



Environment Town Hall: Gas Plant Expansion

Tuesday, October 17 at 6:00pm · Swansea Town Hall

Dr Mili Roy
Faculty of Medicine, Univ. of Toronto
Co-chair, CAPE Ontario (Cdn Assn Of Physicians for the Environment)
Co-chair, OCEC (Ontario Climate Emergency Campaign)

Oct 17, 2023

HEALTH IMPACTS OF GAS PLANTS



GAS PLANTS BURN METHANE, A POTENT FOSSIL FUEL

FOSSIL FUELS ARE THE LARGEST DRIVER OF THE CLIMATE
EMERGENCY

**FOSSIL FUELS ARE ESCALATING HUMAN HEALTH
HARMS BOTH BY DRIVING CLIMATE CHANGE & BY
GENERATING TOXIC AIR POLLUTION**



HEALTH IMPACTS OF CLIMATE CHANGE

“Climate change is the biggest threat to health in the 21st century and our very survival is at stake”

- Dr Vanessa Kerry, WHO Director-General Special Envoy for Climate Change & Health, 2023

“The climate crisis is a health crisis. We need ... increased use of reliable, cheap and green electricity.”

- WHO Director-General, Dr Tedros Adhanom Ghebreyesus

IMPACTS ON AVAILABILITY OF TRADITIONAL FOODS² AND MENTAL HEALTH³ IN THE NORTH

Due to arctic warming (3x Global Rate)⁴.

CLIMATE CHANGE ITS IMPACT ON HEALTH IN CANADA

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

— Lancet¹

DISPLACEMENT

Climate change-
exacerbated drought and
famine was one factor in
Syrian refugee crisis.²⁴

RELOCATION & STRESS FROM COASTAL EROSION

P.E.I. homes at risk.²³

HEAT-RELATED ILLNESS²⁰

66 people died in
Montreal during 2018
heat wave.^{21,22}

TICK-BORNE DISEASE

2017: 3x higher rate
Lyme Disease in
Ontario than 2012-
2016 average.¹⁹

ALLERGIES

Increased severity &
duration of pollen
seasons.¹⁸

FLOOD-RELATED DEATHS AND DAMAGE

- 2013 Alberta flood¹¹:
 - 5 deaths¹²
 - Healthcare facilities
closed due to flooding.¹³

DROUGHTS^{14,15}

Uneven impact on crops.¹⁶
Socioeconomic stress.¹⁷

WILDFIRE-RELATED ASTHMA⁵ & EVACUATION


Healthcare facilities evacuated:

- Fort McMurray: 105 patients^{6,7}
 - Interior BC 2017: 880 patients^{8,9}
- Anxiety & PTSD following evacuation.¹⁰

1-Costello, The Lancet, 2009; 2-Rosol R, IJCH, 2016; 3-Cunsolo A, Ellis N, Nature CC 2018; 4-Canada's Changing Climate 2019; 5-Yao J et al, 2016; 6-Hampshire, G, CBC 2016; 7-Kirschmeier-Young M 2017; 8-BC Int Health 2017; 9-Kirschmeier-Young M et al, Am Geo Un, 2018; 10-Alberta Health, 2016; 11-Teufel B et al 2017; 12-CBC Alberta Flood 2013; 13-United Nurses of Alberta 2013; 14-Yusa A, et al, Int J Env Res P H, 2015; 15- Smoyer-Tomic KE, et al. Ecohealth 2004; 16- Agriculture and Agri-Food Canada, 2015; 17- Cryderman K, 2018; 18- Ziska LH, The Lancet PH 2019; 19- Nelder MP, 2018; 20-Howard, C et al. The Lancet Countdown Policy Brief for Canada 2018; 21-Montreal PH, 2019; 22- Vogel MM et al, Am Geo Union, 2019; 23-Fenech, A, 2014; 24-Kelley, C, et al, 2015



**The 2021 BC heat dome
was the single
deadliest weather event
in Canadian history
with over 600 deaths**



**Housing & food are social
determinants of health.
The climate crisis is
deepening housing and food
insecurity.**

CHANGING INFECTIOUS DISEASE PATTERNS IN CANADA

Arthropod vector transmission	Increased incidence of Lyme, West Nile & eastern equine encephalitis
Zoonotic infections	Changes in risks/patterns of rabies, brucellosis, possibly rodent-borne hantavirus
Inhalational infections	Increased incidence of cryptococcosis, outbreaks of legionellosis
Emerging infectious diseases	Increased risks & frequency of epidemics & pandemics eg COVID-19, SARS

