

WILDFIRE SMOKE:

Guidance for Schools and Child Care Centres

Wildfire smoke events are becoming more frequent, severe, and longer lasting as our climate changes. This leads to more days with poor air quality due to wildfire smoke, which can be harmful to health. Schools and child care centres can protect the health of children and staff by preparing for and responding to wildfire smoke events. This resource provides guidance to help schools and child care centres reduce the health risks of wildfire smoke before and during a wildfire smoke event.



Wildfire Smoke

Wildfire smoke significantly contributes to air pollution. [Wildfire smoke](#) is a mixture of small particles, many gases and water vapour. The small particles, also known as fine particulate matter (PM_{2.5}), are the greatest health concern as they can travel deep into the lungs when inhaled and cause irritation and inflammation. This can have both short-term and longer-lasting health impacts.

Wildfire smoke can travel large distances and can affect air quality for extended periods of time. This means that wildfires burning hundreds or thousands of kilometres away can affect local air quality. Wildfire smoke conditions can also change quickly, differ across short distances, and can vary considerably hour-by-hour. Air quality may be reduced even if you cannot see or smell wildfire smoke.

People Most at Risk from Wildfire Smoke Exposure

During heavy smoke conditions, everyone is at risk regardless of their age or health status. However, **some people are at greater risk of experiencing health problems when exposed to wildfire smoke.** People in school communities and child care centres who may be at greater risk include:



Infants and young children



People living with chronic health conditions or existing illnesses
(e.g., asthma, heart or lung conditions, diabetes, cancer).



People involved in strenuous outdoor exercise



People who work outside



Pregnant people



People living in situations of lower socio-economic status
(e.g., lower income, experience housing insecurity etc).



People who smoke

It is important to understand that some individuals may experience overlapping risk factors. For example, a child with asthma may experience greater risks to wildfire smoke than a child without asthma. It is also important to know that when people breathe more quickly and deeply (e.g., during exercise), they inhale more wildfire smoke. **A full list of people who are most at risk of health effects of wildfire smoke can be [found here](#).**

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Health Effects of Wildfire Smoke

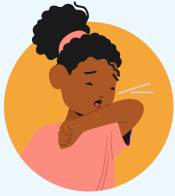
Wildfire smoke can be harmful to health, even at very low levels. Exposure to wildfire smoke can worsen existing health conditions (e.g., asthma, chronic obstructive pulmonary disease, congestive heart failure). This can lead to an asthma attack, heart attack, stroke, or premature death. If someone is having a medical emergency, dial 911 and seek immediate medical assistance.

Symptoms of wildfire smoke exposure:

Milder and more common symptoms:

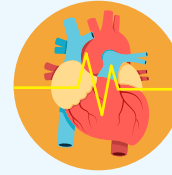
- ✓ Headaches
- ✓ A mild cough
- ✓ Production of mucus
- ✓ Nose, throat, eye and sinus irritation

In most cases, symptoms can be managed without medical intervention.




More serious but less common symptoms:

- ✓ Dizziness
- ✓ Wheezing
- ✓ Chest pain
- ✓ Severe cough
- ✓ Asthma attacks
- ✓ Shortness of breath
- ✓ Heart palpitations



- ✓ People with symptoms should stop physical activity and seek cleaner air during wildfire smoke events.
- ✓ Those with severe symptoms should access medical attention.

 Reducing exposure to wildfire smoke can help to protect health during wildfire events.

Mental Health and Wildfire Smoke

It is normal to feel anxious, stressed, sad, or isolated during a wildfire smoke event. Eating nutritious food, staying hydrated, getting enough sleep, exercising indoors, and staying connected with friends and family can help. Talking about it and understanding ways to take action can help. Anyone having trouble coping with symptoms of stress, anxiety or depression should seek help from a healthcare provider.

Check out these additional resources:

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The Air Quality Health Index and Air Quality Alerts

The Air Quality Health Index (AQHI)

The [Air Quality Health Index](#) (AQHI) is a tool to understand the health risks of local air pollution and how to protect the health of those in your care. It is calculated by measuring concentrations of three air pollutants known to be harmful to health: ozone, nitrogen dioxide and fine particulate matter.

AQHI is reported on a scale of 1 to 10+. The higher the number, the greater the health risk. The AQHI includes health messages based on each risk category for the general population and the ‘at-risk’ population. These messages are intended to provide recommendations on how people can choose to adjust their activity levels depending on individual health risks from air pollution. The AQHI shows current hourly AQHI levels and maximum forecast values for the day, night, and next day.

