

## **Advancing Fire Safety in Indigenous Communities: Evidence, Action, and the Path Forward**

*By Len Garis, Mandy Desautels*

Residential fires continue to pose a disproportionate threat to Indigenous communities across Canada. Higher rates of overcrowding, aging housing, limited access to safety equipment, and systemic inequities contribute to fire incidence and severity at levels far above the national average. The consequences are profound: more injuries, more fatalities, and more homes lost.

In 2023, the National Indigenous Fire Safety Council (NIFSC) commissioned the British Columbia Injury Research and Prevention Unit (BCIRPU) to evaluate its suite of community fire safety programs. The goal was to determine which interventions are supported by strong evidence, how they perform in real-world settings, and how communities can deploy them to reduce fire-related harm.

The evaluation forms the foundation of the LEAD Fire Safety and Prevention Community Toolkit and provides one of the clearest roadmaps to date for improving fire outcomes in Indigenous communities. What follows is a synthesis of the findings, with a sharper focus on the actions that matter most.

### **Understanding the Fire Burden**

Indigenous people in Canada experience:

- **2.5 times more residential fires**
- **3.2 times higher hospitalization rates for burns**
- **Up to 10.4 times higher fire-related mortality**

These disparities are not random. They reflect structural conditions—overcrowded homes, limited access to functioning smoke alarms, aging electrical systems, and barriers to emergency response. The evaluation emphasizes that residential fires are predictable and preventable, and that targeted interventions can dramatically reduce risk.

The social-ecological model used in the report highlights the layered nature of fire risk: individual behaviours, household conditions, community infrastructure, and broader social determinants all interact. Effective fire prevention must therefore operate across multiple levels.

### **Evidence-Based Program Areas and Their Impact**

The evaluation examined thousands of studies and matched the strongest evidence to NIFSC's program areas. Below is an expanded, action-oriented summary of what the research shows and why each area matters for Indigenous communities.

#### **Home Safety Assessments**

Home safety assessments are one of the most powerful tools available for reducing fire risk. They allow trained personnel to enter homes, identify hazards, correct deficiencies, and provide tailored education. This is especially important in communities where housing conditions—such as overcrowding, aging structures, and limited ventilation—are known contributors to fire risk.

Research shows that home-based interventions significantly increase the presence of working smoke alarms, improve electrical safety, and strengthen escape planning. Studies also report reductions in fire incidence and injury rates following home visits.

The action impact is clear: assessments reach the highest-risk homes, address hazards before ignition, and build trust between fire services and residents. In Indigenous communities, where housing conditions are a major driver of fire risk, this intervention directly targets the root causes.

### **Smoke Alarm and Carbon Monoxide Alarm Installation**

Working smoke alarms remain the single most effective life-saving device in residential fires. Yet many Indigenous homes lack functioning alarms due to cost, maintenance challenges, or housing conditions.

The evidence supporting installation programs is exceptionally strong. One of the clearest examples comes from Surrey, British Columbia, where a firefighter-led, door-to-door installation program produced a statistically significant reduction in residential fires. Importantly, this reduction occurred only in the neighbourhoods that received the intervention. Control areas saw no comparable improvement.

This is a critical finding: **installation plus education works; distribution alone does not**. Cohort studies in the United States reinforce this, showing 59% fewer injuries and 68% lower death/injury rates in homes receiving installed alarms.

For Indigenous communities—where nighttime fires, delayed detection, and longer response times increase fatality risk—the impact of early warning is even more pronounced. Installing alarms is one of the highest-value actions a community can take.

### **Home Escape Planning**

Escape planning is a simple but essential component of fire safety. Many fatalities occur because residents do not know how to exit quickly, especially in smoke-filled or low-visibility conditions. Children, elders, and people with mobility challenges are at particular risk.

Research shows that families receiving escape-planning education report more escape-related behaviours and are more likely to have a practiced plan. While the evidence base is smaller than for smoke alarms, the findings are consistent: education improves readiness.

In communities where response times may be longer and homes may have complex layouts or multiple generations living together, escape planning becomes a critical survival tool. It ensures that when a fire occurs, residents can act quickly and confidently.

### **Electrical Safety**

Electrical fires remain a major cause of residential incidents, particularly in older homes or homes requiring major repairs—conditions common in many Indigenous communities.

Research shows that electrical safety education improves fire preparedness and increases knowledge of safe electrical practices. While the evidence is moderate, it aligns with broader fire-prevention literature: awareness reduces risk.

Electrical safety programs help residents identify overloaded circuits, unsafe appliance use, and early warning signs such as hot outlets or flickering lights. When paired with home assessments, this intervention can significantly reduce ignition risk.

### **Cooking Safety**

Cooking is the leading cause of residential fires in Canada. Unattended cooking, grease fires, and unsafe stovetop practices are common contributors.

Studies consistently show that cooking safety education improves knowledge among older adults and parents. While no studies directly measured reductions in fire incidence, the behavioural improvements are clear.

Cooking safety programs reduce unattended cooking, improve safe handling of grease and flammable materials, and reinforce safe stovetop practices. In communities where cooking is central to daily life and cultural gatherings, this program supports safer routines without disrupting tradition.

### **Heating Safety**

Heating equipment—wood stoves, space heaters, furnaces—is a major fire hazard, especially in northern and rural Indigenous communities where alternative heating sources are common.

Research shows improved knowledge of heating safety following educational interventions. While evidence focuses on knowledge rather than fire outcomes, the practical benefits are well understood: safer use of heaters, proper clearance around heat sources, and improved chimney maintenance.

Heating safety programs also help prevent carbon monoxide incidents, which remain a serious concern in communities relying on multiple heating sources.

### **Senior and Elder Safety**

Seniors experience the highest fire-related mortality rates in Canada. Mobility limitations, slower reaction times, and medical conditions increase vulnerability. In Indigenous communities, elders also hold cultural leadership roles, making their safety a community priority.

Research shows that senior-focused programs improve knowledge of fire and fall hazards and increase awareness of safe behaviours. While more research is needed on injury reduction, the benefits are clear: safer cooking, safer heating, and improved evacuation readiness.

Senior safety programs also support caregivers and family members, strengthening community resilience.

### **What the Evidence Tells Us About Effective Action**

Across all program areas, several themes emerge:

**Multi-faceted interventions produce the strongest results.**

Programs that combine education with environmental modification—such as home assessments and alarm installations—deliver the greatest impact.

**In-person delivery is essential.**

Door-to-door engagement, home visits, and community-based education outperform passive approaches.

**Cultural grounding matters.**

Programs must reflect local housing conditions, cultural practices, and community priorities.

**Prevention is more effective and more affordable than response.**

Investing in prevention reduces injuries, deaths, property loss, and long-term health impacts.

**Evidence-based programming builds trust and credibility.**

Communities can confidently adopt programs knowing they are backed by rigorous research.

**Conclusion: A Path Toward Fire Safety Equity**

The evaluation of NIFSC's community fire safety programs confirms what many in the fire service already know: **fire prevention works when it is evidence-based, community-driven, and delivered in person.**

For Indigenous communities, where the burden of fire is disproportionately high, the stakes are even greater. The findings reinforce that the most effective interventions are those that reach people where they live, address the conditions that drive fire risk, and build capacity within communities.

With continued investment, collaboration, and commitment to evidence-based practice, the goal of reducing—and ultimately eliminating—fire-related tragedies in Indigenous communities is not only possible, but achievable.

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