

Why is climate change a perinatal issue?



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Vancouver Coastal Health, Health Protection

Healthy Mothers and Healthy Babies 4th Biennial
Conference 2020, Hyatt Regency, Vancouver BC
Feb 21, 2020





Perinatal Services BC
Provincial Health Services Authority

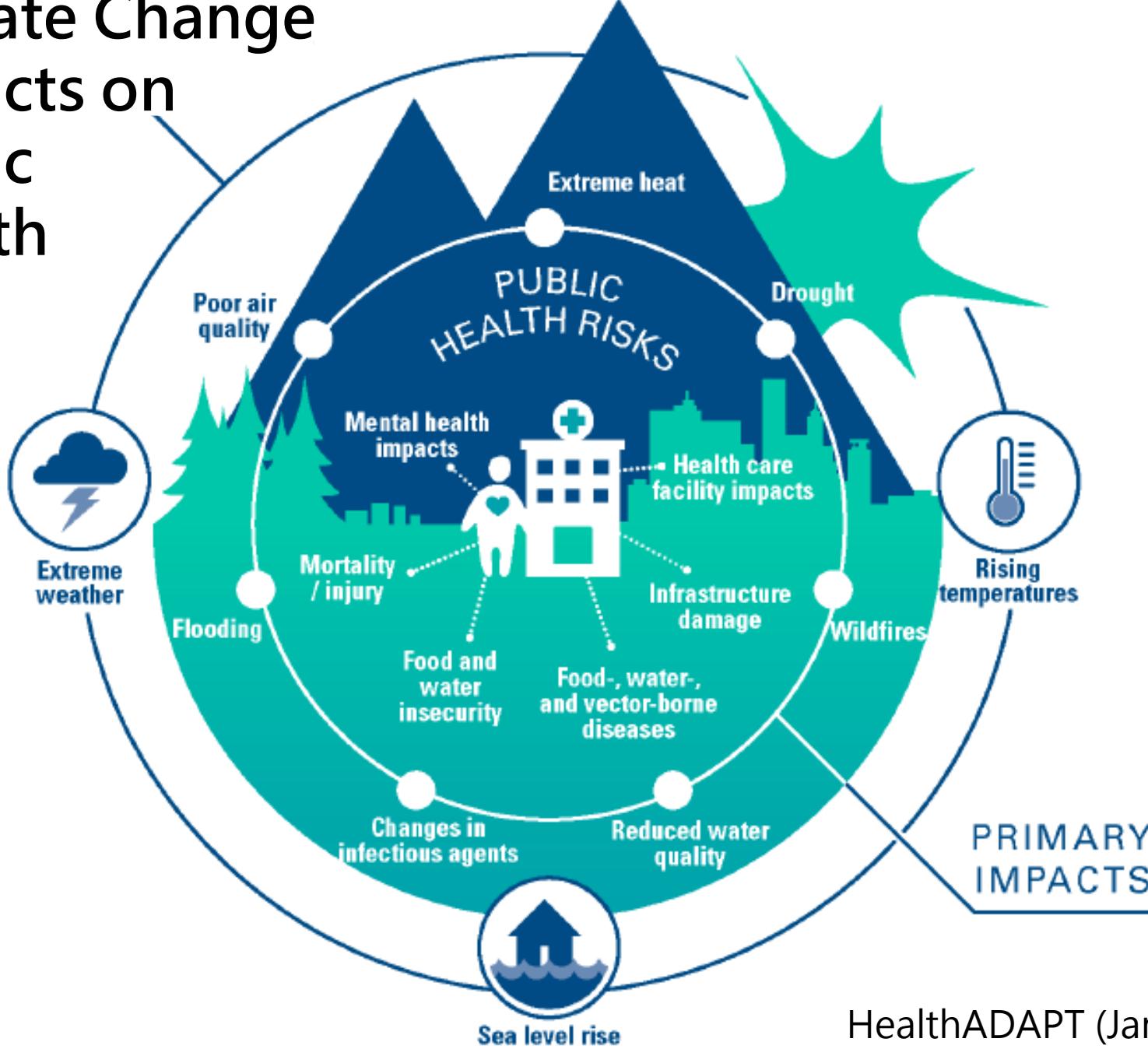


Vancouver Coastal Health



THE UNIVERSITY OF BRITISH COLUMBIA
**Interprofessional
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Climate Change Impacts on Public Health