Ref: Health Canada. Health of Canadians in a Changing Climate: Advancing Our Knowledge for Action . 2022

CHANGING INFECTIOUS DISEASE PATTERNS IN CANADA

Arthropod vector transmission	Increased incidence of Lyme, West Nile & eastern equine encephalitis
Zoonotic infections	Changes in risks/patterns of rabies, brucellosis, possibly rodent-borne hantavirus
Inhalational infections	Increased incidence of cryptococcosis, outbreaks of legionellosis
Emerging infectious diseases	Increased risks & frequency of epidemics & pandemics eg COVID-19, SARS

CLIMATE CHANGE & INFECTIOUS DISEASES

- CPHA warns Ontario may be at risk for malaria, yellow fever, Zika & more in future
- Climate change may aggravate nearly 60% of all human pathogenic diseases
- Planetary heating increases the risk of pandemics
- Climate change is increasing antibiotic resistance

YOUTH MENTAL HEALTH IMPACTS OF CLIMATE CHANGE

- Depression, addictions, suicide (Cdn study post Ft McMurray fires)

Global Study of 10,000 Youth:

- Climate anxiety affects daily life & functioning ~45%
- Hesitant to have children ~40%
- **Governments betray current & future generations ~60%**

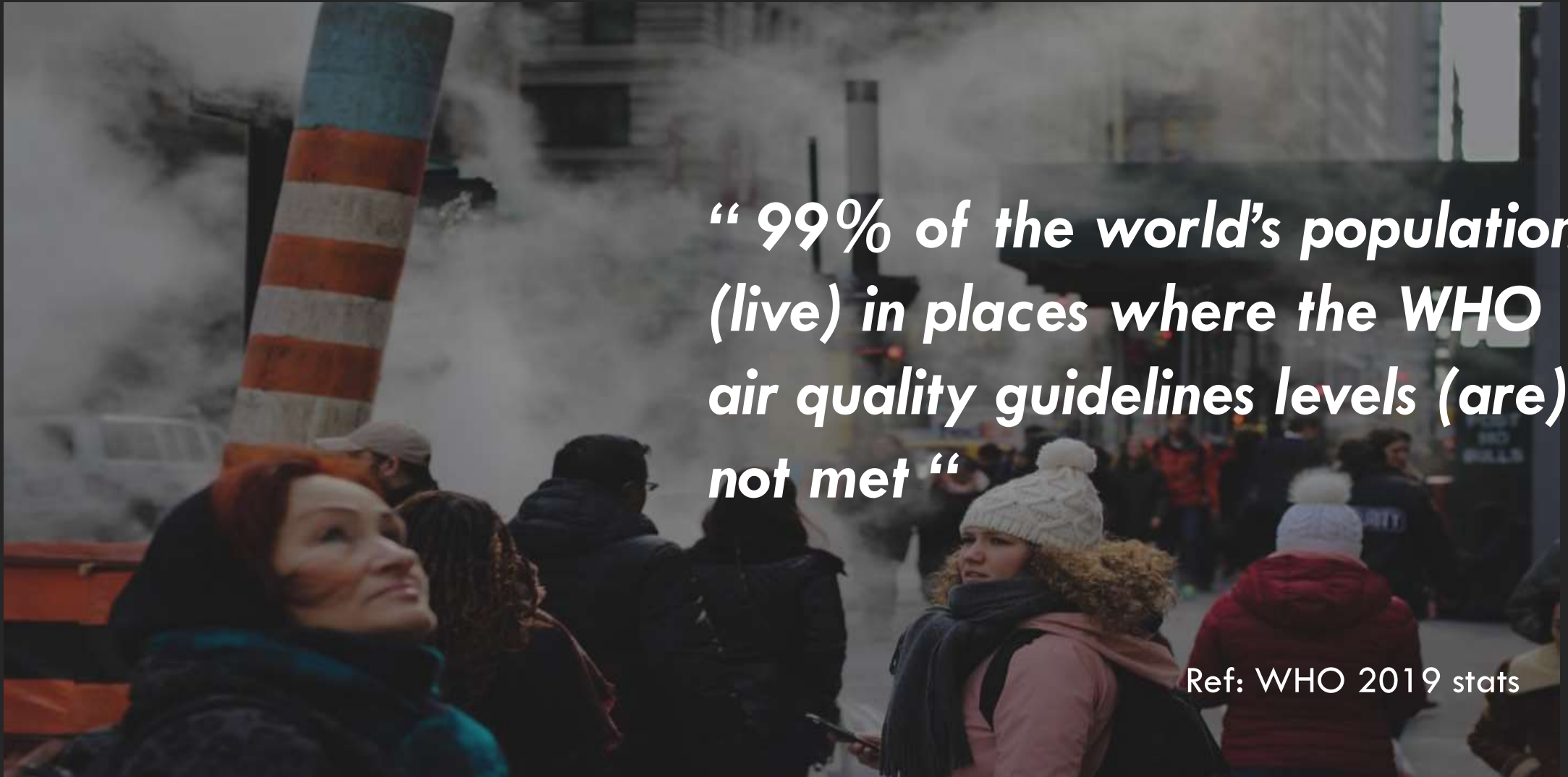


HEALTH IMPACTS OF AIR POLLUTION

AIR POLLUTION & HEALTH

***“ 99% of the world’s population
(live) in places where the WHO
air quality guidelines levels (are)
not met “***

Ref: WHO 2019 stats



AIR POLLUTION: GLOBAL DEATHS & HEALTH COSTS

**Total premature deaths globally due to air pollution:
6.7 million / year**

Ref: WHO 2022

**Estimated global health-related costs of air pollution:
over US\$ 5 trillion
(2013)**

Ref: Int'l J Public Health 2022

AIR POLLUTION RELATED DEATHS IN CANADA & ONTARIO

- ▶ **15 300 premature Canadian deaths annually (economic impact \$114 billion)**
- ▶ **6600 premature Ontarian deaths annually (economic impact \$49 billion)**
Ref: Govt of Canada 2022 (2016 stats)
- ▶ **Several hundred to several thousand premature Canadian deaths annually due to wildfire smoke**



The health harms of air pollution



Skin ageing



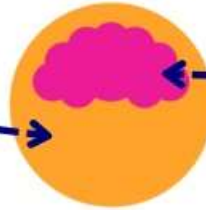
Lung diseases
Asthma
Lung cancer
Lung development
Pneumonia



Insulin resistance
and diabetes



Blood clots



Stroke
