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Focus Group Testing for Air Quality Health Index (AQHI) Supplemental Health Messaging

Final Report

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Ce rapport est aussi disponible en français.

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Introduction

In an attempt to improve the measurement and communication of air pollution to the Canadian public, Environment Canada and Health Canada worked collaboratively with provincial and municipal governments and health and environment non-government organizations to develop a revised approach to the Air Quality Index.

In recent years, the Air Quality Health Index (AQHI) was created for the more specific purpose of reporting the health risk posed by varying levels of air quality, and with the goal of helping Canadians protect their health on a daily basis from the negative effects of air pollution.

The scientific foundation for the new AQHI (Air Quality Health Index) is based on epidemiological research undertaken by Health Canada which estimates the short-term relative risks posed by a combination of common air pollutants which are known to harm human health. The AQHI focuses on pollutants that can be measured and controlled and provides health messages which provide actions that individuals and caretakers can take to limit short-term exposure to air pollution.

The AQHI has been rolled out in locations across the country, including some where outreach campaigns have been used to promote it on a regional level. Currently, the AQHI is available in all 10 provinces and two territories, with the forecast-only version available in Quebec. The AQHI consists of a scale designed to help Canadians assess the impact that air quality might have on their health, at any given time. It measures air quality in relation to people's health on a scale from 1 to 10, with an associated qualifier (e.g., low, moderate, high, or very high).

Health messages customized to the various levels of AQHI are also provided to help Canadians align their choice of activities with the level of air pollution in their community. While these messages have a broad reach, partners and stakeholders have identified the need for more tailored messaging for specific at-risk groups (asthmatics, cardiovascular patients, young children, etc.) to help them better understand why they are more susceptible to the health impacts posed by air pollution. As such, a group of partners and stakeholders was convened by the AQHI team, with various expertise in the medical field and outreach, to develop new supplemental messages to accompany the existing AQHI standardized messaging. The development of new health messaging is a key component of the continuous improvement of the AQHI and is a commitment under current Clean Air Regulatory Agenda (CARA) activities.

With this in mind, Health Canada commissioned Corporate Research Associates Inc. (CRA) to test reactions to those additional messages through a series of focus group discussions with Canadians, including both members from the general public, and those identified as being part of the 'at-risk' group. The results of this research will provide Health Canada with information to help further shape the proposed messages for both the at-risk populations and the general public, providing them with advice on how to reduce exposure to air pollution.



More specific research objectives include, to:

- Assess the effectiveness of the new messages in helping at-risk populations understand the health risks posed by air pollution and in helping the general population understand the best ways to be active outdoors (e.g. avoiding high traffic areas when exercising).
- Evaluate the messages for clarity, credibility and comprehensiveness and their ability to inspire action (call to action – changing behaviour).
- Evaluate the overall clarity, credibility and comprehensiveness of the AQHI.

To achieve these objectives, a series of eight traditional focus groups were conducted in four Canadian locations, including Edmonton (AB), Montreal (QC), Vancouver (BC), and Halifax (NS). In each location, one group was conducted with individuals who were identified as being part of the ‘at-risk’ group, while the second group included members from the general population. Group discussions were held between December 6th and 8th, 2016 with each session lasting approximately two hours. In total, 70 participants took part in the research.

This report presents the detailed findings of the focus group discussions, a series of conclusions and recommendations stemming from the research findings, a high level executive summary and a description of the detailed methodology used. All working documents are appended to the report, including the recruitment screener, the moderator’s guide, and the messages that were tested.

Research Methodology

In total, two English groups were recruited in each of Vancouver (BC), Edmonton (AB), and Halifax (NS), and two French-speaking groups were held in Montreal (QC). Group discussions were held from December 6th to 8th, 2016, and a total of 70 participants took part in the study across groups, among 80 individuals recruited. Participants each received a \$75 incentive in appreciation for their time. The following provides a breakdown of participants by location:

Breakdown of Focus Groups

	Date	‘At Risk’ Audience	General Public	Total
Edmonton, AB	December 6, 2016	9	8	17
Vancouver, BC	December 8, 2016	8	9	17
Montreal, QC	December 7, 2016	8	8	16
Halifax, NS	December 8, 2016	10	10	20

The study consisted of focus groups with adults 18+ from the general public and populations identified as being ‘at risk’. All participants reported being aware of an air quality index or public information tool that provides information on the level of air pollution in their community or region where they live. All also believed that their health, and that of anyone in their care is definitely or probably affected by the quality of air where they live. A maximum of two individuals were recruited in each group who were 60 years of age or older. A mix of income and education was represented in each group.



While the general population groups included representation from a wide spectrum of socio-demographic characteristics, participants to the 'at-risk' focus groups were characterized as follow:

- Minimum two who currently have children under the age of 12 living with them at least some of the time;
- Minimum two pregnant women;
- Minimum two who consider themselves either very or somewhat active in outdoor activities;
- At least one who personally has, or someone in their care has, asthma or another respiratory condition diagnosed by a health professional;
- At least three who personally have been diagnosed with a health condition or chronic disease, or who has someone in their care in that situation. Among them, at least one was recruited for each of the following health conditions or diseases: asthma or other respiratory conditions; cardiovascular disease; and diabetes.

As is normal practice, participants excluded those who attended at least one focus group in the past six months, who have been to three or more focus groups in the past five years, or who participated in a group on healthcare.

Context of Qualitative Research

Qualitative discussions are intended as moderator-directed, informal, non-threatening discussions with participants whose characteristics, habits and attitudes are considered relevant to the topic of discussion. The primary benefits of individual or group qualitative discussions are that they allow for in-depth probing with qualifying participants on behavioural habits, usage patterns, perceptions and attitudes related to the subject matter. This type of discussion allows for flexibility in exploring other areas that may be pertinent to the investigation. Qualitative research allows for more complete understanding of the segment in that the thoughts or feelings are expressed in the participants' "own language" and at their "own levels of passion." Qualitative techniques are used in marketing research as a means of developing insight and direction, rather than collecting quantitatively precise data or absolute measures. As such, results are directional only and cannot be projected to the overall population under study.



Executive Summary

Corporate Research Associates Inc.
Contract Number: HT372-163362/001/CY
Contract Date: October 27, 2016

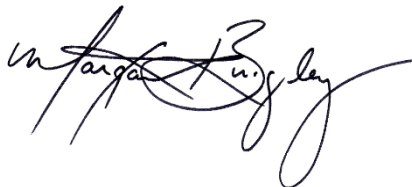
Background and Objectives

To assist in finalizing the development of nine Air Quality Health Index (AQHI) messages tailored for individuals identified as being more at risk of health impacts from air pollution, Health Canada commissioned a series of eight focus groups in four locations. The research aimed to assess the effectiveness of the new messages, as well as evaluate them for clarity, credibility, comprehensiveness, and for inspiring action. At the same time, awareness and understanding of the AQHI were briefly assessed. From December 6th to 8th, 2016, English group discussions were held in Toronto (ON), Vancouver (BC), and Halifax (NS), while French sessions were conducted in Montreal (QC). In each location, one group included members from the general public while the second group was comprised of those identified as being of the 'at-risk' population (parents of young children, pregnant women, people who are active outdoors, and people who have or have someone in their care who has, a respiratory condition, cardiovascular disease or diabetes). A total of 70 individuals took part in the discussions, across locations. Caution must be exercised when interpreting the results from this study, as qualitative research is directional only. Results cannot be attributed to the overall population under study, with any degree of confidence. The total contracted value of the research was \$58,324.95 (including HST).

Political Neutrality Certification

I hereby certify as a Representative of Corporate Research Associates Inc. that the deliverables fully comply with the Government of Canada political neutrality requirements outlined in the Communications Policy of the Government of Canada and Procedures for Planning and Contracting Public Opinion Research. Specifically, the deliverables do not include information on electoral voting intentions, political party preferences, standings with the electorate or ratings of the performance of a political party or its leaders.

Signed



Corporate Research Associates

Date: January 10, 2017



Findings

Findings from the *Focus Testing for Air Quality Health Index (AQHI) Supplemental Health Messages* reveal a desire from the participants to receive information on air quality, notably on the health impacts of air pollution, accompanied by specific recommendations on how to minimize the health impacts from exposure. That being said, given the perceived good quality of air in Canada, air quality is infrequently considered by the general public outside of a major event, such as a forest fire or smog alert. It is, however, more top-of-mind among those considered ‘at-risk’, although still not a daily consideration.

There is limited knowledge among participants of what influences air quality, though a variety of factors related to pollution, environmental considerations (e.g., level of humidity; extreme heat or cold), and specific events or disasters are perceived as having some impact. In terms of assessing the level of air quality, sensory feelings are widely relied upon, in addition to considering news reports and ratings of air quality and the level of pollen in the air, primarily on the Weather Network, and to a lesser extent from Environment Canada, meteorological news reports, and outdoor signage.

While there is recognition among participants that people with a compromised immune system due to health conditions or illnesses, children, and the elderly are most at risk of suffering from air pollution, there is a perception that it affects everyone. Despite general knowledge that air quality is rated, specific awareness of the Air Quality Health Index varies. In Vancouver and Edmonton, the AQHI is known despite not being well understood by participants, while participants’ awareness is moderate in Halifax and non-existent in Montreal. That said, participants’ usage is low across locations since the Index is not well understood or because of a perceived lack of need given good air quality.

The following provides an overview of participants’ reactions to each of the nine messages discussed during the focus groups, including broad conclusions from the analysis of findings:

- ***Message 1 effectively targets parents and caregiver with a simple, but important message, despite a weak call to action.***

This message was generally appreciated by participants for being clear, concise, credible, and generally actionable, although additional explanation is required for concepts such as ‘taking it easy’, the level of activities referred to, and ways to identify when one ‘feels better’. Symptoms listed should also be labelled as being a result of air pollution, to clearly differentiate them from symptoms of other illnesses. For added clarity, the acronym AQHI should be spelled out, according to many participants. While the target audience was widely identified as parents and caregivers, and to a lesser extent seniors, there is value in communicating this message to everyone who takes part in outdoors activities. Interestingly, personal relevance was higher in the mainstream public than in the ‘at-risk’ group.

