



Air Quality and Health: The Impacts of Poor Air Quality

Source: Northern Health

Exposure to air pollutants can have both immediate and long-term effects. Short-term exposure to elevated levels of particulate matter (PM) and ozone can trigger breathing problems, increase the severity and occurrences of asthma attacks, trigger heart attacks and cause eye, nose and throat irritation for those at risk. Children, the elderly, pregnant women and those with pre-existing heart and lung conditions are most at risk from the harmful effects of poor air quality.

Scientists believe that there are no safe levels of PM and ozone and being exposed to air pollution over the long-term (even at relatively low concentrations) can have even more significant and long-lasting health effects. These health effects can include damage to lung tissues and the development of heart and other lung diseases, including chronic bronchitis, emphysema, pneumonia, and lung cancer as well as death. Long-term exposure to air pollutants such as PM2.5 has also been linked to pre-term births, low birth weight babies and acute respiratory infections and middle ear infections in children.

Common questions about air quality:

What are the air pollutants of concern?

The most common air pollutants in are airborne liquid or solid particles, which are collectively referred to as particulate matter (PM). PM is usually classified into two categories: PM10 and PM2.5. PM10 are particles in the air that are less than 10 micrometers in diameter (about 1/7th the size of a human hair). A large portion of these “larger” particles are made up of pieces of pollen, road dust and wind-blown dust.

PM2.5 are particles that are less than 2.5 micrometers in diameter (about 1/25th the size of a human hair). These smaller particles usually originate from industrial processes or the burning of wood, fossil fuels or other material. Due to their smaller size, PM2.5 can be deeply inhaled into the lungs where they can have serious health effects much more so than their larger PM10 counterparts.

Other gaseous air pollutants, such as ground-level ozone, sulphur oxides, nitrogen oxides and carbon monoxide can also contribute to poor air quality and can also have serious health effects.

Where can I find information about air quality in my community?

The Ministry of Environment maintains a number of air quality monitoring stations throughout BC. The data collected at these monitoring locations can be viewed at the BC Air Quality website and is displayed in two formats:

[Monitor-specific current air quality readings](#)

[Air Quality Health Index \(AQHI\)](#)

What are air quality advisories and how are they triggered?

Air quality advisories are issued by the BC Ministry of Environment, in collaboration with health authorities across the province. Air quality advisories are issued when measured air pollution levels are above or close to certain levels which are based on established national or provincial air quality objectives. Air quality meteorologists assess the current air quality levels and forecasted weather conditions combined with their local knowledge of sources and air dispersion to determine if an advisory should be issued.

Air quality advisories try to provide the public information on:

- Which air pollutant has triggered the advisory and what the current air pollution concentrations are as well as how they may change in the future.
- The potential health effects.
- Tips for reducing personal unhealthy exposure to air pollution and ways to reduce negative health impacts.
- Mandatory and voluntary emission reduction actions to be taken. For instance, several communities prohibit street sweeping and/or wood burning during an air quality advisory and may ask industry and the public to take specific volunteer action to reduce their impact.

Continued on page 25...



Prince George Citizen - Hanna Petersen

Continued from page 24...

What actions can you take to protect yourself from poor air quality?

There are a number of things you can do to protect yourself from the harmful effects of poor air quality. These can range from things that you can do on a day-to-day basis to specific actions you can take during air quality advisories and poor air quality episodes.

You can protect yourself from everyday exposure by:

- Trying to work, live and exercise away from local sources (such as traffic, industrial areas and smoky neighbourhoods) and avoid areas where air pollutants can accumulate. For instance, when considering where to live, work and exercise, try to choose a location more than 150 metres away from major roads and truck routes and try to avoid areas such as valley bottoms and “bowl” areas where pollutants can get trapped
- Exercising at times during the day when air pollutants tend to be lower. For instance, traffic related particulate matter emissions are usually higher during rush hour, particle matter resulting from wood smoke and industry is usually highest in the evening and at night and ozone concentrations are usually highest in the late afternoon
- Minimizing commuting times since air pollution concentrations in vehicles can be especially high
- Ensuring that your indoor air quality is clean by properly ventilating cooking spaces, reducing emissions from heating and eliminating tobacco smoke. Installing HEPA filters in forced air furnaces and using stand-alone air cleaners (which do not generate ozone) can also reduce the particulate concentrations inside your home
- Maintaining a healthy lifestyle by eating healthy and exercising regularly can also prevent health effects resulting from both, long and short-term exposure of air pollution

You can protect your health during air quality advisories and poor air quality episodes by:

- Seeking out air-conditioned spaces such as libraries and shopping malls to reduce your exposure from heat and PM.
- Those susceptible to the effects of air pollution (young children, the elderly, pregnant women and those with cardiac and respiratory disease or diabetes) should try limiting strenuous outdoor exercise during poor air quality episodes.
- Staying indoors may also help reduce exposure to outdoor air pollution, however that depends on the pollutant of concern and the air quality within your home. PM can easily get indoors and can have significant indoor sources (such as tobacco smoke, cooking, cleaning material, mold and fireplaces). Staying indoors during a PM air quality advisory may not always be advantageous if PM is elevated in your indoor space. If you do stay indoors during a PM advisory, make sure to close all windows and doors or seek out buildings with large indoor air volumes. Keep in mind, that staying indoors usually works well for ozone pollutants since ozone concentrations are usually lower within homes and outdoor ozone is quickly used up once it enters indoor environments.

What actions can you take to decrease your impact on air quality?

There are a number of actions you can take to make sure that you are not contributing to air pollution in your community.

1. Be fire smart – follow [BC Wildfire Services](#) prevention strategies to decrease human caused wildfire activity.
2. Reduce woodstove emissions:

If you are using an older non-certified wood stove, consider replacing it with a newer EPA certified woodstove which burns more efficiently and emits fewer pollutants into the air.

If you are using a woodstove, consider replacing it with a natural gas or pellet stove which emit fewer particulates.

Learn how to best use your wood stove and burn only dry seasoned wood.

Keep in mind that several community airshed management groups across the province offer Woodstove Exchange Programs (which provide cash-incentives to trade in your old woodstove) and Burn-it-Smart workshops on an intermittent basis.

3. Reduce vehicle emissions:

Choose alternative modes of transportation (such as buses, bikes, walking, carpooling, etc.) and minimize the time you spend in your car whenever possible.

Ensure that your vehicle is regularly maintained and has the optimum tire pressure.

Minimize excessive vehicle idling and encourage others to do the same.

When choosing a vehicle, consider fuel efficiency and ask about tailpipe emissions.

Try to avoid driving on shoulders or gravel patches to reduce the amount of dust you create.

4. Be informed and become a voice:

Support community and airshed management groups by becoming informed on local issues and volunteering your time during special air quality events and initiatives.

Promote a community culture of clean air (such as encouraging eco-driving or cleaner burning among friends and colleagues). Your voice can go a long way in cleaning up your airshed and helping make your community safe from air pollutants.

Air Quality Resources:

[Canadian Lung Association](#)

[The Weather Network: BC Air Quality Reports](#)

[BC Government Air Quality Advisories](#) 