

Canadians can make significant health gains by reducing traffic-related air pollution, report says

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Danforth Avenue in Toronto on Sept. 25, 2019.

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Canadians stand to make significant gains to their health and well-being by reducing the number of fossil fuel-burning cars and trucks on roadways and limiting exposure to traffic-related air pollution, a broad review of scientific literature on the subject has found.

The report, based on a summary of nearly 1,200 research studies published between 2015 and 2020, suggests there is a strong health imperative for shifting to electric vehicles and greener cities.

Such a transition is already considered necessary if the world is to meet its climate targets in the coming decades. But the report – released Thursday by the Canadian Association of Physicians for the Environment, a health-advocacy group – points to an additional benefit that would derive from lowering vehicle-associated emission of nitrogen oxides, volatile organic compounds and fine particles among other substances that can wreak havoc on the body and lead to premature death.

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“What’s striking is the sheer volume of evidence that links exposure to traffic-related air pollution with adverse health outcomes,” said Jane McArthur, a co-author of the report and campaign director with CAPE.

Globally, air pollution, including traffic-related pollution, is acknowledged to be a serious health threat, with most people in the world breathing air that exceeds recommended limits for pollutants, according to data released this month from the World Health Organization.

In 2021, Health Canada estimated that air pollution contributes to 15,300 premature deaths annually across the country. And for larger Canadian population centres, where emissions from power generation and other industries have been on the decline, traffic has played a growing role as a source of emissions.

As the CAPE report indicates, about one third of Canadians live within 250 metres of a major roadway and therefore face elevated health risks because of traffic-related air pollution. Much of that risk falls unevenly on lower-income individuals and families who are more likely to live in areas with poorer air quality.

The report illustrates how diverse and profound the health effects from vehicle emissions can be. Referenced studies show they extend beyond a well-established connection between traffic pollution and respiratory ailments to encompass cardiovascular and neurological problems, allergies, and adverse outcomes related to cancer and pregnancy.

“It’s affecting every single system in the body and affecting the entire population,” said Samantha Green, a physician with Unity Health network in Toronto who sits on CAPE’s board of directors and

reviewed the report.

Dr. Green, who is the climate and health faculty lead with the University of Toronto's Department of Family & Community Medicine, added that the report underscores the persistent burden that traffic-related air pollution places on the health care system. Relieving that burden by prioritizing low-emission transportation and walkable communities instead of highways and urban sprawl could yield "immense health benefits," she said.

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Recommendations for achieving those benefits include stronger fuel content and vehicle-type rules, restrictions on idling and the use of vegetation barriers along busy roads. Cities can also implement low-emission zones that favour electric vehicles, bicycles and public transit. Ventilation systems in buildings, which became a focus during the pandemic, can play an important role in preventing traffic-related pollutants from infiltrating indoor spaces.

But like many pollution issues of the past century, effective solutions typically require governments to motivate change.

“Problems like this just cannot be tackled at the individual level,” Dr. Green said. “If an individual is concerned about this issue, then they need to demand that their politicians take action.”

Politicians are already facing calls to take action on emissions to help mitigate the impacts of climate change. According to the federal figures, the transport sector accounts for 24 per cent of Canada’s greenhouse gas emissions.

Earlier this month, an assessment of mitigation strategies from the Intergovernmental Panel on Climate Change concluded that “electric vehicles powered by low emissions electricity offer the largest decarbonization potential for land-based transport.”

Jeffrey Brook, an environmental health researcher at the University of Toronto and a long-time expert on air quality in Canada, said the CAPE report draws attention to a “win-win-win” opportunity to make gains on climate change, health and environmental equity all at once by moving to low-emissions vehicles and related changes that benefit air quality around transportation corridors.

Dr. Brook, who was not involved in the report, also said the impact of traffic-related pollution has a history of being underestimated, in part because some of the health effects occur only after chemicals released by vehicles have had time to react and create other harmful byproducts, such as ozone – which can occur far from where the initial emissions were created.

“We’re really kind of hindered in trying to know who is actually exposed to traffic air pollution versus air pollution in general,” he said.

The CAPE report does not explicitly assign confidence levels to the various health effects that it links to traffic-related air pollution and some effects are considered better established than others.

Dr. Brook said he is a participant in a peer-reviewed report by the Boston-based Health Effects Institute that aims to address confidence levels across a narrower range of traffic pollution studies. He added that the Institute's report, expected later this spring, is consistent with CAPE's findings.

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