- ***Message 2 lacks interest, focus, and a clear call to action, despite some value as a reminder of the health risks for specific audiences.***

According to the participants’ reactions, this message fails at grabbing the readers’ attention for its long list of health conditions at the beginning, and for the lack of clear actionable advice. The target



audience is deemed too narrow and could be expanded by speaking to those with the health situations described, as well as people who know of someone with any of these conditions. The other main concern with this statement is the lack of clear call to action. While it clearly states that air pollution can have an important impact on the health of the population identified, it does not clearly define what they should do to protect themselves. Introducing the notion of the impact of air pollution on diabetic people is seemed helpful by the participants as this relationship is not well-known. For that reason, greater explanation is warranted to increase this claim's credibility and relevance.

- ***While the intent of message 3 is endorsed, its purpose is perceived as vague and lacks a clear focus on the AQHI.***

Mixed opinions are offered regarding this message, primarily due to its use of vague terms and poorly explained concepts, such as 'moderate AQHI levels', 'higher values', 'experienced symptoms', 'strenuous activities', 'healthy children', as well as the use of the expression, 'generally speaking'. At the same time, there appears to be message confusion, with equal weight given to the importance of physical activity and the impact of air quality on one's health, without a strong connection between those two ideas. Further, the claim that 'the benefits of being active outweigh the risks of air pollution' was considered by some participants as minimizing the health effects of air pollution. Again, this message, though directed at parents and children, was deemed as valuable for the general public, and thus should be positioned more broadly or clearly labelled as including advice for parents.

- ***Message 4 is problematic, as it is felt to be contradictory, lacking credibility, and is not believed to sufficiently substantiate its claims.***

Focus group discussions revealed two main issues with this message: providing contradictory messaging, and making claims that are not sufficiently substantiated. As such, participants mentioned a lack of clarity, credibility, and usefulness. The message saying both there is evidence of an effect of air pollution on the fetus and that research is not conclusive elicited serious questions from participants. At the same time, the message's cautionary tone that ends with a statement suggesting the status quo for pregnant women caused confusion as to the purpose for communicating this information. As such, there is a clear need for identified sources of scientific evidence and quantifiable information to substantiate the claims. Further, limiting the use of vague references (e.g., 'small degree', 'might affect', and 'lesser extent') might instill a higher level of trust in the information provided.

- ***Message 5 causes confusion among participants, provides too much information, and lacks a clear purpose and call to action.***

The greatest issues with this message are its lack of clear purpose and call to action, even when introduced as providing detailed information on occupations or tasks most at risk of being affected by air pollution. Moreover, participants were hard-pressed to come up with realistic and actionable advice for those people without their employers' engagement in providing adaptable work conditions based on air pollution. There is also confusion with the listing of indoors activities given



the perception that the AQHI applies to outdoors air quality. Finally, both metric and imperial systems should be referenced, to reach a broader audience across age groups.

- ***The purpose message 6 is unclear and the tone deemed condescending to some.***

This message lacked a clear focus and would benefit from the addition of a header to clarify its intent. At the same time, according to participants, the use of directive instructions (e.g., ‘you need to’) rather than recommendations (‘you should’), and for reminding the target audience to ‘keep your chronic disease under good control’ positioned the message as condescending and to some, demeaning. Consideration should be given to change the tone and provide actionable recommendations on how behaviours should be adapted per the AQHI levels. It should also be noted, that there is great concern with the message implying that medication could be increased or altered, albeit with a doctor’s advice, as this may be misunderstood as a recommendation to self-medicate when needed. Finally, added explanation should be included regarding the ‘harmful effects’ and what to look for if a ‘condition worsens significantly’, thus providing additional tools for a stronger call to action.

- ***Message 7: There is skepticism about the claim from message 7 that odors and visibility are not related to air quality, based on personal experience.***

This message generally received positive feedback from all groups for dispelling a myth about odours and visibility in relation to air quality, although participants think it lacks sufficient explanation to support this claim. This is especially true where participants saw a direct relationship between odours or visible signs from pollutants they know affect air quality, such as smoke, vehicle exhaust, and smog. Enhancing the message’s credibility is important given the current prevalence of sensory feelings to assess air quality. To strengthen the call to action, additional explanation should be provided regarding the ‘appropriate advice’ provided by the AQHI, and the ‘experienced symptoms’ to be aware of. The French text lacked flow and appeared to participants as a direct translation from English, rather than an interpretation of the English message.

- ***While deemed actionable, message 8 was felt by some to be repetitive, difficult to interpret, and unrealistic for urban residents given their constant proximity to high-traffic areas.***

This message provides specific recommendations which elicited positive reactions among participants, although urban residents questioned how actionable they would be in their community given the proximity of outdoor areas they use (e.g., parks; schools; playgrounds) to high-traffic areas. As such, the message should be framed more strongly as a recommendation ‘whenever possible’. Additional information to explain the rationale supporting these recommendations was desired, and could be provided through hyperlinks. Participants felt there is no need to present the information in duplicate format, with some preferring the simplicity of the text, while others liked the clarity of the table format. At the same time, additional references should be provided to help the public visualize the distances referred to in the table.



- ***The intent of message 9 was well received, though the way it is communicated was deemed condescending to some, and the link with AQHI is perceived as weak.***

While this message is deemed by participants as credible, clear, and providing guidance for action, it lacks personal relevance for non-asthmatic participants, primarily as it speaks to asthmatic people. Once again, some of the recommendations, such as to keep a condition under control, contributed to a condescending tone. At the same time, the link to the AQHI was unclear. The message was deemed as long and drawn out for the intended purpose, including some statements that were considered as common sense (e.g., 'make sure your asthma is under control before exercising').



Detailed Analysis

Air Quality

Air quality is generally considered to be of importance and of good quality, but is only checked by some with any regularity.

Perceptions of Air Quality

To begin discussions, participants in all locations were asked about their general perceptions of air quality and to what extent it is something they pay attention to. Results found that overall, participants believe air quality is important, and that it is important that air quality remains good in order to maintain health and prevent health problems.

“It’s important to have clean air, to have clarity and a good smell, for your health.”

That said, due to general perceptions that air quality in Canada is good, it is not of great concern to participants. Indeed, in Edmonton and Halifax, the quality of the air was generally deemed as good, and Vancouver residents also believed that the air they breathe is generally good due to the amount of rain and wind, except for when there was a forest fire or a period of particular humidity or smog.

“We have a lot of rain so it cleans the air.”

“I think about it in summer when there is high humidity. It’s not healthy to breathe then.”

In Montreal, the air was deemed as not very good on the Island due to pollution from vehicles and industries, while it was viewed as better in surrounding areas. In both groups, participants mentioned that residential fireplaces contribute in large part to poor air quality.

Across locations, individuals who felt the air was of good quality sometimes indicated that they made this judgement by comparison with other places in the world, such as China.

“In Canada, I don’t pay as much attention as maybe I should. In other countries [air quality] is lower because of the number of vehicles and smog.”

Some of those in the “at risk” group indicated paying attention to outdoor air quality for themselves or someone in their household, at least some of the time, most notably prior to planning an outdoor activity or if there is a perceived air quality issue such as a recent forest fire or high levels of smog. Participants from the general public groups were less likely to pay close attention to the quality of the air outdoors, though those with allergies or other breathing conditions were much more likely to pay attention to it.



"I hadn't paid attention until my spouse introduced me to the air quality index. I want to be able to breathe."

"I have allergies so it's on my radar. Snow mold and the fluffy stuff off the trees. I look out for pollen."

A wide variety of factors were deemed as influencing the quality of the air, including pollution (e.g. from industries, vehicles, smoking, sewers), environmental factors (e.g., extreme heat/cold, pollen, amount of greenery, rain, wind, drought), and specific events or situations (e.g. forest fires, chemical spills, fireworks, mining/coal mining). Other elements, such as location, dust, aerosols, vapors, fumes, particles from shipping, waste disposal, people travelling with disease, allergens, and cat hairs are all seen as affecting air quality, though to a lesser extent.

Although in all groups participants recognized that everyone in the population could be affected by the quality of the air, those deemed to be most at risk of being affected included infants and children, the elderly, those with breathing problems, asthma and other respiratory conditions, those with cardiac problems, autoimmune diseases, cancer or allergies.

Assessing Air Quality

To assess air quality, most first look to sensory data to analyze the air condition, such as poor visibility/sight of smog, the smell of pollution/vehicle exhaust/smoke, the amount of pollen in the air, the level of humidity, or the extreme heat/cold. Those who looked for information elsewhere were seeking a general descriptor, from good to poor, to help determine the extent to which they will be comfortable being active outdoors.

"I don't pay attention until it smells or as soon as I can see it."

"I assess it by smell, whether we're downwind from refineries or not."

In terms of where participants go for information to help them assess the air quality, across both audiences and in all locations, the Weather Network (on television, online and via the app) was consistently mentioned as a key source of information about air quality. In fact, it is clearly the most relied upon source of air quality information by participants.

Other media sources such as the CBC or other news sites were also mentioned as sources of information. Environment Canada's website was identified by a few as providing reliable information as were "government websites" more generally, or specific provincial or municipal sources. All of the other information sources are less frequently relied upon, including weather signs in the Montreal metro and 'WEBA' in Edmonton.

"I look to see how they [the Province of Alberta] rate air quality."



Findings clearly show the perceived alignment between weather and air quality, both being viewed as complementing each other. Indeed, the tendency among participants is to look for air quality information at the same time as weather reports.

When asked how they would *ideally* like to get information about air pollution, participants felt that how they currently access information, through apps and online, was working well. At the same time, they believed that providing both the weather and air quality information side-by-side makes sense.

“The Weather Network app works well. They give warnings.”

Other participants noted that they would like to have ‘breakthrough’ warnings in the news or through their mobile phones if the air quality was particularly bad, similar to how amber alerts currently work. This would avoid having to continually check for updated reports, while still being notified of changes that warrant consideration to protect one’s health.

“If it’s severe it should be in the news.”

Other ideas regarding how the air quality information could be communicated included having air quality information available on signs throughout their city, similar to how temperature messages are communicated on building signs, or by having air quality as part of their morning information update from their phone or alarm clock. In Montreal, outdoor signs, particularly those in the metro stations and trains, offer a good opportunity to reach the target audience.



Air Quality Health Index

There is limited awareness of the Air Quality Health Index, including who creates it and how it is measured.

Participants were first asked, unaided, if they had ever heard of the Air Quality Health Index, or AQHI. In Vancouver and Edmonton, there was wide perceived awareness of the AQHI, with nearly all participants indicating that they had heard of it before. That said, there was little knowledge of who created it or how it was measured. Some guessed that it was produced by meteorologists, municipal governments, weather stations at the airport, Environment Canada or the Weather Network/Channel. In Halifax, awareness was limited, while it was non-existent in Montreal.

