
DATE: May 28, 2013

REPORT TITLE: **PROVINCE-WIDE ADOPTION OF THE AIR QUALITY HEALTH INDEX**

FROM: Janette Smith, Commissioner of Health Services
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RECOMMENDATION

That the Ontario Ministry of the Environment adopt the Air Quality Health Index as the only tool to communicate the status of air quality to the public.

REPORT HIGHLIGHTS

- The Air Quality Index and Air Quality Health Index run simultaneously in Ontario.
- The Region of Peel has been a pilot site of the Air Quality Health Index since 2008.
- The indices both have strengths and limitations, but the Air Quality Health Index (AQHI) is a health-based index, providing clear and specific messaging for both the general public and at-risk populations.
- In order to avoid confusion, Peel Health recommends that the AQHI be adopted province-wide as the sole communication tool used for the public.
- The AQHI is currently being used in the Greater Toronto Area, Sault Ste. Marie, Peterborough, Ottawa, London, Windsor and Kingston.

DISCUSSION

1. Background

Poor air quality affects everyone's health. Populations who face an increased health risk due to poor air quality include children, seniors, those with pre-existing heart and lung conditions, those who work or exercise outdoors, and pregnant women. In 2008, the Canadian Medical Association estimated that long term exposure to air pollution contributes to 9,800 premature deaths in Ontario. If nothing is done to improve air quality, the annual number of premature deaths from long term exposure is expected to rise by 83 per cent between 2008 and 2031.

The Ministry of the Environment monitors air quality in Ontario and uses the Air Quality Index to characterize ambient air pollution and to communicate information to the public. Following a 2001 Toronto Public Health report entitled "Condition Critical: Fixing Our Smog Warning System", the Government of Canada committed to developing a national health-based air quality index. The Air Quality Health Index was developed in partnership between Environment Canada, Health Canada, the Ontario Ministry of the Environment, Toronto Public Health and other key stakeholders, including Peel Public Health. An Ontario pilot

May 28, 2013

PROVINCE-WIDE ADOPTION OF THE AIR QUALITY HEALTH INDEX

project assessing the Air Quality Health Index (AQHI) was launched in the GTA in 2008. Since then, the AQHI has been expanded to Sault Ste. Marie, Peterborough, Ottawa, Kingston, London and Windsor.

For the Region of Peel, readings for both the Air Quality Index and the Air Quality Health Index are taken at the Ministry of the Environment's air quality monitoring stations in Mississauga (University of Toronto at Mississauga, Erindale Campus) and Brampton (behind Peel Manor Long Term Care Centre). The reading for Caledon is taken from the monitoring station in Newmarket.

Running and reporting both indices simultaneously can be confusing for the public. Adoption of the Air Quality Health Index province-wide has occurred in British Columbia, Newfoundland and Labrador, Manitoba, Nova Scotia and Prince Edward Island. Other provinces that continue to run both indices include Alberta and Saskatchewan. New Brunswick and Quebec run the Health Index in select cities.

2. Recent Advocacy

In May 2008, a report to Regional Council discussed the Air Quality Health Index and its expansion to the Toronto area. In 2010, the Association of Local Public Health Agencies passed a resolution calling on the Province of Ontario to make the AQHI available to all public health units in Ontario. In addition, the resolution stated that in order to reduce public confusion, the Province of Ontario should only run one index and should replace the Air Quality Index with the Air Quality Health Index. A letter was also sent to the Ontario Chief Medical Officer of Health.

In 2010, Dr. Balsillie released the "Action Plan, Report of the Air Quality Task Force to the Minister of the Environment: Southwest Greater Toronto Area, Oakville-Clarkson Airshed." The report included 35 recommendations to improve air quality and manage air pollution impacts in the Oakville-Clarkson Airshed. Recommendation 17 of the report stated that, "The province should adopt the national Air Quality Health Index and report on the cumulative health impacts associated with smog pollutants monitored at suitable locations."

In 2012, the Association of Local Public Health Agencies wrote a letter to the Minister of the Environment and the Minister of Health and Long-Term Care on behalf of the Council of Medical Officers of Health, and the Ontario College of Family Physicians urging the province-wide adoption of the Air Quality Health Index.

3. Public Health Ontario Report

In January 2013, Public Health Ontario released a report, "Review of the Air Quality Index and the Air Quality Health Index", which examined the strengths and limitations of both indices. Findings from the Public Health Ontario report suggest the following:

May 28, 2013

PROVINCE-WIDE ADOPTION OF THE AIR QUALITY HEALTH INDEX

a) Air Quality Index

- The Air Quality Index (AQI) is used to issue smog alerts, but it is not a health-based index. The AQI is calculated by comparing the concentrations of six key pollutants relative to provincial standards and criteria. Some of the existing standards have not been updated in over ten years and, while protecting human health is an important goal of standards, so are costs and feasibility considerations. Some of the current standards are not completely protective of human health.
- The Air Quality Index (AQI) reading is solely based on the air pollutant with the highest concentration at a given hour and does not take into account the potential cumulative impacts of exposure to multiple pollutants. The index ranges from 0 to 100+, with lower numbers indicating better air quality. The health messages used with the AQI readings vary across pollutants. For example, an AQI value in the moderate category caused by ozone versus fine particulate matter would have different health messaging, thereby having the potential to cause public confusion.

b) Air Quality Health Index

- The Air Quality Health Index (AQHI) is a health-based index that is based on the relationship between changes in mortality associated with ambient air pollution in 12 Canadian cities. It is not clear if the relationship can be generalized to rural areas. In addition, the AQHI does not account for morbidity, which may account for a greater burden of illness than mortality.
- The AQHI is calculated on the risk from three pollutants (ozone, fine particulate matter and nitrogen dioxide) to reflect the cumulative health impacts from multiple pollutants. The AQHI uses a simple 10 point scale to indicate the level of health risk associated with local air quality. The higher the number, the greater the health risk. The Health Index enables individuals to self-assess their own health risk by gauging how they respond to differences in air quality.

Neither index takes into account the health effects associated with chronic exposure to air pollution. In addition, both indices are based on readings from a limited number of air quality monitors and do not, therefore, account for local and neighbourhood variation in pollution levels as well as individuals exposure to pollutants.

4. Barriers to Implementing the Air Quality Health Index Province-wide

Implementing the AQHI province-wide requires a shift in the current monitoring and reporting structure province-wide. The Ministry of the Environment currently reports the Air Quality Index readings and forecasts on its airqualityontario.com website. The website contains a disclaimer that it is not intended to provide medical or health care advice and should not be relied upon for such purposes.

The Air Quality Health Index is reported on Environment Canada's website airhealth.ca.

May 28, 2013

PROVINCE-WIDE ADOPTION OF THE AIR QUALITY HEALTH INDEX

CONCLUSION

While the Air Quality Index and Air Quality Health Index both have limitations, the Air Quality Health Index (AQHI) is a health-based index and as such, offers advantages compared to the Air Quality Index (AQI) traditional index. The AQHI considers cumulative impacts and reflects the current understanding that pollutants may have, even at low levels. As a communication tool, the Air Quality Health Index is more effective as it offers protective messaging targeted to both the general and more vulnerable populations.



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