

Navigating Climate Change: Perspectives from Indigenous Providers

Nov 4, 2024 | 1730–1900 PT



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Continuing Professional Development
Faculty of Medicine

DISCLOSURES

Panelists

- **Dr. Elder Roberta Price:** Nothing to disclose
- **Randi George:** Nothing to disclose
- **Ojistoh Horn:** CMA Indigenous Guiding Circle; Takeda pharmaceutical Truth and Reconciliation speaking engagement; Member of Canadian Medical Association Indigenous Guiding Circle, advising the board and the association to navigate its Apology to Indigenous People. Any financial compensation does not influence the content of this webinar.
- **Viola Brown:** Nothing to Disclose
- **Miles Marchand:** Received Honorarium from Bristol Meyer’s Squibb for a talk on Indigenous health. It has not influenced treatment decisions as a clinician.
- **Shannon Waters:** Nothing to disclose



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Planning Team

- **James Andrew (UBC FoM):** Nothing to disclose
- **Brenna Lynn (UBC CPD):** Nothing to disclose
- **Allison Macbeth (UBC CPD):** Nothing to disclose
- **Caldon Saunders (UBC CPD):** Nothing to disclose

Learning Objectives

- Describe how climate change impacts Indigenous peoples' health, communities, and traditional lifestyles.
- Apply practical steps to support Indigenous health and resilience in the face of climate change.
- Engage your Indigenous patients and their families in communication around climate change and planetary health impacts on their well-being.
- Access resources on planetary health and climate change for Indigenous and non-Indigenous providers and patients.



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Mental Health and Climate Change



Viola Brown

Family Nurse Practitioner – Lower Similkameen Indian Band Health Center in Cawston, BC

Okanagan Indian Band Member from the Syilx – Okanagan Nation

Board Member – South Okanagan Similkameen Divisions of Family Practice



CLIMATE CHANGES HEALTH IN CANADA

Climate change is the biggest global health threat of the 21st century. —Lancet¹

IMPACTS ON MENTAL HEALTH⁸ AND AVAILABILITY OF TRADITIONAL FOODS IN THE NORTH⁷
Due to arctic warming (3x Global Rate)⁹.

WILDFIRE-RELATED ASTHMA⁹ & EVACUATION
Healthcare facilities evacuated.
• Fort McMurray: 105 patients^{10,11}
• Interior B.C. 2017: 880 patients^{12,13}
Anxiety & PTSD following evacuation.¹⁴

FLOOD-RELATED DEATHS AND DAMAGE
2013 Alberta flood¹⁵:
• 5 deaths¹⁶
• Healthcare facilities closed due to flooding.¹⁷

DROUGHTS^{18,19}
Uneven impact on crops.²⁰
Socioeconomic stress.²¹

ALLERGIES
Increased severity & duration of pollen seasons.²²

TICK-BORNE DISEASE
2017: 3x higher rate Lyme Disease in Ontario than 2012-2016 average.²³

HEAT-RELATED ILLNESS²⁴
66 people died in Montreal during 2018 heat wave.²⁵

DISPLACEMENT
Climate change-exacerbated drought and famine was one factor in Syrian refugee crisis.²⁶

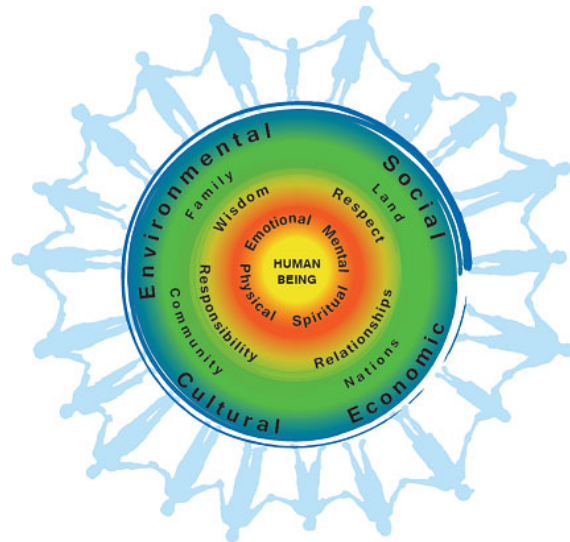
RELOCATION & STRESS FROM COASTAL EROSION
P.E.I. homes at risk.²⁸



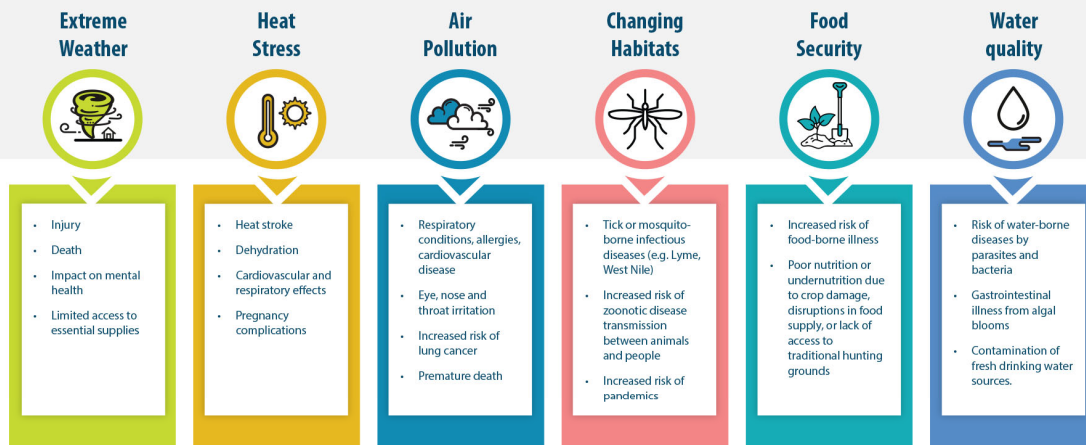
WHO states:

“Climate change is impacting human lives and health in a variety of ways. It threatens the essential ingredients of good health – clean air, safe drinking water, nutritious food supply and safe shelter – and has the potential to undermine decades of progress in global health.”