In terms of understanding of how the AQHI works, those in Edmonton and Vancouver generally understood that the Index is higher when air quality is worse, and some were able to describe the colour codes and imagery of the Index itself, unaided. Those familiar with the Index had generally seen it in the news or on the Weather Network / Channel. Despite awareness, there was little knowledge of how to react to the Index or what action to take if air quality was not good.

“I’ve heard of it but I’m not sure what to do with it.”

Few of those who had seen the Index had used it before due to a lack of understanding of how to act based on its results or because the air quality was always good. Some felt that staying indoors may be the best option if the air quality was poor rather than trying to adjust outdoor activities based on varying degrees of air pollution.

“I use it. If it’s severe I’d probably not go out walking.”

“I can’t do anything about it, can’t control it, so no, I haven’t paid attention [to it].”

“I haven’t used it, except if there was a chemical spill or a forest fire, then I would.”

Participants were provided with the description of the AQHI, along with an explanation of where it is found online and what information is presented alongside. In some locations, including Vancouver and Montreal, participants were briefly shown the AQHI webpage to provide context prior to the group discussion on messages. They were also informed that the AQHI would be presented alongside information regarding who is most affected, as well as updated messages aligned with the AQHI. Aided awareness remained low in Halifax, while it still was non-existent in Montreal.



Review of Individual Messages – General Comments

There is value in communicating AQHI messages that are simple, actionable, supported, and to the point, while giving access to more detailed information.

Following on from initial discussions about air quality and the AQHI, participants were each given a paper copy of nine messages to review. After being read each message aloud, they were asked to read the message individually, then to indicate any areas that resonated with them or grabbed their attention, as well as any areas they found confusing or incomplete. Each participant then answered five questions about each message, indicating their level of agreement or disagreement with statements that pertained to each message, including credibility, personal relevance, usefulness, clarity, and comprehension. Finally, each message was discussed verbally with the group.

For the most part, there was perceived value in communicating information provided by each of the nine messages, either as reminders to information viewed as well known, or as a means to educate the public on new concepts. Indeed, participants were receptive to receiving additional information, although they wanted to know where it originates.

Messages were deemed of greater value if they provide a clear call to action, as well as detailed and precise information on what to look for to prevent or limit the harmful effects of air pollution. Participants generally felt aware of the impact of air pollution on their health, although they lacked clarity on what they can do to avoid or minimize harm.

“Add hyperlinks and more visual examples so I can see how it [AQHI] could affect my health.”

“They should explain where it [AQHI] comes from and how it’s calculated.”

There was a desire to continue using current information sources about weather and air quality to access AQHI information, including the Weather Network and its app, as well as television, newspaper, subway station signs or other outdoor signage, and government websites. In addition, providing brochures at doctors’ offices, pharmacies, schools, retirement homes, or libraries, and advertising on the Internet (search engines and social media) were recommended methods to inform the public.

“Collaborate with schools, so kids know about air quality.”

“Put it in doctors’ offices on a pamphlet or fridge magnets that doctors give out.”

There is a need for reassurance that the AQHI is updated regularly and in real-time. Indeed, where residents interested in air quality normally look at its rating during the planning stage of an activity, and before embarking on an outdoor outing, they would value having access to regularly updated information.



The following section provides an overview of reactions to each of the nine messages:

Message 1

Message 1 effectively targets parents and caregivers with a simple, but important message, despite a weak call to action.

Message 1: Young children and the elderly are more sensitive to air pollution, especially if they have breathing or heart problems. Parents and caregivers can check the AQHI to find out the best time to plan outdoor activities. If you notice symptoms (trouble breathing, cough, sore throat, etc.) have those in your care take it easy until they feel better.

Les jeunes enfants et les personnes âgées sont plus sensibles à la pollution atmosphérique, spécialement s'ils ont des problèmes respiratoires ou cardiaques. Les parents et les personnes ayant la garde d'enfants peuvent vérifier la CAS pour savoir quel est le moment idéal pour organiser des activités extérieures. Si vous remarquez des symptômes (difficulté à respirer, toux, maux de gorge, etc.) chez votre enfant ou la personne que vous accompagnez, prenez une pause jusqu'à ce qu'il ou elle se sente mieux.

This message was generally felt by most to be succinct, simple, and clear. The overall tone of the message was described in all locations as low risk/urgency, with some expectations that it would appear alongside a low Index score (e.g., low air pollution levels). Across locations and audiences, it is generally deemed to be believable, and providing some actionable advice. To a lesser extent, a few participants across locations consider that it provides useful information for them and their family. Opinions are, however, less pronounced in terms of personal relevance, with those in the mainstream groups feeling more compelled by what the message is saying than those in the 'at-risk' groups. Nonetheless, this message was deemed by and large as effectively targeting parents and caregivers, as well as seniors to a lesser extent. At the same time, many believed that this kind of message could apply to anyone, and thus should be phrased in such a way.

Some areas of the statement warrant clarification. The advice of 'take it easy' could be clarified as many participants felt it was too vague. In these instances, it was believed that specifying the types of activities considered as 'taking it easy' would be useful, whether it meant sitting still and not moving, or if it generally meant embarking in activities that required a low level of energy (e.g., reading, cooking, walking, etc.).

"The first two sentences are clear. The last sentence is unclear; 'take it easy'? That could be more specific."

"Ça veut dire quoi, prendre une pause? C'est assez subjectif. Pendant combien de temps? Et on fait quoi?" (What does 'take it easy' mean? It is relative. For how long? And what do we do?)

A few others, however, found the advice to be straightforward. The fact that the message pointed out different times (i.e. the 'best time') was felt by most to be interesting and good advice, despite requiring more detailed information on what is considered the best time. Similarly, it was widely mentioned that



providing more details on the negative impacts of air pollution on the target audience, thus further stressing the need for careful consideration.

“It’s helpful to know that different time of day part.”

“Ça ne mentionne pas l’impact de la CAS sur la santé de ces gens.” (It doesn’t mention the AQHI’s impact on those people’s health.)

Other areas deemed vague by a few, and warranting more information include the concept of ‘feeling better’ (in Vancouver), as well as better defining the concept of ‘outdoor activities’ (in Montreal), notably the level of effort provided.

Many participants appreciated that the message spelled out different examples of symptoms. However, some concern was expressed by a few participants that ‘trouble breathing’ is presented together with other more ‘benign’ symptoms (e.g., cough, sore throat), thus minimizing its importance.

“Trouble breathing is much more severe than other symptoms.”

A few also felt that the statement did not clearly indicate that some of these symptoms could be caused by a situation other than air pollution (e.g. a common cold), thus systematically implying that if someone experiences difficulty breathing outdoors, it is likely due to poor air quality. The use of a hyperlink to specify the symptoms referred to could be used and would eliminate the need to limit the number of symptoms listed in the message (thus removing the need to use ‘etc.’ in the statement).

“A sore throat might be caused by something else. It’s alarming to hear this if the air quality is fine. Don’t send it out if it isn’t bad.”

With this in mind, it was also recommended by many to add a hyperlink to the word ‘symptoms’ and provide the complete list of physical signs to look for, and how they could be affected by air pollution.

Finally, although participants recognized that the message would appear alongside the AQHI, they widely believed that the acronym should still be spelled out in this message, for added clarity. All things considered, participants felt that this message was important and appropriate for the government to share with the public, particularly if air quality levels were higher. Further, participants largely felt that the information was trustworthy, credible, and comprehensive.

“This is important [to communicate] because people may not know.”

“[This message is] important, as air quality deteriorates. If it’s always at a ‘1’, don’t worry.”

“I would trust it if a news organization issued this information from the government.”



Message 2

Message 2 lacks interest, focus, and a clear call to action, despite some value as a reminder of the health risks for specific audiences.

Message 2: People who have existing respiratory illnesses such as asthma, chronic obstructive pulmonary disease (COPD), which includes chronic bronchitis and emphysema or lung cancer, and those with existing cardiovascular conditions such as angina, previous heart attack, congestive heart failure or heart rhythm problems (arrhythmia or irregular heartbeat) are sensitive to air pollution. People with diabetes are also more sensitive because they are more likely to have cardiovascular conditions. Air pollution makes it even harder for people to breathe, can make existing lung or heart-related symptoms worse. For example, it can trigger attacks.

Les personnes qui souffrent d'une maladie respiratoire comme l'asthme, le cancer du poumon ou la maladie pulmonaire obstructive chronique (MPOC), qui regroupe la bronchite chronique et l'emphysème, et celles qui souffrent d'une maladie cardiovasculaire (angine de poitrine, antécédents de crise cardiaque, insuffisance cardiaque congestive ou arythmie) sont sensibles à la pollution atmosphérique. Les personnes diabétiques sont plus touchées, car elles risquent davantage de souffrir d'une maladie cardiovasculaire. La pollution atmosphérique rend la respiration difficile et peut aggraver les symptômes de maladies pulmonaires ou cardiaques, par exemple déclencher une crise cardiaque.

Reactions to this message were mixed. This message was deemed by many as more detailed than the first one and technical, as well as being believable and generally clear. That said, it is generally not viewed as providing useful information for participants and their family, likely due to the lack of a clear call to action. This message holds limited personal appeal among both the mainstream and the 'at-risk' populations, likely due to the specific audiences identified, as well as the limited 'actionability' of the recommendations. In a few instances, it was recommended to begin the message by specifying that the message is directed to people with the named conditions, or to someone who knows of anyone in this situation, thus broadening the target audience.

The lengthy description of the target audience at the beginning of the message also poses a problem across locations with keeping the readers' attention long enough to reach the intended message.

"It doesn't tell you what to do! What am I supposed to do – find better air? Where do you go?"

"It's a lot about awareness, so you think about it before going out. But they should add a sentence to say what to do, for example "Check the AQHI"."

"It's good information but not really useful. I don't understand the point of it."

Indeed, questions were often raised as to the value of listing all the cardiovascular and respiratory illnesses at the beginning of the statement, as most who experience these conditions would automatically recognize themselves by the broader categories identified (e.g., respiratory illnesses, cardiovascular conditions). A suggestion was made to include the details of these conditions as hyperlinks, thus shortening the sentence to read: 'People who have existing respiratory illnesses or



cardiovascular conditions are sensitive to air pollution’. Doing so would place greater emphasis on the message, while keeping the readers’ attention longer and providing easy access to complementary information if needed.

“It’s too technical. I lost interest in the second sentence.”