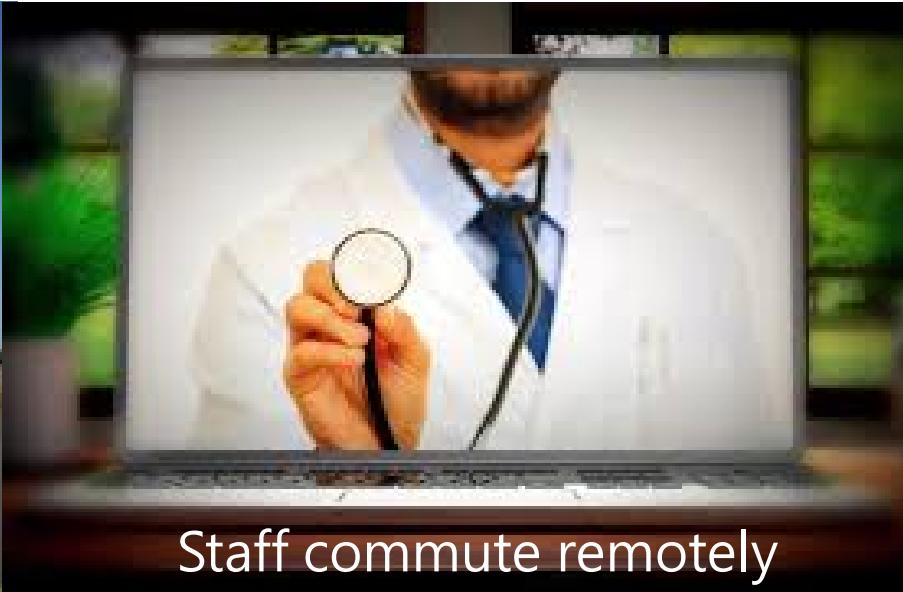
HealthADAPT (Jan, 2020)

Potential climate change impacts on Health Services

Infant & mother transport methods



Staff commute remotely



Medical supplies availability



Remote medical supplies delivery



Current public health research on health services impacts from climate change

- VCH Facilities & BCCDC & Metro Van study to understand air inside and outside clinics in Vancouver during wildfire smoke periods (Summer, 2020)
- HealthADAPT study to coordinate adaptation among health services in VCH and FHA (2 year Health Canada initiative) including sustainable health service buildings energy assessment.

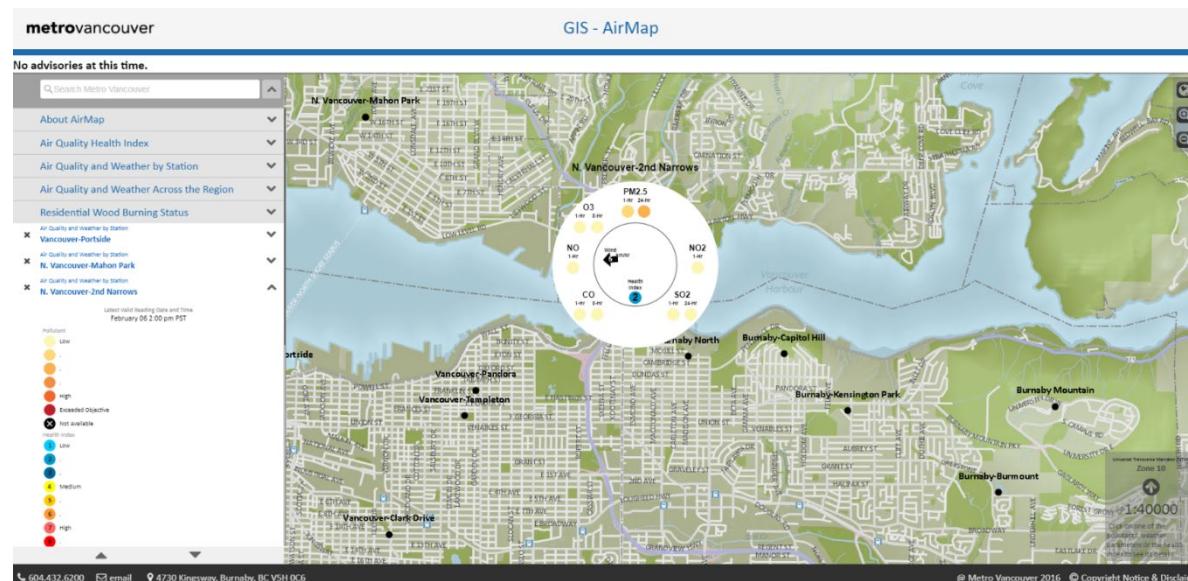
Types of questions patients ask now...

