

# AQHI Outreach in Hamilton

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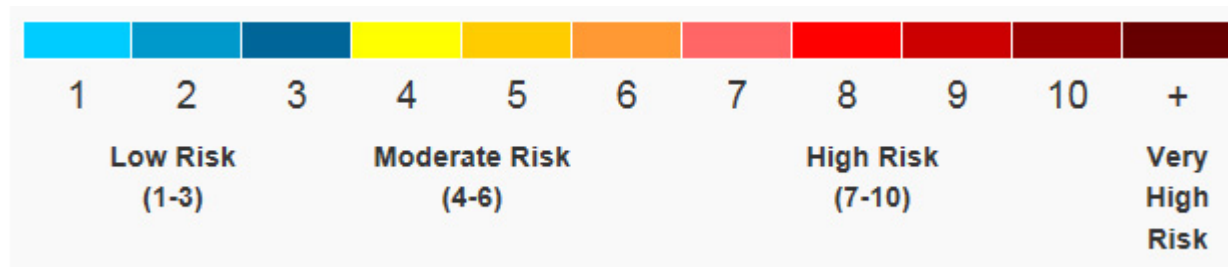


Hamilton



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# Air Quality Health Index (AQHI)



- AQHI helps us understand what effect the local air pollution levels may have on our health
- AQHI is a scale from 1 to 10
- It incorporates 3 common air pollutants:
  - Nitrogen Dioxide (NO<sub>2</sub>)
  - Ozone (O<sub>3</sub>)
  - Particulate Matter (PM<sub>2.5</sub>)

# 2011- Hamilton AQHI Pilot



## INFORMATION REPORT

TO: Mayor and Members Board of Health	WARD(S) AFFECTED: CITY WIDE
COMMITTEE DATE: May 24, 2011	
SUBJECT/REPORT NO: Air Quality Health Index BOH10008(a) (City Wide)	
SUBMITTED BY: Elizabeth Richardson, MD, MHSc, FRCPC Medical Officer of Health Public Health Services Department	PREPARED BY: Sally Radisic (905) 546-2424 Ext. 5549 Matt Lawson (905) 546-2424 Ext. 5823
SIGNATURE:	

Council Direction: Not Applicable

### Information:

In follow up to report BOH10008, this report provides information about the implementation of the Air Quality Health Index (AQHI) in Hamilton.

### Air Quality Health Index (AQHI)

The AQHI is a valuable tool developed by Health Canada to understand air quality in terms of health risk and for planning daily activities accordingly. The AQHI is designed to be used by both health professionals and the general public to determine which health risks are related to a quantity of air pollution at a given time.



May 25, 2011 | Vote 0 0

## City's new monitoring system links air quality with your health

Hamilton Spectator  
By Emma Reilly

The city is instituting a new air monitoring system that will tell Hamiltonians what the air around them means to their health.

Starting June 28, the city's public health department will be using a system called the air quality health index to help residents gauge how much time they should spend outside.

"It's a scale that helps us how understand what the effect of local air pollution levels may have on our health, so we can plan accordingly," public health representative Matt Lawson told councillors Tuesday.

The readings will be taken at two air monitoring stations: one on the central Mountain and the other in Beasley Park in the lower city. The monitors will give hourly readings of ozone, fine particulate matter and nitrogen dioxide in the air, all three of which have been proven to be harmful to humans.



### AIR QUALITY

Hamilton Spectator file photo

*The city is instituting a new air monitoring system that will tell Hamiltonians what the air around them means to their health. Starting June 28, the city's public health department will be using a system called the air quality health index to help residents gauge how much time they should spend outside.*



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# 2015- AQHI Reporting in Ontario

ONTARIO.CA | MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE | ACCESS ENVIRONMENT

Air Quality Ontario

## Air Quality Ontario

### Introducing Ontario's Air Quality Health Index



1 2 3 4 5 6 7 8 9 10 +

**Air Quality Ontario**

The quality of our air directly impacts our health and the natural environment, so we want our air to be as clean as possible. The Ministry of the Environment and Climate Change works to protect and improve air quality through legislation, targeted programs, and partnerships with other jurisdictions.