Despite widespread feedback that the message contained too much detail, some participants also felt there were terms that would require definitions or explanations. It was generally believed that ending the message with a reference to an ‘attack’ without further explanations creates an alarmist tone that is deemed unnecessary. As such, this kind of message would be expected to be given with a high AQHI.

“I have no idea what ‘trigger attacks’ means. They need to define that.”

“C’est pessimiste et la dernière phrase est alarmiste. Ça pourrait causer une panique.” (It’s pessimistic and the last sentence is alarmist. That could cause a panic.)

At the same time, there is some interest in a longer list of the negative impacts of air pollution on the target audience’s health, beyond just the possibility of having an attack. This could be achieved through a hyperlink to access more specific information.

Introducing the notion of diabetes as a risk condition was considered valuable by many, given the limited awareness of the air pollution’s impact on the condition. Even some of the diabetic participants were surprised to learn that air pollution can affect their health. Thus, this information needs to be substantiated to increase credibility and relevance. One participant also noted that saying they are ‘more sensitive’ is incomplete, as it does not specify more than whom.

“It’s a warning. Good information about diabetes. That’s surprising, but what can we do about it?”

“I fully agree [with the message] except diabetes – that doesn’t apply because it’s unrelated to breathing. It needs more explanation.”

In Montreal, a recommendation was made to move the sentence about diabetic people to the end of the paragraph, thus ordering the information in a manner to more clearly establish the cause and effect (i.e., air pollution makes breathing more difficult, thus making diabetic people more at risk of having a cardiovascular condition).



Message 3

While the intent of message 3 is endorsed, its purpose is perceived as vague and lacks a clear focus on the AQHI.

Message 3: Exercise is important, and has multiple benefits to health; for instance, it helps develop stronger heart, bones and muscles, and increases concentration. Generally speaking, the benefits of being active outweigh the risks of air pollution; healthy children can play and exercise outdoors as usual at moderate AQHI levels. Air quality should not be a concern until the AQHI reaches higher values, at which healthy children should reduce or reschedule strenuous activities outdoors if they experience symptoms.

L'activité physique est importante et présente de nombreux avantages pour la santé. Par exemple, elle permet d'avoir un cœur, des os et des muscles en santé et d'accroître la concentration. En règle générale, les avantages de l'activité physique surpassent les risques liés à la pollution atmosphérique. Les enfants en santé peuvent jouer et faire de l'exercice à l'extérieur comme d'habitude lorsque la CAS est modérée. La qualité de l'air ne devrait pas être une préoccupation, à moins que la CAS augmente. Le cas échéant, les enfants en santé devraient réduire leurs activités extérieures exténuantes ou les reporter s'ils ressentent des symptômes.

Mixed opinions were offered with respect to this message. While the message was generally viewed as credible, mixed opinions are offered in terms of the provision of useful information for participants and their family, clarity of content, and personal relevance. Opinions are generally consistent across audiences, although the 'at risk' population is more likely than the general public to find this message believable. The message also lacks a clear call to action according to most participants.

While the intent of the message was widely endorsed, it was perceived by some as lacking clarity in defining some of the concepts introduced, such as 'moderate AQHI levels', 'higher values', and the 'experienced symptoms', in addition to being able to assess what constitutes 'reduced strenuous activities'. Expressions such as 'generally speaking' further contributed to the message's perceived vagueness.

"You need examples of values and ranges, when it's ok and when it's not."

"Based on what? Doesn't it depend on the amount? The idea of 'moderate' air pollution! I have no way to measure that."

A few participants took offense to the use of 'healthy children', as biased against those who have conditions such as asthma, implying that if a child has such conditions, they are not healthy. A few others felt that the message should be made more inclusive to ensure all were aware of the effects of air quality and exercise, while a few suggested adding a heading to the message, such as 'Advice for parents' to ensure the message was targeted.

"I'm wondering if it applies to adults as well? Is there something special about children? Should it say the same goes for adults as well?"

"It says healthy children can play outside, we don't care about the rest."



The message was generally considered as communicating both the importance of physical activity and the impacts of the air quality on outdoor activities. With the former topic enjoying strong awareness among the general public, it was surprising to some participants that the focus is on physical activity rather than speaking of air quality at the beginning of the statement. This approach caused confusion to some, who were left with the impression of a dual message being communicated in the statement, without a strong connection between those two ideas.

“It’s good that it says exercise, if that’s what it’s about, but I’m confused as to what it’s saying.”

“Quel est le rapport entre l’activité physique et la qualité de l’air?” (What is the link between physical activity and air quality?)

“This is off the mark. What’s the point about air quality here?”

“Exercise is the focus of this message, not the AQHI. They should reverse the sentences.”

In Montreal, the claim that ‘the benefits of being active outweigh the risks of air pollution’ was not well understood by all and should be reworded for added clarity. In other locations, some noted that the message was dismissive of the effects of pollution.

“It feels like it dismisses pollution – it’s minimizing it – like it’s ok.”

Message 4

Message 4 is problematic, as it is felt to be contradictory, lacking credibility, and is not believed to sufficiently substantiate its claims.

Message 4: Scientific evidence shows that exposure to higher levels of air pollution throughout the duration of pregnancy might affect the growth of the fetus to a small degree, and to a lesser extent than smoking or second-hand smoke. Current research methods are unable to detect any effects on the fetus from short-term changes in air pollution. You are encouraged to exercise as normal, and pay attention to AQHI in the same way as if you were not pregnant.

Des données scientifiques montrent que l’exposition à des concentrations élevées de polluants atmosphériques pendant la grossesse peut avoir une faible incidence sur la croissance du fœtus, mais dans une moindre mesure que la fumée de cigarette ou la fumée secondaire. Les méthodes de recherche actuelles ne permettent pas de détecter les effets sur le fœtus associés à des changements à court terme de la pollution atmosphérique. Vous pouvez faire de l’exercice comme à l’habitude. Tenez compte de la CAS de la même manière que si vous n’étiez pas enceinte.

This message was widely considered problematic and lacking credibility, clarity, usefulness, and personal relevance. In addition, the message’s intention and call to action is unclear for most participants, primarily due to several perceived contradictions.



On one hand, many believed it was contradictory in saying both that there is evidence of an effect of air pollution on the fetus and the fact that research methods were unable to detect effects. In addition, some questioned why the statement described potential health risks associated with air pollution, if in the end the recommendation is for pregnant women to follow the AQHI in the same way as if they were not pregnant. Indeed, many participants were left with the impression that the message is saying that air pollution might or might not have an impact on the fetus, thus should not be used differently by pregnant women. This led some to question the relevance of communicating this message.

“They need to quantify the risks and the danger. If you can’t detect it, then why talk about it?”

“It’s not telling us anything. It says it might or it might not.”

Most expressed a desire for more quantified information and sources for claims about ‘scientific evidence’. Some of the terms elicited questions or were viewed as worrisome, such as ‘small degree’, ‘expose’ (how long), ‘might affect’, ‘lesser extent’, and ‘short-term changes’. In addition, some felt that the message was too vague to instill action.

“I don’t believe it, it’s hard to swallow. Where are the facts coming from?”

“What qualifies as short term? And what is extent of exposure? What level of AQHI?”

“It’s too vague and I’m worried about the ‘small degree’ – it can be rather large still.”

Indicating that the impact of air pollution is less harmful than that of cigarette smoke left some feeling uneasy across locations. Given that smoking and second-hand smoke are perceived as having severe health consequences, this claim suggests to some that air pollution, though less harmful than smoking/second-hand smoke, may still have a significant negative health impact on fetuses. In essence, it was found by some to inflate the risks associated with air pollution. As such, the claim either instilled fear, or lacked credibility. That said, a few found the comparison helpful as they indicated that it gave them a sense of scale of the risk.

“The only positive is that it encourages you to continue to exercise.”

“The reference to second-hand smoke is a whole other topic. It doesn’t belong.”

“Ça dit que [la pollution de l’air] est moins pire que de fumer, mais c’est quand même dans le même ordre.” (It says that air pollution is not as bad as smoking but it is still in the same range.)

One participant suggested to reword one of the sentences to, ‘Current research methods are unable to detect how short-term changes in air pollution affects the fetus’, for added simplicity and clarity.



Message 5

Message 5 causes confusion, provides too much information, and lacks a clear purpose and call to action.

Message 5: Occupations that require extended periods of walking, pushing or pulling objects weighing less than 75 lbs, standing while lifting objects weighing less than 50 lbs, or carrying objects of less than 25 lbs up a flight of stairs. Tasks frequently requiring moderate effort and considerable use of arms, legs, or occasional total body movements. For example:

- Briskly walking on a level surface while carrying a suitcase or load weighing up to 50 lbs
- Maid service or cleaning services Waiting tables or institutional dishwashing
- Driving or maneuvering heavy vehicles (e.g., semi-truck, school bus, tractor, or harvester)—not fully automated and requiring extensive use of arms and legs
- Operating heavy power tools (e.g., drills and jackhammers)
- Many homebuilding tasks (e.g. electrical work, plumbing, carpentry, dry wall, and painting)
- Farming—feeding and grooming animals, milking cows, shoveling grain; picking fruit from trees, or picking vegetables
- Packing boxes for shipping or moving
- Assembly-line work—tasks requiring movement of the entire body, arms or legs with moderate effort
- Mail carriers—walking while carrying a mailbag

Occupations that require extensive periods of running, rapid movement, pushing or pulling objects weighing 75 lbs or more, standing while lifting heavy objects of 50 lbs or more, walking while carrying heavy objects of 25 lbs or more. Tasks frequently requiring strenuous effort and extensive total body movements. For example:

- Running up a flight of stairs while carrying a suitcase or load weighing 25 lbs or more
- Teaching a class or skill requiring active and strenuous participation, such as aerobics or physical education instructor
- Firefighting
- Masonry and heavy construction work
- Coal mining
- Manually shoveling or digging ditches
- Using heavy nonpowered tools
- Most forestry work
- Farming—forking straw, baling hay, cleaning barn, or poultry work
- Moving items professionally
- Loading and unloading a truck

Professions dans le cadre desquelles l'employé doit marcher durant de longues périodes, pousser ou tirer des objets pesant moins de 75 lb, se tenir debout tout en soulevant des objets pesant moins de 50 lb ou monter des escaliers en transportant des objets de moins de 25 lb. Tâches demandant fréquemment un effort modéré et une utilisation considérable des jambes et des bras et parfois, du corps en entier. Par exemple :

