

Protecting Patients Through Wildfire Season: What You Need to Know

May 28, 2024 | 1830–2000 PT



THE UNIVERSITY OF BRITISH COLUMBIA

Continuing Professional Development

Faculty of Medicine

DISCLOSURES

Planning Team

- **Dr. Bob Bluman (UBC CPD):** No conflicts of interest
- **Nicole Esligar (UBC CPD):** No conflicts of interest
- **Stephanie Din (UBC CPD):** No conflicts of interest
- **Kathryn Young (UBC CPD):** No conflicts of interest
- **Caldon Saunders (UBC CPD):** No conflicts of interest

DISCLOSURES

Panelists

- **Prabjit Barn:** No conflicts of interest
- **Emily Brigham:** has received payments from BC Lung and the University of Illinois which are **unrelated** to this webinar. Has received salary support and operating funds for investigator-initiated research from National Institute of Health, Canadian Institutes of Health Research, Michael Smith Health Research BC, BC Lung, Legacy for Airway Health. This funding has allowed her to develop expertise in wildfire smoke and lung health, but these entities do **not** influence the program or content being developed. AstraZeneca provided an unrestricted award through the UBC Respiriology Division which has been sued to support student travel and does **not** influence the program or content being developed.
- **Stephanie Cleland:** No conflicts of interest
- **Eric Coker:** has received grant funding from Health Canada, National Institute of Environmental Health Sciences, Metro Vancouver to fund research. Financial relationships are **unrelated** to this webinar.
- **Christie Newton:** has received payments from UBC CPD and the CFPC. Financial relationships are **unrelated** to this webinar.
- **John Pawlovich:** has received payments from Rural Coordination Centre of BC, UBC, and Carrier Sekani Family Services. Financial relationships are **unrelated** to this webinar.
- **Angela Yao:** No conflicts of interest

Dr. Stephanie Cleland –

PhD, MSPH | Legacy for Airway Health Chair in Promotion of Lung Health;
Assistant Professor, Faculty of Health Sciences, SFU

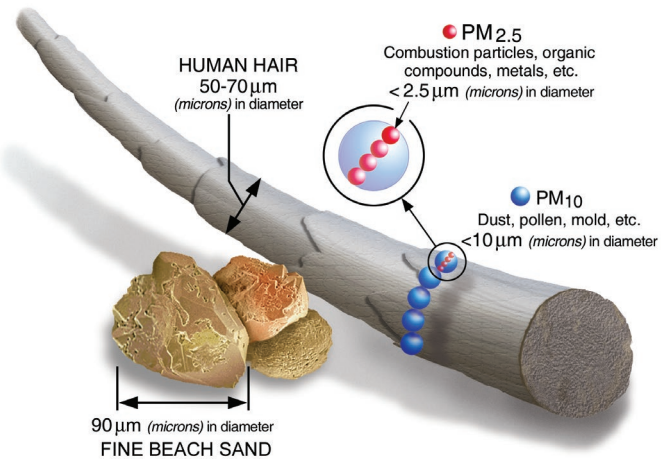
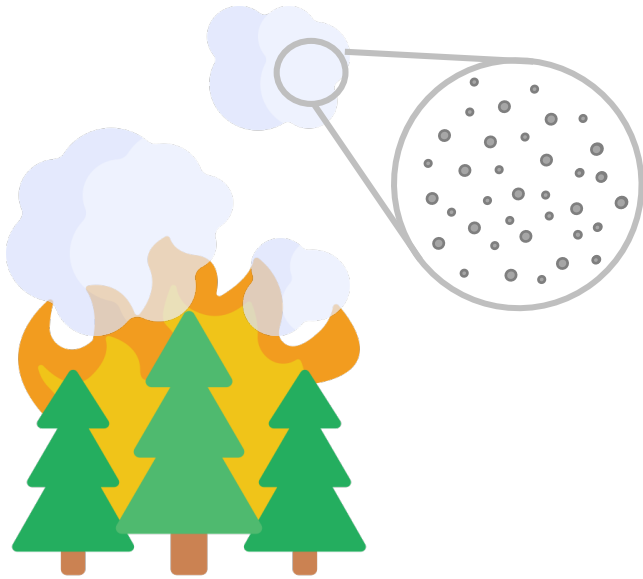


THE UNIVERSITY OF BRITISH COLUMBIA

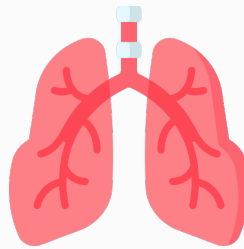
Continuing Professional Development

Faculty of Medicine

What are the health impacts of wildfire smoke?



