

Canadian Wildfires: A Plague on Societies Well-Being, Inequities and Cohesion

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Abbreviations:

BC: British Columbia
COVID-19: coronavirus disease 2019

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Abstract

Extreme heat and wildfires have health implications for everyone; however, minority and low-income populations are disproportionately negatively affected due to generations of social inequities and discriminatory practices. Indigenous people in Canada are at a higher risk of many chronic respiratory diseases, as well as other non-communicable diseases and hospitalization, compared to the general population. These wildfires occurring during the COVID-19 pandemic have demonstrated how disruptive compounding disasters can be, putting minority populations such as First Nations, Metis, and Inuit tribes at increased risk and decreased priority. Going forward, if the necessarily proactive mitigation and preparedness steps are not undertaken, the ability to attenuate health inequity in the indigenous community by building resiliency to wildfire disasters will be significantly hampered.

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Driven dramatically by climate change, throughout the summer of 2021, much of Canada experienced heatwaves culminating in the hottest temperature ever recorded of 49.6°C set in Lytton, British Columbia (BC) on June 29, 2021.¹ Following the heatwave, the village community of Lytton, numbering 250, was engulfed by fire and subsequently burned to the ground. Two people died as a result. The Lytton First Nation's tribe members were forced to evacuate and were temporarily relocated across the province. At one point, nearly 300 wildfires were burning across BC alone, prompting evacuation orders that required people to leave their homes immediately. While local governments are still assessing mortality data, the chief coroner of BC reported 815 sudden and unexpected deaths during June 25–30, 2021, mainly affecting older adults.^{2,3} As well, the ever-present coronavirus disease 2019 (COVID-19) pandemic complicated the response, as its resultant surge in patients taxed both health care responders as well as the capacity of hospitals to absorb more casualties.

Extreme heat and wildfires have health implications for everyone; however, minority and low-income populations are disproportionately negatively affected due to generations of social inequities and discriminatory practices.⁴

Among minority groups, Canada's indigenous people make up 4.9% of the total population and include First Nations, Metis, and Inuit tribes.⁵ Many First Nations' reserves are in forests that have limited access by road, and in some communities, are accessible only by air. They live in some of the most at-risk communities that are vulnerable to wildfires. Their "at-risk" status will only increase due to worsening climate change and lack of action from governments. From 1980–2007, researchers found that indigenous people made up over one-third of the evacuations in Canada due to wildfires alone.⁷

While indigenous health inequities in Canada have been well-documented in scientific literature and the popular press, the understanding of the direct injury effects and the psychosocial and mental health implications of wildfires on indigenous populations are nascent.⁸

Indigenous people in Canada are at a higher risk of many chronic respiratory diseases, as well as other non-communicable diseases and hospitalization, compared to the general population. The health impact of wildfire smoke is known to exacerbate underlying pathology due to high temperatures and inhalation of fine particulate matter PM_{2.5}. Particle sizes in this range are of significant concern as they can penetrate deep into the lungs, easily reaching the alveoli, with resultant injury and absorption into the circulation. A recent study examining extreme wildfires in Canada's high subarctic during 2014 suggests that the cardiorespiratory impacts of extended exposure to poor air quality disproportionately impacted the health of indigenous people. Recent evidence suggests that the long-term effects of wildfire fire exposure may have significant health effects. A longitudinal study that included more

than two million people over a 20-year period found that wildfire exposure was associated with increased incidence of lung cancer and brain tumors.⁹ Given the incidence of these co-morbidities, wildfires pose a significantly greater health threat to this population group.¹⁰ Alarming, despite growing evidence of the deleterious effect of wildfires on the health outcomes of indigenous people, health systems remain unprepared to deal with these mounting challenges. Health systems can barely take on extra pressure from an aging population, let alone tackling social inequalities, pandemics, wars, and natural events.

Adverse health outcomes impacting indigenous people are expected to increase throughout the 21st century, particularly in boreal forests. Wildland fires are projected to be more prevalent in number, size, and intensity due to climate-warming increases in scorching, dry weather and increasing fire season duration.¹¹ Provincial and Territorial health leaders in Canada need to take urgent action to mitigate the health inequity of indigenous people due to wildland fires. Future planning must consider the vulnerabilities of indigenous people, not only from the evacuation standpoint, but how they intend to care for their psychosocial and mental

needs that are too often overlooked in the recovery and rehabilitation of their communities. A multi-pronged approach is needed. Many health care providers are not trained in how to manage the health effects of wildfires. Specialized training in disaster medicine and emergency management is required in order to build effective health care treatment approaches, organizational capacity, and sustainability. Additional investments in the indigenous community's infrastructure include proactively preparing for potential supply disruptions due to COVID-19, stockpiling medications and supplies, and retrofitting and updating ventilation systems capable of maintaining indoor air quality while sheltering in place.

These wildfires occurring during the COVID-19 pandemic have demonstrated how disruptive compounding disasters can be, putting minority populations such as First Nations, Metis, and Inuit tribes at increased risk and decreased priority. Going forward, if the necessarily proactive mitigation and preparedness steps are not undertaken, the ability to attenuate health inequity in the indigenous community by building resiliency to wildfire disasters will be significantly hampered.

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