- Marcher énergiquement sur une surface plane en transportant une valise ou une charge ne pesant pas plus de 50 lb
- Nettoyer des chambres ou faire du ménage, faire le service aux tables ou laver la vaisselle dans un établissement
- Conduire des véhicules lourds (p. ex. semi remorques, autobus scolaire, tracteur ou moissonneur) qui ne sont pas entièrement automatisés et qui demandent une utilisation prolongée des jambes et des bras
- Utiliser de lourds outils électriques (p. ex. perceuses et marteaux perforateurs)
- Effectuer diverses tâches liées à la construction domiciliaire (p. ex. travaux électriques, plomberie, menuiserie, pose de cloisons sèches et peinture)
- Travailler dans une ferme – alimentation et toilettage des animaux, traite de vaches, pelletage des céréales, cueillette de fruits dans les arbres, cueillette de légumes
- Emballer des boîtes pour le transport ou le déménagement
- Faire un travail à la chaîne – tâches demandant un effort modéré et un mouvement de tout le corps, des bras ou des jambes
- Livrer le courrier – marcher en transportant un sac à courrier

Professions dans le cadre desquelles l'employé doit courir pendant de longues périodes, faire des mouvements rapides, pousser ou tirer des objets pesant 75 lb et plus, se tenir debout tout en soulevant des objets de 50 lb ou plus ou marcher en transportant des objets lourds de 25 lb ou plus. Tâches demandant fréquemment un effort soutenu et des mouvements de tout le corps. Par exemple :

- Monter en courant un escalier en transportant une valise ou une charge de 25 lb ou plus
- Donner un cours ou tâches demandant un effort accru et soutenu, comme l'aérobic et l'éducation physique
- Combattre des incendies
- Faire de la maçonnerie et de gros travaux de construction
- Travailler dans une mine de charbon
- Pelleter ou creuser à la main des fossés
- Utiliser de lourds outils non mécaniques
- Faire des travaux de foresterie (la majorité)
- Travailler dans une ferme – ramasser de la paille avec une fourche, mettre en balles du foin, nettoyer une grange ou faire des travaux dans un poulailler
- Faire des déménagements (professionnels)
- Charger et décharger un camion



This message was presented with a verbal introduction explaining that it lists occupations or tasks that are more at risk of being affected by the quality of the air. Nonetheless, this message caused widespread confusion across locations and audiences even when put in context. It was perceived by most as lacking a purpose and call to action, with many participants being unsure of what to do with this information. As such, it lacks personal relevance, even among the 'at-risk' population.

“Quelle est la pertinence de ce message? C’est trop détaillé; on est perdu.” (Why is this message relevant? It is too detailed; we are lost.)

It was mentioned by many that such a message would be difficult to follow by workers described, especially if their employers were not engaged in providing adaptable work conditions or environment based on the level of outdoor air pollution.

“It’s thorough, but incomplete for what it needs to advise. Not sure what to do – it doesn’t seem to offer a solution. It’s not realistic to expect people not to work? What is the employer going to do? There’s no advice.”

“Why is firefighting there? Isn’t it just part of the job?”

“Most of these have to do with work and you have to work.”

At a minimum, indications of when and how someone in those occupations or completing those tasks should consider the AQHI was desired by a few, although how actionable that information would be is doubtful.

“I’m confused. It’s not worded in a way that is clear. I feel like I’m missing something – it’s not really saying what applies from doing these tasks and what they should do or not do.”

“It says if you exert yourself you’re at higher risk. The examples are helpful, but what do I do?”

Some were surprised to see indoor activities listed, as they were under the impression that the AQHI only applies to outdoor air quality. As such, they believed that it may cause confusion, perhaps suggesting that outdoor air quality impacts air breathed indoors as it moves in and out of building. With this in mind, questions were raised by a few as to why some indoor occupations were specified, but not others.

“Some of these are indoors like maid service, dishwashing and waiting tables.”

To reach a broader audience, both metric and imperial measures should be used to reference weight, especially in Montreal where older generations were more comfortable using the imperial system, while younger participants were only familiar with the metric system.

To simplify the message and increase its appeal, it was suggested to reduce the number of examples provided, or make the list available through a hyperlink. In Montreal, a recommendation was made to split the message in two based on the risk categories, thus simplifying it.



Message 6

The purpose of message 6 is unclear and the tone deemed condescending to some.

Message 6: If you suffer from a respiratory (e.g. asthma, COPD) or cardiovascular (e.g. angina, heart failure, arrhythmia) condition, you need to keep your chronic disease under good control, in order to reduce the harmful effect of air pollution. Follow your physician's advice by increasing or altering medication, or seek medical advice if your condition worsens significantly.

Si vous souffrez d'une maladie respiratoire (p. ex. asthme, MPOC) ou cardiovasculaire (p. ex. angine, insuffisance cardiaque, arythmie), vous devez bien contrôler votre maladie chronique afin de réduire les effets néfastes de la pollution atmosphérique. Suivez les conseils de votre médecin en augmentant ou en modifiant votre médication ou consultez un professionnel de la santé si votre condition s'aggrave.

This message received mixed feedback across locations. While the message is viewed as credible across audiences, it lacks personal relevance and the provision of useful information, particularly among the 'at-risk' population. Mixed opinions are offered in terms of overall clarity and understanding what to do with the information. Overall, the message was felt by most to lack focus or clear direction and would benefit from the addition of a heading or title to introduce the topic, thus making its purpose unclear.

"It doesn't have a point. They need to say that air pollution can worsen your condition."

Some felt that it was informative and helpful, while others felt the tone was condescending (in that those with the conditions mentioned would already know how to manage their condition, and did not need this information). This stemmed in part by the use of directive instructions ('you need to') rather than phrasing the statement as a recommendation ('you should consider').

"The 'you need to' sounds demeaning. It's useful, but I don't like the tone."

At the same time, many believed that the statement offered generic health-related recommendations to those with specific illnesses or conditions, asking them to 'keep their disease or condition under control', rather than providing actionable recommendations on how they should adapt to the change in air quality.

"It's not considerate, not nice. They need more about the link between AQHI and the disease, and be more sensitive."

"It gives the impression that if you have an attack, you're not monitoring your disease. It accuses you of not keeping it under control."

Similarly, many questioned the need to tell someone with those conditions to 'keep their chronic disease under good control', something they believed these people would already do. Doing so introduces the idea that the government lacks a clear understanding of what it is like to live with those conditions.



“It’s condescending. People with these conditions know how to look after themselves.”

“Ça peut être offensant. Ça dit que vous n’avez pas de contrôle, c’est insultant.” (It can be offensive. It says that you don’t have control; it’s insulting.)

There was also a concern among many that the message is implying that increasing or altering medication might be a way to address the effects of air pollution on those people. While the statement clearly indicates that this should be done with the doctor’s advice, there was widespread concern that it could be misunderstood as a suggestion to self-medicate if needed. Suggestions were made by a few to remove this statement and focus on providing recommendations on simple, but effective actions that could be taken to reduce the harmful effects of air pollution (such as to stay indoors and/or limit physical activity above a certain AQHI level).

“They need to be clearer about medical advice. What is the next step? Shouldn’t they say to seek ‘further’ advice?”

“For someone who has that condition, isn’t it up to doctors and nurses to advise patients?”

“This is telling you to play around with your medication.”

“Peut-être que la solution ne se trouve pas dans la médication mais plutôt dans le fait de faire de l’exercice.” (Maybe the solution doesn’t rest with medication but rather in the fact of being more physically active.)

Similarly, many believed that this kind of advice should originate from the medical community, rather than the government, for increased credibility and trustworthiness. Further, the statement to ‘seek medical advice if your condition worsens significantly’ appears as evidence to most, especially in the ‘at-risk’ population, thus being unnecessary as part of this message.

Some of the information included in the message was perceived by a few to lack clarity and detail, including the ‘harmful effects’ mentioned, and how to determine the signs that a ‘condition worsens significantly’.



Message 7

There is skepticism about the claim from message 7 that odors and visibility are not related to air quality, based on personal experience.

Message 7: The AQHI doesn't measure the effects of odours on health, and there isn't always a relationship between visibility and the AQHI. On certain days, you might detect an odour or the air might appear dirty while the AQHI is at low or moderate values. In these instances, you can enjoy your outdoor activities unless you experience symptoms. Sometimes, the AQHI might be high even if you don't detect odour and visibility problems. Check the AQHI and follow the appropriate advice.

La CAS ne mesure pas les effets des odeurs sur la santé, et il n'y a pas toujours de lien entre la visibilité et la CAS. Certains jours, vous pouvez sentir une odeur ou l'air peut paraître sale, et ce, même si la CAS est faible ou modérée. Dans ce cas, vous pouvez tout de même vous adonner à vos activités à moins de ressentir des symptômes. Parfois, la CAS peut être élevée même si vous ne sentez pas d'odeur et que la visibilité est bonne. Vérifiez la CAS et suivez les conseils pertinents.

Reactions to this message were generally positive across locations, although many questioned the claim that odors and visibility are not a sign of air pollution. Nonetheless, many others were pleased with the statement dispelling a myth and found that this type of information is important to communicate to the general public. As such, this message is generally viewed as providing useful information in a fairly clear fashion, and to provide some insight on what to do after reading it. At the same time, many believed that it speaks to them personally.

"It's surprising! Why are odours not a part of air quality?"

While some found the message confusing as it lacks clear explanations of the claim made, others felt it to be valuable and new information that appeared to dispel the myth that you can rely on sensory feelings to assess air quality.

"This is good. I had never thought about odour. It's good information."

"The overall point is clear that odours aren't always bad but it's very wordy."

That being said, some misunderstood the message or could not glean its meaning. For some, it lacked credibility, as it was perceived to ineffectively explain why odours or visibility are not influencing air quality. Stating that 'there isn't always a relationship between visibility and the AQHI' is not specific enough and consideration should be given to identify when visibility indicates air pollution.

At the same time, many participants were confused by this statement, especially wondering how odours such as vehicle exhausts, smoke, or chemical smells are not affecting air quality. Likewise, poor visibility caused by smog was considered a clear sign of poor air quality. In a few instances, questions were raised as to the government's reason to support a claim that appeared to most as unrealistic.



“I don’t believe it. If I can’t see my air, I get nervous by that. I need to understand why dirty air doesn’t hurt me.”

“It seems to soft pedal. I hope the government is less biased, but it makes me worry that they don’t include all data to protect industry.”

