PREPARING FOR EXTREME HEAT AND WILDFIRE SMOKE

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July 20, 2022
With acknowledgements to:
Dr. Sarah Henderson, BCCDC
Dr. Michael Schwandt, Medical Health Officer, VCH
Emily Peterson, Environmental Health Scientist, VCH
Land Acknowledgement

We would like to acknowledge that we are gathered today on the traditional, unceded territories of the Musqueam, Squamish and Tsleil-Waututh peoples.

Source: www.johomaps.net
Agenda

• Extreme Heat
  - What did we learn last summer
  - Heat-vulnerable people and spaces

• Heat and wildfire smoke related illness

• Actions and Resources
  - Heat check-ins
  - How to cool people and spaces
  - Heat and smoke together
Follow along and make a plan!

PreparedBC Extreme Heat Preparedness Guide
What is Extreme Heat?

All of these terms are used for hotter than normal temperatures.
Weather terms used by Environment and Climate Change Canada.

Special Weather Statement
Heat Dome

Extreme Heat ↔ Heat Wave

Heat Warning
Heat Emergency
Terms for hotter than normal temperatures that last for longer periods of time.
New official terms in British Columbia for DANGEROUS hot temperatures.
What did we learn from last summer?
What did we learn....
What did we learn....
What did we learn....

Figure 1: Heat-Related Deaths by Date of Death

HOTTEST DAY
June 28

BC Coroners Service, 2022
VCH emergency department visits, 2021 heat dome
Emerging themes in heat risk:

**Risk factors**
- Deprivation
- Isolation
- Mental illness
- Substance use
- Comorbid diabetes

**Protective factors**
- Privilege
- Greenspace
- Being in care

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### BC Heat Alert Response System: 2022

<table>
<thead>
<tr>
<th>Alert level</th>
<th>Heat Warning</th>
<th>Extreme Heat Emergency</th>
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<tbody>
<tr>
<td>Public health risk</td>
<td>Moderate (5% increase in mortality)</td>
<td>Very high (20% or more increase in mortality)</td>
</tr>
<tr>
<td>Descriptor</td>
<td>Very hot</td>
<td>Dangerously hot</td>
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<tr>
<td>Historic frequency</td>
<td>1-3 per summer season</td>
<td>1-2 per decade</td>
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<tr>
<td>Criteria</td>
<td>Southwest = 29-16-29* Fraser = 33-17-33* Southeast = 35-18-35* Northeast = 29-14-29* Northwest = 28-13-28* *(Daytime high, nighttime high, daytime high)</td>
<td>Heat warning criteria have been met and forecast indicates that daily highs will substantively increase day-over-day for 3 or more consecutive days</td>
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Alert Ready

- Intrusive alerts on television, radio and compatible wireless devices
- Only for Extreme Heat Emergencies.
Heat-vulnerable people and spaces
Physiological vulnerability to heat

The body’s ability to cool is affected by:

- Age
- Pre-existing medical conditions (heart and lung disease, circulatory diseases, diabetes, neurological conditions)
- Acute illness
- Medications and drugs
- Acclimatization
Social vulnerability to heat

• Less access to cooling facilities and equipment (e.g. A/C)

• Social isolation and barriers to reaching help

• **Socially** vulnerable groups may be more likely to live in neighbourhoods with *environmental* vulnerability
Environmental vulnerability to heat:

- Sparse vegetation
- Dark roofing and paving materials
- Lack of cool neighbourhood spaces
- Higher heat load in urban areas: “urban heat islands”
Urban heat island effect

Température superficielle apparente dans la RMR de Vancouver le 17 juillet 2004
Classification de température selon la moyenne (24,01°C)
1. IDENTIFY THOSE WHO ARE AT RISK

While everyone can benefit from planning and preparing for Extreme Heat Emergencies, the following people are especially at-risk if they do not have access to air conditioning. They need to be prepared and supported:

- seniors aged 65 years or older
- people who live alone
- people with pre-existing health conditions such as diabetes, heart disease or respiratory disease
- people with mental illness such as schizophrenia, depression, or anxiety
- people with substance use disorders
- people who are marginally housed
- people who work in hot environments
- people who are pregnant
- infants and young children
- people with limited mobility
Physical environment risk factors

- No mechanical cooling (A/C)
- Higher floors of buildings
- Directly under the roof
- South and/or west facing windows
- Large window surface area
- Singled pane windows
- No external window shading
- No evening cross breeze
- Low neighborhood greenness

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Heat plan: Step 2 + 3

2. EVALUATE IF YOU CAN STAY AT HOME

If you are at risk and you live in a building or residence that gets very hot, with inside temperatures of 31°C or higher, plan to go elsewhere during an Extreme Heat Emergency.