Indigenous Health



How Climate Change Impacts Our Health



Some people are at greater risk of poor health outcomes from climate change. Risk factors include:

- Low-socio-economic status
- Age (very young or advanced age)
- Pre-existing health conditions
- Geographic location



Learn more: [Mobilizing public health action on climate change in Canada](#) | Chief Public Health Officer's Report on the State of Public Health in Canada 2022 | [Canada.ca/CPHOREport](#)



Public Health
Agency of Canada

Agence de la santé
publique du Canada

Canada

REMOVAL OF INDIVIDUALS FROM THEIR ENVIRONMENT

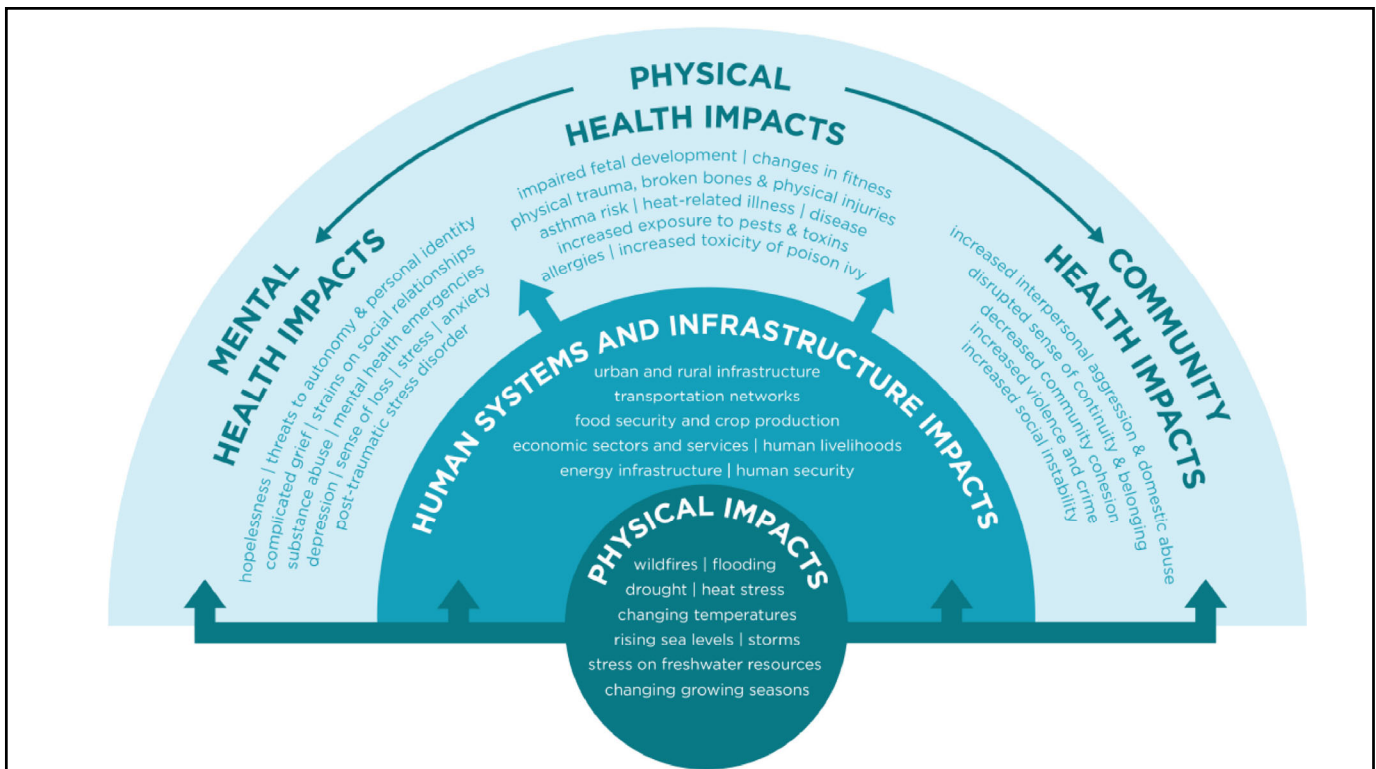
- Decreased mental wellbeing, including
 - Sadness
 - Anxiety, worry, fear
 - Emotional distress (irritability/anger)
 - Vulnerability/helplessness
 - Lack of focus, concentration and inability to make decisions
- Loss of a home in the case of a fire or flood, for example, adds a layer of grief and loss

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Climate-related hazards

- Indigenous Peoples are at greater risk of being displaced by climate-related hazards
- Impact on traditional practices
- Can result in a loss of community connections and
- Loss of livelihoods that affect individual and collective well-being



Climate Change & Mental Health



Source: Adapted from IPCC AR6 WGII Ch 7 (2022) & health2016.globalchange.gov Ch 8 (2016).

