



THE REGIONAL MUNICIPALITY OF HALTON

Report To:	Chairman and Members of the Health and Social Services Committee
From:	Robert M. Nosal, M.D., Commissioner & Medical Officer of Health
Date:	March 14, 2002
Re:	Illness from Air Pollution - A Halton Perspective
Report No.:	MO-22-02

RECOMMENDATION

1. THAT the Commissioner and Medical Officer of Health be instructed to send a copy of Report MO-22-02, entitled “Illness from Air Pollution – A Halton Perspective” to the Minister of the Environment with a request that the Minister improve the Air Quality Index so that it more accurately conveys the health effects associated with varying air quality conditions.
2. THAT a copy of Report MO-22-02 be sent to the Town of Oakville, the City of Burlington, the Town of Halton Hills, the Town of Milton and the Halton/Peel District Health Council.

REPORT

Purpose

The purpose of this report is to highlight, for Council, the impact of air pollution on the health of Halton residents and to review several initiatives in which the Health Department will be involved during 2002.

Background

The health effects of poor air quality have been well documented in recent years. These effects include increased asthma attacks, the exacerbation of symptoms for those living with lung and heart disease and premature death. The health effects of air pollution can be compared to a pyramid with the rare but most severe health outcomes such as premature deaths at the peak of the pyramid, and the less severe but more numerous health outcomes such as asthma symptom days and respiratory infections, appearing in progressive layers below the peak.

The federal government estimates that air pollution can be linked to 5,000 premature deaths each year in eleven major cities. The Ontario Medical Association estimates that approximately 1,900 people will die annually in Ontario due to air pollution related illness and that the yearly costs

from pollution related illness is over \$1 billion dollars. In Toronto, it is estimated that approximately 1,000 Toronto residents die prematurely each year as a result of air pollution. Locally, a study conducted in Hamilton in the late 1990s concluded that there are at least 90 premature deaths each year as a consequence of poor air quality. Further, the study estimated that there are 300 additional hospital admissions per year due to poor air quality in the City of Hamilton.

According to recent evidence, there may be no “threshold” level of exposure to pollutants such as fine particulate matter and ground level ozone, below which no health effects are observed. While a mounting body of evidence suggests that air pollution can affect all members of society, studies clearly demonstrate that children, the elderly and those with predisposing respiratory conditions (such as asthma) or heart conditions (such as congestive heart failure) are most vulnerable.¹

During the summer months, the problems of poor air quality are often worsened as we experience bad air days or air quality advisories due to smog. Smog contains a mixture of contaminants, one of which is ground level ozone. Ground level ozone results primarily from chemical reactions between nitrogen oxides and volatile organic compounds (VOCs) in the presence of sunlight. It is largely formed from vehicle and industrial pollution. As indicated, the presence of smog is known to further worsen problems associated with poor air quality. For example, a study of Ontario hospitals has shown that admissions due to respiratory illness increased by 6% during summer months, when levels of pollutants, such as ground level ozone are elevated. Likewise, the admission rate in children increased by 15%.

In recent years, the number of air quality advisories or smog alerts has been on the increase. In 2001, Halton experienced 7 smog alerts covering 23 days during the summer months. The first alert occurred in early May, which is the earliest smog alert on record.

This report addresses the issue of the local illness burden from air pollution and reviews a number of local and GTA-wide initiatives involving the Regional Health Department to address this significant health issue.

A Halton Perspective

(a) The Local Illness Burden of Air Pollution

The Ontario Medical Association (OMA) has developed a software package which allows local jurisdictions to estimate the number of illnesses caused by air pollution based on specific health events and associated demographics.

Using this software, estimates were made for the year 2000. Data produced showed that Halton had 55 premature deaths, 400 hospital admissions and 1425 emergency room visits caused by air pollution in that year. In addition, children and seniors in Halton had an average of 6 restricted activity days per person due to poor air quality. The total economic cost was estimated at 290 million dollars including \$18 million to the health care system.