The call to action could also be strengthened according to most. Specifically, the phrase, ‘the appropriate advice’ was generally felt to need explanation or a hyperlink for more information and definitions. Likewise, further details should be provided on the list of ‘experienced symptoms’, as mentioned in this message. It was believed by many that both would be effectively achieved by including the additional information via hyperlinks. Further, the statement implies that symptoms experienced when enjoying outdoor activities are systematically linked to air pollution, a claim that seem inaccurate to some.

“What does that mean – appropriate advice?”

French-speaking participants mentioned that it should be specified that odours referred to in this statement were ‘foul odours’ for added clarity. At the same time, qualifying the air as ‘sale’ in the French statement seemed awkward to most, who believed it was a direct translation of the word ‘dirty’, and not a term commonly used to speak of the air.

Message 8

While deemed specific and actionable, message 8 was felt by some to be repetitive, difficult to interpret, and unrealistic for urban residents.

Message 8: Emissions from motor vehicles and trucks contain pollutants that can harm your health. To reduce this risk, try to exercise in parks and residential streets, and avoid heavy traffic, by staying at least 150 m from a busy road, and 500 m from a highway or expressway. For more details, see the following table.

Table Exercise 8

Road type	Annual Average Daily Traffic	Traffic-related air pollution gradient (Suggested minimum distance for exercise)
Major Roads (i.e. roads with two or more lanes spanning several kilometers, speed limits over 50 km/h)	More than 15 000 Vehicles	150 m
Highways and expressways	More than 100 000 vehicles	500 m

Les émissions provenant des moteurs des voitures et des camions contiennent des polluants qui peuvent être dangereux pour la santé. Pour réduire le risque, faites de l’exercice dans les parcs et les quartiers résidentiels et évitez les rues très passantes en restant à au moins 150 m des routes à grande circulation et à au moins 500 m des autoroutes. Pour en savoir plus, consultez le tableau ci-dessous.

Tableau exercice 8

Type de route	Débit journalier moyen annuel	Gradient de la pollution atmosphérique liée à la circulation automobile (distance minimale recommandée)
Routes principales (c.-à-d. les routes qui comportent deux voies ou plus, qui s’étendent sur plusieurs kilomètres et dont la limite de vitesse est supérieure à 50 km/h)	Plus de 15 000 Véhicules	150 m
Autoroutes	Plus de 100 000 Véhicules	500 m



Reactions to this message were generally positive across locations. For the most part, it was deemed credible, providing useful information for participants and their family, being personally relevant, and providing clarity overall and with respect to what to do with the information. While for most, this was a very clear message with precise data and a clear call to action, others felt the advice should be broader than relating to exercise specifically.

“It’s straightforward and clear – what to do when exercising. It’s precise and gives you exact amounts.”

“An important message, but not clear that it’s about exercise only. Shouldn’t we all follow this?”

For some, this message caused concern as the parks and schools where their children play were within the distances listed to busy streets. In fact, most of those living in urban areas found it unrealistic to follow the message’s advice given their living conditions. It was generally felt that the statement should be more strongly worded as a recommendation, thus clearly recognizing these limitations.

“I disagree with the entire text of this message. Sometimes you can’t avoid. Sometimes you have no choice.”

“I can’t control where I live! It gets me mad. If you know this and you build that close!”

“Parks aren’t always away from major roads. They need to add tips instead on what you can do if you can’t follow this advice.”

Some participants wanted to see more information, either as part of the message or as a hyperlink, to explain the context and the effects of emissions on health and *why* this advice should be needed. In terms of the information provided, some liked the information being presented in a table format, while others found it repetitive with the text above and believed that either of those should be used, not both.

“Le tableau est répétitif et c’est plus compliqué que le paragraphe au-dessus.” (The table is repetitive and it’s more complicated than the paragraph above.)

Many had trouble visualizing the level of traffic and distance referred to, thus suggesting to include easier references (such as number of city blocks) in addition to distances. At the same time, a more general heading, such as ‘avoid high-traffic areas when exercising’ might help simplify the message, while still providing the level of details some look for.

While the message is understood as targeting those exercising outdoors, such as runners or bikers, it was felt that it could have a broader appeal. For example, many parents noted that the advice would apply to their choice of playground when playing outside with their children.

“It makes me reconsider which park I take my son to. There is one we go to that is right next to the highway. I might choose a different one next time.”



Message 9

The intent of message 9 was well received, though the way it is communicated was deemed condescending to some, and the link with AQHI is perceived as weak.

Message 9: Having asthma doesn't mean you can't exercise; the benefits of regular exercise almost always outweigh the risks associated with exercise-induced asthma. Make sure your asthma is under control before you start exercising. Pay attention to your symptoms; increasing AQHI values make exercise-induced asthma more likely. Adjust your activity level as needed [hyperlink to reduce/reschedule]. If you develop symptoms while you are exercising, stop and rest. Take your reliever medication. If you're unsure whether your symptoms are due to exercise induced asthma, or are the signs of worsening asthma control, talk to your doctor.

Le fait d'avoir de l'asthme ne signifie pas que vous ne devez pas faire d'exercice. Les avantages de l'activité physique régulière surpassent pratiquement toujours les risques associés à l'asthme à l'effort. Assurez-vous de contrôler votre asthme avant de commencer à faire de l'exercice. Soyez attentif à vos symptômes; une CAS plus élevée est plus susceptible d'entraîner de l'asthme à l'effort. Ajustez votre niveau d'activité au besoin [lien vers la page sur la réduction ou le report des activités]. Si vous ressentez des symptômes pendant une activité, prenez une pause et reposez-vous. Prenez vos médicaments de soulagement. Si vous n'êtes pas certain que vos symptômes sont causés par l'asthme à l'effort, ou que votre asthme s'aggrave, consultez un médecin.

This message was generally well received in all locations, despite some issues. While it is deemed by most as credible, clear, and providing sufficient information to take action, it generally lacks personal relevance and the provision of useful information is weak. This is primarily because it directly speaks to people with asthma, thus having limited appeal among the general public. It should be noted that a few people who have asthma took offence with the recommendations provided, thus suggesting they were ill-equipped to care for themselves.

On a positive note, this message communicates to a few that someone with asthma should exercise despite their condition, reinforcing standard procedures. That said, the message was deemed by most as long and drawn out to communicate a simple piece of information. The last paragraph was deemed self-explanatory, thus being superfluous, while to some it was deemed as a medical advice best communicated by the medical community.

"This is positive. It communicates that you should exercise even if you have asthma. It reinforces what is standard procedure."

"It says that people with asthma need to be aware of the AQHI."

On the other hand, some believed that this message was more appropriate for doctors to communicate, and that the evidence of some of the advice (e.g. 'make sure your asthma is under control before you start exercising', and 'if you're unsure...talk to your doctor') could be offensive to some, as these individuals would already know how to manage their health.

"I don't need to be told when to take reliever meds! That's a liability."



“It’s patronizing and condescending to people with asthma.”

The link with the AQHI was unclear to some, who questioned at what value this message would be conveyed, and why it was not more universal.

“Why single out asthma? Shouldn’t it be for everyone?”

“The beginning isn’t about air quality. It’s not clear what the relevance is to the AQHI. Put that at the start.”

In the French text, referring to ‘prenez une pause et reposez-vous’ was deemed redundant. The use of a hyperlink to access additional information was well liked.

In the English text, the phrasing, ‘increasing AQHI levels’ was deemed problematic and confusing to a few, and should be replaced by ‘higher AQHI levels’.



Appendix A:
Recruitment Screener

Health Canada – Air Quality Health Index (AQHI) Testing Screener – FINAL

Name: _____

Tel. (H): _____ Alt Tel.: _____

Group 1 2 3 4 5 6 7 8

FOCUS GROUPS:

Edmonton, AB (ENGLISH)

Date: Tuesday, December 6, 2016

Location: Trend Research

Time: Group 1 – 6:00 pm – At risk
Group 2 – 8:00pm – Gen Pop

10147 – 104 Street NW

Montreal, QC (FRENCH)

Date: Wednesday, December 7, 2016

Location: Nielsen Opinion Quest

Time: Group 3 - 6:00pm – At risk
Group 4 - 8:00pm – Gen pop

1080 Cote du Beaver Hall
4th Floor

Vancouver, BC (ENGLISH)

Date: Thursday, December 8, 2016

Location: Vancouver Focus

Time: Group 5 - 6:00pm – At risk
Group 6 - 8:00pm – Gen pop

503-1080 Howe Street

Halifax, NS (ENGLISH)

Date: Thursday, December 8, 2016

Location: Corporate Research Associates

Time: Group 7 - 6:00pm – At risk
Group 8 – 8:00pm – Gen pop

7071 Bayers' Road Suite 5001

Specification Summary

- Six (6) English focus groups with residents, namely two in each of Vancouver, Edmonton, and Halifax;
- Two (2) French focus groups with residents in Montreal
- In each market, one group will include members of the general public 18+ years old
- In each market, one group will be conducted with a mix of residents age 18+ deemed 'at risk', or their proxies, including:
 - At least one each with existing asthma/respiratory or cardiovascular conditions or diabetes (they or children living with them);
 - At least two parents of children aged 12 and under;
 - At least two who are 60 years or age or older;
 - At least two who are active outdoors; and
 - At least two pregnant women

- All are aware of air quality index/tools in their community
- All believe their health and that of their family is definitely or probably affected by the air quality
- Mix of education and household income for each groups
- Max 5 per group unemployed, student, homemaker or retired for each group
- Recruit 10 participants per group
- Incentive: \$75 per participant

Hello/Bonjour, my name is _____ and I am with Corporate Research Associates, a public opinion and market research firm. I am calling today on behalf of the Government of Canada. We are conducting a study on air quality and are looking for people to take part in a focus group discussion. We would like to speak with someone in your household who is at least 18 years of age. May I ask you a few quick questions to see if you are the type of participant we are looking for in this study? Please note, this information will remain completely confidential and you are free to opt out at any time. Thank you.

Gender (By Observation):

Female1

Male2

Recruit Mix

1. To begin, are you or anyone in your household currently employed or have ever been employed in any of the following?

Marketing/Market Research 1
 Public relations 2
 Advertising..... 3
 Media (TV, Radio, Newspaper)..... 4
 Public health or medical sector 5
 Health Canada6

IF YES TO ANY OF THE ABOVE, THANK AND TERMINATE

2. Do you currently have children under the age of 12 living with you at least some of the time?

Yes..... 1 **Recruit min 2 per group 1, 3, 5, 7**
 No..... 2

3. How many people under the age of 12 are there in your household?

[RECORD] _____

4. **[ASK WOMEN ONLY]** Are you currently pregnant?