Known



Respiratory



Cardiovascular



All-cause mortality



Short-term

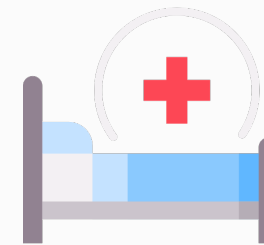
Emerging



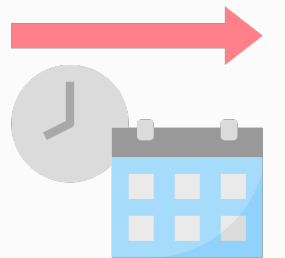
Birth outcomes



Cognitive / Mental



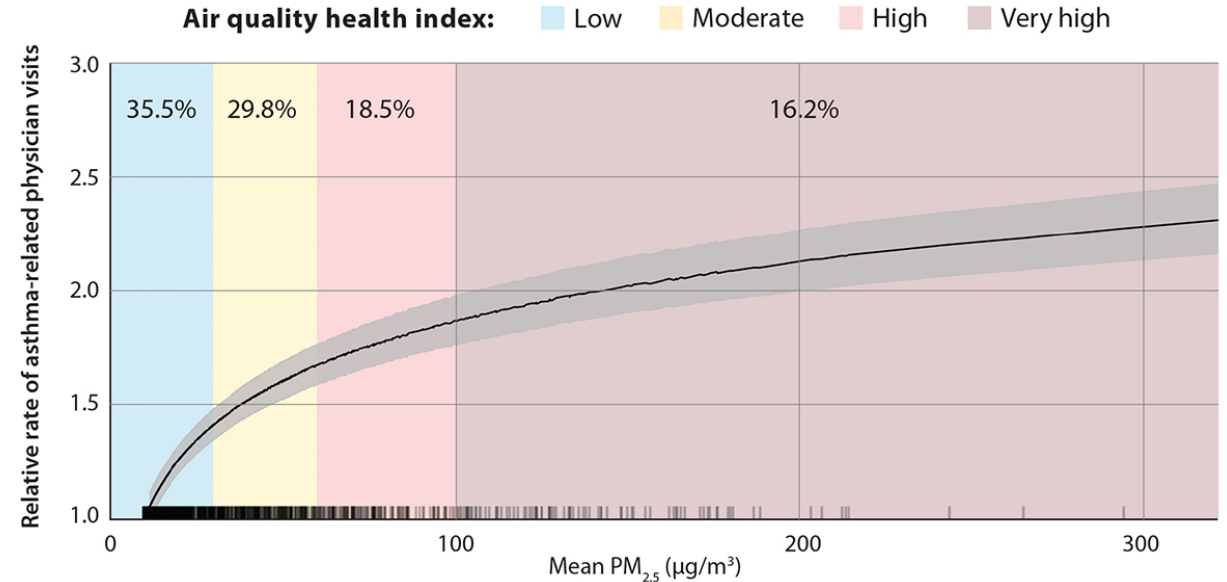
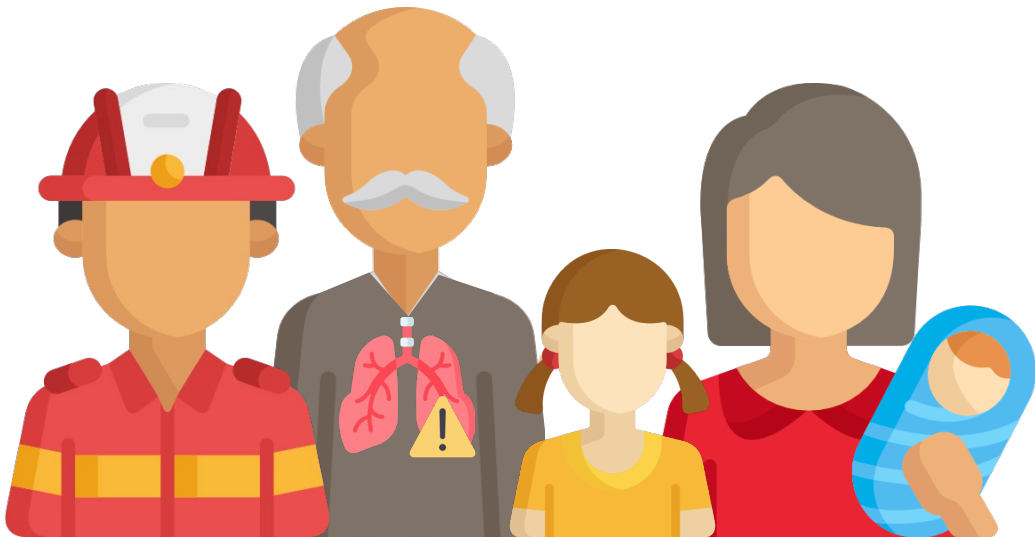
Chronic diseases



Long-term

Who is most impacted by wildfire smoke?