The Ministry has a network of 39 ambient (outside) air monitoring stations across the province that collect real-time air pollution data. This information is communicated to the public through Ontario's new Air Quality Health Index (AQHI) and as hourly concentrations of each pollutant. **The Air Quality Health Index replaced the Air Quality Index on June 24, 2015. For more information, see [What is the Air Quality Health Index?](#)** The Air Quality Health Index and data collected from our monitoring stations are posted on this website every hour, 24 hours a day, seven days a week.

[AQHI Forecast Map \(Table\)](#)

[Air Quality Ontario: Home Page](#)

[Air Quality Health Index \(AQHI\)](#)



<b>Hamilton Downtown</b>	<b>4</b> Moderate Risk	<b>4</b> Moderate Risk	<b>3</b> Low Risk	<b>3</b> Low Risk
<b>Hamilton Mountain</b>	<b>3</b> Low Risk	<b>3</b> Low Risk	<b>3</b> Low Risk	<b>3</b> Low Risk
<b>Hamilton West</b>	<b>3</b> Low Risk	<b>3</b> Low Risk	<b>3</b> Low Risk	<b>3</b> Low Risk

# 2011 AQHI Outreach Showcase

Air Quality Health Index (AQHI)  
Hamilton Outreach Showcase

Summary Report

Courtyard by Marriott, Hamilton  
March 28, 2011

Report Prepared By:

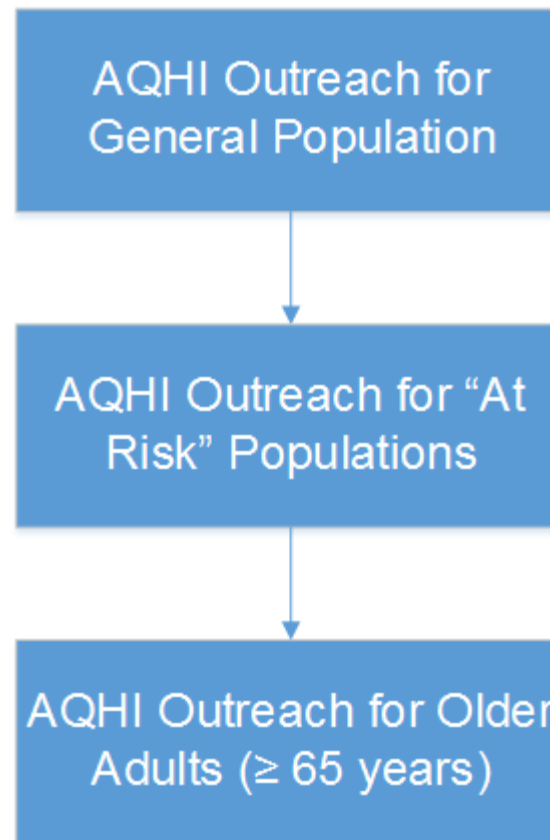


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# Hamilton AQHI Outreach Strategy





# 2011- 2012 Hamilton AQHI Promotion



Radio

Billboards

Transit Shelters

Bus Advertising

Newspaper

City Website [www.hamilton.ca/aqhi](http://www.hamilton.ca/aqhi)

Special Events/Fairs



# AQHI Outreach at Special Events

Transportation and Healthy Living Fair - June



Your Festival Gage Park



Winona Peach Festival

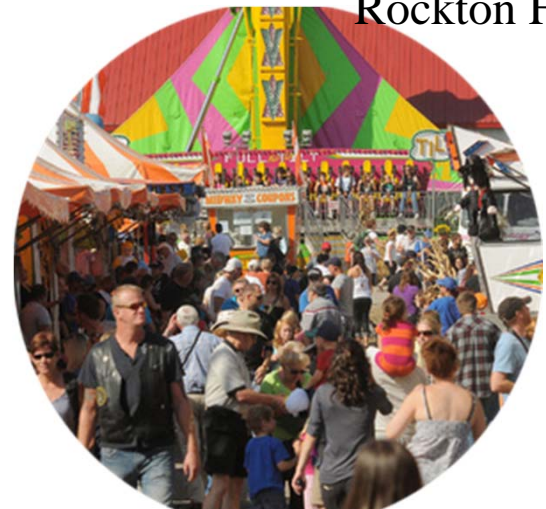


Transportation and Healthy Living Fair - Sept

Binbrook Fair



Rockton Fair





# AQHI Promotional Materials



# Factors Influencing AQHI Adoption in Hamilton



## Factors Influencing Health Behaviours in Response to the Air Quality Health Index: A Cross-Sectional Study in Hamilton, Canada