- “How hot is too hot for me and my baby?”
- “Can I go outside during a smoky period?”
- “My town was evacuated from wildfires and I had to travel very far to get here. **How and where can I find free emotional and mental health support?**”
- “Do I live too close to a dirty, noisy roadway?”



1. Stay informed

- Refer to real-time online air quality maps & stay indoors on unhealthy air days, especially if sensitive.
- Sign up for text or email air quality real-time alerts in [Metro Vancouver and Lower Fraser Valley](#), or [elsewhere in BC](#).



<https://gis.metrovancouver.org/maps/Air>

(Website accessed: Feb 6, 2020 at 236pm)

1. Stay informed

- Check smoke forecasts where you are going.



<http://firesmoke.ca/forecasts/current/>



1. Stay informed

- Watch for health alerts and advisories (e.g. heat, drinking water supply contamination or drought)

Note: Member municipalities also operate drinking water infrastructure that connects into this regional system.

metrovancouver

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The map displays the regional water supply network for Metro Vancouver. Key features include:

- Dams: Seymour Falls Dam, Cleveland Dam, Coquitlam Dam.
- Treatment Plants: Seymour Capilano Filtration Plant, Coquitlam Water Treatment Plant.
- Municipalities: Bowen Island Municipality, District of West Vancouver, District of North Vancouver, City of North Vancouver, City of Vancouver, City of Burnaby, City of Richmond, Corporation of Delta, Tsawwassen First Nation, City of Surrey, Township of Langley, City of New Westminster, City of Port Moody, Village of Belcarra, Village of Ammore, City of Pitt Meadows, District of Maple Ridge, City of White Rock.
- Water Distribution: A complex network of blue lines representing pipelines connecting the various sources and municipalities.

Take a Tour of the Watersheds this Summer
Taking Care of the Watersheds
Watersheds & Reservoirs

CONTACT

Questions or feedback
📞 604-432-6200
✉ Email

This application works on both mobile and desktop devices. It works best with the latest versions of Firefox, Google Chrome, Internet Explorer, Opera

<http://www.metrovancouver.org/services/water/quality-facilities/water-map/Pages/default.aspx>

2. Be Prepared

Create air clean in your home:



- Upgrade central HVAC with changeable filters, & adjust it to keep smoke out (e.g. close fresh air intake & turn on indoor-air recirculate mode to ensure air flow)
- Install energy efficient active cooling (e.g. heat pump that acts as an A/C in addition to portable air cleaner to create cool space on hot days).
- Seal buildings air leaks and filter air in-ducts & use a HEPA air filter or an air filter with the highest 'MERV' value rating when smoky.
- Install energy efficient & well sealed windows
- Upgrade windows to allow for good airflow and cross-ventilation.
- Buy portable air cleaner with HEPA filters

2. Be prepared.

Create cool space in and around your home:



- Install window shading or glazing to reduce sun penetration into the indoor space.
- Place covers, vegetation and trees strategically to shade indoor and outdoor areas where you spend time.
- If there is a lot of concrete/asphalt that heats up in the sun, reduce the amount of it. Increase vegetation covering on ground.
- Get a professional review and install a green roof on the building.



2. Be prepared.

Use these low/no cost strategies to stay cool:

- In the mornings/evenings (at cool times of the day), increase air flow and ventilation (passive cooling) by using the following methods:
 - Close the blinds. Open the windows. Use fans.
- Stay cool with cold showers. Use cool packs. Avoid oven use.
- If the entire indoor space cannot be cooled, look up available nearby locations to visit where you can cool off for a few hours a day (e.g. a public library, indoor mall, shaded park, outdoor pool, etc.)
- Limit outdoor activities to the morning when temperatures are cooler and stay indoors when temperatures are highest.

3. Respond wisely.

- Know & follow your emergency plan.
- Help your neighbours.
- Avoid prolonged air pollution & heat exposure - Reduce outdoor physical activity and stay indoors when smoky to reduce exposure.
- Seek & share mental health services & social support.
- Exercise indoors and eat healthy.
- Breastfeed your infant(s).
- Mitigate climate change through consuming less.
- Reduce reliance on vehicles to reduce greenhouse gases.