- Infants and children
- Older adults
- People with chronic conditions
- Pregnant people
- People who work or live outdoors
- People lacking access to clean indoor air



Henderson et al., 2024

Very low concentrations can pose a risk!

Questions? stephanie_cleland@sfu.ca

Dr. Angela Yao –
Senior Scientist, Environmental Health Service, BCCDC



THE UNIVERSITY OF BRITISH COLUMBIA

Continuing Professional Development

Faculty of Medicine

Air Quality Health Index (AQHI)



| Provincial AQHI | AQHI Risk Category | Health Message for People at Higher Risk | Health Message for General Population |
|-----------------|--------------------|---|---|
| 1 | Low | Enjoy your usual outdoor activities. | Ideal air quality for outdoor activities. |
| 2 | | | |
| 3 | | | |
| 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. |
| 5 | | | |
| 6 | | | |
| 7 | High | Reduce or reschedule strenuous activity outdoors. | Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms. |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 10+ | Very High | Avoid strenuous activities outdoors. | Reduce or reschedule strenuous activity outdoors, especially if you experience symptoms. |

AQHI Plus and adaptive messaging

| 1-hour PM _{2.5} (µg/m ³) | 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. | <ul style="list-style-type: none"> • Use a portable air cleaner to reduce smoke in your home • Stay inside with doors and windows closed, but keep cool – being too hot is more risky than breathing smoke for most people • Visit places with cleaner and cooler air, such as libraries, community centres, and shopping malls • If you cannot access cleaner air, consider using a well-fitted N95 respirator or relocating to an area with less smoke |
| 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. | |
| 71 – 80 | 8 | | | | |
| 81 – 90 | 9 | | | | |
| 91 – 100 | 10 | | | | |
| 101+ | 10+ | Very High | Avoid strenuous activities outdoors. | Reduce or reschedule strenuous activity outdoors, especially if you experience symptoms. | |

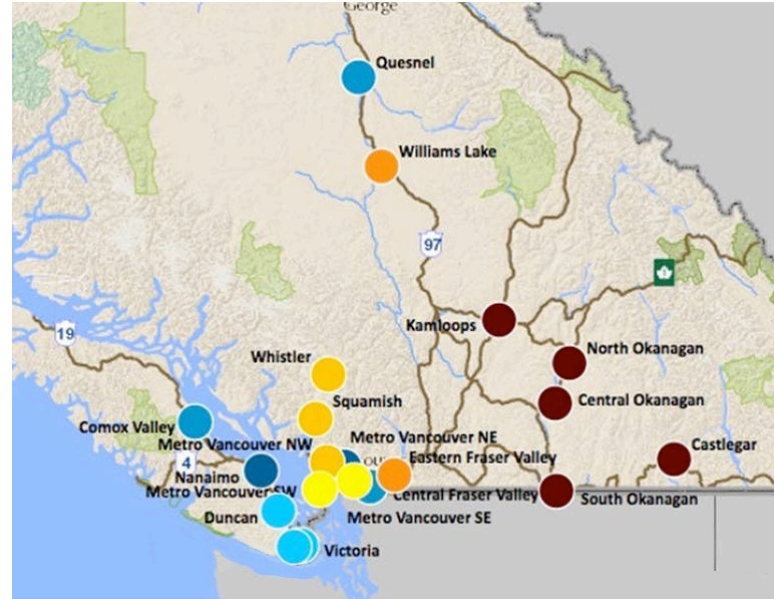
Stay informed about local air quality

- Subscribe to receive air quality advisory
 - Lower Fraser Valley: <https://rb.gy/en1cb>
 - Outside Lower Fraser Valley: <https://u.nu/e3xtf>
- Check AQHI and PM_{2.5}

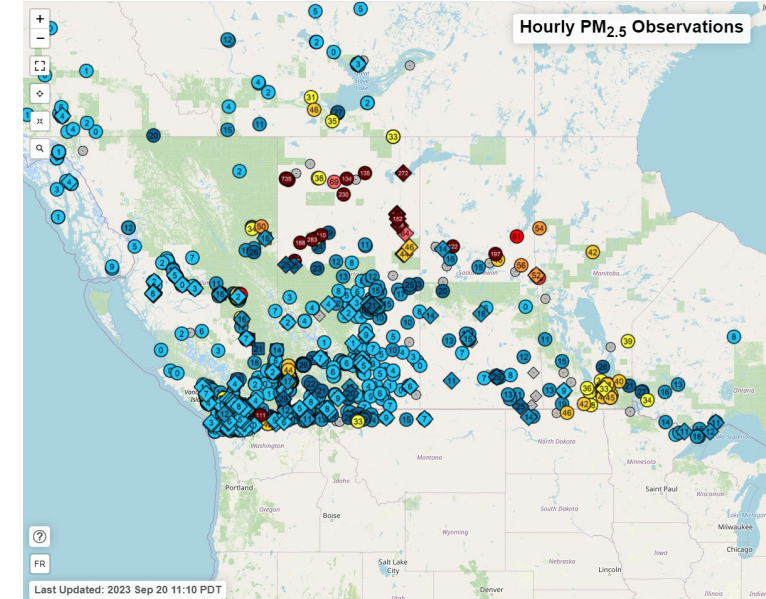
[WeatherCAN App](#)



