

Dr. Charles Gardner, Medical Officer of Health  
Dr. Colin Lee, Associate Medical Officer of Health  
Dr. Lisa Simon, Associate Medical Officer of Health

## Wildfire Smoke & Health Protection

**Attention:** Physicians, Emergency Departments, Infection Control Practitioners, Walk-In Clinics/Urgent Care Clinics, Nurse Practitioners, Ontario Health, EMS, Midwives, Community Health Centres, Family Health Teams, Pharmacies, Beausoleil First Nation, Moose Deer Point First Nation, Rama First Nation, Wahta Nation, Paramedics

**Date:** June 28, 2023.

### Current Conditions in Simcoe Muskoka

A Special Air Quality Statement (SAQS) was issued by Environment and Climate Change Canada (ECCC) earlier this week for Simcoe, Muskoka. High levels of smoke plumes from forest fires in northeastern Ontario and Quebec have deteriorated local air quality. Conditions are expected to improve for some areas on Thursday June 29. Air quality and visibility due to wildfire smoke can fluctuate over short distances and can vary considerably from hour to hour. For more details about local air quality please consult [ECCC Alerts](#), the [Air Quality Health Index](#) (AQHI) and [firesmoke.ca](#). SMDHU and the Ministry of Health are currently monitoring the impact of air quality on population health.

There has been an increase in respiratory-related emergency department visits at local hospitals since Sunday. The health impacts associated with poor air quality may be felt several days after the poor air quality event. Increased visits to health professionals should be expected into the next week as there is often a lag between the air quality event and the onset of symptoms.

### Wildfire Smoke

Wildfires pose a significant public health risk. Wildfires release dense smoke that can travel hundreds of kilometres away, affecting a large population. Wildfire smoke contains a complex mixture of particulate matter (PM2.5) and gases, including carbon monoxide, nitrogen oxides and volatile organic compounds. Wildfires and wildfire smoke can be difficult to predict. The mixture of harmful pollutants can quickly change depending on wildfire conditions, the weather, and other anthropogenic emissions of air pollutants.

Wildfire smoke is a major contributor to poor air quality in Canada and increases the burden of morbidity and mortality and health care utilization. Climate change is leading to more frequent and more severe wildfires. Simultaneously, wildfires contribute to the extent of climate change (release of greenhouse gas emissions) and reduces forests mitigation (carbon sequestration) and adaptation (flood, heat, ultraviolet radiation protection, water and air filtration, mental health) potential. In this way, wildfires can contribute to additional climate-health risks.



## Health Risks Associated with Wildfire Smoke

Wildfire smoke can be harmful to everyone's health, regardless of their health status or age, even at low concentrations. Some people are at higher risk of experiencing negative health effects of wildfire smoke. Those most affected by wildfire smoke include infants and young children, people who are pregnant, older adults, people with existing chronic health conditions such as respiratory, cardiovascular illnesses and diabetes, people with lower socio-economic status and people who work outside.

Wildfire smoke is associated with an increase in [all-cause mortality and respiratory morbidity](#) attributed to exacerbation of asthma, COPD and increases in respiratory infections. Wildfire smoke may also increase cardiovascular morbidity. Wildfire smoke may also adversely affect birth outcomes, diabetes, and mental health. Psychological health is also impacted, leading to increased feelings of stress, anxiety, fear, sadness, and isolation during wildfire events.

The ways in which wildfire smoke causes health effects, and the long-term impacts of wildfire smoke exposure is not fully understood. Current evidence suggests wildfire smoke increases oxidation stress, inflammatory response, impact the autonomic nervous systems and reduce immune response.

Regardless of age or health status, common, milder [symptoms of wildfire smoke](#) include irritation of upper mucosa (e.g., sore throat, eye and sinus irritation, mild cough) and headache. Mild irritation and discomfort are common and usually disappear when smoke clears. More severe symptoms include wheezing, shortness of breath, severe cough, dizziness, chest pain or heart palpitations. These may be attributed to exacerbation of chronic diseases such as asthma, COPD or heart disease. Infants, unborn children and those with obstructive lung conditions are more likely to experience longer-term health effects, although the evidence is not fully understood at this time.

## Protecting Health from Wildfire Smoke

Healthcare providers can take steps to help reduce health risks and exposure to wildfire smoke and empower patients and clients to do the same.

### During a wildfire smoke event

It is important that health professionals maintain a situational awareness during wildfire smoke event. This includes monitoring local air quality ([alerts](#) and [AQHI](#)) and [wildfire smoke forecasts](#) as well as health surveillance. It is also important to remain aware of emerging guidance.