What else can BC Health care providers do?

- Educate peer healthcare providers on environmental health and climate change
 - Climate change adaptation fundamentals & what to do (e.g. Royal Roads online course):
<https://secure.royalroads.ca/cscourses/climate-change-adaptation-fundamentals>



Conclusions

- We have identified ways healthcare providers can help patients **prepare, prevent, and respond to specific climate change effects.**
- We have reflected on key resources & tools for healthcare providers **to use to empower families to prevent or mitigate climate-related health issues.**



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Services BC**
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Questions?

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Resources

Climate Change info-graphics for the general public:

- <https://vancouver.ca/images/cov/icons/climate-change-infographics.pdf>

Local Climate forecast maps:

- <http://www.metrovancouver.org/services/air-quality/AirQualityPublications/ClimateProjectionsForMetroVancouver.pdf>
- https://etccdi.pacificclimate.org/sites/default/files/publications/VCH_ClimateReport_Final.pdf
- Northeast BC:
https://www.fraserbasin.bc.ca/_Library/CCAQ/fbc_ne_climatereport_web.pdf

Educational tools:

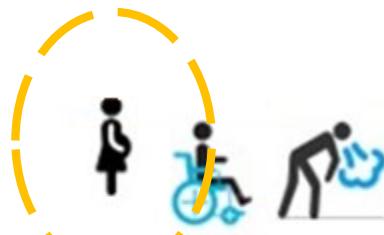
- <https://secure.royalroads.ca/cscourses/climate-change-adaptation-fundamentals>
- <https://prhe.ucsf.edu/toxic-matters>

Resources

- VCH Factsheets for childcare facility operators, architects and designers. <http://www.vch.ca/public-health/licensing/child-care>
- Heat: Vancouver Coastal Health – [Extreme heat](#)
- Heat: City of Vancouver – [Extreme heat, cool buildings: A review of alternatives to traditional air conditioning](#)
- Air Quality: BC Centre for Disease Control – [Portable air cleaners for wildfire smoke](#)
- Air Quality: Brauer, M., Reynolds, C., & Hystad, P.—[Traffic-related air pollution and health: a Canadian perspective on scientific evidence and potential exposure-mitigation strategies](#) (2012)
- Air Quality: EPA – [Best practices for reducing near-road pollution exposure at schools](#) (2015)
- Air Quality: EPA – [Recommendations for constructing roadside vegetation barriers to improve near-road air quality](#) (2016)

Not all are affected equally by Extreme heat, weather & wildfire smoke events

Who Are Your Patients?



The less abled, pregnant, or
already infirm



The poor, displaced, and
homeless



Children & the elderly



Athletes



Outdoor & manual
workers

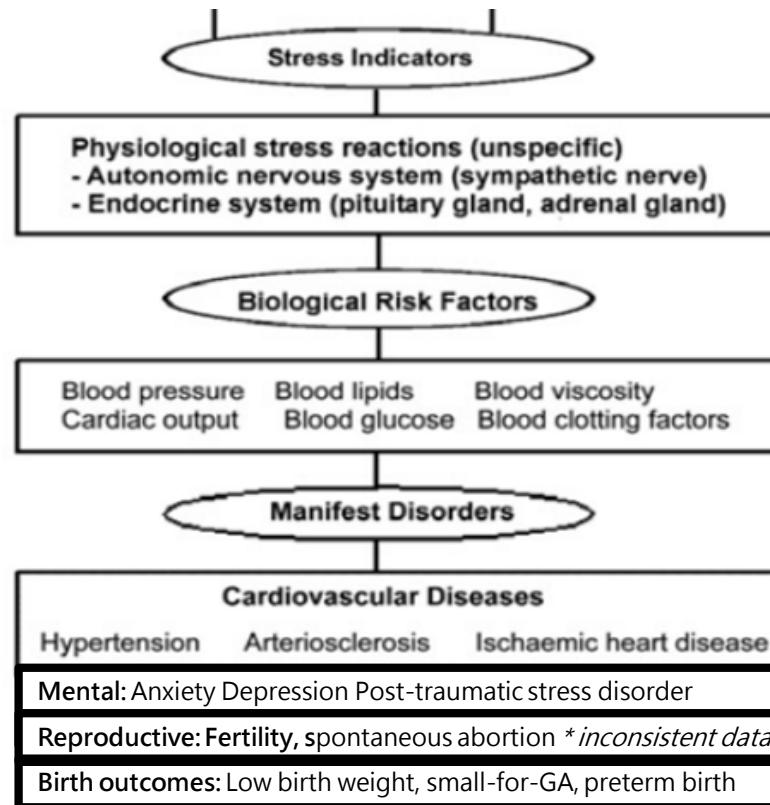
Pregnancy & birth outcomes:

Preterm, small-for-gestational age, low birth weight

*Inconsistent evidence for fertility impacts, reproduction

Source: WHO

Physiologic stress response and perinatal health



Adapted from Babisch W, 2004

Acute Health Outcomes

Extreme Heat events

- Heat stroke,
dehydration

Air pollution (e.g. PM_{2.5}) from roadways and wildfire smoke events:

- Asthmatic episodes
- Ear infections

Disturbance of activities, sleep, communication:

- Emotional and cognitive response - annoyance
- Immune defenses - respiratory illnesses

Advising patients amidst stressful media

opinion
bushfires

Advertisement

**Read The Guardian
in print**



Being pregnant in a climate emergency was an existential challenge. Miscarriage has brought a new grief

Gemma Carey

@gemcarey
10 Jan 2020 01.22 GMT



1,670

The bushfires turned an abstract Having lived on the frontlines of will choose to get pregnant again



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How Climate Change Impacts Women

Women are disproportionately affected by climate change all over the world—including in the United States.

March 01, 2017



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Home / Health / Cool down: Extreme heat linked to climate change not good for moms-to-be

Cool down: Extreme heat linked to climate change not good for moms-to-be

Exposure to temperature extremes can adversely impact birth outcomes, including changes in length of gestation, birth weight, stillbirth, and neonatal stress during unusually hot temperatures.

HEALTH Updated: Aug 09, 2017 12:11 IST

ht Asian News International
Asian News International

HEALTH | CLIMATE CHANGE AFFECTS LIFE OF BABIES MORE THAN ADULTS

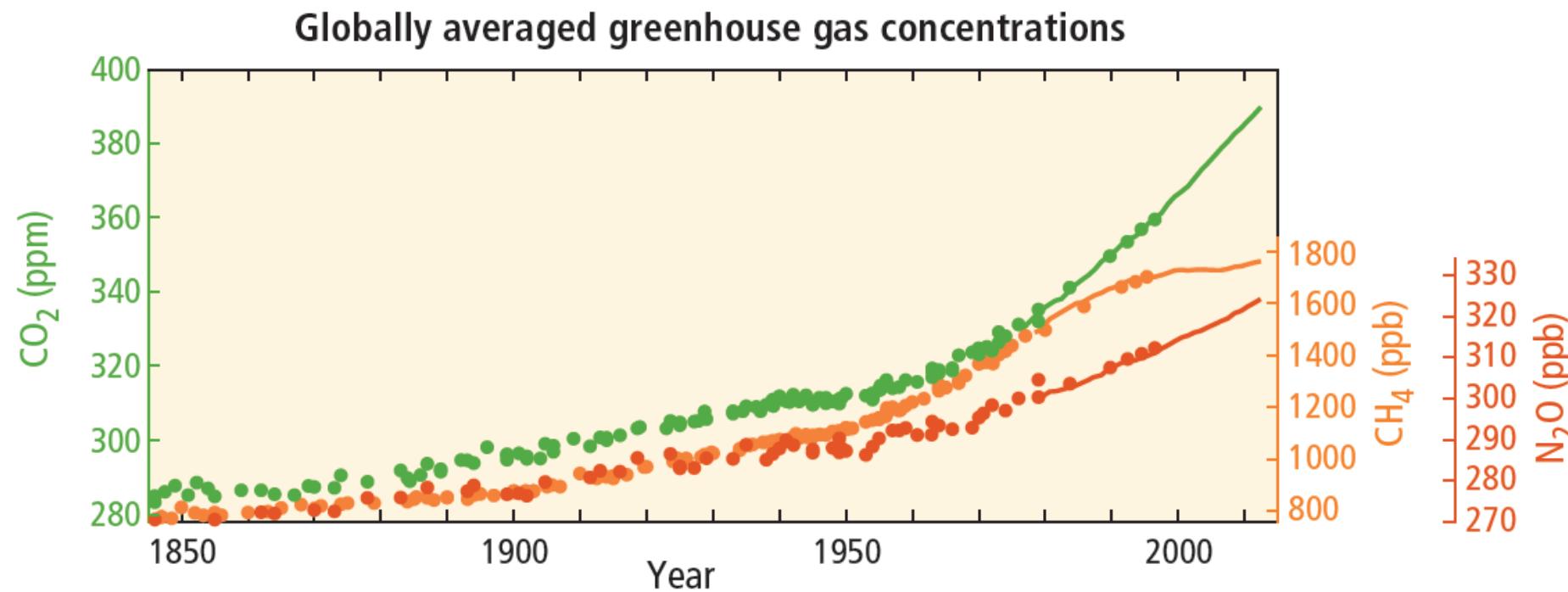
Posted on November 17, 2019 by Alkassandra in HEALTH