[BC Air Quality](#)



[AQmap.ca](#)



Dr. Prabjit Barn –

PhD | Environmental Health Scientist, Health Protection, Population & Public Health, Fraser Health



THE UNIVERSITY OF BRITISH COLUMBIA

Continuing Professional Development

Faculty of Medicine

Actions to protect health

- Prepare to have clean and cool air at home
 - In duct filters – MERV 13 or higher
 - Portable HEPA filter air cleaners
 - DIY air cleaners
- Spend time in air conditioned spaces in the community
- If being outdoors can't be avoided, wear a high-efficiency, well-fitted mask
- Pay attention to how you feel



Dr. Eric Coker –

PHD, MS | Senior Scientist, Environmental Health Services, BCCDC



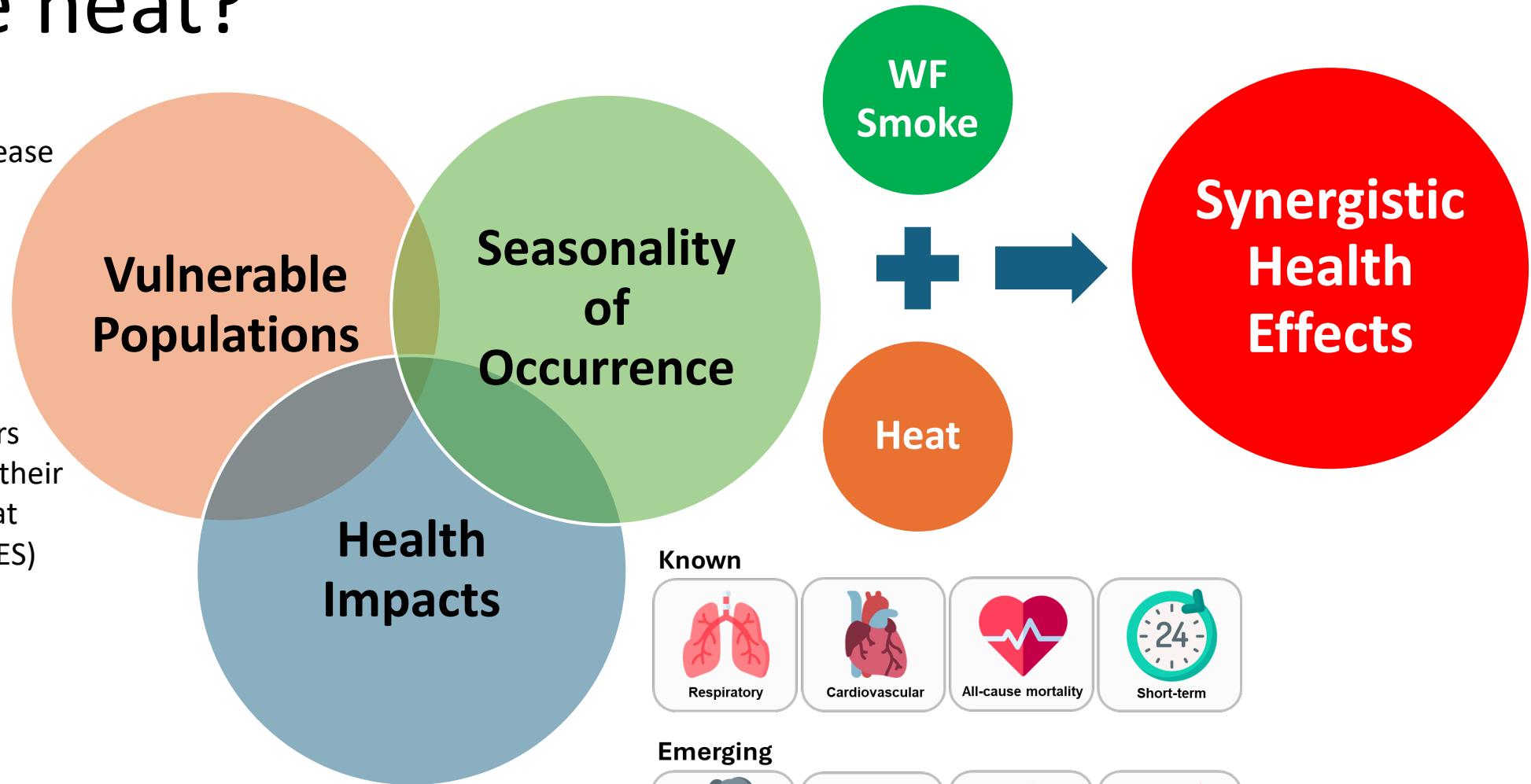
THE UNIVERSITY OF BRITISH COLUMBIA

Continuing Professional Development

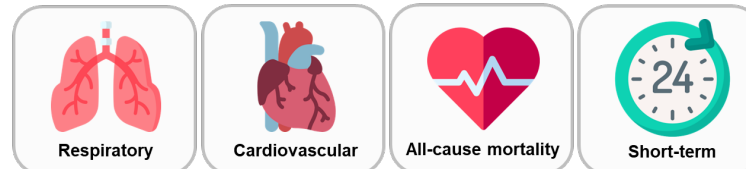
Faculty of Medicine

What about combined wildfire smoke and extreme heat?

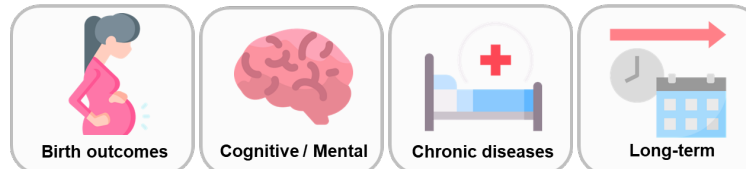
- Existing Heart or lung disease
- Older adults
- Children and teenagers
- Pregnant people.
- Outdoor workers
- People experiencing homelessness
- People exercising outdoors
- People who can't reduce their exposure to smoke or heat indoors (typically lower SES)