CLIMATE  CENTRAL

- **Direct**—such as anxiety, depression or PTSD stemming from personal traumas (injury, displacement, or loss of loved ones) sustained during a hurricane
- **Indirect**—such as stress, substance abuse, or suicidal ideation among individuals whose livelihoods or food security are affected by drought
- **Vicarious**—such as anxiety, fear and distress that can affect people when they learn about or perceive climate change risks or witness its harmful impacts on others

Ongoing Considerations



Environmental Trauma



PTSD, depression, anxiety, insomnia



Increase in substance use and addictions



Environmental Flood Risk for up to 10 years after a wildfire



Hazard assessment – danger trees, water quality, roadways



Sustainability – Destruction to traditional food sources and medicine and their impacts to food security

KEY MESSAGES

- Support those at risk
- Communication and outreach about the mental health impacts of climate change,
- Channel concerns into constructive action.
- Education – Providers need to understand how climate change affects mental health to validate their patient's concerns and suggest appropriate strategies to manage health outcomes.
- Further research and evaluation is needed



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Navigating Climate Change: Impacts of Heat Stroke on Indigenous Heart Health

Miles Marchand, MD FRCPC

Clinical Fellow, UBC Cardiac Rehabilitation, Prevention and Indigenous Health
Research Fellow, CCS/Pfizer/CHFA Fellowship in FNIM Communities Experiencing HF Inequities

UBC Division of Cardiology

November 2024



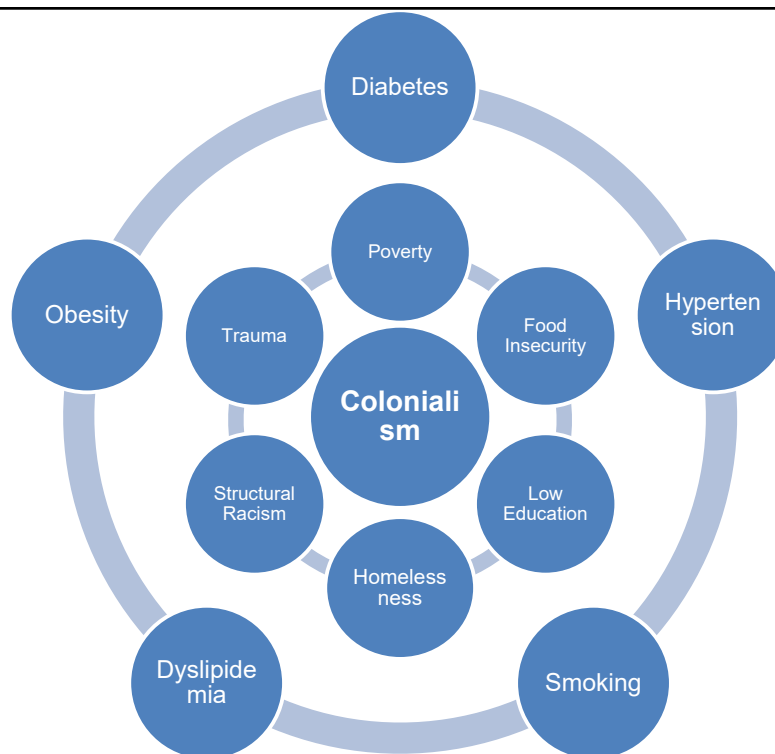
Disclosures

- Research: Pfizer
- Honoraria: Bristol-Myers-Squibb



Objectives

- Review **disparities in cardiovascular health** and outcomes faced by Indigenous peoples
- Explain the **pathophysiology** and risk factors of **heat stroke**
- Outline strategies to **reduce the risk** of heat stroke in at-risk Indigenous communities





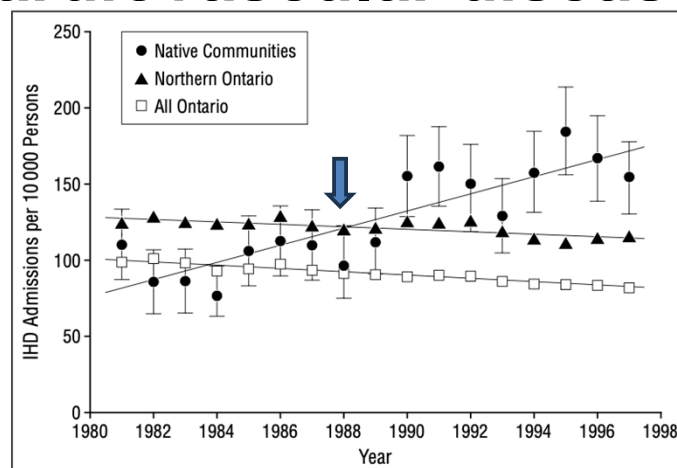
Study of Health Assessment and Risk Evaluation in Aboriginal Peoples (SHARE-AP)

Factor	Aboriginal People (n=301)	European People (n=326)	p-value
CAD	15%	6%	0.0002
MI or revascularization	6%	2%	0.02
Stroke	5%	2%	0.02
Dyslipidemia	11%	6%	0.02
Hypertension	20%	12%	0.004
Diabetes	22%	3%	0.0001
Smoking	39% (M) / 42% (F)	20% (M) / 13% (F)	0.0004 (M) / 0.0001 (F)
Obesity	62% (M) / 56% (F)	32% (M) / 24% (F)	0.0001 (M) / 0.001 (F)

Anand, Yusuf et al. Lancet 2001.



Is being Indigenous a risk factor for cardiovascular disease?



BR Shah et al., Arch Intern Med 2000.




