

Application of PMG Intelligence's Behaviour Change Model

Case Study: Carbon Monoxide Safety



Carbon Monoxide (CO) is an odorless, colourless, poisonous gas by-product from the combustion of carbon-based fuels. It is a leading cause of preventable accidental poisoning. When carbon monoxide is inhaled, it inhibits the ability of the blood stream to absorb oxygen and distribute it to vital organs like the heart and brain

The symptoms for low exposure to carbon monoxide include shortness of breath, mild headaches, and nausea.

Higher exposure produces symptoms similar to the flu: nausea, headache, burning eyes, confusion, and drowsiness. Eventually CO poisoning can lead to unconsciousness and even death. The key difference is that there is no fever associated with CO poisoning.

In Ontario, the clear majority (approximately 65-70%) of all CO incidents over the past five years occurred in private residential dwellings. Owners of residential fuel-burning appliances are failing to ensure that certified technicians complete proper inspections and maintenance of the appliance in accordance with manufacturers' specifications. This responsibility is clearly stated in the applicable provincial fuel regulations. However, the safety regulator has no legal authority to enter and inspect private residential dwellings, thereby limiting their ability to enforce the applicable regulations. As a result, the regulator must rely on alternate risk mitigation strategies - primarily consumer education - to address this safety risk.

Recognizing the scope of the challenge associated with changing consumers' CO safety behaviours, the regulator adopted a multi-pronged consumer education/user behaviour strategy with three key objectives:

- Continue to deliver existing consumer education/engagement initiatives;
- Enhance existing initiatives based on sound research (qualitative and quantitative), incorporating insights gained through the assessment/evaluation of ongoing programs; and
- Design and implement foundational user behaviour research focused on developing a comprehensive understanding of "how" and "why" Ontarians make decisions that put them at risk.

PMG was engaged to apply its behaviour change model (Figure 1) that has two interrelated components – research and ongoing assessment of consumer education/engagement initiatives. There is a strong interrelationship among these two as each serves to inform the other.

Figure 1 PMG’s Behaviour Change Model

- Behaviour change is a sequential process.
- PMG’s approach is based on conducting qualitative and quantitative research to:
 - Identify the target audience’s location on the pathway to behaviour change;
 - Identify and establish the profile of target audience clusters, specifically their behavioural decision making processes and actions; and,
 - Provide insights for designing and executing behaviour change strategies taking into account the profile of each target audience cluster.
- Behaviour change is an individual journey. People move through the path based on their personal beliefs and experiences.

Pathway to Behaviour Change

**STEP
01**

DISCOVERY – The first step to behaviour change is understanding. Many organizations do not put enough focus on this step and assume people have a solid base of comprehension. To many, this is a missed opportunity as this is where perceptions (and misperceptions) are developed.

**STEP
02**

CONSIDERATION – Once people have developed an understanding of the problem they are in a better position to start working through the decision making process. Through this stage people weigh the options based on risk/reward and inevitably come to a decision on whether to act or not.

**STEP
03**

BEHAVIOUR CHANGE – Only through the understanding and exploration of options as well as the consequences of actions (or inactions) have been achieved can true behaviour change take place.

Research Approach

Designing and executing effective consumer education/engagement strategies required a thorough understanding of current CO risk perceptions and consumer behaviours to manage CO risks in their homes. A series of qualitative and quantitative research initiatives were conducted and the insights gained were used to design, pilot, test and refine consumer behaviour change strategies.

Initial research efforts focused on identifying consumers’ current awareness, understanding, and behaviours regarding the safety risks associated with CO. Qualitative research was conducted utilizing focus groups in various locations across Ontario with homeowners and tenants.

The focus groups provided many important insights, perhaps most importantly that Ontario homeowners and tenants perceive little, if any, probability personally experiencing a CO incident in their home. This was a key finding as it identified an important consumer misperception regarding the degree of CO risk in their home. It also indicated that modifying the perceived probability of a CO incident in their home should be a focal point for consumer behaviour change strategies. The new insights strongly suggested the need to assess and modify the existing strategies.

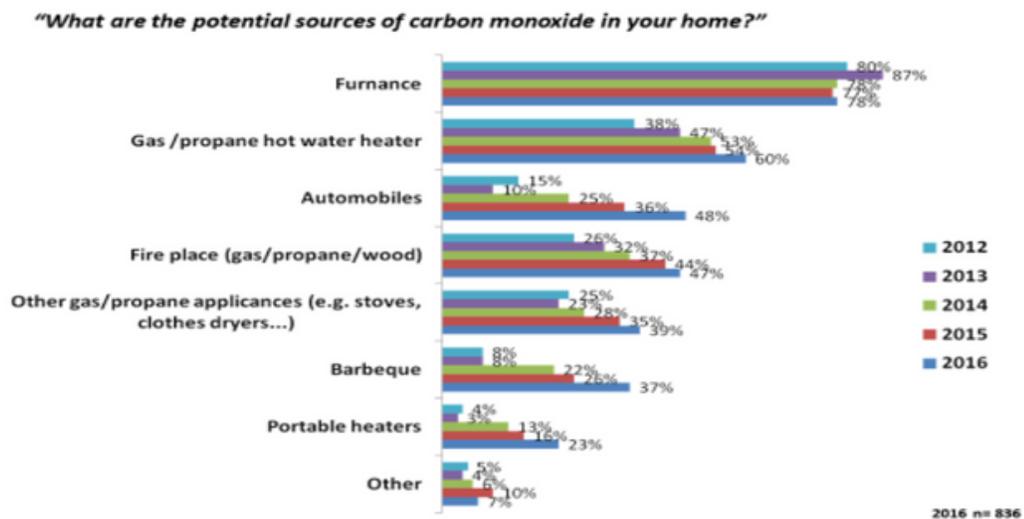
Quantitative research confirmed that the qualitative results were aligned with the broader cross section of Ontarians. While consumers (homeowners and tenants specifically) cited moderate to high levels of CO knowledge, a clear majority was unable to identify a number of important potential sources of CO in their home.