Known

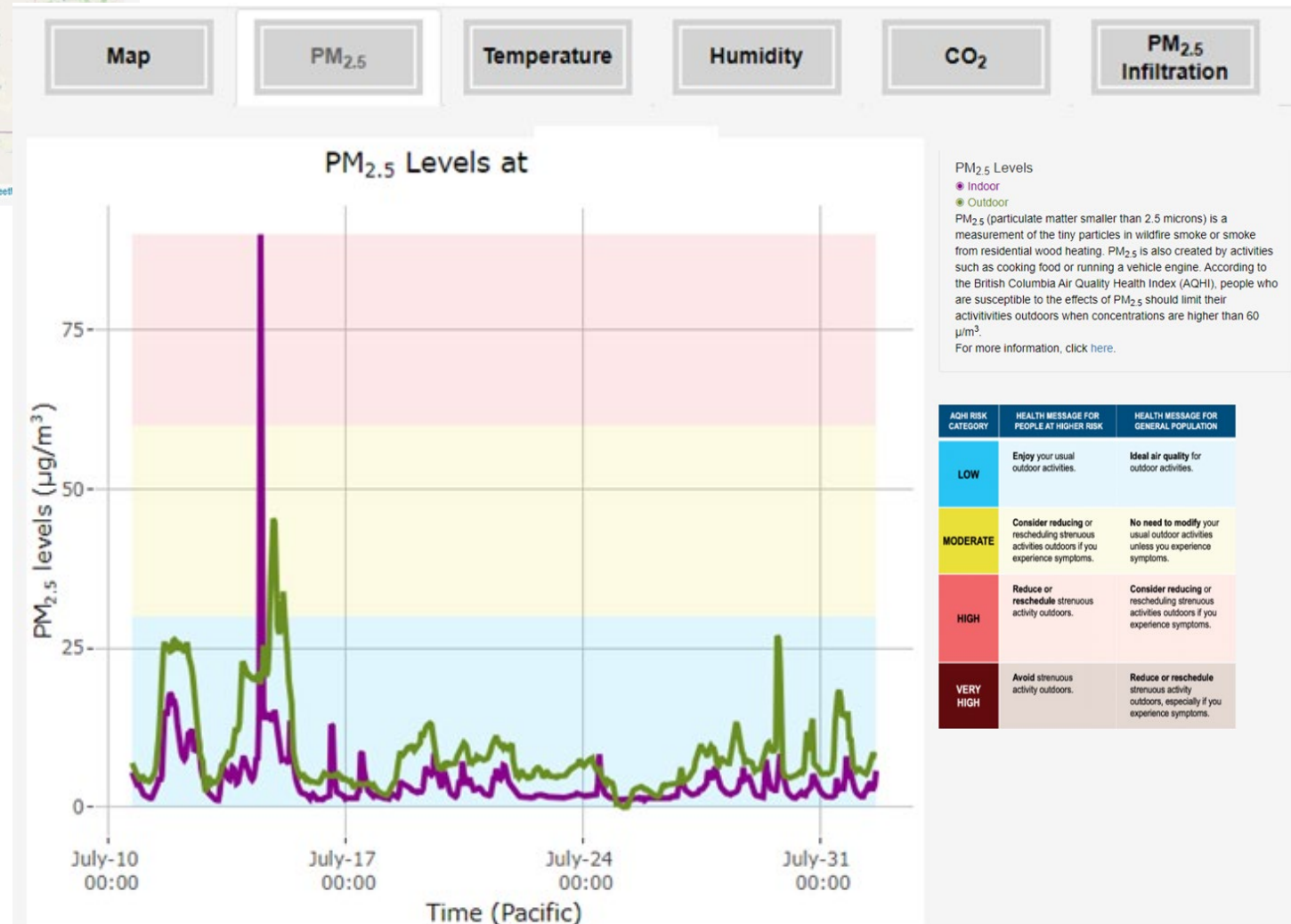
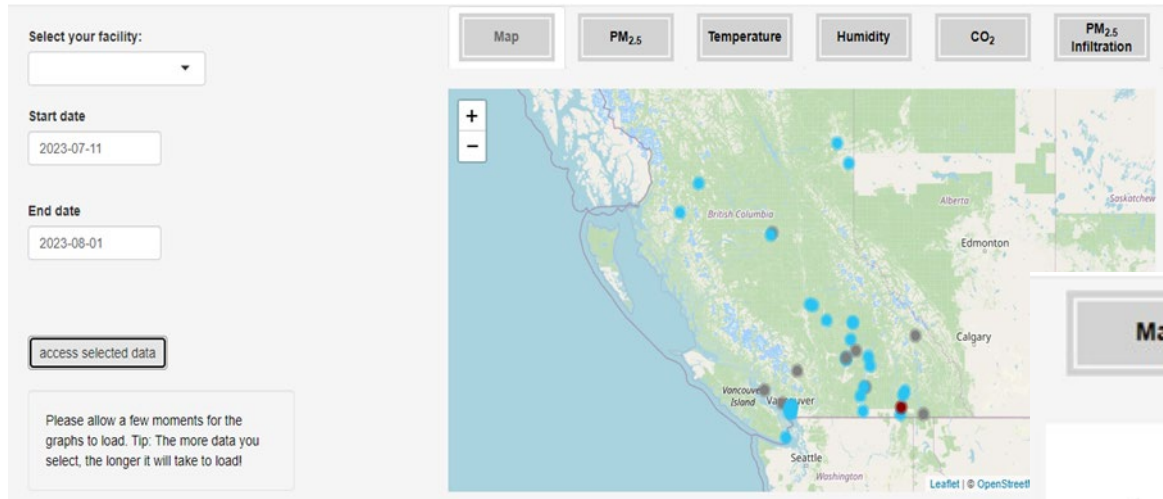


Emerging





Data Dashboard for a Low-cost Air Sensor Network at Childcare and Long-term Care Facilities in BC



- Sensors placed indoors and outdoors
- Fine particulate matter (PM_{2.5})
- Temperature
- Realtime measurements and data visualizations

Dr. Emily Brigham –

MD, MHS | Assistant Professor of Medicine, Division of Respiratory Medicine,
Department of Medicine, UBC



THE UNIVERSITY OF BRITISH COLUMBIA

Continuing Professional Development

Faculty of Medicine

Wildfire Smoke and Extreme Heat Action Plan

PART 1: To be completed by yourself or with help from others (such as a friend or healthcare provider)

My Wildfire Smoke and Extreme Heat Action Plan

Name: _____ Date: ___/___/___


Care Professional Name: _____ Emergency Contact Name: _____
 Phone #: (____)____-____ Phone #: (____)____-____

Wildfire smoke and extreme heat can affect your health, but there are steps you can take to protect yourself. This action plan will help you *prepare and respond*.


