACR Statement on Screening Total Body MRI. Published 2023. Accessed February 1, 2025. https://www.acr.org/News-and-Publications/Media-Center/2023/ACR-Statement-on-Screening-Total-Body-MRI
[38] Venkatesh, K.P., Kadakia, K.T. & Gilbert, S. Learnings from the first AI-enabled skin cancer device for primary care authorized by FDA. npj Digit. Med. 7, 156 (2024). https://doi.org/10.1038/s41746-024-01161-1

- **Breathe BioMedical** is developing breath-based biomarkers for cancer detection. This non-invasive approach may be capable of detecting several types of cancer by analyzing compounds in a person's breath. Though still in early stages, this technology holds promise for future applications in early cancer detection.
- **Cancer Dogs** is an innovative approach that trains specially bred dogs to detect cancer by scent, based on the unique chemical signatures emitted by cancerous tissues. While still an experimental approach, the use of trained dogs for cancer detection is gaining interest as a potential screening tool in the future.
- **Color Health** is exploring the use of AI-powered tools, such as ChatGPT-like platforms, for cancer screening by analyzing a person's medical history, symptoms, and risk factors. While this tool is still in development, it could play a role in future triage strategies, helping healthcare providers decide who needs further testing for cancer.

Conclusions

While commercial screening tests, such as multi-cancer early detection (MCED) tests and advanced diagnostic services, show promise in enhancing cancer detection, **it is important for individuals, particularly those at high risk like fire fighters, to approach these tests with informed caution**. These technologies represent valuable tools in the ongoing effort to identify cancers early, but they are not without limitations. Results from these tests should always be interpreted in the context of other clinical evaluations and in collaboration with healthcare professionals.

It is crucial to remember that these commercial tests **should complement—not replace**—established cancer screening guidelines, such as those recommended by National Fire Protection Association (NFPA) 1582, the U.S. Preventive Services Task Force (USPSTF), and the American Cancer Society (ACS). They offer additional layers of monitoring, but healthcare providers should guide their use based on an individual's specific risk factors and health profile.

For further clarification on the role of these tests and how to make informed decisions about their use, the next section will address common concerns and provide practical advice on commercial cancer screening tests in the context of fire fighter health.

Section 5: Frequently Asked Questions (FAQs)

As cancer screening and prevention continue to be key areas of focus for fire fighters, understanding the nuances of these topics is critical. The following frequently asked questions (FAQs) address important aspects of cancer screening, the IAFF's position on commercial screening tests, and strategies for reducing cancer risk. This section aims to provide fire fighters with the information they need to make informed decisions about their health and cancer prevention.

1. What cancer screening tests does the IAFF recommend?

The IAFF does not currently endorse any specific commercial cancer screening tests and services available on the market. While many of these tests, such as multi-cancer early detection (MCED) tests, show promise, they have not yet been sufficiently validated for widespread use, especially in high-risk populations like fire fighters.

Instead, the IAFF recommends evidence-based, widely accepted cancer screenings, which are supported by organizations such as the United States Preventive Services Task Force (USPSTF), American Cancer Society (ACS), and National Fire Protection Association (NFPA). These screenings, discussed extensively in **Section III: NFPA 1582 Screening Recommendations**, have been proven effective in detecting cancer at an early stage, which allows for timely and more successful treatment.

2. Why isn't the IAFF recommending certain types of screening tests?

The IAFF understands that fire fighters are concerned about reducing the cancer risks observed in recent studies. However, the IAFF does not support the use of certain tests for routine cancer screening (testing in individuals without any symptoms or signs of cancer) unless the use is part of an approved research study.

Fire fighters interested in new tests should pursue them only through participation in clinical trials that have received approval by an Institutional Review Board. This ensures ethical oversight and that the fire fighter is appropriately consented to the potential medical risks and benefits. Such participation would also help inform the scientific literature.

The effectiveness of MCED tests for cancer screening in asymptomatic individuals is still unknown and needs to be assessed through randomized clinical trials. As of February 2025, no MCED tests have been approved by the US Food and Drug Administration (FDA).[39] However, healthcare providers may be able to order these tests as part of a clinical trial.