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### Background

Research associating adverse health effects with air pollution exposure is robust. Public health authorities recognize the need to implement population health strategies that protect public health from air pollution exposure. The Air Quality Health Index (AQHI) is a public health initiative that is intended to protect public health including the “at risk” population (i.e. young children, elderly, those with pre-existing respiratory and/or cardiovascular conditions) from exposure to air pollution (Table 1). The aim of this research was to identify and explain factors influencing AQHI adoption in order to establish intervention strategies.

### Methods

A cross-sectional survey with both quantitative and qualitative questions was administered in Hamilton, Canada during the months of June to October 2012. Logistic regression was used to analyze the quantitative data along with coding, and the Health Belief Model (HBM) to explore the qualitative data.

Air Quality Health Index Messages

Health Risk	Air Quality Health Index	Health Messages	
		At Risk Population*	General Population
Low risk	1 – 3	Enjoy your usual outdoor activities.	Check air quality for outdoor activities.
Moderate risk	4 – 6	Consider reducing or rescheduling strenuous activities outdoors if you are experiencing symptoms.	No need to modify your usual outdoor activities unless you experience symptoms such as coughing and throat irritation.
High risk	7 – 10	Reduce or reschedule strenuous activities outdoors. Children and the elderly should also take it easy.	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms such as coughing and throat irritation.
Very High risk	Above 10	Avoid strenuous activities outdoors. Children and the elderly should also avoid outdoor physical exertion.	Reduce or reschedule strenuous activities outdoors, especially if you experience symptoms such as coughing and throat irritation.

\*Unsure if you are at risk? Consult this [health guide](#) to help you determine if you are at risk from air pollution. People with heart or breathing problems are at greater risk. Follow your doctor's usual advice about exercising and managing your condition.

Table 1 (Source: Environment Canada, 2015)

### Results

A total of 707 participants contributed to this study. Demographics (gender, age, education, area of residence) ( $p < 0.05$ ), knowledge/understanding ( $p < 0.001$ ) and individual perceptions (neighbourhood air effects on health) ( $p < 0.05$ ) were found to be significant predictors of AQHI adoption. The perceived benefits of AQHI adoption included protection of health for self and those cared for via familial and/or occupational duties. While perceived barriers of AQHI adoption included lack of knowledge about where to check and lack of time required to check and follow AQHI health messages. Also, self-efficacy was uncovered as a factor influencing AQHI adoption.

### Conclusions

Increases in AQHI adoption could be achieved via increasing AQHI knowledge among low SES females, communicating the benefits of AQHI adoption to “at risk” populations and implementing supports for males to follow AQHI health messages.

### Acknowledgements

The authors are thankful to Health Canada and Environment Canada for their support during the piloting of AQHI in the City of Hamilton.



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# 2013 Focus on “At Risk” Populations

- AQHI information packages



## Air Quality Health Index (AQHI)

### Teaching Patients with Lung Disease

Exposure to air pollution is associated with increased morbidity and mortality in patients with lung conditions. The Air Quality Health Index (AQHI) is a scale which reflects the relative health risks associated with air pollution levels and gives health messages.

**Ask Patient:**

- ✓ How does air pollution affect your lung condition?
- ✓ What steps do you take when air pollution bothers you?

**Teach Patient How to Monitor the AQHI**

- ✓ Provide patient with AQHI resources.
- ✓ Review AQHI scale and health messages with patient.
- ✓ Explain where to find AQHI levels: [airhealth.ca](http://airhealth.ca); local media; or online widget/app.

