

Particulate matter and outdoor air pollution

Air quality is determined by the concentrations of pollutants in the air. Air quality can vary greatly from one area or community to the next and from one hour to the next. This is because air quality is influenced by several things:

- The types and amounts of pollutants released into the air
- Weather conditions, such as wind, temperature, humidity and rainfall
- Natural geographical features such as mountains or bodies of water. For example, air pollution can get trapped in mountain valleys, especially when temperatures are cooler

The amount of common air pollutants, including particulate matter, are monitored at fixed locations throughout B.C. They are reported online as hourly average concentrations.

Air quality is also reported in the form of the Air Quality Health Index (AQHI). The AQHI provides information about current air quality. It is also used to communicate forecasts of air quality for the next 36 hours. The level of health risk is provided on a scale of 1 to 10 or higher. The health risk is also labeled “low”, “moderate”, “high” or “very high”. The AQHI provides advice on how to minimize health risks. To check the current and AQHI forecast, visit BC Air Quality at www.env.gov.bc.ca/epd/bcairquality/data/aqhi-table.html.

What is particle pollution?

Particulate matter (PM) refers to small solid or liquid particles floating in the air. These particles can be made up of different substances and have different sizes. Smaller particles have been linked to more health effects because they can remain in the air longer, get deeper into your lungs and may even get into your bloodstream. Fine particles that have a diameter less than 2.5

micrometers (PM_{2.5}) are the most commonly measured and studied particle pollution.

What causes particle pollution?

Major sources of outdoor PM in B.C. include:

- Wildfire smoke
- Wood smoke from residential wood burning, such as woodstove and backyard burning
- Motor vehicle and industrial emissions
- Road dust

What are the health impacts from particle pollution?

Short-term health impacts include:

- Worsening symptoms of pre-existing lung or heart conditions
- Increased health care use such as emergency room visits and hospital stays
- Premature (early) death, particularly among people who have a higher risk of being affected by particle pollution

Long-term health impacts include:

- Increased risk of developing heart and lung diseases, diabetes and dementia
- Adverse birth outcomes such as lower birth weight

Those most likely to be affected by particle pollution include:

- Children
- Older adults
- Those with heart or lung disease, such as asthma and chronic obstructive pulmonary disease (COPD)
- People who are pregnant and their unborn children

How can I protect my health against particle pollution?

Reduce exposure during pollution events

When outdoor air quality is poor, it is important to take action to reduce exposure:

- Seek cleaner air indoors. Run air filtration system, portable high efficiency particle air (HEPA) air cleaner or air conditioning on recirculate setting. Keep windows and doors closed if it is not too hot to do so
- Spend time in public spaces, such as libraries and shopping malls where air tends to be cleaner and cooler
- Reduce time spent outdoors and avoid strenuous activities. The harder you breathe, the more particles you inhale
- If you must go outdoors, consider wearing a well-fitted respirator. A respirator is a mask that fits tight around the mouth and nose. For more information, visit www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Health-Environment/BCCDC_WildFire_FactSheet_FaceMasks.pdf
- Outdoor sources of PM may be present indoors. Limit smoke from fire (tobacco, candles, incense, woodstoves), move dusty work outside and never idle a car inside a garage or near an open window

Prevent and reduce PM pollution

We can reduce the levels of PM pollution by reducing the amount of PM produced from different sources:

- Avoid smoking. If you do smoke, do not smoke indoors

- Mulch garden waste instead of burning it
- Take action to reduce wildfires. Practice safe backyard burning and careful use of campfires
- Limit the use of fireplaces and wood stoves or switch to cleaner burning appliances. Use wood that is well seasoned and make sure that wood is burned properly
- Reduce other sources of indoor pollution. For more information, please visit [HealthLinkBC File #65c Indoor air quality: Combustion by-products](http://HealthLinkBC.ca/File/65c%20Indoor%20air%20quality%20Combustion%20by%20products)
- Reduce mobile vehicle emissions by replacing older engines with newer and cleaner engines, or switch to an electric vehicle
- Walk, cycle, take public transit or carpool whenever possible

For more information

- B.C. Ministry of Environment and Climate Change Strategy: Air www2.gov.bc.ca/gov/content/environment/air-land-water/air
- Health Canada: Fine particulate matter www.canada.ca/en/health-canada/services/air-quality/indoor-air-contaminants/fine-particulate-matter.html
- The Canadian Lung Association: Air Quality www.lung.ca/air-quality
- BC Lung Foundation: Air Quality <https://bclung.ca/lung-health/air-quality> or call toll-free 1-800-665-LUNG (5864)
- BC Centre for Disease Control: Wildfire Smoke www.bccdc.ca/health-info/prevention-public-health/wildfire-smoke



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