TORONTO PROFESSIONAL FIRE FIGHTERS' ASSOCIATION

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# FIREFIGHTER MEDICAL SURVEILLANCE GUIDE

Cancer & Cardiac Risk - Toronto Firefighters

## Physicians: Firefighters are a proven, medically high-risk occupational group

Firefighters in Ontario are legally recognized as a high-risk occupational cohort for both cancer and heart disease under the Workplace Safety and Insurance Board (WSIB) presumptive frameworks.

These presumptions exist because decades of epidemiological and occupational-health research have shown that firefighters experience:

- Significantly elevated rates of multiple cancers
- Elevated rates of cardiac disease, heart attack, and sudden cardiac death

These outcomes are not random. They arise from chronic occupational exposure to products of combustion and extreme physiological stress.

**Firefighters are routinely exposed to:**

- Polycyclic aromatic hydrocarbons (PAHs)
- Benzene, toluene, xylene (BTEX compounds)
- Formaldehyde and aldehydes
- Diesel exhaust
- PFAS and flame retardants
- Heavy metals and fine particulates
- Extreme heat, dehydration, hypoxia, and catecholamine surges

Exposure occurs through inhalation, ingestion, and dermal absorption, including off gassing from contaminated gear and apparatus environments.

The International Agency for Research on Cancer (IARC) classifies firefighting as a Group 1 carcinogenic occupation. Ontario's presumptive cancer and heart legislation reflects this medical reality by recognizing that firefighters develop these diseases at much higher rates than the general population.

## Clinical implications:

Firefighters should be medically managed as a high-risk occupational cohort, similar to:

- Asbestos-exposed workers
- BRCA mutation carriers
- Radiation workers
- Heavy industrial and aviation workers

Routine age-based population screening is not sufficient

**Earlier testing, lower thresholds for investigation and proactive surveillance are medically necessary**

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# 2026 Ontario Presumptive Cancers - Firefighter Medical Risk Profile

## Based on Ontario's WSIB presumptive legislation, thresholds, and firefighter occupational cancer research

| Cancer Type | Years of Service | Approximate Risk Increase vs General Population | Suggested Clinical Focus |
|---|---|---|---|
| Breast (male/female) | 10 yrs | Female ~20% ↑ / Male >200% ↑ | Mammography & clinical breast exam |
| Brain | 10 yrs | ~30% ↑ | Neurologic exam; MRI if symptomatic |
| Bladder | 15 yrs | 30–50% ↑ | Urinalysis; evaluate hematuria |
| Kidney / Renal pelvis | 10 yrs | 30–50% ↑ | Urinalysis + imaging |
| Colorectal | 10 yrs | 20–30% ↑ | FIT; colonoscopy per guidelines |
| Esophageal | 15 yrs | ~40% ↑ | Endoscopy if reflux, dysphagia, weight loss |
| Leukemia (AML) | 15 yrs | ~50% ↑ | CBC; evaluate cytopenias |
| Leukemia (CLL) | 15 yrs | ~30% ↑ | CBC; evaluate lymphocytosis |
| Leukemia (ALL) | 15 yrs | 30–40% ↑ | CBC |
| Non-Hodgkin's Lymphoma | 20 yrs | 30–50% ↑ | CBC; imaging if lymphadenopathy |
| Multiple Myeloma | 15 yrs | ~50% ↑ | SPEP + light chains |
| Prostate | 15 yrs | 20–30% ↑ | PSA + shared decision-making |
| Testicular | 10 yrs | 50–100% ↑ | Clinical exam + self-exam |
| Ureter | 15 yrs | 30–40% ↑ | Urinalysis + imaging if indicated |
| Lung | 15 yrs | 10–20% ↑ | Low Dose CT if eligible |
| Skin | 10 yrs | 30–40% ↑ | Full-skin exam |
| Cervical | 10 yrs | ~30% ↑ | Pap / HPV testing |
| Ovarian | 10 yrs | ~30% ↑ | Pelvic exam + ultrasound |
| Penile | 15 yrs | ~40% ↑ | Genital exam |
| Thyroid | 10 yrs | 40–50% ↑ | Neck exam + ultrasound |
| Pancreatic | 10 yrs | ~40% ↑ | Specialist referral if suspicious |

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# Occupational Heart Disease in Firefighters

## Firefighting is a proven high-risk cardiac occupation

Each emergency response exposes firefighters to extreme physiological stress that places both an immediate and cumulative strain on the heart. These stressors are not incidental, they are inherent to the job and repeated throughout a firefighter's career. Firefighters routinely perform at near-maximal exertion while wearing heavy, restrictive protective equipment and operating in hostile environments. This results in:

- Heavy exertion extreme thermal stress
- Acute inflammatory and hyper coagulable responses
- Repeated surges of adrenaline and sympathetic activation
- Chronic sleep disruption due to shift work schedule

### Presumptive Recognition Reflects Medical Reality:

In **Ontario**, this risk is recognized through **presumptive legislation coverage for heart attacks and heart injuries in firefighters**. The evidence is clear: firefighting materially increases the risk of serious cardiac events.