**Indigeneity is NOT a risk
factor for cardiovascular
disease**



**Being subjected to a
colonial history IS a risk
factor for cardiovascular
disease**

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Heat Stroke and Related Illness



The Weather Network
June 27, 2021

Actual
33.1 °C
18.5°C

24h Snow: 0 cm
24h Rain: 0 mm
Maximum Wind: 31 km/h

Average High: 21 °C
Average Low: 13 °C
Extreme High: 32.8 °C [1895]
Extreme Low: 7.2 °C [1975]
Highest Rainfall: 22.4 mm [1982]

British Columbia
For 3rd straight day, B.C. village smashes record for highest Canadian temperature at 49.6 C
Lytton is baking as unprecedented heat wave blankets Western Canada

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Extreme Heat and Human Mortality: A Review of Heat-Related Deaths in B.C. in Summer 2021

Report to the Chief Coroner of British Columbia

Release Date: June 7, 2022

Egilson 2022. Coroner's Service. Government of BC.



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BC Heat Dome 2021

- Risk factors for mortality:
 - Chronic disease
 - Age >70
 - Living alone
 - Living in a socially/materially deprived neighbourhood
 - Lack of cooling systems
- 1.5% of deaths were in Indigenous people
 - Risk of under-reporting

Egilson 2022. Coroner's Service. Government of BC.

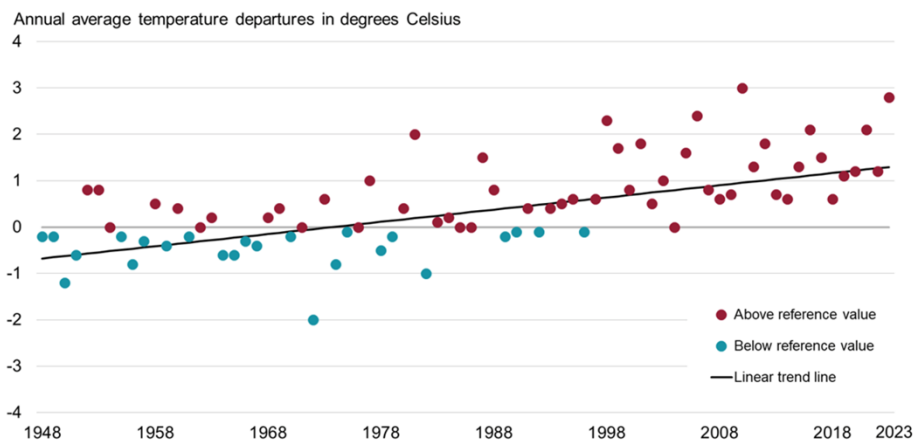


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Climate Change in Canada

Annual average temperature departures from the 1961 to 1990 reference value, Canada, 1948 to 2023



Government of Canada 2023. Temperature change in Canada

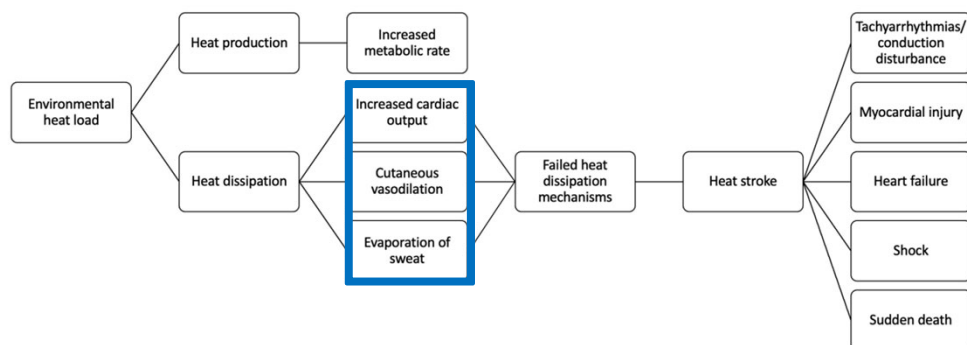


What is Heat Stroke?

- Syndrome of hyperthermia ($T > 40.5^{\circ} \text{C}$)
 - Secondary to extreme environmental heat exposure
 - With associated CNS dysfunction



What is Heat Stroke?





What is Heat Stroke?