Beginning in 2024, Ontario will adapt a 1-hour trigger for PM_{2.5}. When the new PM_{2.5} trigger is exceeded, the AQHI value will be reported as a 7 (high-risk category) or greater. This change will make the AQHI more responsive to the harmful air pollutants in wildfire smoke.

Figure 1 (Air Quality Health Index Messages)

Health Risk	Air Quality Health Index	Health Messages	
		At Risk Population	General Population
Low Risk	1-3 	Enjoy your usual outdoor activities	Ideal air quality for outdoor activities.
Moderate Risk	4-6 	Consider reducing or rescheduling strenuous activities outdoors if you are experiencing symptoms.	No need to modify your usual outdoor activities unless you experience symptoms such as coughing and throat irritation.
High Risk	7-10 	Reduce or reschedule strenuous activities outdoors. Children and the elderly should also take it easy.	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms such as coughing and throat irritation.
Very High Risk	Above 10 	Avoid strenuous activities outdoors. Children and the elderly should also avoid outdoor physical exertion.	Reduce or reschedule strenuous activities outdoors, especially if you experience symptoms such as coughing and throat irritation.

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Air Quality Alerts and Notifications

Environment and Climate Change Canada (ECCC) and the Ministry of Environment Conservation and Parks (MECP) issue two types of air quality alerts. The purpose of the alerts is to notify the public and service providers to take precautions and be vigilant of health.

- **Special Air Quality Statement (SAQS)** are issued when the AQHI is forecasted to reach or has reached the high-risk category (AQHI 7-10). A SAQS is also issued for areas where wildfire smoke is expected to cause deteriorating air quality.
- **Air Quality Advisory (AQA)** is issued when the AQHI is forecasted to reach or has reached the very high-risk category (AQHI 10+) due to **wildfire smoke**.

SMDHU notifies local school boards and child care centres of air quality alerts (during regular business hours) to provide information about the alerts and trigger the activation of response plans and strategies. Through SMDHU's Air Quality and Wildfire Smoke Exposure Notification System, SMDHU will send local school boards and child care centres:

- An advance notice, when possible, of a potential Air Quality Alert to support you to take steps to prepare pre-determined responses for the associated hazard.
- A notification of a Air Quality Alert as issued by ECCC. This notification should trigger the activation of your plans.

AQHI and Recommended Actions for Schools and Child Care Centres

The image below is a representation of the Ontario AQHI, with **additional recommended actions for schools and child care centres**.

Figure 2 (AQHI and Recommended Actions for Schools and Child Care Centres)

AQHI Index	AQHI Risk Category	Actions To Improve Indoor Air Quality	Actions For Outdoor Activities
1	Low Risk	Normal air quality.	Encourage outdoor play as much as possible.
2			
3			
4	Moderate Risk	Keep exterior windows and doors closed . Make sure the indoor environment does not get too hot.	Allow children who experience symptoms to modify their activities or stay indoors. For younger children (under 5) consider limiting their time outdoors. Check-in on all kids especially children who may be more sensitive to air quality.
5			
6			
7	High Risk	Consider using portable or DIY air cleaners in spaces used by children. Enhance filtration where possible in the building ventilation system. Run the building ventilation system in the "re-circulation" mode.	Move activities indoors whenever possible. If outdoor activities are required, limit them to low intensity activities . Cancel or postpone high physical exertion activities outdoors. Check-in on all kids especially children who may be more sensitive to air quality.
8			
9			
10	Very High Risk	When possible, monitor for temperature, particulate matter and CO ₂ indoors.	Move all outdoor activities indoors . Limit the intensity of activities indoors. Check-in on all kids especially children who may be more sensitive to air quality.
10+			



Remember, wildfire smoke conditions can change quickly, differ in short distances, and can vary considerably hour-by-hour. Check the AQHI and wildfire smoke forecast regularly. Be prepared for changing conditions and adjust activities as necessary.



Air Quality Alerts are issued when AQHI has reached, or is expected to reach AQHI of 7 or more (high risk or very high risk category).

