

FIREFIGHTER CANCER RESEARCH, PREVENTION & SUPPORT



Why Firefighter Cancer Matters

Firefighting is one of the most dangerous occupations in the world — not only because of the immediate risks of structure fires, rescues, and hazardous materials, but because of the long-term, often invisible threat of **occupational cancer**. According to the International Association of Fire Fighters (IAFF), **occupational cancer is now the leading cause of line-of-duty death in the fire service**, surpassing traumatic injuries and cardiac events.

Decades of research have established clear links between the exposures firefighters face on the job and significantly elevated rates of multiple cancers. These include testicular cancer, prostate cancer, melanoma and other skin cancers, non-Hodgkin lymphoma, leukemia, and cancers of the bladder, brain, and lung, among others. The risk increases with years of service and cumulative exposure.

#1 Cause

Occupational cancer is the leading cause of line-of-duty death for firefighters (IAFF)

Higher Risk

Firefighters face significantly elevated rates of several specific cancers vs. general population

All 50 States

Presumptive cancer legislation exists nationwide, recognizing the occupational link

The good news is that much of this risk is **preventable or reducible** through better protective equipment, rigorous decontamination practices, proper gear maintenance (per NFPA 1851), early detection screening, and strong support systems when cancer does occur. This guide summarizes key research findings, practical prevention steps, and resources for firefighters, their families, and fire departments.

What the Research Shows

The International Agency for Research on Cancer (IARC) has classified firefighting as **carcinogenic to humans**. Large-scale studies, including those funded by NIOSH and the U.S. Fire Administration, have consistently found higher incidence and mortality rates for specific cancers among firefighters compared to the general population.

Key Research Highlights

- Multiple studies show firefighters have 2x or greater risk for testicular cancer and significantly elevated risk for prostate cancer and melanoma.
- Increased rates of non-Hodgkin lymphoma, leukemia, bladder cancer, brain cancer, and lung cancer have been documented.
- The National Firefighter Registry (launched following the 2018 Firefighter Cancer Registry Act) continues to collect data to better understand risks, especially for women, minorities, and newer firefighters.
- Risk is cumulative — longer careers and more intense exposure histories correlate with higher cancer rates.
- Contaminants on turnout gear (PAHs, PFAS “forever chemicals,” heavy metals, dioxins) contribute to both dermal absorption and inhalation risks even after fires are out.

Ongoing research also examines the role of PFAS in modern turnout gear and the effectiveness of advanced cleaning methods in reducing long-term exposure.

Sources of Occupational Exposure

Firefighters encounter carcinogens through multiple pathways during and after emergency responses:

During Incidents

- Inhalation of smoke containing polycyclic aromatic hydrocarbons (PAHs), benzene, formaldehyde, and other known carcinogens from burning plastics, furniture, and building materials.
- Dermal absorption — many carcinogens pass through skin, especially when sweat opens pores and gear is saturated.
- Diesel exhaust exposure at the station or on scene from apparatus idling.

Post-Incident & Chronic Exposure

- Contaminated turnout gear and equipment that is not properly decontaminated between calls.
- “Take-home” exposure — carcinogens transferred to personal vehicles, homes, and family members via soiled gear or skin.
- Chronic low-level exposure at fire stations (older buildings, poor ventilation, contaminated PPE storage).
- Cumulative effects over 20–30+ year careers.

Reducing these exposure pathways is the foundation of cancer prevention in the fire service.

Prevention: NFPA 1851 & Best Practices

NFPA 1851 (Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting) is the key standard for reducing cancer risk through proper gear management. Departments and individual firefighters must treat gear care as a critical cancer-prevention protocol.

Core NFPA 1851 Requirements for Cancer Risk Reduction

- **Advanced Cleaning:** Turnout gear should receive advanced (machine) cleaning at least twice per year or after significant contamination. This removes PAHs, PFAS residues, and other carcinogens far better than routine cleaning.
- **Gross Decontamination On-Scene:** Perform gross decon (water rinse + brush or decon wipes) before doffing gear whenever possible. This dramatically reduces the amount of contaminants brought back to the station or home.
- **Proper Storage:** Never store contaminated gear in living quarters, apparatus cabs, or personal vehicles. Use dedicated, well-ventilated PPE storage areas.
- **Inspection & Repair:** Regular inspections identify damage that can allow contaminants to reach skin. Repair or replace compromised gear promptly.
- **10-Year Retirement:** Structural firefighting ensembles have a maximum service life of 10 years from date of manufacture, regardless of apparent condition, due to cumulative contamination and material degradation.
- **Record Keeping:** Maintain detailed cleaning, inspection, and repair records for every set of gear.

Additional Proven Practices

- Shower as soon as possible after incidents (within the “golden hour” if feasible) to remove contaminants from skin before they are absorbed.
- Use dedicated “dirty” and “clean” zones at the station; change out of contaminated gear before entering living areas.
- Launder station/work uniforms separately from family laundry.
- Advocate for and use next-generation turnout gear with reduced or PFAS-free materials as it becomes available.
- Support department policies that prioritize cancer prevention (e.g., mandatory gross decon, advanced cleaning schedules, proper storage infrastructure).