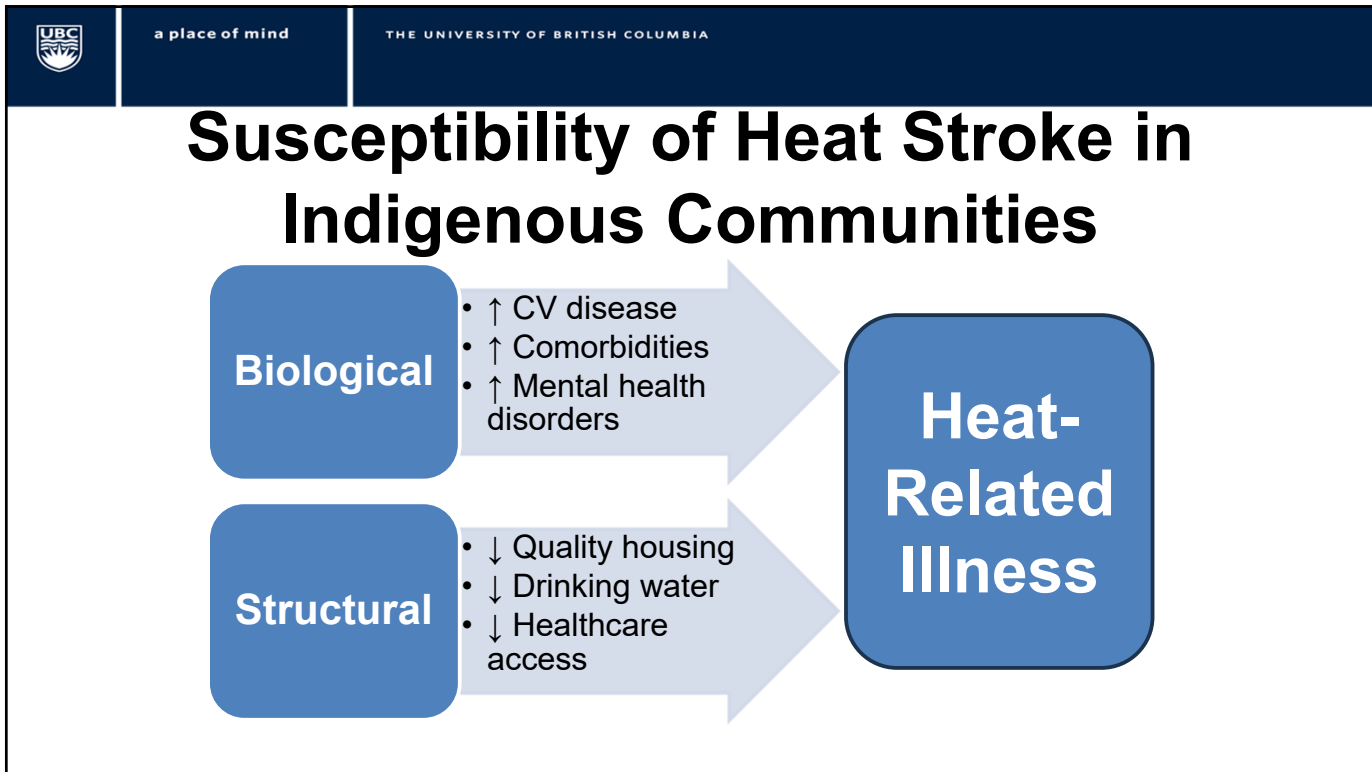
Non-Exertional (Classic)	Exertional
Impaired ability to dissipate heat	Increased heat production
Older individuals and those with chronic disease	Athletes, outdoor workers, military
Coincides with heat waves	Sporadic cases throughout year

Marchand & Gin, CJCO 2022.



Organ System	Manifestations of Heat Stroke
CNS	Confusion, seizure, coma
CVS	Tachyarrhythmias, AF, QT prolongation, troponin elevation, wall-motion abnormalities, ST changes, CHF, Takotsubo cardiomyopathy, cardiogenic shock, sudden death
Respiratory	ARDS , cardiogenic pulmonary edema
Hepatic	Acute liver failure , transaminase elevation
Renal	AKI , acid-base disturbance, electrolyte disturbance
Hematologic	DIC
MSK	Rhabdomyolysis

Marchand & Gin, CJCO 2022.



Disparities in Outcomes

- American Indians/Alaska Natives **3x more likely to die from heat-related illness** compared to non-Indigenous Americans

TABLE 2. Number and rate of heat-related deaths,* by race/ethnicity and level of urbanization — United States, 2004–2018[†]

Characteristic	No. of deaths (rate) [§]
Race/Ethnicity[¶]	
Hispanic	1,349 (0.2)
American Indian/Alaska Native, non-Hispanic	241 (0.6) ←
Asian/Pacific Islander, non-Hispanic	194 (0.1)
Black, non-Hispanic	1,965 (0.3)
White, non-Hispanic	6,602 (0.2)
Not stated**	176 (N/A)

Vaidyanathan 2020. CDC Heat-Related Deaths – United States 2004-2018.



Treatment

- CPR if pulseless
- ABCs
 - Intubation/mechanical ventilation PRN
 - IVF → vasopressors +/- inotropes
- **Rapid cooling to <39°C** is essential
 - Cold water immersion
 - Cold IV fluids
 - Ice packs
 - Fanning
 - Cooling blankets (Arctic Sun)
- No role for antipyretics



Prevention

- Wear light clothing
- Cool showers/baths
- Maintain hydration and ensure adequate **access to clean drinking water**
- Fans ineffective if ambient temperature > body temperature (i.e. >37°C)



Prevention

- **Cooling centres**
 - Identify air-conditioned buildings
 - i.e. community/cultural centre, schools
- Encourage family members and neighbours to **check in on at-risk individuals**
 - Elders
 - People with chronic disease
 - People with cognitive disorders



Conclusions

- Indigenous communities face **higher rates of cardiovascular disease and comorbidities**, which **increase their risk** of heat-related illness
- **Structural factors** play an important role in heat-related illness risk
- **Community-based preventative strategies** are essential



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Lim' limpt (thank you)!



