

Public Health Impacts of Billy Bishop Airport Expansion

Prepared for No JetsTO Film
Screening of “The City Island”

July 20, 2026

Anne Keary, Regional Manager for Canadian Association of Physicians for the Environment (CAPE) Ontario chapter

Adapted from slides prepared by: Dr Mili Roy MD, Faculty of Medicine, University of Toronto, Ontario Co-Chair, CAPE



CAPE
Canadian Association
of Physicians
for the Environment

Association canadienne
des médecins
pour l'environnement
ACME

Ontario Regional Committee

on@cape.ca

Disclosures:
None

CAPE

CAPE unites physicians and health professionals to confront interconnected environmental and health injustices.

Together, CAPE is driving systemic change through strong policies and public awareness of the connections between human health and the environment.



Expanding Billy Bishop to allow commercial jets will have significant health impacts

- Pollutants emitted by commercial jets carry significant human health risks
- Increasing passenger volume from 2 to 10 million a year will mean more pollution
- The health of many people will be affected. This is not a NIMBY concern. Billy Bishop is next to a densely populated urban area. Up to 400,000 people live in a 5km radius.

How do commercial jets compare against turboprop planes?

- Commercial jets produce more emissions, than turbo-prop jets, especially at take-off and landing. They must climb to higher altitudes, emit 30-50% more CO₂ per passenger mile flown for short haul flights.
- The volume of commercial jets - one every 2.5 minutes - will mean more pollution and heightened health health risks



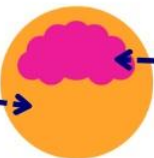
What are the pollutants of concern in jet emissions?

- **UFP's** – ultrafine particles
- **NO₂** – nitrogen dioxide gas
- **SO₂** – sulfur dioxide gas
- **Other** – carbon monoxide, black carbon, volatile organic compounds, hydrocarbons
- **Noise Pollution**

UFPs are linked to multi-system diseases



Skin ageing



Stroke

Brain development

Mental health

Dementia

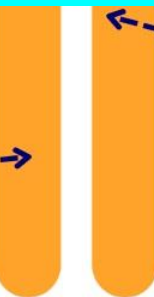


Lung diseases

Health harms occur when UFPs pass through the lungs or gut into the bloodstream to cause disease in multiple body systems. The smaller the UFP, the more toxic and harmful to health.