What do patients & their partners need to know?



Global average greenhouse gases (GHGs) concentrations are rising



Source: IPCC Synthesis report, Fifth Assessment Report (2019)

Local Climate Change Impacts

More Hot Summer Nights More Extreme heat events

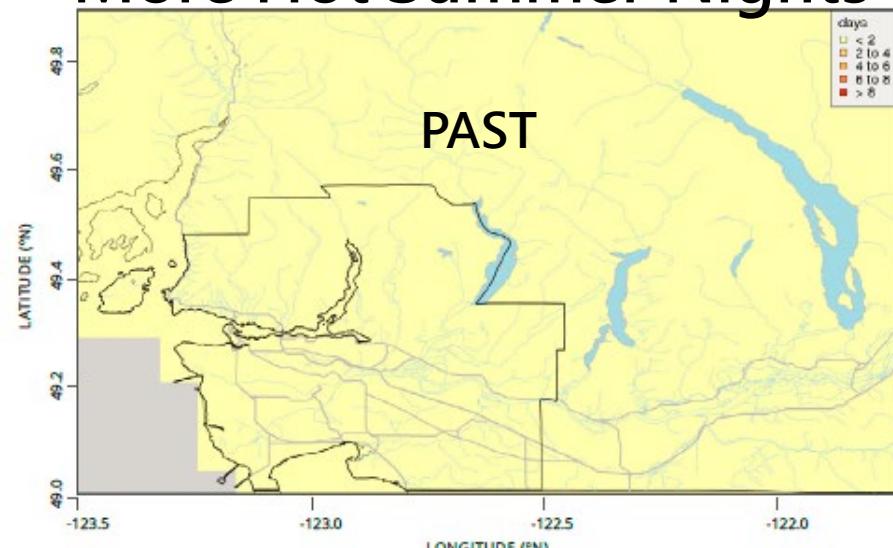


FIGURE A18: TROPICAL NIGHTS – PAST

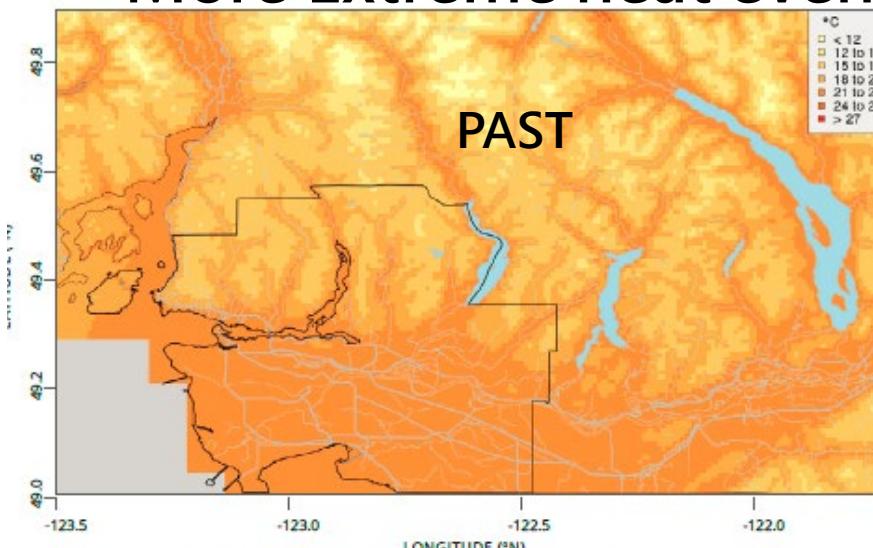