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How to Prepare for the Wildfire Season

The following are recommended options to help protect children's health from wildfire smoke:

- Subscribe to air quality alerts in your region and monitor the weather forecast
 - Set up custom AQHI notifications on the [WeatherCan app](#) before wildfire smoke season.
 - Sign up to receive alerts from [EC AlertMe](#) and/or [MECP subscription service](#).
 - Know where you can go to find information about local air quality conditions and wildfire smoke.
- Prepare staff to know the symptoms of wildfire smoke exposure and recognize when medical attention is needed.
- Be aware of children who may be at greater risk of wildfire smoke (e.g., children with chronic health conditions like asthma and diabetes). Plan to provide protection during poor air quality events (e.g., support less strenuous activities while outdoors, or allow for indoor physical activities).
- Ensure that children with medical conditions and/or who are prescribed medications (e.g. inhalers for asthma) have a plan in place and access to their medications at school board or school/child care centres, in accordance with school board or school/child care centre policies.
- Develop a plan to adjust routine programs during events with poor air quality due to wildfire smoke (e.g., supporting less strenuous activities during outdoor physical education).
 - Use recommendations identified in **Figure 2** to inform the plans.
- Be prepared to maintain cleaner air inside schools and child care centres.
 - Review, and use the [Appendix: Cleaner Air Space Checklist](#) in Health Canada's Guidance for Cleaner Air Spaces during Wildfire Smoke Events for guidance on preparing cleaner air spaces before a wildfire smoke event.
 - Consider acquiring [portable air cleaners](#) or "do it yourself" (DIY) air cleaners. See **Cleaner Indoor Air Spaces** on page 6 .
- Heat may become an issue during smoky periods. Schools and child care centres should apply preventative measures (e.g., air conditioning, window shading) to maintain safe indoor temperatures and cool spaces with cleaner air.
- Consider a "Wildfire Smoke Readiness Plan" using, the public health guidance and resources below to prepare for wildfire smoke. Readiness plans should include measures to protect and maintain cleaner indoor air spaces. **Simcoe Muskoka District Health Unit** is available to provide support at **705-721-7520 ext. 8811**.

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Remember, wildfire smoke conditions can change quickly, differ in short distances, and can vary considerably hour-by-hour.

How to Respond During a Wildfire Smoke Event

- Review notifications sent by SMDHU or other authorities (e.g., alerts from the WeatherCANapp).
- Monitor the situation closely. Check the AQHI and wildfire smoke forecast (e.g., FireSmoke.ca) regularly, as concentrations of air pollutants can change quickly.
- Activate Wildfire Smoke Readiness Plans or Strategies.
- Be alert to symptoms among children. If children experience mild symptoms support them to stop or reduce activity levels and seek cleaner indoor air spaces. Seek medical attention if an individual has severe symptoms. Keep mental well-being in mind.
- Encourage children to drink plenty of water. This helps their bodies cope with the smoke.
- Follow public health recommendations actions based on the current AQHI (see **Figure 2**).
- Create cleaner indoor air spaces and [protect indoor air quality](#) as much as possible to reduce everyone's exposure to wildfire smoke.
 - Follow the guidance outlined in [Protecting your Indoor Air from Outdoor Pollutants](#) and the [Appendix: Cleaner Air Space Checklist](#) during a wildfire event in Health Canada's Guidance for Cleaner Air Spaces.
 - Keep windows and doors closed during times of heavy smoke if indoor temperatures are comfortable.
 - Reduce levels of [indoor pollutants](#).
 - Use [portable air cleaners](#) or DIY air cleaners. See the section below for more details.

Cleaner Indoor Air Spaces

Wildfire smoke can enter schools through windows, doors, vents, and other openings. It is important to take steps to maintain clean indoor air by preventing wildfire smoke from entering, reducing indoor air pollution, and cleaning indoor air.

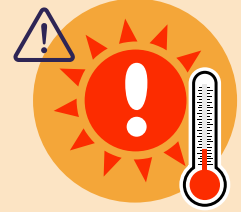
Portable air cleaners or DIY air cleaners can help improve indoor air quality by removing air pollutants that can be a health risk. They can be used in addition to strategies that stop or limit the sources of indoor air pollutants and wildfire smoke infiltration.

Portable/DIY air filters may be considered in schools during wildfire smoke events to maintain clean indoor spaces. Child care centres should review the option of portable or DIY air filters with their assigned public health inspector.