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Eyhh Slaxin “Good Medicine”

Dr. Shannon Waters

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Nov 4, 2024



6 Coast Salish Teachings gifted by Sulksun

Thee eat – Truth

Eyhh slaxin – Good Medicine

Nuts a maht – We are one

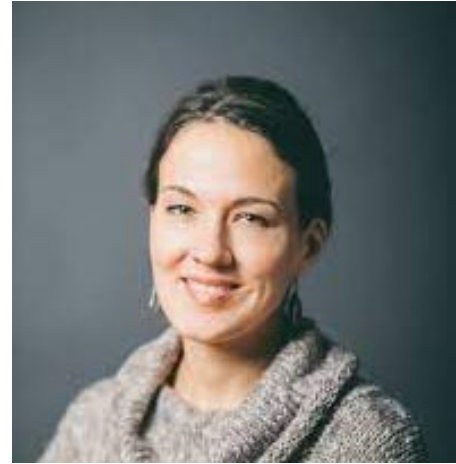
Whax hooks in shqwalowin – Open your hearts & your minds

Kwum kwum stun shqwalowin – Make up your mind to be strong

Tee ma thit – Do your best

The Lancet, Planetary Health January 2023

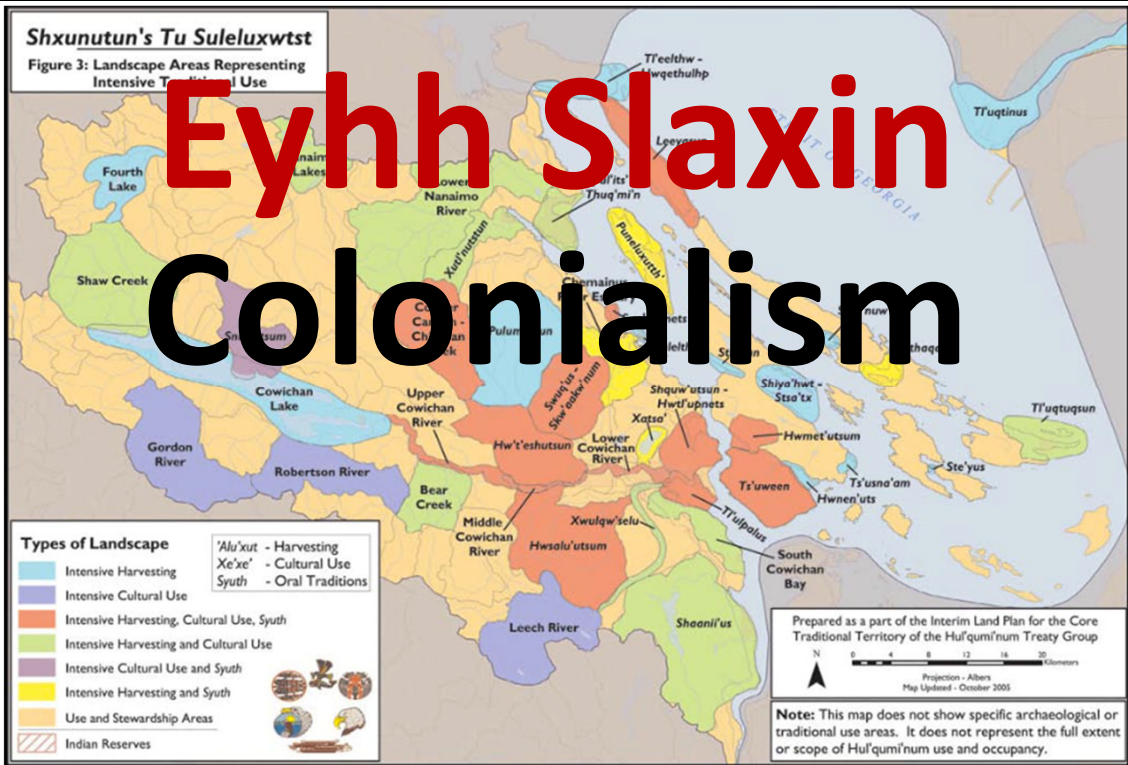
- Indigenous languages are the heart of the Earth; they are like a musical blueprint of the traditional ecological knowledges that stretch back thousands of years. Indigenous languages are directly rooted in & interconnected with Indigenous Lands & Waters throughout the world &, because they are verb based, they embody the processes & teachings of the planet.
- Due to the interconnectedness between Earth & language, when Indigenous Peoples have the rights to their Lands taken, the risk of losing their languages increases, & the ability to protect Mother Earth is substantially strained. When Indigenous Peoples' ability to protect the Earth is strained, it affects everyone on the planet.