FIGURE A14: SUMMER AVERAGE DAYTIME HIGH TEMPERATURE – PAST

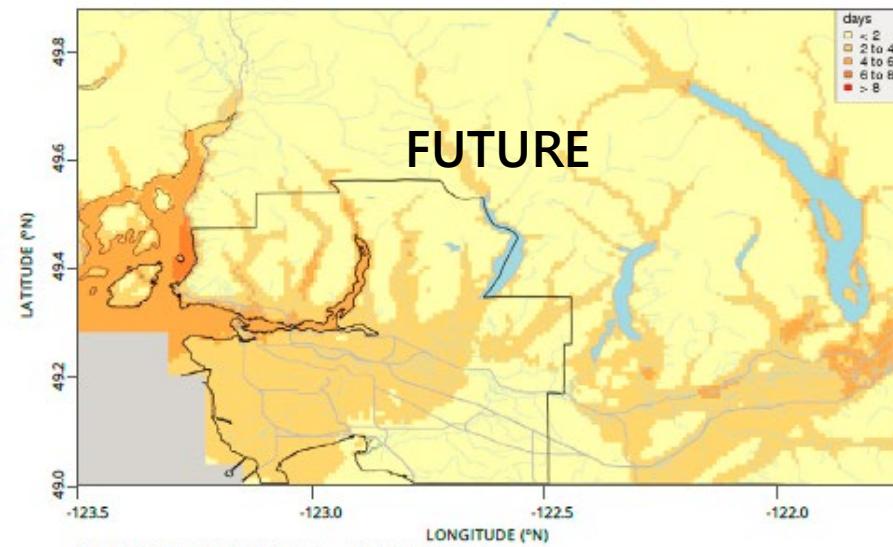


FIGURE A19: TROPICAL NIGHTS – FUTURE (2050s)

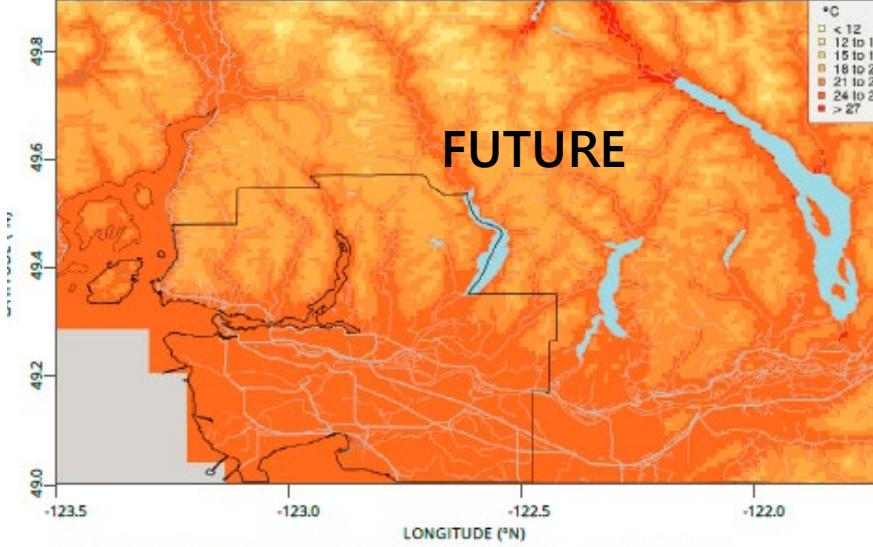


FIGURE A15: SUMMER AVERAGE DAYTIME HIGH TEMPERATURE – FUTURE (2050s)

Source: Metro Vancouver, 2016

More wildfire smoke



Photos of Vancouver under regular vs. wildfire smoke conditions.