Yes..... 1 **Recruit min 2 per group 1, 3, 5, 7**
 No..... 2

5. In general, how active are you personally in outdoor activities? Are you..

Very active 1 }
 Somewhat active..... 2 } **Recruit min 2 for each of groups 1, 3, 5, 7**
 Not very active, or..... 3
 Not at all active 4

VOLUNTEERED

Refused 6

6. Do you, or anyone in your care, have any of the following health conditions or chronic diseases diagnosed by a health professional? Please note that this information will remain confidential and will not be discussed during the focus group. **[READ]**

Asthma 1 } **Recruit min 1 for each of groups 1, 3, 5, 7**
 Other respiratory conditions 2 }
 Cardiovascular disease..... 2 **Recruit min 1 for each of groups 1, 3, 5, 7**
 Diabetes, or..... 3 **Recruit min 1 for each of groups 1, 3, 5, 7**
 None of these..... 4

VOLUNTEERED

Refused 5

7. Are you aware of an air quality index or public information tool that provides information on the level of air pollution in the community or region where you live?

Yes..... 1
 No..... 2 **THANK AND TERMINATE**
 Don't know..... 3 **THANK AND TERMINATE**

8. Do you believe that your health, and that of anyone in your care, is **[READ]** affected by the quality of air where you live?

- Definitely 1
- Probably 2
- Probably not, or 3 **THANK AND TERMINATE & RECORD**
- Definitely not 4 **THANK AND TERMINATE**
- VOLUNTEERED**
- Don't know..... 3 **THANK AND TERMINATE**

9. Into which of the following age groups do you currently fall? Are you...?

- Less than 18 1 **THANK AND TERMINATE**
- 18-29 2
- 30-39 3
- 40-49 4
- 50-59 5
- 60-69 6
- Over 70..... 7 } **Recruit 2 per group 1, 3, 5, 7**

QUOTAS - 'AT RISK' GROUP 1, 3, 5, 7:

- MIN ONE EACH WITH DIABETES, RESPIRATORY/ASTHMA, OR CARDIOVASCULAR CONDITIONS (Q6)
- MIN TWO PARENTS OF CHILDREN AGED 12 AND UNDER (Q2)
- MIN TWO AGED 60+ (ELDERLY) (Q9)
- MIN TWO WHO ARE ACTIVE OUTDOORS (Q5)
- MIN TWO PREGNANT WOMEN (Q4)

QUOTAS – GEN POP GROUP 2, 4, 6, 8:

- RECRUIT GOOD MIX OF AGE; MAX 3 WHO ARE 60+ (Q9)

10. What is your current employment status? Are you currently ... ?

READ RESPONSES IN ORDER—CODE ONE ONLY

- Employed full Time 1
- Employed part Time..... 2
- Self-Employed 3
- Unemployed..... 4
- Student..... 5
- Home maker 6
- Retired 7 } **Max 5 per group**
- VOLUNTEERED**
- Refused 8

11. If employed, ask... What is your current occupation?

_____ **TERMINATE IF SIMILAR OCCUPATIONS AS IN Q1**

12. If retired, what was your occupation prior to retirement?

_____ **TERMINATE IF SIMILAR OCCUPATIONS AS IN Q1**

13. Which of the following best describes your total household income **before taxes** last year?
Would you say...? **READ RESPONSES IN ORDER—CODE ONE ONLY**

- | | | |
|---|---|-----------------------------|
| Less than \$30,000 | 1 | } Recruit a good mix |
| At least \$30,000 but less than \$50,000 | 2 | |
| At least \$50,000 but less than \$75,000 | 3 | |
| At least \$75,000 but less than \$100,000 | 4 | |
| \$100,000 or more | 5 | |
| VOLUNTEERED | | |
| Refused | 6 | |

14. What is the highest level of education you have finished?

- | | | |
|--|---|-----------------------------|
| Elementary..... | 1 | } Recruit a good mix |
| Some High School/Vocational..... | 2 | |
| Completed High School..... | 3 | |
| Some College / Technical Training | 4 | |
| Completed College / Technical Training | 5 | |
| Some University | 6 | |
| Completed University | 7 | |

15. To make sure that we speak to people from various backgrounds, what is your ethnic background? **DO NOT READ**

- | | |
|--|----|
| Caucasian | 1 |
| Chinese..... | 2 |
| South Asian (i.e. East Indian, Pakistani, etc) | 3 |
| Black..... | 4 |
| Filipino..... | 5 |
| Latin American | 6 |
| Southeast Asian (i.e. Vietnamese, etc) | 7 |
| Arab..... | 8 |
| West Asian (i.e. Iranian, Afghan, etc) | 9 |
| Korean..... | 10 |
| Japanese..... | 11 |
| Aboriginal (First Nations, Métis, or Inuit) | 12 |
| Other (please specify) _____ | 13 |
| I'd prefer not to say | 14 |

16. And finally, have you ever attended a small group discussion for which you received a sum of money?

- | | | |
|----------|---|----------------------------|
| Yes..... | 1 | CONTINUE – Max of 5 |
| No | 2 | Go To Invitation |

17. What was the subject of the group? _____

18. When was the last time you attended a group discussion? _____

19. How many group discussions have you attended in the past 5 years? _____

**IF THEY HAVE BEEN TO A GROUP IN THE PAST 6 MONTHS - THANK & TERMINATE,
 IF THEY HAVE BEEN TO 3 OR MORE GROUPS IN THE PAST 5 YEARS - THANK & TERMINATE
 IF PARTICIPATED IN A PAST GROUP ON HEALTHCARE – THANK & TERMINATE**

INVITATION

I would like to invite you to participate in a small group discussion, called a focus group, we are conducting at ___ PM, on _____. As you may know, focus groups are used as research tools to gather information on a particular subject matter; in this case, issues related to *air quality*. The discussion will consist of 8 to 10 people and will be very informal. This group will last approximately **two** hours, refreshments will be served and you will receive **\$75** as a thank you for your time. Would you be interested in attending?

- Yes..... 1 **Continue**
- No 2 **Thank and Terminate**

The discussion you will be participating in will be audio and video recorded for use by the research team only. Please be assured your comments and responses are strictly confidential. Are you comfortable with the discussion being audio and video recorded?

- Yes..... 1 **Continue**
- No 2 **Thank and Terminate**

The discussion will take place in a focus group room that is equipped with a one-way mirror for observation, allowing members from the research team to observe the discussion while it is happening. Some people may also be observing the discussion remotely [**SPECIFY ONLY IF ASKED:** via web streaming, through the use of a secure online portal]. Would this be a problem for you?

- Yes..... 1 **Thank and Terminate**
- No 2 **Continue**

Participants WILL be asked to read materials AND write out responses. Is it possible for you to take part in these activities in English (French) without assistance during the group discussion?

- Yes..... 1 **Continue**
- No 2 **Thank and Terminate**

Since participants in focus groups are asked to express their thoughts and opinions freely in an informal setting with others, we'd like to know how comfortable you are with such an exercise. Would you say you are...?

- Very comfortable..... 1 **Continue**
- Comfortable..... 2 **Continue**
- Not very comfortable 3 **Thank & Terminate**
- Not at all comfortable 4 **Thank & terminate**

We ask everyone who is participating in the focus group to bring along a piece of I.D., picture if possible.

As these are small groups and with even one person missing, the overall success of the group may be affected, I would ask that once you have decided to attend that you make every effort to do so. In the event you are unable to attend, please call _____ (collect) at _____ as soon as possible in order that a replacement may be found.

Please also arrive 15 minutes prior to the starting time. **The discussion begins promptly at [TIME].** Anyone arriving after [TIME] will NOT be able to take part in the discussion and will NOT receive the \$75 incentive.

Please bring with you reading glasses or anything else that you need to read with or take part in the discussion.

Attention Recruiters

1. Recruit 10 per group
2. CHECK QUOTAS
3. Ensure participant has a good speaking (overall responses) ability-If in doubt, DO NOT INVITE
4. Do not put names on profile sheet unless you have a firm commitment.
5. Repeat the date, time and location before hanging up.

Confirming – DAY BEFORE GROUP

1. Confirm in person with the participant the day prior to the group– do not leave a message
2. Confirm all key qualifying questions
3. Verify time location (ask if they are familiar)
4. Remind them to arrive 15 minutes before the start
5. Ask them to bring reading glasses or anything else they need to read and/or take part in the discussion (such as hearing aid)

Appendix B:
Moderator's Guide

Moderator's Guide – FINAL

AQHI Key Messages Testing

Research Objectives (Confidential – Not read to participants)

- Assess the effectiveness of the new messages in helping at-risk populations understand the health risks posed by air pollution and in helping the general population understand the best ways to be active outdoors (e.g., avoiding high traffic areas when exercising).
- Evaluate the messages for clarity, credibility and comprehensiveness and their ability to inspire action (call to action: changing behaviours).
- Evaluate the overall clarity, credibility and comprehensiveness of the AQHI.

Introduction

10 minutes

- **Welcome:** Introduction of self and role as moderator (encourage participation/guide discussions)
- **Topic:** Air quality; Government of Canada sponsoring the study
- **Length:** Our discussion should last about two hours, without a break
- **Process:** All opinions are important; looking to understand agreement/disagreement; talk one at a time; interested in hearing from everyone
- **Logistic:** Audio/video taping; observation from Government of Canada (in-person or remote)
- **Confidentiality:** Participation is voluntary; comments are anonymous; no names in reports
- **Participant introduction:** First name, who lives in your home, and what is your favourite hobby

General Discussion About Air Quality

20 minutes

Thinking about you and your family...

Discussion as a group:

- To what extent do you pay attention to the quality of the air you and other in your household breathe outdoor? Why does it matter/not matter?
- If you do, what do you look for? How do you assess air quality? What's most important to you?
- What environmental factors impact air quality? Probe for: heat/cold; pollen; UV; other weather related risks (**List responses on flip chart**)
- In general, who is most at risk of being affected by the quality of air?
- What information do you use to help you determine air quality?
- Where do you get that information? How often do you look for it?
- Where else is this information available?
- **If multiple sources:** What source of information do you trust the most? Why that one? Are there any you do not trust? Why?
- How would you like to get your information about air pollution?
- Have you heard of the Air Quality Health Index? If so, what do you know about it? Where did you hear about it? Who creates this Index? How is it calculated?
- **If aware:** Have you used it before? If no, why not?