**Teach Patient How to “Know Your Number”**

- ✓ “Know your number” refers to the patient finding the lowest AQHI level that affects them (this is called self-calibration).
- ✓ Symptoms may occur immediately or become apparent over time.
- ✓ Follow the AQHI health messages. When the AQHI reaches your number or higher, adjust your activity as needed.

**Discuss Helpful Strategies with the Patient**

- ✓ Be active in areas with less pollution (e.g., away from major roads, indoors).
- ✓ Use “Forecast Maximums” to plan outdoor activities when the AQHI is expected to be below your number.
- ✓ Follow your health-care provider’s advice about being physically active.
- ✓ Keep your lung condition under control and follow a written action/self-management plan from your health-care provider.

**THE LUNG ASSOCIATION**  
 If you have any questions about the AQHI or lung health, call The Lung Association Lung Health Information Line at 1-888-344-LUNG (5864), e-mail [info@thelung.ca](mailto:info@thelung.ca) or visit [www.thelung.ca](http://www.thelung.ca).

# Focus on “At Risk” Populations

## Those with existing respiratory conditions





# Focus on “At Risk” Populations

## Older Adults ( $\geq 65$ years)





# Focus on “At Risk” Populations (Young Children)



Hamilton-Wentworth Catholic Schools  
*150 years of 'Believing, Achieving, Serving'*



Ontario Early Years Centres



*A Place For Parents And Their Children.*



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# Focus on “At Risk” Populations

## Interviews and Focus Groups



# Focus on “At Risk” Populations

## Interviews and Focus Groups

- Focus on seniors in low SES to:
  - 1) increase knowledge and;
  - 2) encourage use of the AQHI



# AQHI Education Session for Older Adults

## TECHNICAL ARTICLE

87

### Air quality and health education to increase knowledge and encourage health protective behaviour among older adults in Hamilton, Canada

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<sup>b</sup>City of Hamilton Public Health Services, Hamilton, ON, Canada.

**Abstract:** Air pollution exposure is detrimental to population health and particularly to older adults ( $\geq 65$  years of age) who are considered part of the “at-risk” population. The Air Quality Health Index (AQHI) provides air quality and health information such that the public can implement health protective behaviour and decrease exposure to outdoor air pollution. The AQHI education session for older adults aims to increase knowledge, encourage use of the AQHI, and gain a better understanding of how at-risk populations self-identify. An AQHI education session was delivered face-to-face to older adults living independently in Hamilton, Canada. A pre- and post-test questionnaire with both quantitative and qualitative questions was administered to measure knowledge and intention to use AQHI. A total of 62 participants attended the education session and completed the pre- and post-test questionnaire. Results of a paired *t* test indicated a statistically significant difference in pre- and post-test knowledge ( $p < 0.05$ ). After the education session, 82% of participants indicated their intention to use AQHI. The benefit of using AQHI included health protection while the most relevant barrier was the inability to self-identify as belonging to the elderly at-risk population. An AQHI education session was effective in increasing AQHI knowledge and encouraging use of the AQHI. Consideration must be given to replacing the current terminology “elderly” with the use of chronological age ( $\geq 65$  years) to describe the at-risk population and foster greater ability to self-identify and use AQHI. Extra attention must be given to engage older adults living in lower socioeconomic areas to address health disparities.

**Key words:** air quality, environmental health, health protective behaviour, behavioural theories, health promotion, health disparities

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# AQHI Education Session for Older Adults

- A paired  $t$  test was conducted with results indicating a statistically significant difference in pre- and post-test knowledge ( $p < 0.05$ )
- After the education session, 82% of participants indicated intention to use AQHI
- Consideration must be given to replacing the current terminology “elderly” with the use of chronological age (65 years and over) to describe the “at risk” population



# 2015 Pan Am Games



# Recommendations

- increase AQHI knowledge in low SES areas;
- communicate the benefits and relevance of AQHI adoption to “at risk” populations;
- implement supports to follow AQHI health messages;
- provide AQHI information at a neighborhood scale via local media sources and wearable devices;
- replace the current terminology “elderly” with the use of chronological age ( $\geq 65$  years) in reference to this “at risk” population