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Air Pollution Burden of Illness in Toronto: Study shows air pollution harms thousands of residents

- Toronto Public Health estimates that air pollution in our city contributes to about 1,700 premature (or early) deaths and 6,000 admissions to hospitals each year, based on a new “burden of illness” study.
- The current study provides an up-to-date estimate of the health impact of Toronto’s air pollution compared with the previous study in 2000 by Toronto Public Health that estimated 1,000 premature deaths and 5,500 hospital admissions each year attributable to air pollution. Unlike the previous study, which was able to assess only the health risk associated with acute (short-term) exposures, the current study includes the impact of chronic (longer-term) exposure to fine particles on death rates.
- The current mortality estimate for Toronto is based on the health risk associated with acute exposures to ozone, nitrogen dioxide, carbon monoxide and sulphur dioxide, as well as chronic exposure to fine particles.
- These harmful effects are preventable and likely would not have occurred without exposure to these five common air pollutants that arise from the combustion of fossil fuels. These pollutants are part of the air pollution mix commonly known as smog. They arise from burning gasoline and diesel in vehicles, natural gas and oil to heat buildings, and coal during the production of electricity in power plants upwind of Toronto.
- The study also notes that other serious health outcomes attributable to air pollution, such as increased rates of chronic bronchitis, emergency room visits and asthma symptoms, affect tens of thousands of people in Toronto each year.
- Air pollution can aggravate pre-existing breathing and heart problems to such an extent that medical treatment is required.
- Poor air quality reduces the quality of life for Toronto’s children and adults, and especially for those who face a lifetime of chronic breathing problems made worse by air pollution.

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- Pollution trends reveal little improvement in air quality in Toronto over the last two decades. This is in contrast to the provincial situation in which pollution reductions across Ontario were larger and more consistent for the key pollutants that impact on health.
- While nitrogen dioxide levels show a consistent decline across the province, levels have increased steadily in Toronto. Compared with other Ontario communities with air monitoring stations, Toronto had the highest summertime levels of fine particles and highest annual mean levels of nitrogen dioxide (based on data for 2002, the most recent year that data were available from the Ontario Ministry of the Environment). The transportation sector (including cars, buses, trucks) is the largest source of nitrogen oxides (including nitrogen dioxide) in Toronto, and accounts for 65% of all emission sources in the City.
- The steady increase in nitrogen dioxide levels in Toronto over the last two decades mirrors the steady increase in vehicle use in the city. By 1996, the use of public transit fell by 20% from the ridership high points in the late 1980s.
- Toronto has higher levels of air pollution compared to other cities in Canada, with the exception of Windsor, which is affected by high levels of pollutants originating from coal-fired power plants in the United States. For most air pollutants, levels in Toronto are comparable with those in other large cities around the world. However, when average nitrogen dioxide levels were compared over a 10-year period to 27 major cities worldwide, Toronto's levels were the fourth highest, exceeded only by Los Angeles, Hong Kong and New York.
- Previous studies by other researchers provide compelling evidence that air pollution gives rise to reduced lung function, asthma attacks, emergency room visits, lung cancer, high blood pressure, heart attacks and reduced life expectancy.
- Research conducted during the Olympic Games in Atlanta, Georgia demonstrated a reduction in pollution levels and significantly lower rates of childhood asthma episodes for the period when traffic levels were greatly reduced.
- Burden of illness studies provide an important context for developing policies and programs that promote and protect the health of the population. The major sources of pollutants that give rise to the large burden of illness in Toronto are fossil fuel-based transportation and energy production.
- The new Toronto Public Health study underscores the need to expand and sustain public transit infrastructure and to stimulate the shift to cleaner sources of energy. The companion report, *Agenda for Action on Air and Health*, provides strategic directions and specific recommendations for provincial action that will enable meaningful improvements in air quality, complementing the many initiatives undertaken by the City of Toronto.