Relationships

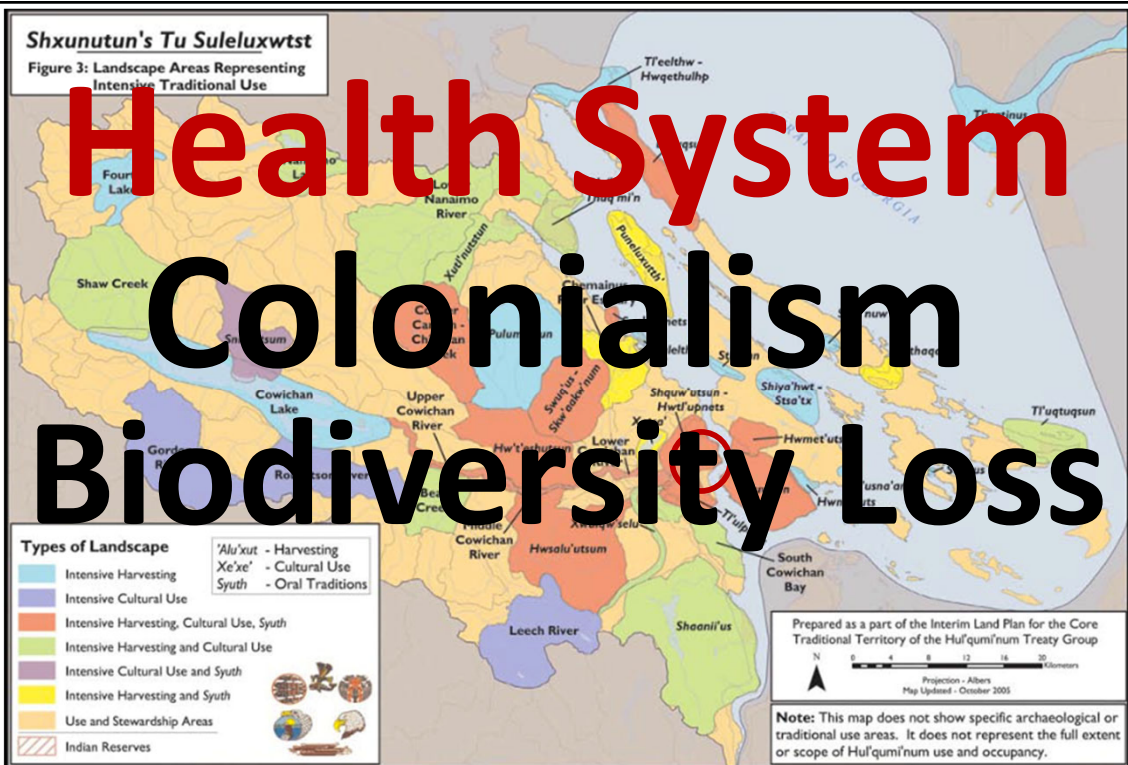


Relationships



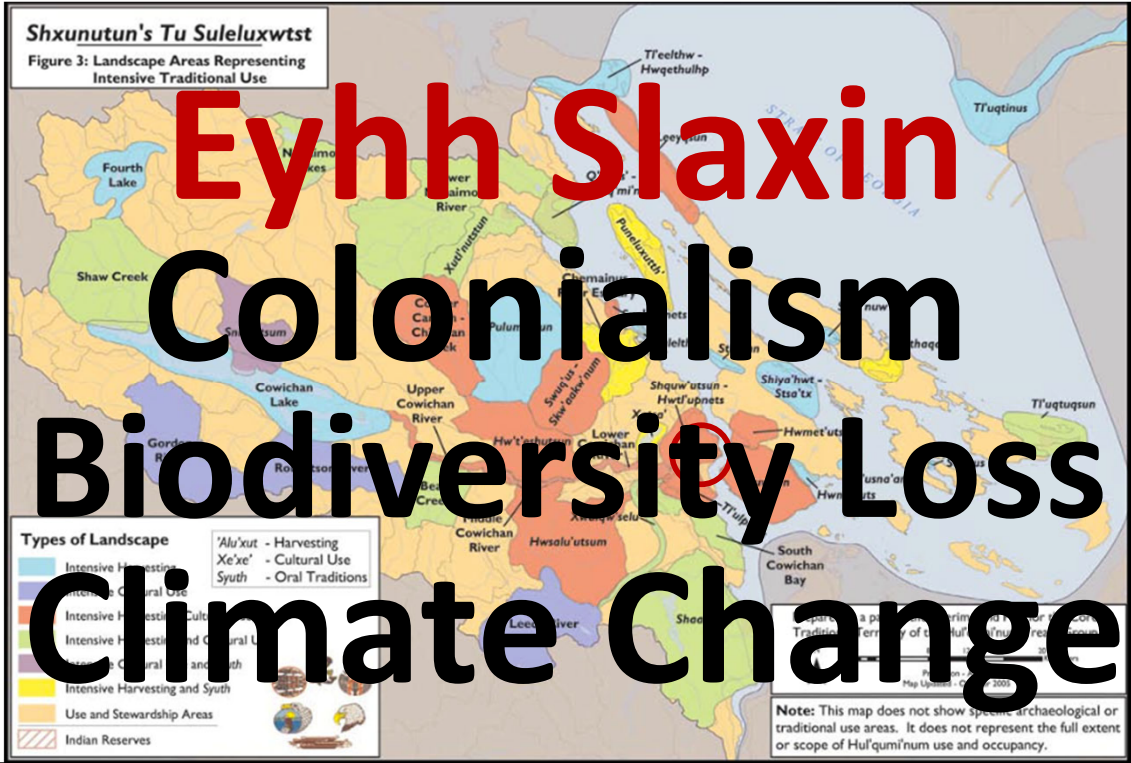
Eyhh Slaxin Colonialism

Relationships



Health System Colonialism Biodiversity Loss

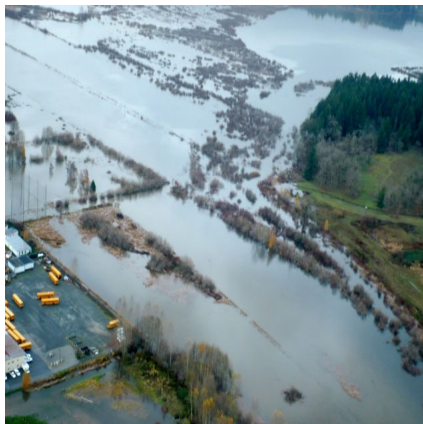
Relationships



Eyhh Slaxin
Colonialism
Biodiversity Loss
Climate Change

Floods/Drought

• October - March



• April - September



Cowichan Tribes biologist Tim Kulchyski inspects dry lower Cowichan River bed (North Arm). Photo by P.Jefferson 2016.