Insulin resistance
and diabetes



Blood clots

Premature birth

Low birthweight

Decreased sperm quality

Illness during pregnancy



UFPs are linked to multi-system diseases



Skin ageing



Lung diseases

Asthma

Lung cancer

Lung development

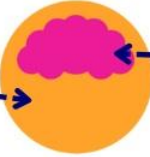
Pneumonia



Insulin resistance
and diabetes



Blood clots



Stroke

Brain development

Mental health

Dementia



Heart disease

High blood pressure



Premature birth

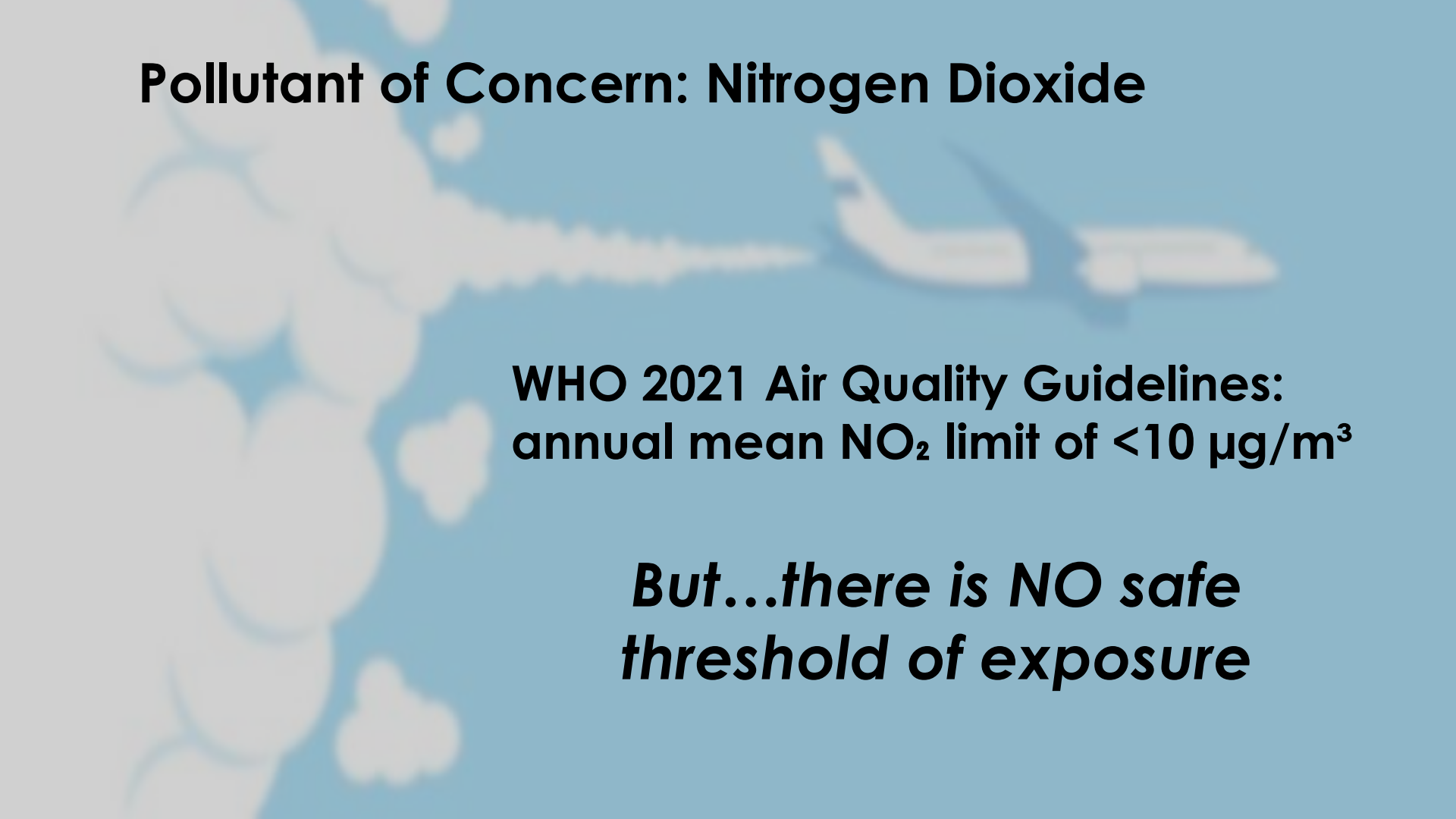
Low birthweight

Decreased sperm quality

Illness during pregnancy



Pollutant of Concern: Nitrogen Dioxide

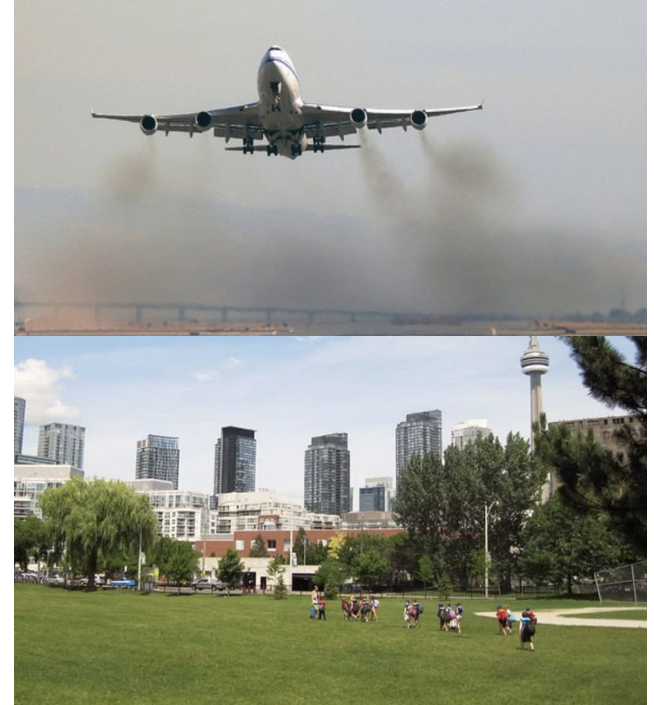


**WHO 2021 Air Quality Guidelines:
annual mean NO₂ limit of <10 µg/m³**

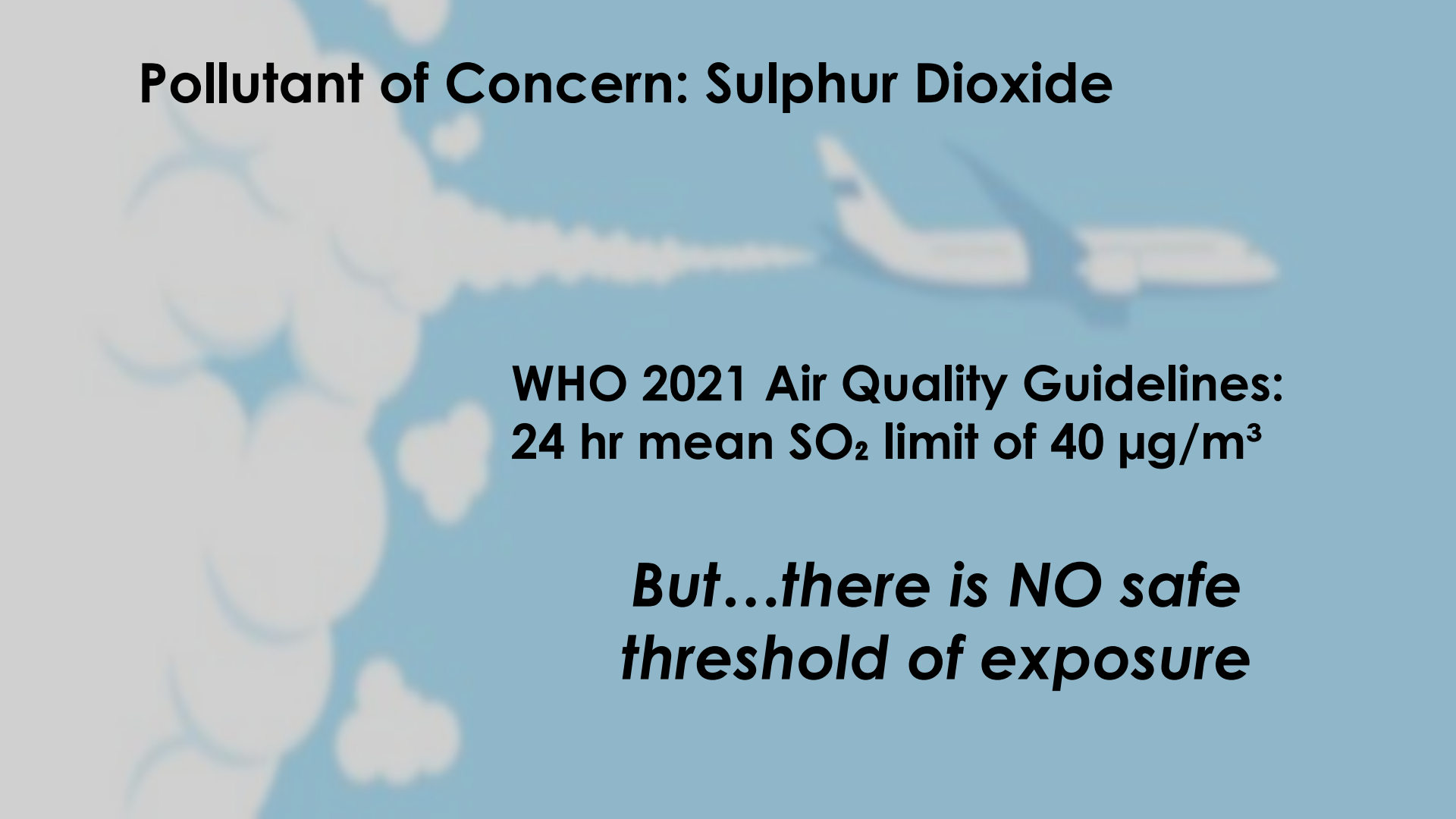
***But...there is NO safe
threshold of exposure***

