

From climate alerts to health protection: an implementation agenda for Canada

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Canada has increasingly sophisticated weather and air-quality warnings, yet the public-health value of an alert depends on what happens after it is issued. The 2021 heat emergency in British Columbia caused 619 heat-related deaths; 56% of those who died lived alone (Government of Canada, 2023). Wildfire smoke and extreme heat can coincide and compound physical and mental health risks (Public Health Agency of Canada, 2025). These events raise a practical question for a federated health system: how can a forecast reliably trigger outreach, clinical preparation and protection for people least able to respond? Canada's National Adaptation Strategy recognises health and well-being as an adaptation priority (Government of Canada, 2023), while Health Canada supports heat-alert and response systems and the HealthADAPT programme (Health Canada, 2022, 2025). The next step is to connect these efforts through a measurable forecast-to-action pathway. This commentary proposes a model for provincial and territorial health authorities, local public-health units, health-care organisations and community partners. It is an implementation proposal, not a claim that its effectiveness has been established.



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First, alerts should have pre-agreed actions. Health Canada's heat-alert guidance explicitly links alert protocols with community response, communication and evaluation (Health Canada, 2022). Environment and Climate Change Canada's forecasts and air-quality information can provide lead time, but thresholds and responses need to reflect local exposure, housing conditions and service capacity. A heat warning might prompt primary-care teams and home-care providers to contact high-risk patients, municipalities to extend access to cooled public spaces, and hospitals to check staffing, water and cooling systems. A smoke alert might prompt cleaner-air spaces, guidance on reducing exposure and continuity plans for people with respiratory or cardiovascular disease. When heat and smoke occur together, separate warning streams should lead to one coordinated public message and one operational plan.

Second, authorities should distinguish forecast horizons. Seasonal projections can inform budgets and readiness; forecasts over days can activate staffing and outreach; observed indoor temperatures, air quality and health-service demand can guide escalation. An alert alone cannot identify who is overheating in an apartment or whether a person can reach a safer space. Health Canada's guidance on indoor temperatures for older adults makes the indoor environment a concrete target for prevention (Health Canada, 2026). Where feasible and consented to, home-care and community teams could use indoor-temperature checks and welfare contacts to close the gap between outdoor forecasts and personal risk.

Third, responses must reflect Canada's jurisdictional and geographic diversity. Provincial and territorial authorities deliver most health services, while municipalities, First Nations, Inuit and Métis governments, federal agencies and community organisations have distinct roles. A single national trigger would be poorly suited to a northern community facing disrupted access, an urban neighbourhood with high indoor heat, and a rural area exposed to wildfire smoke. Locally developed protocols should specify who issues the alert, who contacts residents, who opens a safe space, and who maintains essential care. An Indigenous-led national assessment underscores the need for adaptation grounded in Indigenous knowledge and self-determination (Natural Resources Canada, 2024). Indigenous-led programmes should be resourced and governed by the communities concerned, with data collection and sharing consistent with their priorities and authority.

Fourth, an equitable alert must be usable. The people most at risk may face inaccessible housing, disability, social isolation, insecure employment, limited transport or language barriers. A website or phone notification does not by itself provide cooling, cleaner air or a way to miss work safely. Plans should pair accessible and multilingual messages with practical measures: transport to safe spaces, outreach through trusted organisations, protection for outdoor workers, and continuity of medicines and home care. Authorities should assess who received help and who did not, rather than treating the number of alerts sent as evidence of protection.

Finally, health-system resilience needs indicators that can be audited. Local dashboards could report the time between a warning and outreach, the share of identified high-risk residents successfully contacted, hours that safe spaces were open and accessible, emergency-department demand, and interruptions to home care or facility operations. Measures should be disaggregated where ethical and feasible, with safeguards for privacy and small communities. Evaluations should examine cost, reach and unintended consequences, while accounting for the severity of the event and changes in reporting. Comparable methods across sites would help provinces and territories learn from one another without erasing local differences.

Canada already has forecasts, adaptation policy and examples of heat-response practice. The research and policy opportunity is to test whether linking a warning to a defined chain of responsibility reduces exposure and keeps care functioning. A forecast becomes a health intervention only when someone is accountable for the action it sets in motion.

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