DIY air filters are [effective](#) and cost-efficient. Supporting resources include:

- [Using a Portable Air Cleaner to Improve Indoor Air](#)
 - [Protecting your Indoor Air](#)
 - [Using an Air Purifier to Filter Wildfire Smoke](#)
 - [Guidance for Cleaner Air Spaces during Wildfire Smoke Events](#).
- (See Appendix for Checklists before and during wildfire smoke event)

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Extreme heat is usually more dangerous to health than exposure to poor air quality, prioritize keeping cool.

Wildfire Smoke and Extreme Heat

- A wildfire smoke event and an extreme heat event can happen at the same time.
- Follow the guidance on how to [stay safe and cool](#) and reduce exposure to poor air quality. Prioritize staying cool.
- Indoor temperatures should be maintained below 26°C to prevent heat related illnesses. Temperatures above 31°C are dangerous.
- Being outdoors is typically safer than staying in indoor environments that are too hot, even during wildfire smoke events.

Explore related SMDHU resources and guidance to support your planning and response strategies for environmental health hazards (e.g., extreme heat, wildfire smoke) available [here!](#)

Wildfire Smoke Resources

SMDHU Webpage

- [Wildfire Smoke](#)
- [Outdoor Air Quality](#)
- [School and Child Care – Environment](#)
- Health STATS ([Air Quality](#))

Information regarding wildfire smoke and air quality for the public, community partners, and health professionals. Includes public facts sheets and resources.

SMDHU Webpage

- [Extreme Heat](#)
- [Municipal Heat Response Planning](#)
- [School and Child Care – Environment](#)
- Health Stats ([Heat and Cold](#))

Information regarding extreme heat for the public, community partners and health professionals. Includes public facts sheets and resources.

Health Canada's Wildfire Smoke Factsheet series:

- [Wildfire smoke and your health](#)
- [Preparing for wildfire smoke events](#)
- [Combined wildfire smoke and heat](#)
- [Using an air purifier to filter wildfire smoke](#)
- [Using a respirator mask during wildfire smoke events](#)

Information on wildfire smoke and health, how to prepare, wildfire smoke and heat, using an air purifier to filter wildfire smoke.

Health Canada's [Wildfire smoke, air quality and your health](#) webpage and [air quality and health](#) webpage.

Public-facing information and fact sheets about wildfire smoke, the health effects of wildfire smoke, tips on how to prepare for the wildfire season, and protecting health from wildfire smoke. More information on air pollutants and the impact of poor air quality on health.

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Wildfire Smoke Resources

<p>Guide to Air Quality Health Index Forecasts</p>	<p>Information on the AQHI. How to use the AQHI and a guide to AQHI Forecasts.</p>
<p>Air Quality Alert Email Notifications by the Ontario Ministry of the Environment, Conservation and Parks.</p>	<p>Subscribe to receive emails when air quality alerts are issued.</p>
<p>WeatherCAN app - How to set up custom AQHI notifications</p>	<p>Download the WeatherCAN App and set up custom AQHI notifications. Keep informed about AQHI and weather conditions. Includes user-defined push notifications based on the chosen AQHI level.</p>
<p>Guidance for cleaner air spaces during wildfire smoke events</p>	<p>Guidance and simplified checklist (appendix) provides advice to create or manage cleaner air spaces for wildfire smoke events.</p>
<p>Planning Framework for Protecting Commercial Building Occupants from Smoke During Wildfire Events</p>	<p>Guidance provides advice to create or manage cleaner air spaces for wildfire smoke events.</p>
<p>Using a portable air cleaner to improve indoor air</p>	<p>Tips for choosing the best air cleaner, and information on how and when to use a portable air cleaner.</p>
<p>Protecting your indoor air from outdoor pollution</p>	<p>Information on how to protect indoor air from outdoor pollutants.</p>
<p>Firesmoke.ca FireWork</p>	<p>Contains wildfire smoke forecast information and maps.</p>
<p>School Mental Health Ontario Mental health support About mental health - Canada.ca Hope for Wellness Helpline for Indigenous Peoples Kids Help Phone</p>	<p>Resources to support mental health and well-being.</p>
<p>Climate Change, Wildfires and Canadians Health Wildfire smoke and climate change</p>	<p>Information on climate change, wildfires and wildfire smoke.</p>
<p>Air Pollution and Sports Safety</p>	<p>Information to help coaches and sports leaders recognize the impact of poor air quality and pollutants on sports participants, coaches and officials.</p>
<p>Educator Resources from Climateatlas.ca</p>	<p>Educator resources, lesson plans and course materials related to the connections between climate change and the world (including health).</p>