Brain development
Mental health
Dementia



Heart disease
High blood pressure



Premature birth
Low birthweight
Decreased sperm quality
Illness during pregnancy



CleanAirDay

AIR POLLUTION HARMS PREGNANT WOMEN & BABIES

- Low birth weight
- Premature birth
- Still births
- Birth defects



AIR POLLUTION CAUSES CANCER

- Lung
- Leukemia
- Breast



AIR POLLUTION HARMS MENTAL HEALTH

- Anxiety
- Depression
- Stress
- Suicide

Review > [Environ Sci Pollut Res Int.](#) 2021 Feb;28(8):9029-9049.

doi: 10.1007/s11356-021-12357-3. Epub 2021 Jan 22.

Association between particulate matter air pollution and risk of depression and suicide: a systematic review and meta-analysis

Qisijing Liu ^{# 1}, Wanzhou Wang ^{# 1}, Xuelin Gu ^{# 1}, Furong Deng ¹, Xueqin Wang ²,



FOSSIL FUEL HEALTH IMPACTS: SOLUTIONS

**GET OFF FOSSIL FUELS – GAS PLANTS ARE
NOT THE ANSWER!**

***“ IN ADDRESSING CLIMATE CHANGE BY
REDUCING EMISSIONS, WE ARE PREVENTING
THE WORSENING OF HEALTH CONDITIONS
AROUND THE WORLD ”***

- UN FRAMEWORK CONVENTION ON CLIMATE CHANGE

CANADIAN PUBLIC HEALTH ASSN STATEMENT ON CLIMATE CHANGE AND HUMAN HEALTH 2019

- “We are running out of time...We are the last generation that has the opportunity to make the changes needed to avoid catastrophic climate change. Climate change must be treated like the public health emergency that it is.”
- **Our response to climate change can also be “the greatest health opportunity of this century”**

“SO WHAT CAN I DO?” - LEVELS OF ADVOCACY



ADVOCACY IDEAS

- Education: be aware & educated on the issues
- Sign: Petitions, Action letters, Open letters, others
- Write: Op eds, Letters to Editor, articles, petitions, reports/submissions
- Social Media activism: posts, (re)tweets, blogs
- Have dialogue: active listening & balanced conversations
“outside your bubble”

ADVOCACY IDEAS

- Give Talks: pass on your knowledge & passion to amplify
- Civic Engagement: call, email & meet with elected officials
- Participate: Rallies, Marches & demonstrations
- Volunteer/Donate: time/financial support to groups doing good work
- Join a Group: amplify impact by networking & cooperating
- **Use your Vote!** : prioritize pro-climate policy at election times