Key Messages Testing

90 minutes

I'd like to show you a number of statements regarding the Air Quality Health Index, a public information tool that helps Canadians protect their health on a daily basis from the negative effects of air pollution. This tool has been developed by the Government of Canada, in collaboration with the provinces and key

health and environment stakeholders. The Index, also referred to as AQHI, is available for selected communities across the Country, including yours.

I'll explain a bit how it works. The AQHI is a scale designed to help you understand what the air quality around you means for your health. It is meant to help you to adjust your exposure to air pollution and your activity levels during increased levels of air pollution. It also provides advice on how you can improve the quality of the air you breathe. The AQHI measures the air quality on a scale from 1 to 10, with the addition of a rating of 10+ when the air pollution is very high. The higher the number, the greater the health risk associated with the air quality (1 is low risk and 10 is high risk). There is a category that describes the level of health risk associated with the index reading (including low, moderate, high, or very high health risk).

The AQHI is calculated based on the relative risks of a combination of common air pollutants that are known to harm human health. The AQHI is measured daily, and the Index score can be found online on the Government of Canada website. The website specifies the level of air pollution, as well as who is at risk and it provides a series of health messages based on the Index score.

Today, we will look at nine messages that could be communicated alongside the AQHI. We will review each, one at a time. Let's begin with the first one. ***Moderator distributes exercise sheet.***

As we read through the statements together, please highlight words or parts that speak to you the most; those that resonate with you. At the same time, underline words or parts that you find confusing or incomplete. ***Moderator reads the statements, one at a time.***

Now before we talk about this statement together, take a moment to complete the exercise below the statement, by indicating to what extent you agree or disagree with each of the sentences listed (thumbs scale). I will give you a moment to do so.

Discuss as a group, following the exercise:

- What do you think of this statement?
- What is it trying to communicate? What's the main point that comes across?
- To what extent do you believe what it says? Why/why not?
- Who is this for; someone like you or someone different?
- ***For each target audience/proxy:*** What would make it more compelling to you personally?
- What, if anything, grabbed your attention in this statement (highlighted parts)? Why?
- What, if anything, do you find unclear or confusing (underlined parts)? What could be improved?
- What would you do if you saw or heard this message somewhere?
- Every day we are bombarded with information; some more useful than others. With this in mind, how important is it for the government to share this specific information with the public? Why/why not?

Repeat exercise and discussion for each statement. Rotate presentation order across groups to minimize presentation biases.

Note to Moderator - Target Audiences:**Message #1: Caregiver for children/older adults****Message #2: People with existing respiratory or cardiovascular conditions or diabetes****Message #3: Children****Message #4: Pregnant women****Message #5: Outdoor workers****Message #6: Respiratory and cardiovascular disease****Message #7: All at risk (Outdoor and Air Visibility)****Message #8: All at risk (Exercise and Traffic)****Message #9: Asthmatic (Exercise and Asthma)****After all messages have been reviewed:**

To finish up...

- Where would you like the AQHI information and messages to be available to you?
- Do you have any final thoughts you would like to share with regarding tonight's topic?

Thanks & Closure

That concludes our discussion. I would like to thank you for your time and input. **Direct them to the hostess to receive the incentive**

Appendix C: Materials Tested


























Focus Groups Exercises

First Name: _____

Exercise #1

Young children and the elderly are more sensitive to air pollution, especially if they have breathing or heart problems. Parents and caregivers can check the AQHI to find out the best time to plan outdoor activities. If you notice symptoms (trouble breathing, cough, sore throat, etc.) have those in your care take it easy until they feel better.

Indicate to what extent you agree or disagree with the following statements

	Agree			Disagree	
I believe what this says.					
This speaks to me personally.					
This provides useful information for me and my family.					
This message is clear.					
I understand what to do after reading this.					


























First Name: _____

Exercise #2

People who have existing respiratory illnesses such as asthma, chronic obstructive pulmonary disease (COPD), which includes chronic bronchitis and emphysema or lung cancer, and those with existing cardiovascular conditions such as angina, previous heart attack, congestive heart failure or heart rhythm problems (arrhythmia or irregular heartbeat) are sensitive to air pollution.

People with diabetes are also more sensitive because they are more likely to have cardiovascular conditions. Air pollution makes it even harder for people to breathe, can make existing lung or heart-related symptoms worse. For example, it can trigger attacks.

Indicate to what extent you agree or disagree with the following statements

	Agree			Disagree	
I believe what this says.					
This speaks to me personally.					
This provides useful information for me and my family.					
This message is clear.					
I understand what to do after reading this.					


























First Name: _____

Exercise #3

Exercise is important, and has multiple benefits to health; for instance, it helps develop stronger heart, bones and muscles, and increases concentration.

Generally speaking, the benefits of being active outweigh the risks of air pollution; healthy children can play and exercise outdoors as usual at moderate AQHI levels. Air quality should not be a concern until the AQHI reaches higher values, at which healthy children should reduce or reschedule strenuous activities outdoors if they experience symptoms.

Indicate to what extent you agree or disagree with the following statements

	Agree			Disagree	
I believe what this says.					
This speaks to me personally.					
This provides useful information for me and my family.					
This message is clear.					
I understand what to do after reading this.					


























First Name: _____

Exercise #4

Scientific evidence shows that exposure to higher levels of air pollution throughout the duration of pregnancy might affect the growth of the fetus to a small degree, and to a lesser extent than smoking or second-hand smoke.

Current research methods are unable to detect any effects on the fetus from short-term changes in air pollution. You are encouraged to exercise as normal, and pay attention to AQHI in the same way as if you were not pregnant.

Indicate to what extent you agree or disagree with the following statements

	Agree			Disagree	
I believe what this says.					
This speaks to me personally.					
This provides useful information for me and my family.					
This message is clear.					
I understand what to do after reading this.					

First Name: _____

Exercise #5

Occupations that require extended periods of walking, pushing or pulling objects weighing less than 75 lbs, standing while lifting objects weighing less than 50 lbs, or carrying objects of less than 25 lbs up a flight of stairs.

Tasks frequently requiring moderate effort and considerable use of arms, legs, or occasional total body movements.

For example:


























- Briskly walking on a level surface while carrying a suitcase or load weighing up to 50 lbs
- Maid service or cleaning services Waiting tables or institutional dishwashing
- Driving or maneuvering heavy vehicles (e.g., semi-truck, school bus, tractor, or harvester)—not fully automated and requiring extensive use of arms and legs
- Operating heavy power tools (e.g., drills and jackhammers)
- Many homebuilding tasks (e.g. electrical work, plumbing, carpentry, dry wall, and painting)
- Farming—feeding and grooming animals, milking cows, shoveling grain; picking fruit from trees, or picking vegetables
- Packing boxes for shipping or moving
- Assembly-line work—tasks requiring movement of the entire body, arms or legs with moderate effort
- Mail carriers—walking while carrying a mailbag

Occupations that require extensive periods of running, rapid movement, pushing or pulling objects weighing 75 lbs or more, standing while lifting heavy objects of 50 lbs or more, walking while carrying heavy objects of 25 lbs or more. Tasks frequently requiring strenuous effort and extensive total body movements.

For example:

- Running up a flight of stairs while carrying a suitcase or load weighing 25 lbs or more
- Teaching a class or skill requiring active and strenuous participation, such as aerobics or physical education instructor
- Firefighting
- Masonry and heavy construction work
- Coal mining
- Manually shoveling or digging ditches
- Using heavy nonpowered tools
- Most forestry work
- Farming—forking straw, baling hay, cleaning barn, or poultry work
- Moving items professionally
- Loading and unloading a truck

Indicate to what extent you agree or disagree with the following statements


























	Agree			Disagree	
I believe what this says.					
This speaks to me personally.					
This provides useful information for me and my family.					
This message is clear.					
I understand what to do after reading this.					

First Name: _____

Exercise #6

If you suffer from a respiratory (e.g asthma, COPD) or cardiovascular (e.g. angina, heart failure, arrhythmia) condition, you need to keep your chronic disease under good control, in order to reduce the harmful effect of air pollution. Follow your physician's advice by increasing or altering medication, or seek medical advice if your condition worsens significantly.

Indicate to what extent you agree or disagree with the following statements

	Agree			Disagree	
I believe what this says.					
This speaks to me personally.					
This provides useful information for me and my family.					
This message is clear.					
I understand what to do after reading this.					

First Name: _____


























Exercise #7

The AQHI doesn't measure the effects of odours on health, and there isn't always a relationship between visibility and the AQHI.

On certain days, you might detect an odour or the air might appear dirty while the AQHI is at low or moderate values. In these instances, you can enjoy your outdoor activities unless you experience symptoms.

Sometimes, the AQHI might be high even if you don't detect odour and visibility problems. Check the AQHI and follow the appropriate advice.

Indicate to what extent you agree or disagree with the following statements

	Agree			Disagree	
I believe what this says.					
This speaks to me personally.					
This provides useful information for me and my family.					
This message is clear.					
I understand what to do after reading this.					

First Name: _____

Exercise #8


























Emissions from motor vehicles and trucks contain pollutants that can harm your health. To reduce this risk, try to exercise in parks and residential streets, and avoid heavy traffic, by staying at least 150 m from a busy road, and 500 m from a highway or expressway.

For more details, see the following table.

Table Exercise 8

Road type	Annual Average Daily Traffic	Traffic-related air pollution gradient (Suggested minimum distance for exercise)
Major Roads (i.e. roads with two or more lanes spanning several kilometers, speed limits over 50 km/h)	More than 15 000 vehicles	150 m
Highways and expressways	More than 100 000 vehicles	500 m

Indicate to what extent you agree or disagree with the following statements

	Agree			Disagree	
I believe what this says.					
This speaks to me personally.					
This provides useful information for me and my family.					
This message is clear.					
I understand what to do after reading this.					

First Name: _____





















Exercise #9

Having asthma doesn't mean you can't exercise; the benefits of regular exercise almost always outweigh the risks associated with exercise-induced asthma.

Make sure your asthma is under control before you start exercising. Pay attention to your symptoms; increasing AQHI values make exercise-induced asthma more likely. Adjust your activity level as needed [hyperlink to reduce/reschedule].

If you develop symptoms while you are exercising, stop and rest. Take your reliever medication. If you're unsure whether your symptoms are due to exercise induced asthma, or are the signs of worsening asthma control, talk to your doctor.

Indicate to what extent you agree or disagree with the following statements

	Agree			Disagree	
I believe what this says.					
This speaks to me personally.					
This provides useful information for me and my family.					
This message is clear.					
I understand what to do after reading this.	