I KNOW MY AIR QUALITY AND TEMP

- I will receive emergency alerts
1. phone (heat: emergency alerts active)
 2. email (smoke: Air Quality Subscription Service)

Hello Weather
 1-833-794-3556
 Code: _____

 BC Air Quality Subscription Service:
<https://aqss.nrs.gov.bc.ca/subscription.html>

 BC Air Quality Reports:
<https://www.env.gov.bc.ca/epd/bcairquality/data/aqhi-table.html>

 If I can see or smell smoke, I know the risk is high to very high
Alert = Risk, but NO Alert ≠ NO Risk

- I can check smoke and weather conditions at least daily
1. phone (WeatherCAN app, Hello Weather)
 2. online (BC Air Quality Reports for smoke, BC Weather Alerts)
 3. radio channel: _____ AM/FM

 BC Weather Alerts:
<https://weather.gc.ca/?alertTableFilterProv=BC>

If I cannot access this information on my own, I will call: _____ at (____)____-____

MY HOME AND SUPPLIES ARE READY If applicable, I have...

- extra medications (pharmacy delivery contact: _____)
- I asked my pharmacist/doctor about any of my medications that might affect my reaction to heat
- extra food (grocery/food delivery contact: _____)
- home thermometer and extra batteries as needed
- window coverings to block sun and heat
- heat pump, or an air conditioning unit and/or fan
- air cleaner (with HEPA filter)
- supply of well-fitted masks (N95 respirator or similar)
- designated cleaner air/cool room

MORE INFORMATION

Wildfire Smoke  **Extreme Heat** 

- If I have forced air heating, I have talked to my service provider about filters/settings to use when smoky
- If employed, I have talked to my employer about a plan for during events, including masks (for smoke), water access and breaks (for heat), alternative duties, indoor, or work-from-home options

I HAVE A PLAN FOR DURING AN EVENT

I will check in with my buddy (name: _____, phone #: (____)____-____) at least daily at _____ AM/PM, and tell them if I relocate

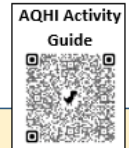
MY SAFE TRANSPORT

PART 2: To be completed/reviewed with your healthcare provider or trained community member

My Wildfire Smoke and Extreme Heat Action Plan

Name: _____ Date: ___/___/___

Overheating is more dangerous than smoke for most people at risk.
 During an event - call your buddy *daily!*



WILDFIRE SMOKE: When air is...

| 1-Hour PM _{2.5} (µg/m ³) | BC AQHI | AQHI Risk Category | Health Message for Me |
|---|---------|------------------------------------|--|
| 0-10 | 1 | LOW (blue) | Normal air quality - continue normal activities. |
| 11-20 | 2 | | |
| 21-30 | 3 | | |
| 31-40 | 4 | MODERATE (yellow/orange) | |
| 41-50 | 5 | | |
| 51-60 | 6 | | |
| 61-70 | 7 | HIGH (pink/red) | |
| 71-80 | 8 | | |
| 81-90 | 9 | | |
| 91-100 | 10 | VERY HIGH (maroon) | |
| 101+ | 10+ | | |

(AQHI = Air Quality Health Index; PM_{2.5} = fine particulate matter)

If you have a lung infection you may have a *higher than usual* risk from wildfire smoke: take extra precautions.



EXTREME HEAT: When temperature is...



| Body | | Home/Indoor |
|------------------------------------|---|--|
| 36.5-37°C (97.7-98.6°F) | Normal, monitor for symptoms | Usually safe, monitor Less than 26°C (<78.8°F) |
| 37.1-39°C (98.7-102.2°F) | Above normal; possible heat-related illness | Risk increasing 26-31°C (78.8-87.8°F) |
| Over 39°C (>102.2°F) | Seek immediate medical help | High risk; leave for cooler air Over 31°C (>87.8°F) |



Cooling Your Body

1. Cool your home or relocate to a cooler place
2. Make ice and prepare cups of cool water



Cooling Your Home

1. Use thermometer to monitor indoor temp, check batteries

#2: My Home and Supplies are Ready



EXTRA FOOD (delivery contact)



EXTRA MEDICATION (delivery contact)

****Ask doctor/pharmacist about any of your meds that might affect your reaction to heat**



HOME THERMOMETER
Extra batteries if [needed](#)



WINDOW COVERINGS
To block sun and heat



HEAT PUMP/ AIR
CONDITIONER / FAN



AIR CLEANER
Make or purchase with HEPA [filter](#)



WELL-FITTED MASKS
N-95 respirator or similar



DESIGNATED CLEAN AIR /
COOL ROOM

Expert Tips:

• Tax-Deductible Medical Expenses

Air conditioner – \$1,000 or 50% of the amount paid for the air conditioner, whichever is **less**, for a person with a severe chronic ailment, disease, or disorder – prescription needed.

Air filter, cleaner, or purifier used by a person to cope with or overcome a severe chronic respiratory ailment or a severe chronic immune system disorder – prescription needed.

• Choosing your Air Cleaner



Double box fan filter. Align the arrows on the filter with the air flow of the fan.