During a wildfire smoke event, air pollutants can infiltrate indoors. Protect the health of patients, staff, and visitors by:

- Promoting clean indoor air. Keep wildfire smoke outside by ensuring windows and doors are properly sealed as long as indoor temperatures are comfortable.
- Using high-quality air filters (MERV filter rated 13 or higher) with the HVAC system and set the fan to recirculate air constantly to prevent smoky air from being pulled indoors. A portable High-Efficiency Particulate Air (HEPA) [air cleaner](#) can also be used.
- Running air conditioning and humidification/dehumidification to maintain humidity levels between 30 and 50% can also help protect indoor air quality. Additional resources to support augmentation of filtration in institutional settings include the BC CDC [Evidence Review: Filtration in institutional settings during wildfire smoke events to support decision-making](#).
- Reducing sources of indoor and outdoor air pollution during wildfire smoke events can also protect health.

## Advising Your Patients

Health professionals are trusted messengers. It is important to communicate health risks and health protective measure with patients and clients. This may include helping individuals understand their risk to wildfire smoke, learning how to use resources to support personal decision-making (AQHI, ECCC Alerts, Firesmoke.ca) and other health protective measures such as measures to promote healthy indoor air quality or limiting outdoor activities. Health providers can also work with clients to develop self-management plans for wildfire smoke events to protect health & wellbeing and ensure patients have an adequate supply of medication.

Health professionals and community leaders also have an important role in communicating climate-health connection of wildfires with patients. The wildfire event is a good opportunity to discuss how climate change impacts health, and what individuals and organizations can do to minimize risks and maximize health co-benefits.

Recommended actions for the public are identified in **Appendix A**:

Resources to support consistent, clear communication with patients and clients include:

- Simcoe Muskoka District Health Unit
  - [Wildfire Smoke and Health](#)
  - [Air Quality](#)
- Health Canada
  - [www.airhealth.ca](http://www.airhealth.ca)
  - [Wildfire smoke, air quality and your health](#)
  - [Wildfire smoke and your health](#)
  - Wildlife Smoke 101:
    - [How to prepare for wildfire smoke](#)
    - [Wildfire smoke and your health](#)
    - [Combined wildfire smoke and heat](#)
    - [Using an air purifier to filter wildfire smoke](#)
- Environment and Climate Change Canada
  - [Weather Alerts for Canada](#)
  - [WeatherCAN](#)
- [ClimateAtlas.ca](#)
  - [Air Quality and Wildfire Smoke](#)
  - [Mental Health and Climate Change](#)
- [Firesmoke.ca](#)

## APPENDIX A: Recommended Actions for the Public

- Wildfire smoke can be harmful to everyone's health even at low concentrations. Everyone can take action to reduce their exposure to wildfire smoke.
- People with lung disease (such as asthma) or heart disease, older adults, children, pregnant people, and people who work outdoors are at higher risk of experiencing health effects caused by wildfire smoke. Individuals should speak with their health care provider about developing a management plan for wildfire smoke events, and maintaining a supply of necessary medications at home and always carrying these medications with you during wildfire season.
- Check the [Air Quality Health Index \(AQHI\)](#) and [www.firesmoke.ca](http://www.firesmoke.ca).
- Be aware of and monitor for symptoms of wildfire smoke.
- Drinking lots of water can help your body cope with the smoke.
- Be sure to check on people in your care and those around you who may be more susceptible to smoke.
- Limit outdoor activities and strenuous physical activities on smoky days. Rearrange outdoor work activities where possible.
- Stop or reduce your activity level if breathing becomes uncomfortable or you or someone in your care feel unwell. Contact your health care provider or local health authority if you develop severe symptoms or need advice.
- If you have an HVAC system in your home, use the highest rated MERV filter for your system (ideally rated 13 or higher) and set the fan to recirculate air constantly. You can also use a portable High Efficiency Particulate Air (HEPA) air cleaner. Keep your doors and windows closed if the temperature in your home is comfortable.
- Take a break from the smoke. Visit public spaces like community centres and libraries which tend to have cleaner, cooler indoor air.
- If you must spend time outdoors (e.g., work outdoors), a well-fitted respirator type mask (such as a NIOSH certified N95 or equivalent respirator) that does not allow air to pass through small openings between the mask and face, can help reduce your exposure to the fine particles in smoke. These fine particles generally pose the greatest risk to health. However, respirators do not reduce exposure to the gases in wildfire smoke. It is important to listen to your body and reduce or stop activities if you are experiencing symptoms.
- When driving, keep windows up and set the air conditioning to the recirculate air setting to limit intake of outdoor air.
- Reduce sources of indoor and outdoor air pollution. If you can, avoid smoking or vaping indoors, burning incense and candles, frying foods, using wood stoves and vacuuming. Dust on indoor surfaces can be removed by wiping and wet mopping during a pollution episode.
- If individuals experience any feelings of stress, anxiety, or depression, they can contact their mental health care provider for advice or visit <https://www.wellnesstogether.ca/en-CA>.
- For more details on wildfire smoke, visit: [www.canada.ca/en/environment-climate-change/services/air-quality-health-index/wildfire-smoke.html](http://www.canada.ca/en/environment-climate-change/services/air-quality-health-index/wildfire-smoke.html).