Less snow pack

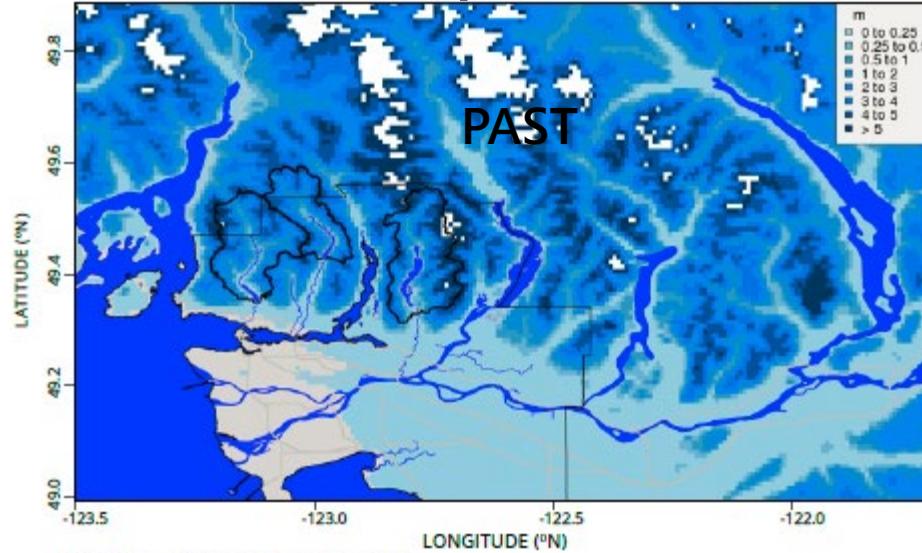


FIGURE 8: APRIL 1 SNOWPACK – PAST

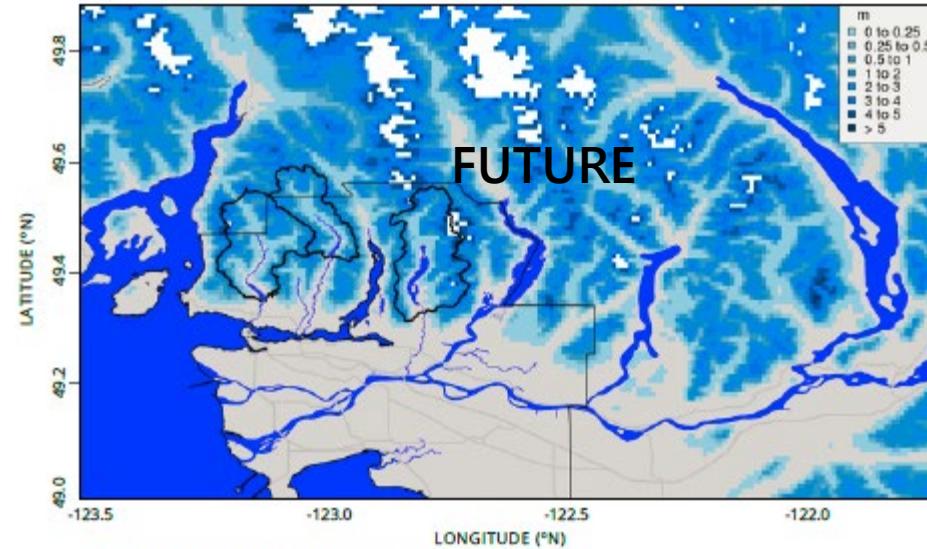


FIGURE 9: APRIL 1 SNOWPACK – FUTURE (2050s)

Source: Metro Vancouver, 2016

More extreme storms



More floods



FUTURE

Wind and water damage to coastal and run-off areas (e.g. White Rock Pier & Road wash out at Sasquatch Mountain)

FUTURE

Predicted areas underwater with global temperature 4°C increase.

Source: Metro Van, Vancouver Sun, 2017

Wildfire smoke on the Sunshine Coast Trail (before vs. after)



July 2015 - Sechelt wildfires 2015 Personal photos by L. Dix-Cooper



Types of questions patients used to ask...

- "Will dying my hair while pregnant harm my baby?"
- "What kind of skin cream do you recommend for my baby, that is toxic-free?"
- "I ate some green potatoes my mother-in-law cooked for me. Is my baby going to be OK?"



Source: Dix-Cooper, 2014 BCCDC Poison Control Database Calls

Potential climate change impacts on Health Services

- Physical, emotional and mental health of healthcare providers.
- Power outages & damage to building envelope, internal infrastructure, electrical and mechanical systems (including climate control systems)
- Reduced access to supplies (medical & non-med)
- Temporary clinic closure periods may delay surgeries & specialized services
- Influx of patients travelling from remote wildfire and weather event affected areas for emergency services
- Transfer delays from other healthcare facilities due to service disruptions

(Canadian Association of Physicians for the Environment (CAPE), 2019)