¹ Report of the GTA Clean Air Council, March, 2002

The information was calculated using the Ontario Medical Association's ICAP software. Because illnesses such as cardiovascular disease and pneumonia could be associated with a number of causes, determining the portion related to air pollution is difficult. The numbers therefore are only rough estimates. The OMA did however base its assumptions on data presented in a large number of research papers that have studied the issue over the years. In its report the OMA states that:

"Any research exercise must be accompanied by caveats. This one is no different. However, the OMA is confident that the research, analysis and numbers are conservative in all cases."

The software calculated data for two pollutants only, Ozone (O₃) and fine particulate matter (PM₁₀). As the effects of these pollutants have been researched extensively, the OMA was confident that it could estimate the health effects of these substances. The OMA plans to add other chemicals when enough data are available to make reasonably accurate estimates

Full details are presented in Appendix 1.

(b) A Local Response

Recognizing the increased concerns regarding the health and environmental impacts of air pollution, Regional Council, in its recently published Strategic Plan, has identified the reduction of smog as one of its strategic goals for Halton. Actions include:

- Advocating for public transit
- Expanding Halton's Clean Air Partnership to include private sector partners by 2003
- Studying the feasibility for providing more bicycle lanes to encourage the public to reduce its reliance on the automobile
- Promoting public awareness of the impact of smog on public health.

Concurrent with this initiative is the 2002 review of the Regional Official Plan. Initiatives are being considered in the review to increase the use of public transit, to add more designations in the Greenlands System, to promote compact urban forms and to support projects similar to the Clean Air Partnership. These initiatives will have a positive contribution to air quality in Halton over the long term.

In the Health Department, staff will provide support to regional planning staff in the development of official plan policies on air quality. At the same time, they will continue to investigate complaints of health hazards associated with poor air quality and, if necessary, undertake special studies, similar to the Petro Canada Study of the early 1990s. In addition, the Department will collaborate with colleagues, both within Halton and across the GTA, to address local and global air quality issues and to support the goals of Halton's Strategic Plan. Initiatives in this category include:

- Halton Partners for Clear Air

The Halton Partners for Clear Air is a consortium of 12 public sector organizations, including the Region of Halton, the local hydro commissions, the four area municipalities, the two district school boards and Conservation Halton. The partnership has developed a Halton Public Sector Response Plan and is engaged in activities to reduce smog across the Region. In 2002, the Partnership will be promoting its role in the private sector, with a view to expanding the Halton Partners for Clear Air membership to local industry, where the greatest reductions in air pollution can be achieved. In addition, the Partnership will be exploring opportunities to raise awareness regarding the impact of air quality through the development and distribution of a range of resource materials.

One of the key objectives of the Partnership is to reduce traffic congestion and associated environmental and health problems pertaining to air pollution around local schools. During 2002, the Partnership, in collaboration with its district school board partners, will be exploring initiatives which can be undertaken to address this issue and protect the health of local students, which are a vulnerable population for air pollution related illness.

- GTA Clean Air Council

In 2001, the Health Department, representing the Halton Partners for Clean Air and the Regional Corporation became members of the GTA, Clear Air Council.

The GTA, Clean Air Council is an inter-governmental group of representatives from all levels of government within the GTA. Its primary goal is to organize an annual smog summit and local fora across the GTA as an opportunity for all stakeholders to discuss issues of concern and participate in strategies to improve air quality across the GTA.

The Smog Summit, which is an annual event, held in Toronto, in June, allows for the review of progress being made by members in improving air quality. It also provides a forum whereby all members, from federal, provincial, regional and local government can reaffirm their commitment to addressing local and global air quality issues through the signing of a formal inter-governmental Declaration on Clean Air.

The Clean Air Council, like other experts in the field, feels that the current method used by the MOE to characterise the air quality in the GTA is inadequate. In fact a study conducted by Toronto Public Health demonstrated that 92% of the premature deaths and hospitalisations attributable to air pollution in Toronto occur when air quality has been characterised as "good" or "very good" by Ontario's AQI. The study's authors concluded that this is occurring because most of the air pollution health impacts are occurring at air levels lower than the air quality criteria for the four gaseous air pollutants included in the AQI - SO₂, CO, NO₂, O₃ and because fine particulate matter are not included in the AQI. Clearly there is a need to improve the

AQI so that it more accurately conveys the health effects associated with various air quality conditions.