With these key insights, research efforts turned to developing consumer engagement strategies focused mainly on increasing awareness of the potential CO risk in their homes. At the same time, the research also examined how the strategies could address enhancing consumers' understanding of their role in mitigating CO risks in their homes through adopting or changing their CO safety-related behaviours. Additional research was conducted to identify effective messaging, creative concepts, and execution options, taking into account the profiles of four clusters that were identified using PMG's proprietary segmentation model. These insights were used to design strategies to begin the movement of consumers along the pathway to enhanced CO safety behaviour. For example, the research identified that homeowners and tenants responded more positively to receiving CO information at their homes versus other locations such as retail outlets. Messaging and creative concept testing also identified the importance of combining fact-based information (e.g. statistics on CO incidents) with normative messaging (e.g. taking action to protect family and others in their homes). For some clusters, one element was more impactful than the other, leading to tailoring of various campaign materials (design and messaging).

Prior to the wide-scale launch of the consumer education campaigns, a benchmark province-wide CO survey was conducted to provide a quantitative tracking tool to assess the performance of the consumer engagement strategies. This survey was conducted on an annual basis to measure the combined impact of the consumer behaviour change campaigns with the most recent study completed in March of 2016. A key metric is the level of consumer awareness of potential CO sources in their home since, as earlier research identified, increasing this awareness is a prerequisite to inducing consumers' behaviour change. Figure 2 demonstrates that the redesigned consumer engagement strategies, based on insights gained by applying PMG's behaviour change model, have been successful as consumer awareness of potential sources of CO in their homes has increased every year since the campaigns were initiated.

Figure 2

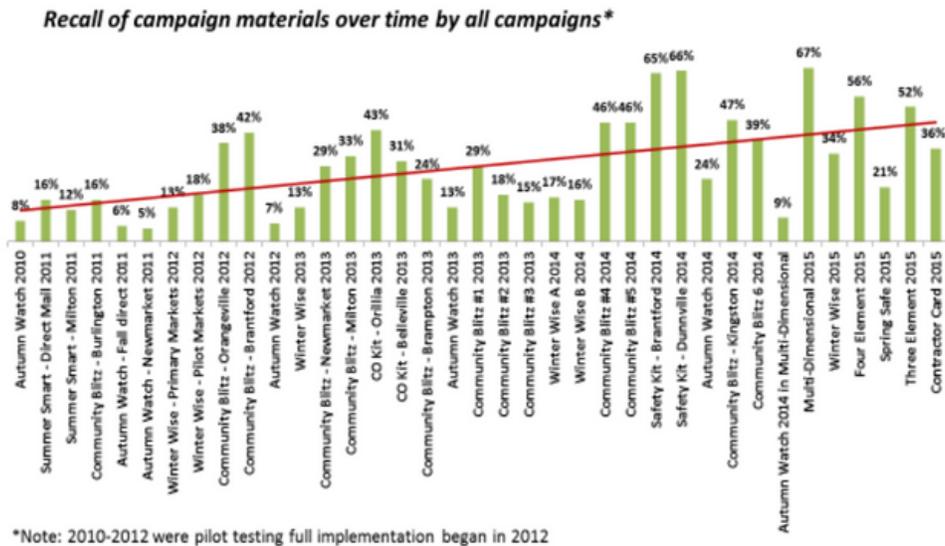
Sources of CO



Quantitative research was used to measure the performance of individual CO consumer behaviour campaigns. Similar to the annual provincial survey, these allow for tracking of the key steps toward behaviour change. For example, Figure 3 clearly demonstrates a positive trend in the recall of CO safety messaging delivered to Ontario households.

Figure 3

CO Public Education Campaigns since 2010



The quantitative research conducted after each campaign included the question: “How likely are you to take any additional action in terms of carbon monoxide safety in your home?” On average, 30 percent of recall respondents stated they ‘probably’ or ‘definitely’ will take additional action (e.g. install alarm(s) and/or have their appliances inspected by a certified technician) after having received the CO safety information during a campaign.

PMG’s behaviour change model and associated research has been a key factor in addressing a complex consumer behaviour challenge regarding carbon monoxide safety in private residential dwellings.