3. EVALUATE YOUR HOME’S COOL ZONES

Some areas of your residence may stay cooler than others. During an Extreme Heat Emergency, you should prepare to stay in the coolest part of the residence and focus on keeping that one location cool.

Start by identifying a room that’s typically coolest and consider how you can modify the layout to support sleeping and day-to-day living for the duration of the heat event.
4. IDENTIFY OTHER LOCATIONS TO GET COOL

If it is not safe for you to stay at home, consider staying with friends or family that have air conditioning or cooler spaces. Alternatively, identify places in your community you can visit to get cool such as:

- libraries
- community centres
- shopping malls
- movie theatres
- religious centres
- parks and other shaded green spaces

You can also contact your First Nation or local government to find out if cooling centres will be available in your area.

4. IDENTIFY OTHER LOCATIONS TO GET COOL (CONTINUED)

Ideally, choose a location where you will enjoy spending time, as it can take a long time to cool off after getting overheated. Consider whether you will have access to water or if you should bring some with you to stay hydrated.

Identify and write down any locations you can visit to get cool:

<table>
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<tr>
<th>Location</th>
<th>Address</th>
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Heat and wildfire smoke related illness
What is heat-related illness?

An umbrella term for conditions caused by heat, such as heat rash, sunburn, heat cramps, heat exhaustion and, the most severe, heat stroke.
EXTREME HEAT

Some people are impacted by the heat more than others. People over 60, people who live alone, people with certain health conditions or disabilities, people who use substances, people on certain medications, people who are pregnant, infants and young children may need extra care.

HEAT EXHAUSTION SYMPTOMS
- Skin rash
- Heavy sweating
- Dizziness
- Nausea or vomiting
- Rapid breathing & heartbeat
- Headache
- Difficulty concentrating
- Muscle cramps
- Extreme thirst
- Dark urine & decreased urination

Anyone with these symptoms should be moved to a cool space, given plenty of water to drink, and cooled down with water applied to the skin (see “Cool Off” section below)

HEAT STROKE SYMPTOMS
- High body temperature
- Fainting or decreased consciousness
- Confusion
- Lack of coordination
- Very hot and red skin

Seek medical attention, call 911 if necessary. Submerge some or all of the body in cool water, remove clothes and apply wet towels.

www.vch.ca/heat
Wildfire smoke related illness and impacts

- Respiratory issues (shortness of breath, severe cough, chest pain)
- Increased risk of some infections (pneumonia, COVID-19, ear infections)
- Limited and emerging research on longer-lasting health effects, but good body of evidence from other sources of fine particulate matter PM$_{2.5}$

PM$_{2.5}$ poses the greatest risk to health
WILDFIRE SMOKE

Older adults, infants, young children, pregnant women and people with chronic conditions are especially sensitive to health effects of wildfire smoke and should take extra care.

**COMMON SYMPTOMS**
- Lung Irritation
- Eye Irritation
- Runny Nose
- Sore Throat
- Headaches
- Mild Cough

**MORE SEVERE SYMPTOMS**
- Shortness of breath
- Severe cough
- Dizziness
- Chest discomfort
- Heart palpitations
- Wheezing

Anyone with these symptoms needs medical attention
Considering heat and air quality together

Key for both heat and smoke events:
COOL (A/C), CLEAN (HEPA Filter) indoor air

• Heat and air pollution affect your body in different ways, but some people have vulnerabilities that make them susceptible to both
• Heat is a greater immediate health risk than smoke for most people, so cooling should generally be prioritized
• Speak with a healthcare provider and check out the BCCDC Smoke Webpage for more information
Actions to prepare and respond
NCCEH: Extreme heat can be a killer
Heat plan: Step 5

5. IDENTIFY AN EXTREME HEAT BUDDY

If you live alone, find an extreme heat buddy to check in on you when it gets hot, and who you can also reach out to for help.

