

# Wildfire smoke

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## 1 Exposure to wildfire smoke is associated with adverse health outcomes

Wildfire seasons are getting longer and more severe in Canada. Wildfire smoke caused 710 emergency department visits for respiratory conditions and 250 for cardiac conditions in 2017.<sup>1</sup> During days with wildfire smoke in the United States, asthma-specific hospital visits increased 10.3%<sup>2</sup> and nontraumatic deaths increased 1%–2% in 2006–2017.<sup>3</sup>

## 2 Wildfire smoke can be more toxic than pollution from other sources

Both the fuels burned and the fire intensity influence the toxicity of wildfire smoke. The fine particulates in wildfire smoke can travel more than 1000 km; they have high water solubility, generate free radicals, and induce oxidative stress and inflammation.<sup>4</sup>

## 3 The Air Quality Health Index (AQHI) is a risk communication tool

Environment and Climate Change Canada issues hourly reports on the local AQHI ([weather.gc.ca](http://weather.gc.ca)), which uses a scale from 1 to 10. When the AQHI is greater than 7, at-risk people — such as those with respiratory and other chronic diseases, pregnant people, older adults, and infants and children — should reduce time spent in outdoor, strenuous activity.

## 4 Physicians can empower patients before and during wildfire season

Physicians should talk to at-risk patients about the risks of wildfire smoke and strategies for reducing their exposure. Patients should be informed about the AQHI and the value of indoor air filtration. Patients with asthma and chronic obstructive pulmonary disease should have updated action plans and a sufficient supply of medications.

## 5 Reducing exposure to wildfire smoke reduces the health risks

Staying indoors with closed windows and using high-efficiency particulate air or do-it-yourself air purifiers can reduce the concentration of fine particulates by 32%–88%.<sup>5</sup> Patients can claim these prescribed devices as medical expenses on their tax returns. When outside, wearing tight-fitting respirators (e.g., N95 or KN95) can minimize fine particulate exposure by more than 90%. Some areas may provide clean air shelters for underhoused people.

## References

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