Across North America, **cardiac disease is the leading cause of line-of-duty death among firefighters**. These deaths frequently occur **without warning**, often during or immediately following intense operational activity.

Firefighters commonly experience:

- Accelerated atherosclerosis disproportionate to age
- Structural cardiac remodelling from repeated stress
- Electrical instability and arrhythmias
- Sudden cardiac death as the first manifestation of disease

Cardiac disease in firefighters is **occupational, cumulative, and often silent**. Symptom-based diagnosis is inadequate and too often, too late. Firefighters require proactive, structured cardiac surveillance tailored to occupational risk.

**Routine surveillance should include:**

Blood pressure
Lipid profile
Hemoglobin A1c (HbA1c)
Resting 12-lead ECG

**Further evaluation when indicated:**

Cardiac stress testing
Echocardiography
Coronary artery calcium (CAC) scoring
Early cardiology referral

**These assessments are reasonable, evidence-based, and proportionate to the known hazards of firefighting**

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### A Critical Clinical Principle:

Firefighters **should not be excluded from cardiac testing because they appear young, fit, or asymptomatic**. In this population, the first sign of heart disease is often too late.

| Cardiac Condition | Increased Risk vs General Population | Suggested Clinical Focus |
|---|---|---|
| Heart Attack - Myocardial Infarction | ~2–3× higher risk in firefighters | Annual risk assessment + baseline resting ECG + consider stress testing by age 40/with risk factors |
| Sudden Cardiac Death | ~2–5× higher risk during/ after emergency operations | Annual physical + resting ECG + rapid evaluation of symptoms (syncope palpitations) |
| Coronary Artery Disease (Subclinical) | ~2–4× higher prevalence of subclinical CAD | Coronary artery calcium (CAC) scoring starting ~age 40 or earlier with risk factors |
| Cardiac Arrhythmias | Observed elevated arrhythmia burden | Resting ECG annually + ambulatory monitoring if symptoms or ECG abnormalities |
| Cardiomyopathy / Remodeling | Greater frequent findings of LV hypertrophy/structural | Annual exam + echocardiography when indicated (symptoms/ECG changes) |
| Hypertension / Vascular Disease | Elevated incidence vs general population | Annual blood pressure checks + lifestyle risk counselling |

### Early detection can save lives

### Proactive cardiac surveillance is essential

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# For Firefighters:
# Your Job Increases Your Risk of Cancer and Heart Disease

In Ontario, firefighting is **recognized** as a profession that causes **cancer and heart disease. The risk factors are typically higher than in the general population**. That recognition exists because the evidence is clear. Firefighters face repeated occupational exposures that damage the heart and increase cancer risk over time.

Do not wait for symptoms, be proactive. Waiting until you feel sick is an error firefighters too often pay for with their lives. Many firefighter cancers and heart conditions **produce no early warning signs**. By the time symptoms appear, disease can be advanced, harder to treat and more likely to be fatal.

## Routine age-based screening is not sufficient

**Caught early:**

- Many cancers are treatable
- Heart disease can be managed or corrected

**Caught late:**

- Treatment options narrow
- Outcomes worsen
- Lives are lost

**Medical surveillance is an essential part of the job. It is your responsibility, to yourself and your family**

- Get a full physical with a physician or nurse practitioner – **Every Year**
- Clearly state that you are a Toronto Firefighter
- Ask that your occupational cancer and cardiac risk be considered

## Bring this document and advocate for appropriate screening

Do not assume your provider understands the risks you face as a firefighter. Do not assume testing will be offered, **ASK**.

## Be honest about how your body feels

## You cannot eliminate your risk, but you can take steps to reduce it

- Wear your SCBA, including during overhaul and ensure on scene decontamination
- Shower promptly after fires
- Isolate and wash your contaminated gear, including flash hood, gloves, fatigues and your helmet
- Use diesel exhaust capture systems
- Keep the apparatus cab and fire stations clean

# The Bottom Line: You got into this career to save lives. Don't forget your own