Health Impacts of NO₂

- **Premature death** – proven by meta-analysis
- **Respiratory** – asthma, COPD, inflammation
- **Cardiovascular** – heart attack, heart failure, atherosclerosis, stroke
- **Lung cancer**
- **Diabetes**
- **Pregnancy risks** – low birth weight, prematurity
- **Neurodevelopmental delays** – intellectual disabilities, developmental delays, mental & behavioural disorders



Pollutant of Concern: Sulphur Dioxide



**WHO 2021 Air Quality Guidelines:
24 hr mean SO₂ limit of 40 µg/m³**

***But...there is NO safe
threshold of exposure***

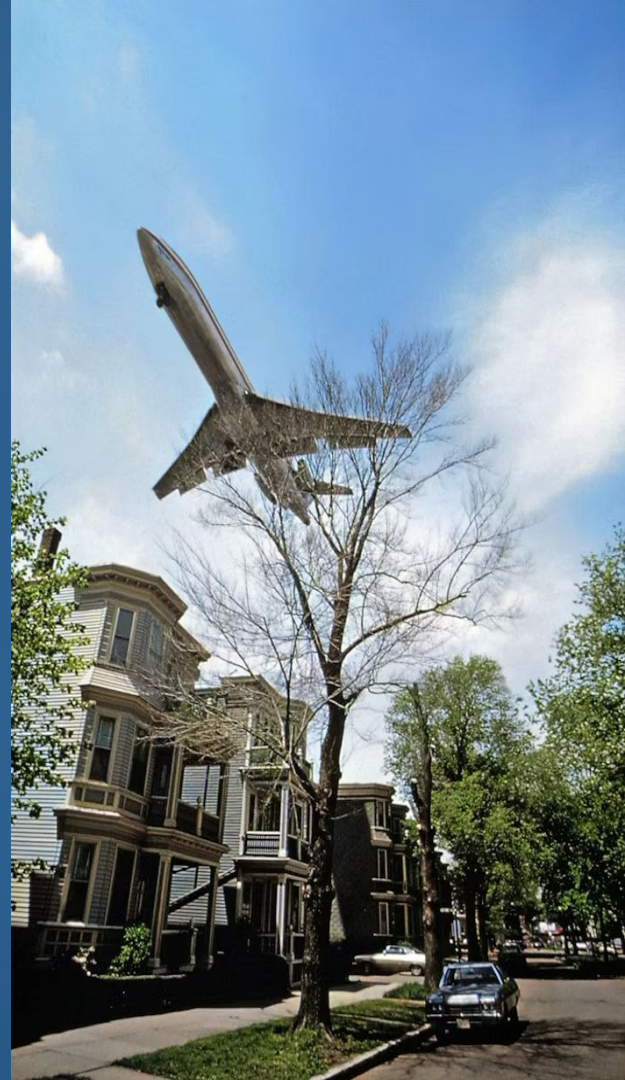
Health Impacts of SO₂

- **Premature death** – analysis of 43.7 million deaths in 23 countries and meta-analysis
- **Respiratory** – asthma, COPD, inflammation, reduced lung function
- **Cardiovascular** – heart attacks, angina
- **Pregnancy risks** – low birth weight, prematurity, birth defects
- **Neurodevelopmental disorders** - neurodevelopmental delays, ADHD



Noise Pollution

- **Aviation noise is identified as the most bothersome of all environmental noise sources**
- **World Health Organization (WHO) defines aviation noise as a significant health hazard**



