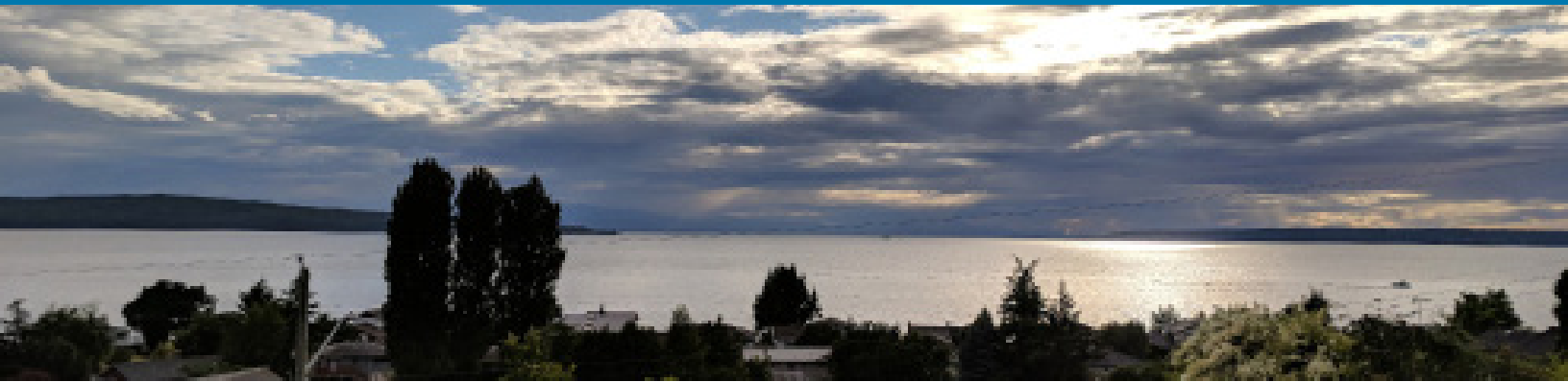# VCH AQ-CARE PROJECT
(Air Quality - Community Action, Resilience and Empowerment)

WHAT IS THIS PROJECT?

Wildfire smoke and smoke from wood burning contains very small particles of air pollution - known as fine particulate matter or $PM_{2.5}$. These small particles travel deep into your lungs when you inhale, are absorbed into the bloodstream and lead to irritation and inflammation throughout the body. Of all the pollutants in wildfire and wood smoke, particulate matter likely poses the greatest risk to health.

Research shows that short-term exposure to $PM_{2.5}$ can cause flare-ups of asthma and other respiratory disease, and increase the risk of heart attack and stroke.

Many Vancouver Coastal Health (VCH) communities don't have full-scale government air quality monitoring stations to measure local exposure to particulate matter from wildfire smoke. VCH has been working with community partners to install lower-cost air quality monitors for $PM_{2.5}$ with a focus on rural, remote, and smaller communities that previously had limited access to air quality data.

The AQ-CARE Project aims to increase public access and understanding of their local air quality to better protect health. Our goal is to increase public awareness of these local low-cost air quality sensors, how to understand the air quality data and how to make better decisions to protect health. This project also includes indoor and outdoor paired sensors to better understand how much outdoor smoke is getting into our buildings.

WHAT DO AIR QUALITY SENSORS MEASURE?

The sensors provided by VCH measure fine particulate matter ($PM_{2.5}$). $PM_{2.5}$ is made up of tiny particles that float in the air. Major sources of $PM_{2.5}$ in our region include wildfire smoke and smoke from wood-burning stoves and fireplaces. Other sources of $PM_{2.5}$ in our region include heavy-duty equipment, industry, and traffic.

WHERE CAN I FIND MY LOCAL AIR QUALITY DATA?

Publicly available data can be found in real-time on this low-cost air quality sensor map. This map includes data from VCH sensors, other low-cost air quality sensors across the region and the government air quality monitoring stations. Please note that the indoor sensors are not available on this page. Please contact healthy.environments@vch.ca to learn how to view indoor sensors.

WHAT CAN I DO WHEN MY LOCAL AIR QUALITY IS BAD?

The Air Quality Health Index is a tool with health actions to take for each air quality level. Learn how to check your local air quality and use AQHI guidance.

1-HOUR PM$_{2.5}$ (µg/m³)	PROVINCIAL AQHI	AQHI RISK CATEGORY	HEALTH MESSAGE FOR PEOPLE AT HIGHER RISK	HEALTH MESSAGE FOR GENERAL POPULATION	ACTIONS TO REDUCE WILDFIRE SMOKE EXPOSURE
0 - 10	1	LOW	Enjoy your usual outdoor activities.	Ideal air quality for outdoor activities.	Normal air quality in British Columbia.
11 - 20	2				
21 - 30	3				
31 - 40	4	MODERATE	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms.	No need to modify your usual outdoor activities unless you experience symptoms.	• Use a portable air cleaner or DIY box fan air cleaner to reduce smoke in your home.
41 - 50	5				
51 - 60	6				
61 - 70	7	HIGH	Reduce or reschedule strenuous activity outdoors.	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms.	• Stay inside with doors and window closed, but keep cool - heat-related illness is more risky than breathing smoke for most people.
71 - 80	8				• Visit places with cleaner and cooler air, such as libraries, community centres, and shopping malls.
81 - 90	9				
91 - 100	10				
101+	10+	VERY HIGH	Avoid strenuous activity outdoors.	Reduce or reschedule strenuous activity outdoors, especially if you experience symptoms.	• Wear a well-fitted respirator (e.g. N95) outdoors.

1. People at higher risk may need to take more actions to protect their health from poor air quality. Go to the VCH wildfire smoke webpage to learn who is at higher risk.
2. Open the UNBC air quality map. The colourful dots are air quality sensors. Find your community on the map and the sensor closest to you. Note the number and colour of the sensor.
3. Look at the Air Quality Health Index (above) and use the number/ color to decide the AQHI Risk Category: low, moderate, high or very high.
4. Look at the matching health messages and actions to reduce wildfire smoke exposure to decide if you should change your plans for the day. There are health messages for the general population and people at higher risk from wildfire smoke.
5. Air quality can change throughout the day. Check the air quality and AQHI often.

More information on actions to take when it is smoky outside, including advice for daycare facilities and schools, can be found on the VCH wildfire smoke webpage.

HOW ACCURATE ARE LOW-COST SENSORS?

Low-cost sensors tend to perform well but are not government air quality monitoring stations. At times low-cost sensors may overestimate or underestimate the actual concentration of PM$_{2.5}$. It is important to check the sensor closest to you, but also compare it with the low-cost sensors and regulatory monitoring stations close by on the map. Some questions you can ask yourself are: Is the sensor you are looking at much different than the sensors close by? Why could this be? Is it near a local source of particulate matter, such as barbeque? If there is no clear reason, could this sensor be malfunctioning?

Are there still gaps in the air quality data? If you are working with a First Nations community or local government within the VCH region and are interested in participating in this project please reach out to healthy.environments@vch.ca

Vancouver CoastalHealth

Questions? Contact us at healthy.environments@vch.ca
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