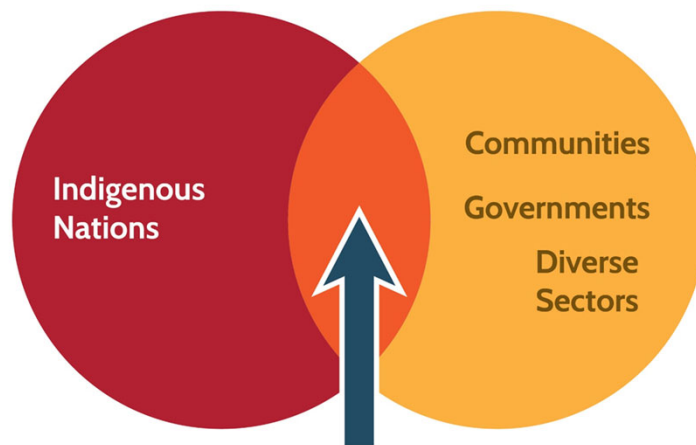
Hul'qumi'num Treaty Group (1993-present)



Cowichan, Halalt,
Lyackson, Ts'uubaa-asatx
& Penelakut First Nations

"THE HUL'QUMI'NUM PEOPLE SHOULD BENEFIT FROM AND **HAVE A MEANINGFUL SAY** ON 100% OF THE TERRITORY THAT BELONGED TO OUR ANCESTORS"

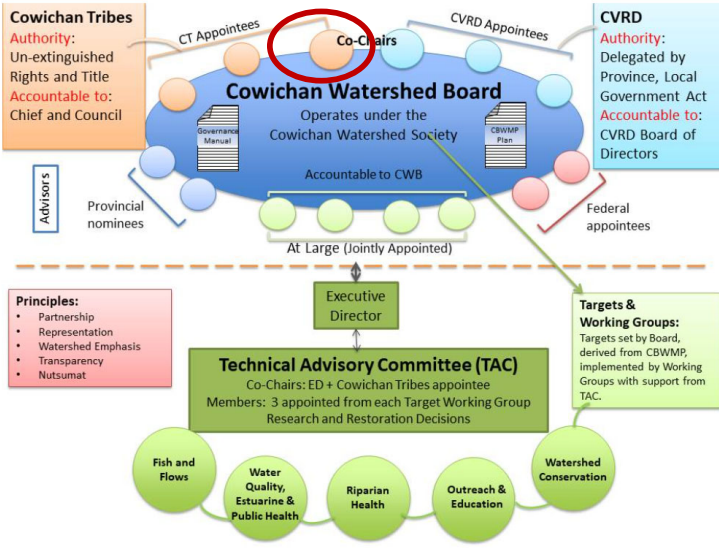
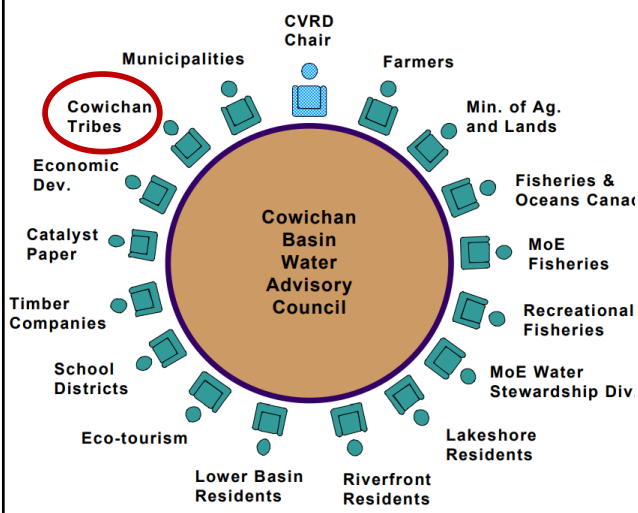
Indigenous Co-Governance



relationships with watersheds/land/environment
at the centre of our decision making

Governance / Decision Making

Figure 6
Major groups to be represented on the Cowichan Basin Water Advisory Council



Xwulqw'selu
Watershed Planning Agreement

S-xats-thut tst.
We agree.

Nuts'amat kws yaay'u s 'utu qa'.
We come together as a whole to work together to be stronger as partners for the watershed.

Hwialasmut tu Tumuhw.
Take care of the Earth.

Mukw' stem 'i 'utunu Tumuhw, 'o' huliitun tst, Mukw' stem 'i 'utunu Tumuhw 'o' shiilhukw'tul'.
Everything on this Earth is what sustains us; everything on this Earth is connected together.

St'atl'um stuhw tun kwunmun.
Take only what you need.

Stsielhstuhw tu mukw stem ('i 'u tuna Tumuhw).
Respect for all things; Respect for all beings; Respect for what is around you.

'Uw-wu ha'kwush 'uhw, 'i 'o' shtes ch 'ul'.
Leave it the way we found it.


Hulitun tst tu qa'.
Water is life.

Stsielh stum tu Sqwutsun'a'lh sh-saay 'i' tu sniw's kwa 'e' 'luhwutss.
Cowichan rights and laws are respected.

Yaay'usme't kws mukwe' stem 'itunnu Tumuhw 'o' sul'iq'tul, 'Uw-wute'kw'u suhiim.
Work to bring everything in our environment into balance.

Hiiye'yutul tst'u to' Mukw' stem 'i 'u tun'a Tumuhw 'i' tu qa'.
Everything in the natural world is connected as part of our family; we are all relatives.

Ts'i'tsuwatul', eluhwut tu Xwulqw'selu qa' Tumuhw, 'i' Mukw'stem 'ukw'o' yath.
Work together for the health and well-being of the Xwulqw'selu Watershed from generation to generation.



Questions

Ask your questions: slido.com | [#climate](https://twitter.com/climate)



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Thank you!

Please complete the Attendance & Evaluation forms

Attendance:

Evaluation:



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