Early Detection & Screening

Early detection dramatically improves outcomes for most firefighter-related cancers. Many departments now incorporate enhanced cancer screening into annual physicals or wellness programs.

Recommended Screening Considerations

- Discuss enhanced screening protocols with your department physician or occupational health provider (e.g., earlier/more frequent PSA testing, skin exams, low-dose CT lung screening for eligible individuals).
- Be aware of family history and personal risk factors and advocate for personalized screening plans.
- Participate in the National Firefighter Registry and any local or state cancer surveillance programs.
- Know the early warning signs of common firefighter cancers and do not ignore symptoms (unexplained lumps, changes in skin moles, persistent fatigue, blood in urine/stool, unexplained weight loss, etc.).

IAFF offers free online training such as “Cancer in the Fire Service: Fundamentals” that covers signs, early detection, and support — highly recommended for all personnel.

Support When Cancer Strikes

A cancer diagnosis in the fire service affects the individual, their family, crew, and department. Strong peer support, access to benefits, and culturally competent care make a profound difference.

Key Support Organizations

IAFF Center of Excellence / Cancer Resources	IAFF.org/cancer — Research summaries, prevention tools, training courses, and advocacy. Presumptive Health Initiative database for state-by-state coverage.
Firefighter Cancer Support Network (FCSN)	Peer support specifically for firefighters and families facing cancer. Trained survivor volunteers provide one-on-one support, education, and hope. firefightercancersupport.org
American Cancer Society + IAFF Partnership	Resources, patient navigation, prevention information, and advocacy tailored for firefighters.
National Firefighter Registry	Ongoing research program — participate to help future generations. cdc.gov/niosh/firefighters/registry
Presumptive Cancer Laws	All 50 states + DC have some form of presumptive cancer legislation. Benefits vary — check your state via the IAFF Presumptive Health database or your union.

How Departments & Leaders Can Support

Systemic change at the department level has the greatest long-term impact on reducing cancer incidence and improving outcomes when it occurs.

Recommended Department Actions

- Adopt and enforce comprehensive cancer prevention policies aligned with NFPA 1851 and current research (gross decon, advanced cleaning frequency, PPE storage, take-home exposure prevention).
- Invest in infrastructure: dedicated PPE cleaning/extraction equipment, proper storage facilities, and on-scene decon capabilities.
- Incorporate enhanced cancer screening into annual medical evaluations and occupational health programs.
- Provide and promote IAFF and FCSN training on cancer awareness for all personnel and families.
- Support presumptive benefits advocacy and ensure members understand their rights and how to access benefits if diagnosed.
- Create a supportive culture: Reduce stigma around cancer discussions, offer peer support training, and treat cancer as an occupational illness rather than a personal failing.
- Partner with local cancer centers or the American Cancer Society for firefighter-specific navigation and support.

For Families & Crew Members

Families play a vital role in supporting a firefighter through diagnosis, treatment, and recovery. Practical help (meals, transportation, childcare), emotional support, and encouraging adherence to treatment and follow-up care are invaluable. Crew members can reduce isolation by staying connected, helping with light duties where appropriate, and advocating for the member within the department.

A Call to Action

Firefighter cancer is an occupational disease — not an inevitable consequence of the job. Through rigorous application of NFPA 1851 standards, modern decontamination practices, ongoing research participation, early detection, strong peer support, and presumptive benefits, we can significantly reduce both incidence and the burden on those affected.

Every firefighter deserves to go home healthy — not just at the end of the shift, but at the end of a long career.

Whether you are a firefighter, officer, union leader, family member, or community supporter, you have a role to play in prevention, early detection, and support. Start today: review your department's decon and cleaning protocols, schedule or encourage enhanced screenings, share these resources, and speak openly about cancer as the occupational threat it is.

Key Resources to Act On Today

IAFF Cancer Resources: iaff.org/cancer
 Firefighter Cancer Support Network: firefightercancersupport.org
 National Firefighter Registry: cdc.gov/niosh/firefighters/registry
 IAFF Presumptive Health Database: Check your state benefits

Prevention saves lives. Support saves families. Knowledge empowers both.

Disclaimer: This guide is for educational and informational purposes only and is not a substitute for professional medical, legal, or occupational health advice. Firefighters should follow their department's policies, NFPA standards, and guidance from qualified physicians. Presumptive benefits and workers' compensation rules vary by jurisdiction — consult your union, department, or legal counsel for specific situations. Information reflects publicly available research and resources as of 2026. Always verify current recommendations with authoritative sources such as the IAFF, NIOSH, and NFPA.

Created as a resource in support of firefighters and the mission of organizations like Respect 1st Responders (R1R) and similar groups dedicated to the long-term health and well-being of those who serve.