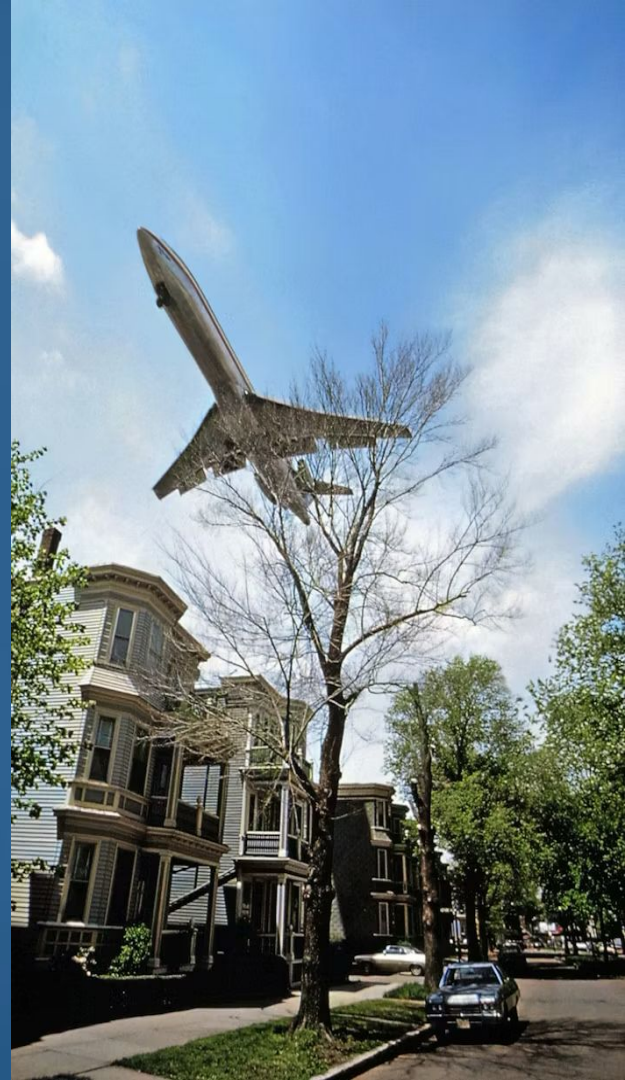
Health Impacts of Noise Pollution

Cardiovascular – 2025 meta-analysis showed link between aircraft noise and cardiovascular disease

Mental Health – depression, anxiety, substance abuse, cognitive impairment 40% increased risks (meta-analysis)

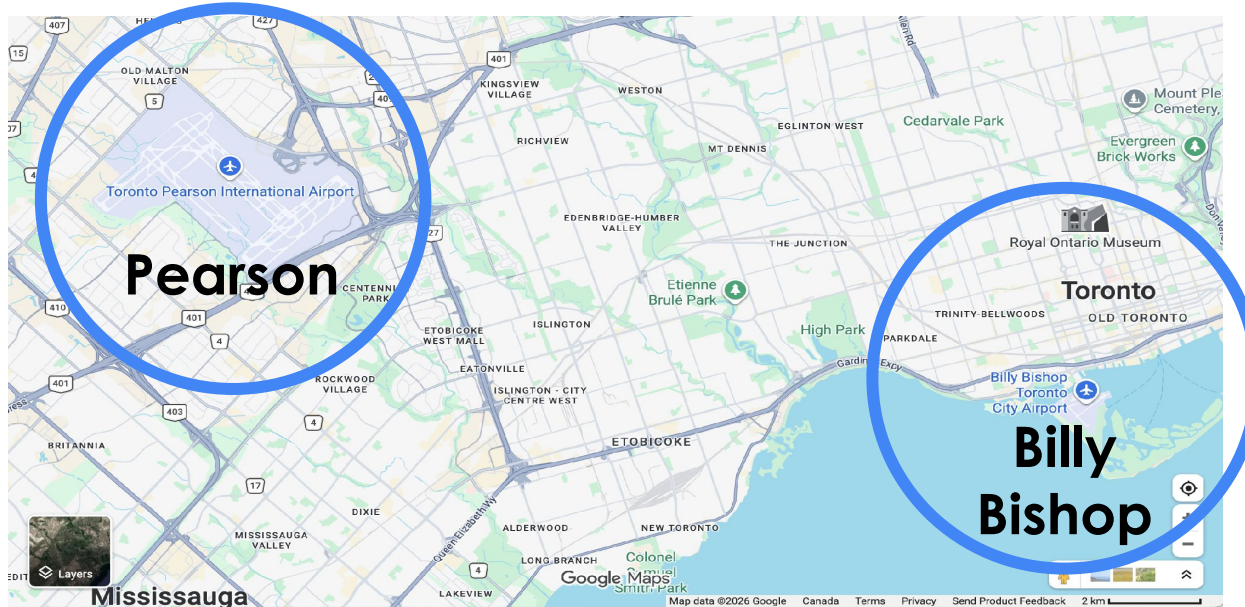
Children's Health – hyperactivity/inattention disorder; neuro developmental delays.