3. What do other medical associations, such as the American Cancer Society, say about commercial cancer screening tests?

The American Cancer Society (ACS) recognizes the potential of MCED tests, such as Galleri®, but emphasizes that these tests are still in development and are not FDA-approved for widespread use.[40] These tests, which can detect multiple cancers from a single blood sample, may offer

[39] National Cancer Institute (NCI). Questions and Answers About Multi-Cancer Early Detection Tests. Accessed February 1, 2025. https://prevention.cancer.gov/major-programs/cancer-screening-research-network-csrn/questions-and-answers-about-multi-cancer
[40] American Cancer Society. Multi-Cancer Early Detection Tests. Accessed February 1, 2025. https://www.cancer.org/cancer/screening/multi-cancer-early-detection-tests.html

valuable early detection in the future, but much more needs to be learned about their accuracy and effectiveness.

Currently, **the ACS does not recommend MCED tests** for routine cancer screening.[41] The ACS stresses that these tests should not replace established, proven cancer screenings such as mammograms, colonoscopy, low-dose CT scans, and Pap smears. Instead, MCED tests may serve as supplementary tools to detect cancers for which no proven screening methods currently exist, such as certain solid tumors.

The ACS also highlights the need for clinical validation before these tests can be widely recommended. Ongoing research will focus on determining how early these tests can detect cancer, how accurate they are for different cancer types, and whether they improve outcomes for individuals diagnosed at earlier stages.[42]

While MCED tests are promising, the ACS and other major medical organizations urge caution until these tests are fully scientifically validated and proven to reduce cancer deaths or improve long-term survival.

4. What makes a good screening test?

A good screening test should detect cancer early, when it is most treatable. Key qualities include:

- **Detects cancer early**: A good test identifies cancer before symptoms appear, when treatment is more effective. For example, mammograms can detect breast cancer early, improving survival rates.
- **Has high sensitivity and specificity**: Sensitivity refers to the test's ability to correctly identify individuals who **have cancer**. Specificity refers to the test's ability to correctly identify individuals who **do not have cancer**.
    - A high sensitivity means that most people with cancer will correctly test positive.
        - *Example*: A lung cancer test with 90% sensitivity will identify 90 out of 100 people with lung cancer.)
    - A high specificity means that most healthy individuals will correctly test negative for cancer.
        - *Example*: A colon cancer test with 95% specificity will identify 95 out of 100 healthy individuals as cancer-free, avoiding false positives.
- **Minimally invasive and low-risk**: The test should be non-invasive or minimally invasive, such as blood tests or imaging, to reduce harm and discomfort.

[41] American Cancer Society Cancer Action Network (ACS CAN). Emergent Science: Multi-Cancer Early Detection Tests. Accessed February 1, 2025. https://www.fightcancer.org/what-we-do/emergent-science-multi-cancer-early-detection-tests
[42] American Cancer Society Cancer Action Network (ACS CAN). ACS CAN Applauds Inclusion of Legislation Critical to Advancing Innovative Multi-Cancer Early Detection Tests. Published 2023. Accessed February 1, 2025. https://www.fightcancer.org/releases/acs-can-applauds-inclusion-legislation-critical-advancing-innovative-multi-cancer-early

- **Provides clear, actionable results**: A good test gives results that are easy to interpret and guide next steps, such as further tests or treatments.
- **Supported by clinical evidence**: The test should be proven effective through studies and endorsed by reputable medical organizations.

5. What makes a bad test?

A bad screening test fails to meet the necessary qualities for reliable detection. Here's what makes a screening test ineffective:

- **Lacks clinical validation**: A test that hasn't been proven effective in studies cannot be trusted for accurate results.
- **Has low sensitivity or specificity**:
    - **Low sensitivity**: A test with low sensitivity will miss many people who have cancer, leading to **false negatives**.
        - *Example*: A lung cancer test with only 50% sensitivity will miss half of those with cancer, delaying treatment.
    - **Low specificity**: A test with low specificity will falsely identify healthy people as having cancer, leading to **false positives**.
        - *Example*: A test with 70% specificity may tell 30 out of 100 healthy people they have cancer, causing unnecessary treatments and stress.
- **Is invasive or risky**: A test that causes harm or requires unnecessary procedures without clear benefits is not ideal.
- **Does not improve outcomes**: A test that detects cancer early but does not improve survival or quality of life is not helpful.
- **Is costly without substantial value**: If a test is expensive but doesn't offer clear benefits in terms of detection or treatment, it is not worth the cost.