- Project 20/20

Halton Partners for Clean Air is participating in the 20/20 program, a social marketing campaign developed by Toronto Public Health which includes partners from the surrounding GTA. The premise of this program is to supply information to the general public to allow them to reduce their Vehicle Kilometres Travelled (VKMT) by 20% and their home energy use by a similar amount.

The initial phase researched which market segments should be targeted and how best to communicate the message to them. Phase 2 (The Living Lab) tested the feasibility of the 20% reduction targets. 20 families were recruited, including two from Halton. Their ability to reduce their energy usage was recorded over an 8 week period. As well, their preferred methods to save energy and why they were not willing to do other items were noted. Four of the families were able to reduce their household energy usage by 20% in the allotted time, and although the 2 families from Halton were not able to achieve this goal, they recorded 88% success by the end of the 8 weeks. Eleven of the 20 families were able to reduce their total VKMT by the 20%.

A second pilot study is presently being completed using a larger sample size (approximately 200 families in two neighbourhoods, one in Toronto, one in Mississauga), but with less invasive monitoring and resources than the Living Lab pilot. The results for this study will be finished before the public rollout of the program in June 2002. A web site and fact sheet for the use of the participants was developed and will be adapted for use by the general public based on the findings from this study.

Based on the information from these two studies, the partnership will consider what future role it may have in this project as it relates to Halton residents.

Conclusion

Air pollution is not just a problem for major industrialised cities. Research by the OMA clearly indicates that it should be everyone's concern. Although the problem is global, local action can make a difference. Halton is addressing the issue in its strategic plan. The Health Department is involved in a number of initiatives including the Halton Partners for Clean Air, the GTA Clear Air Council and the 20/20 Project. In addition the Health Department has worked with industry such as Petro-Canada to help reduce health effects and continues to investigate reports of local issues that could affect the health of Halton residents.

FINANCIAL/PROGRAM IMPLICATIONS

Financial/program implications are addressed in the approved operating budget for the Health Department.

RELATIONSHIP TO THE STRATEGIC PLAN

This report is consistent with Section 4.2 of the Strategic Plan, "To reduce smog in Halton" specifically actions i) expansion of the Halton Clean air partnership and iv) promoting awareness of the impact of smog on public health.

Respectfully submitted,

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Commissioner and Medical Officer of Health

Approved by

A. Brent Marshall
Chief Administrative Officer

If you have any questions on the content of this report, please contact:

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Appendix 1

**Illness Cost of Air Pollution (O3 & PM10) for
Halton for the Year 2000**

Health Event		<i>Number estimated To Be Caused By Air Pollution</i>	<i>Rates</i>
Premature Death (in those aged 18 and over)	Total Deaths	Air Pollution Deaths	Rate of Air Pollution Death/100 Total Deaths
- Respiratory Disease	131*	17	13
- Cardiovascular Disease	718*	38	5
- Total of above	849*	55	6
Hospital Admission	Total Admissions	Air Pollution Admissions	Rate of Air Pollution Admission/100 Total
Asthma (all ages)	296	37	13
Asthma (children 0-17)	183	7	4
COPD** (age 18 and over)	559	87	16
Pneumonia (all ages)	774	106	14
Pneumonia (children 0-17)	166	21	13
Dysrhythmia (age 18 and over)	615	70	11
Congestive Heart Failure	609	100	16
Emergency Room Visit	Population	Air Pollution Visits	Rate of Air Pollution Visits/1000 Population
Respiratory (age 65 and over)	44,739	775	17
Cardiovascular (age 65 and over)	44,739	650	15
Minor Illness	Population	Air Pollution Illnesses	Rate of Air Pollution Illness/Person
Restricted Activity Days (0-17,65+)	134,219	775,000	6
Restricted Activity Days (age 0-17)	89,480	540,000	6
Asthma Symptom Days (0-17, 65+)	134,219	84,000	0.6
Asthma Symptom Days (age 0-17)	89,480	59,000	0.7

* year 1997 data

** Chronic Obstructive Pulmonary Disease