#3: I Have a Plan for During an Event

I will check-in with my buddy daily, and tell them if I relocate:

MY CHECK IN BUDDY:

Name: _____

Phone #: (____) ____-____

Check in time: ____:____ AM/PM

If I *must* go outside, I will protect myself by:



Having my mask ready for smoke



Making a to-go bag in advance (water, snacks, meds, essentials)

And using my safe transport options:



MY RIDE CONTACT or **TRANSIT ROUTE** is: _____



DRIVE MYSELF
Keep car vents and windows closed with air conditioner on "recirculate"

If I need cooler or cleaner air, I will go to:

MY COOL AIR LOCATION:

Day time: _____

Night time: _____

MY CLEANER AIR LOCATION:

Day time: _____

Night time: _____

MY COOL & CLEANER AIR LOCATION:

Day time: _____

Night time: _____

My Wildfire Smoke and Extreme Heat Action Plan

Name: _____ Client Name _____ Date: xx / xx / xxxx (when plan filled out)

Care Professional Name: _____ (name) _____ Emergency Contact Name: _____ (name)

Care Professional's #: (xxx) xxx-xxxx Emergency Contact #: (xxx) xxx-xxxx

Wildfire smoke and extreme heat can affect your health, but there are steps you can take to protect yourself. This action plan will help you *prepare and respond*.

I KNOW MY AIR QUALITY AND TEMP



WILDFIRE SMOKE AND YOUR HEALTH

Wildfire smoke during extreme heat events

Wildfire smoke may happen at the same time as very hot weather. Smoke and extreme heat can both impact your health, but they have different effects on the body. Some people are susceptible to experiencing health effects from both wildfire smoke and extreme heat, but overheating is more dangerous for most people at risk. Cooler, cleaner indoor air is the best way to protect yourself.



Extreme heat can affect your health

On extremely hot days in British Columbia, there may be 100-300 more deaths than expected

- Your body always tries to maintain a core temperature of 36.6°C (98.6°F).
- When air temperature is high, your body has to work harder to cool itself by sweating and increasing blood flow to the skin.
- If you cannot stay cool, dangerous overheating may occur.
- Overheating can quickly become life-threatening heat stroke.
- Check to see whether there are any heat alerts in your area. <https://u.nu/HhZky>

| OVERHEATING: symptoms and recommended actions | | |
|---|--|--|
| MILD | MODERATE | SEVERE |
| <ul style="list-style-type: none"> Feeling unwell Dizziness Headache Thirst Skin is warm and dry | <ul style="list-style-type: none"> Nausea Light-headedness Weakness Extreme fatigue, malaise | <ul style="list-style-type: none"> Fainting or loss of consciousness Unusual confusion or disorientation Severe nausea and vomiting |



Wildfire smoke can affect your health

On extremely smoky days in British Columbia, there may be 5-10 more deaths than expected

- Smoke is composed of small particles that travel deep into your lungs, where they can cause irritation and inflammation that affects your whole body.
- Smoke usually causes respiratory symptoms that resolve when the air clears.
- Smoke may also cause severe problems such as difficulty breathing or heart problems.
- Use the Air Quality Health Index to assess risks associated with current smoke levels. <https://u.nu/MJPmP>

| WILDFIRE SMOKE EXPOSURE: symptoms and recommended actions | |
|---|---|
| MILD | SEVERE |
| <ul style="list-style-type: none"> Eye, nose, throat irritation Mild cough Phlegm production Wheezing breathing Headache | <ul style="list-style-type: none"> Shortness of breath Severe cough Chest pain Unusual heart palpitations |

Consent in signing up for all alerts that they are willing to receive, and showing them all additional information that they are comfortable with and able to access. Ask the client to identify (and circle one) of the messaging options below (phone, online, radio) will be their primary way to receive information on a back-up if possible should they lose internet or cell service. Encourage them to circle options on the plan, being careful not to mark the QR codes.

Emergency alerts (email, text, voice)
 Emergency alerts (email, text, voice, emergency alerts active)

Federal alerts: The extreme heat alert system is mandatory in Canada and activated on LTE or 5G network capable phones. If the client has a cell phone, ask to see if it is LTE (Long-Term Evolution, a standard and wireless technology) or 5G (fifth generation) capable. For additional information to help you in checking the client's phone, please see: <https://www.alertheadv.ca/wireless/>



<http://www.bccdc.ca/health-info/prevention-public-health/wildfire-smoke>

BCCDC Brief Intervention Coming to Pathways...

Questions? emily.brigham@ubc.ca

Dr. John Pawlovich –

Rural Family Physician; Director, Rural Education Action Plan; Lead, Real-Time Virtual Support, RCCBC



THE UNIVERSITY OF BRITISH COLUMBIA

Continuing Professional Development

Faculty of Medicine