A study from Germany showed that children's reading comprehension & recognition memory deficits improved after the closure of a nearby airport and re-emerged when a new airport was built.



Proximity: how many live 5-20 km from GTA airports?

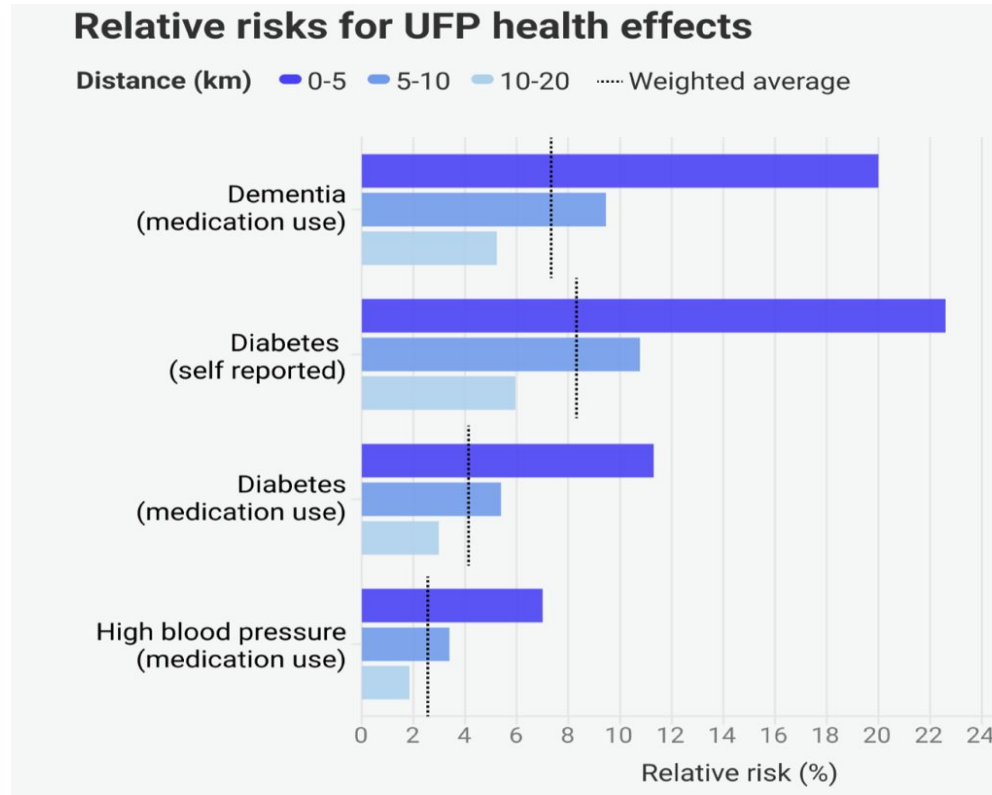
- 120,000 to 150,000 people live within 5 km
- Closest residential: 2-3 km (Malton, Rexdale)



- 400,000 to 450,000 people live within 5km
- Closest residential: 200m (Windward Co-op, Bathurst Quay)

- Three schools & a childcare facility are within 500 m of Billy Bishop
- New housing for 40,000 is planned at Port Lands within 5 km of Billy Bishop

European study of aviation-derived UFP exposure found increased health risks at closer proximity



- **People living within 5 km of airports studied were most affected:** eg diabetes and dementia risks ~ 20% higher and high blood pressure risks ~7% higher
- **Some degree of risk may apply up to 20 km from airports**

People in Toronto are already dying prematurely due to exposure to UFPs

- 1.56 million people studied in Toronto & Montreal
- ~1100 deaths occurred in Toronto & Montreal combined that were attributed to UFPs (heart, lung, stroke, lung cancer)
- Higher UFP levels were linked to mortality
- Lower UFP size was linked to mortality

Long-Term Exposure to Outdoor Ultrafine Particles and Black Carbon and Effects on Mortality in Montreal and Toronto, Canada

[Scott Weichenthal](#), [Marshall Lloyd](#), [Arman Ganji](#), [Leora Simon](#), [Junshi Xu](#), [Alessya Venuta](#), [Alexandra Schmidt](#), [Joshua Apte](#), [Hong Chen](#), [Eric Lavigne](#), [Paul Villeneuve](#), [Toyib Olaniyan](#), [Michael Tjepkema](#), [Richard T Burnett](#), [Marianne Hatzopoulou](#)



National Library of Medicine
National Center for Biotechnology Information

Res Rep Health Eff Inst.
2024 Jul 1;2024:217.