6. Many of the commercially available tests are not very risky. Why wouldn't a fire fighter want this information?

While some commercial tests are low-risk, the issue lies in their uncertainty and lack of clinical validation. Some tests may yield false positives, leading to unnecessary procedures, or false negatives, leading to missed cancers. **The psychological impact of false alarms and unnecessary treatments** can be significant.

Fire fighters should prioritize tests supported by clinical evidence and proven to be effective in real-world settings.

7. My primary care physician does not recommend the commercially available cancer screening tests listed. What should I do?

If your physician does not recommend a particular screening test, it's important to understand why. Ask for more information on their concerns and whether there are alternative, evidence-based screenings that would be more suitable for you. If you're still interested in the test, discuss its potential benefits and limitations with your provider. Your physician's guidance is crucial in making informed, health-conscious decisions.

8. What are some common sense and evidence-based cancer prevention strategies fire fighters should know?

Prevention is a critical part of cancer care. Some effective strategies for fire fighters include:

- **Minimizing exposure to carcinogens**: Wear protective gear, follow decontamination protocols, and ensure proper ventilation during firefighting activities.
- **Adopting a healthy lifestyle**: Maintain a balanced diet, exercise regularly, and avoid tobacco and excessive alcohol consumption.
- **Regular health check-ups**: In addition to screenings, routine exams help detect other health issues early.

9. Where can fire fighters learn more about cancer health promotion, surveillance, prevention, and presumptive legislation support?

Fire fighters can access a wealth of resources related to cancer health promotion, surveillance, and prevention, as well as information about presumptive legislation and support from several reputable organizations:

- **International Association of Fire Fighters (IAFF)**: The IAFF provides comprehensive resources on cancer prevention and support for fire fighters. Visit the IAFF's Presumptive Health page: IAFF Presumptive Health for cancer risk reduction tips, cancer-related health guidelines, and details on presumptive legislation.
- **National Institute for Occupational Safety and Health (NIOSH)**: NIOSH offers evidence-based information on fire fighter health, including studies on cancer risks and recommendations to reduce exposure to harmful substances.
- **American Cancer Society (ACS)**: The ACS provides guides on cancer prevention, early detection, and screenings, as well as cancer risk reduction tips for fire fighters.
- **Fire fighter Cancer Support Network (FCSN)**: This nonprofit supports fire fighters with cancer by offering peer support, resources, and education on prevention.

- **Cancer Research Organizations and Local Support Groups**: Many local cancer research institutions and nonprofits provide cancer prevention education and support networks for fire fighters.

Section 6: Summary and Conclusion

Cancer screening and prevention are vital for fire fighters, given the unique and significant risks they face due to occupational exposure to carcinogens. The NFPA 1582 physical exam plays a central role in promoting fire fighter health by helping to identify early signs of cancer and other health conditions, ultimately improving the chances of successful treatment and reducing long-term health complications. By following the NFPA 1582 recommendations for cancer screenings, fire fighters can actively engage in a preventive health strategy that addresses the cancers most commonly associated with their profession.

In addition to early detection through screening, **cancer prevention strategies are just as important**. Fire fighters can reduce their cancer risk by minimizing exposure to carcinogens, wearing protective gear, following proper decontamination procedures, and ensuring good ventilation during fire suppression activities. **Adopting a healthy lifestyle**—maintaining a balanced diet, exercising regularly, and avoiding tobacco and excessive alcohol—also plays a key role in prevention**. Regular health check-ups, alongside screenings,** help identify potential health issues early and ensure fire fighters are equipped to meet the physical demands of their job safely.

While multi-cancer early detection (MCED) tests and other commercial screening options may seem promising, these should be approached with caution. Currently, these commercial tests have not undergone sufficient validation for widespread use, particularly for high-risk populations like fire fighters. The availability of commercial cancer tests may offer some additional insights, they should be seen as complementary to, and not a replacement for, the well-established practices that are designed to protect fire fighter health and safety. The IAFF and other trusted medical organizations, including the **American Cancer Society (ACS)** and the **United States Preventive Services Task Force (USPSTF)**, emphasize the importance of relying on **evidence-based** and **clinically validated screenings**. While commercial tests may provide supplemental information, they are not a substitute for the established screenings recommended by NFPA 1582, and their accuracy, especially in asymptomatic individuals, remains uncertain.

Fire fighters should continue to prioritize regular physical exams, stay informed about new developments in cancer screening, and work closely with healthcare providers to make educated decisions about their health. The focus should be on proven, effective strategies for early detection and prevention.