Your buddy should be someone who can take you to cooling centres or help with cooling measures in your residence:

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<th>Name</th>
<th>Contact info</th>
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Heat Check-Ins

What is a Heat Check-In?
Visit, call or text to a heat-vulnerable person to assess the heat-related safety of their home environment, if they show signs of heat-related illness and if they need help.

Who can do Heat Check-Ins?
Anyone! No health training is required.

Who to Check on?
Heat-vulnerable people, especially those who have multiple risk factors and are socially isolated.
Heat Check-Ins Continued...

Starting Check-Ins:
When Heat Warning or Extreme Heat Emergency is declared.

Ending Check-Ins:
Keep in mind that heat-vulnerable people may be at risk even after a heat alert has ended.

Frequency:
At least once a day, regardless of the time. Increase the frequency of check-ins to multiple times a day for those most at risk, especially if an Extreme Heat Emergency is declared.
How to check on family, friends and neighbours
How organizations can run heat check-ins
Actions to cool people

- Seek cooler spaces
- Take a cool shower or put part of body in cool water
- Wear a wet shirt or apply damp towels to skin
- Drink plenty of water and other liquids
- Wear loose fitting, light colored breathable clothing
- Limit physical activity
- Monitor indoor temperature and watch for symptoms
Actions to cool spaces

- Use A/C or heat pumps
- Use external window shading and/or external window films
- Close shades/blinds to block sun
- Close windows during the day (approx 10am to 8pm) and open windows overnight
- Increase site tree coverage if possible
Fans...

- Fans do not directly cool the air and should not be used as the primary source of cooling for heat-vulnerable people in hot indoor environments.

- At night, use fans to bring cool air inside. Kitchen and bathroom fans vent outside of living spaces and can be used to move hot air outside.
Dangerous Indoor Temperatures

- **Indoor temp over 26 °C (78 °F):** Increasing risk of heat-related illness for heat-vulnerable people.

- **Indoor temp over 31 °C (88 °F):** Significant risk of heat-related illness for heat-vulnerable people.

- Without A/C or other mechanical cooling, heat-vulnerable people in consistently high indoor temperatures are advised to move to a cooler space.
6. PREPARE YOUR HOME

A few modifications can make a big difference during periods of extreme heat. Options include:

INDOORS:
- Install a window air conditioner in at least one room
- Install thermal curtains or window coverings
- Keep digital thermometers available to accurately measure indoor temperatures (31°C or higher is dangerous for vulnerable people)
- Have fans available to help move cooler air indoors during the late evening and early morning hours

**TIP:** Fans cannot effectively reduce body temperatures or prevent heat-related illness in people at-risk. Do not rely on fans as your primary cooling method during an Extreme Heat Emergency.

- Install a heat pump (for info: [betterhomesbc.ca/heatpumps](http://betterhomesbc.ca/heatpumps))

OUTDOORS:
- Install exterior covers or reflective films that block the sun from hitting the windows. This can be as simple as applying cardboard to the outside of the window.
REDUCING EXPOSURE to wildfire smoke is the best way to protect health.

STAY INFORMED & PLAN AHEAD
- Check the latest local air quality readings and advisories regularly.

CHECK-IN
- Pay attention to how you feel, and watch for symptoms in those around you.

HYDRATE
- Drink plenty of water, and offer water to those in your care.

RELOCATE
- Go to local libraries, community centers or other public spaces that have central air conditioning and cleaner air.

REDUCE EXPOSURE
- Reduce outdoor physical activities and stay indoors when smoke is heavy.

COOL & FILTER
- Filter indoor air using portable HEPA air filters.
- Keep windows and doors closed during high smoke times; but on hot days, make sure the indoor temperature is at a comfortable level because heat can be dangerous.
- Use energy efficient, mechanical cooling in addition to portable air cleaners to create cool spaces with clean air for hot days.

www.vch.ca/wildfiresmoke
Additional resources

- **VCH/ FHA heat poster** (translations available)
- **VCH heat webpage**
- **VCH wildfire smoke webpage**
- **Vancouver indoor air temperature survey** (see VCH heat webpage)
Official weather information

Environment and Climate Change Canada Resources:

- Public Weather Alerts for British Columbia
- WeatherCAN App
- Hello Weather – automated telephone service
  - English: 1-833-794-3556 or 1-833-79HELLO
  - French: 1-833-586-3836 or 1-833-58METEO
Heat plan:
Ready to activate!
Thank You! Questions?

healthy.environments@vch.ca
www.vch.ca/heat