University of Toronto Campus-Community Partnership for Reducing Air Pollution has been monitoring UFP levels in the Bathurst Quay Neighborhood

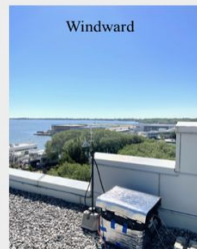
Measurement Sites



Arcadia

7-story

900m from the airport runway



Windward

7-story

800m from the airport runway



FT

2-story

650m from the airport runway

UFP Monitoring sites near Billy Bishop

When the wind blows from the airport during operating hours, UFP levels can double to triple from baseline, sometimes exceeding 100,000 particles/cm³.

UFP spikes in the Bathurst Quay neighbourhood

《TORONTO STAR》

July 6, 2026



Toby Heaps, with his family, wife Sarah holding baby Barry, with Zia 10, and Isa, 7, has an ultrafine particulate detector on his waterfront condo balcony courtesy of an ongoing university study.

Why ‘an invisible danger’ from a Billy Bishop airport expansion has this family ready to move from their Toronto waterfront home

“Even in this moment, without the jets, we have multiple periods per day where levels spike to numbers that seem quite scary,” said Heaps, looking at his phone. As the Star witnessed over the course of an hour, levels often exceeded 20,000 particles per cubic centimetre when planes took off.

Hatzopoulou said her 2024 study found there were “many, many, many” days where the levels of ultrafine particles were higher than that.

Current Scientific Benchmarks for UFP Levels

- WHO does not yet have strict guidelines for UFP levels but considers the following as benchmarks:
 - Low/Acceptable: below 10,000-20,000 particles/cm³
 - High: over 20,000 particles/cm³
- *BQN monitoring recurrently documents >100,000 particles/cm³ related to airport operations & wind direction*

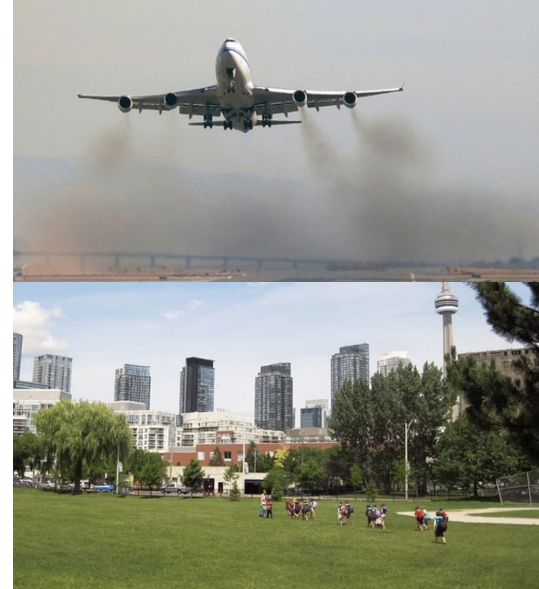


Loss of access to nature and its health benefits

Health Equity: Ensuring that all communities have access to nature-rich environments - like the Toronto Islands - can help address health disparities.

Access to nature reduces stress, lowers blood pressure, and improves mental health and cognition.

Airport expansion and loss of the Islands as a restorative green space would worsen health inequities



Climate impacts of Billy Bishop Airport Expansion

- Aviation emissions contribute to climate change
 - Emissions from thousands of commercial jets a year threaten Toronto's TransformTO climate targets
- Climate-driven heat waves will exacerbate aviation air pollution impacts
 - Heat accelerates the chemical reactions between nitrogen dioxide and volatile organic compounds to form dangerous ground-level ozone.
 - Ozone exacerbates lung disease, asthma and increases incidence of stroke - including in young adults.

Conclusions

- **We need a comprehensive health impact assessment of the proposed Billy Bishop expansion**
- **We need UFP monitoring to understand UFP & pollutant exposure**
- **We need to communicate the health harms to our MPs.**

