

Canadians dying at a higher rate in areas with more air pollution

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Air pollution—even at levels below national and international air quality guidelines—is associated with an increased risk of deaths in Canada, according to new UBC research.

The [study](#), published today in a Health Effects Institute (HEI) report, is the largest and most comprehensive so far to look at the relationship between [air pollution](#) and mortality in Canada. HEI is an independent, non-profit organization whose mandate is to provide high-quality, impartial, and relevant science on the health effects of pollutants from motor vehicles and from other sources in the environment.

"We found there is at least a five per cent increase in the risk of deaths of Canadians when comparing between high- and low-[pollution](#) areas," said Michael Brauer, the study's lead author and a professor at the University of British Columbia's school of population and [public health](#). "This is concerning because millions of Canadians live in high-pollution areas and the aggregate impact is substantial."

Brauer said despite Canada being one of the few countries that meet World Health Organization (WHO) air quality guidelines as well as national guidelines such as Canadian Ambient Air Quality Standards (CAAQS), the study suggests air pollution at any concentration is hurting Canadians and the world population. "These findings also suggest [health benefits](#) from continued improvements in air quality in Canada," said Brauer.

For the study, the researchers combined [satellite data](#) with a model of pollutant transport and chemistry, and ground-level air quality measurements. They applied the data to, and produced a pollution map to estimate Canadian air pollution levels by the square-kilometre. They cross-referenced the air pollution data with anonymous Statistics Canada census information of more than nine million Canadians, their addresses and the death registry.

Among the researchers' other discoveries was that new immigrants to Canada are equally or more sensitive to the health impacts of air pollution.

"Due to mandatory health screenings that are required prior to moving to Canada, new immigrants are considered being in general healthier than those currently living in Canada," said Brauer. "The fact that new immigrants are as sensitive or more sensitive to air pollution compared to Canadians further suggests air pollution affects everyone, even those in good health."

The researchers say air pollution is the fourth highest risk factor for death globally and by far the leading environmental risk factor for disease. Reducing air pollution is an efficient way to improve the health of a population.

Brauer's research is part of a larger international study commissioned by HEI that assesses the health effects of long-term exposure to low levels of ambient air pollution. HEI is a non-profit organization based in Boston that sponsors targeted efforts to analyze the health burden from different air pollution sources.

The researchers are working on a follow-up analysis to look at the relationship between air pollution and specific causes of death, as well as evaluate whether moving from an area of poor air quality to an area of cleaner air quality reduces the risk of dying. In addition, the researchers are developing a tool for policy makers to assess how reducing air pollution will increase [health](#) benefits and decrease mortality rates in Canada.

Provided by University of British Columbia

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