Growing air pollution hurting Canadians' heart health, foundation says

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TORONTO - Air pollution is a rising and pervasive threat to cardiovascular health, but most Canadians don't realize the danger, says the Heart and Stroke Foundation of Canada.

In its annual report on Canadians' health released Monday, the foundation said short-and long-term exposure to year-round air pollution is contributing to thousands of deaths across the country each year.

There are about 6,000 additional deaths in Canada annually because of short-term exposure to air pollution alone, said the report, and 69 per cent of those deaths result from cardiovascular events such as heart attack or stroke.

"It's an important and emerging risk factor," Toronto cardiologist Beth Abramson told a news conference to release the report, which also graded provinces on their air quality.

"We still need to pay attention to the traditional risk factors for heart disease - high blood pressure, smoking, diabetes, being overweight, being out of shape (and) high cholesterol - but this is an additional risk factor that we can actually influence and influence the risk for others as a community," she said.

Length of exposure to air-borne pollutants is a critical factor in cardiovascular disease risk: research suggests that every 10-unit increase in long-term exposure to fine particulate matter (PM2.5) can increase the risk of dying from heart disease and stroke by up to 76 per cent.

Short-term exposure also can be dangerous: one study showed that a day-to-day increase from even relatively low levels of particulate matter can boost risk of a heart attack within 24 hours by 69 per cent.

Yet, Environment Canada estimates that almost a third of Canadians are being exposed to higher than the 30 units (expressed as milligrams per cubic metre) of fine particulate matter deemed an acceptable level, and which Canada is hoping to achieve by 2010.

"Local air pollution can be derived from many different sources, including factories, cars, diesel trucks, power plants, wind-blown dust and smoke from wood stoves and back-yard burning," Abramson noted.

And poor air quality isn't a phenomenon restricted to large cities with pollution-spewing vehicles and industrial sites, she said. Residents in rural areas that might seem environmentally more pristine are also bearing the brunt of bad air.

"Air pollution can also be exported across long distances, as much as 800 kilometres for PM2.5."

The Heart and Stroke Foundation is calling on the federal and provincial governments to implement a number of measures, including legislating stricter pollution standards and expanding the daily Air Quality Health Index to communities across the country so at-risk Canadians can limit outdoor activities on high pollution days.

Abramson said some people are more vulnerable to air-borne pollutants than others, in particular the elderly and those already at risk for cardiovascular disease like diabetics, and she advised that people moderate their outdoor activities when pollution is high.

"Unfortunately, people who are trying to lead a heart-healthy life by being physically active actually are exposing themselves to more risk on bad air days ... if they go outside to exercise."

In a report card on the provinces, the foundation gave British Columbia's interior, Ontario and Quebec an "F" grade, based on the highest levels of fine particulate matter in a 24-hour period observed over a year. All significantly exceeded 30 units.

The B.C. interior has high levels of particulate matter because pollution gets trapped between mountain ranges. (B.C.'s lower mainland received a "D" because of pollution hotspots.) Ontario and Quebec are affected by the Quebec-Windsor, Ont., traffic corridor, as well as heavy industry and wood-burning in their northern regions.

Alberta earned a "D" because pollution blows out of the province into neighbouring provinces and the United States from resource-based industrial areas like the tar sands.

New Brunswick, which has high levels of wood-burning, was awarded a "C," while Manitoba and Newfoundland-Labrador scored a "B-plus" because winds tend to clear out air pollution except in some hotspots. Data were not available for Saskatchewan, Nova Scotia or P.E.I.

Stephen Samis, director of health policy for the foundation, said a survey the organization commissioned of more than 1,100 Canadian adults showed that six in 10 believe air quality in their community is generally good to excellent, but just three per cent knew air pollution is a year-round problem.

"It's important to realize that air pollution is not just a summer and urban problem, it's a winter and rural problem as well," Samis said. "In fact, during winter months, wood-burning stoves and fire places can be sources of dangerous air pollution, particularly in rural areas."

The survey found wood-burning stoves and fireplaces are responsible for 28 per cent of fine particulate matter pollution in Canada and that 44 per cent of those living in communities of less than 10,000 residents have a wood stove, pellet stove or fireplace; of those, 70 per cent use it daily or almost daily during winter.

Dr. Robert Brook, a University of Michigan cardiologist and an expert on air pollution and cardiovascular disease, said breathing in high levels of PM2.5 (each particle is one-fifth the width of a human hair) is believed to impair blood vessel function or possibly the nervous system's control over the heart.

"It is in several ways a trigger of cardiovascular events (in individuals). It is also a contributor to the overall public health incidence of cardiovascular events in several different countries," he said, noting that the World Health Organization ranks outdoor air pollution as the 13th leading cause of illness worldwide.

Breath Easy

Spring home care myths

THE HAMILTON SPECTATOR. Feb 23, 2008

Experts say opening windows is not the answer to indoor air pollution

We've all experienced it - that first gust of fresh spring air that spills into your home once you finally open your windows to make that stale winter indoor air feel less stuffy and revitalized. This spring "purification" ritual does have short term ventilation benefits and helps to clear out the unhealthy air that's been circulating in your home. But experts in the field of indoor air quality quickly point out that simply opening your windows is a far cry from an ultimate solution to year-round indoor air pollution.

"I'm still amazed at the number of people who believe opening their windows will help solve their indoor air quality problems," said Gerry Gagnon, Product and Market Manager for Venmar Ventilation, the country's leader in indoor air quality management. "One has to remember the air that enters the home through an open window is not filtered so it also contains harmful pollutants."

Indoor air quality has become more of a cause for concern than it was in the past since improved insulation and other energy-saving measures have meant poorer air circulation for many of our homes and buildings. "Today's homes can actually trap inside air pollutants and retain extremely high levels of humidity," added Gagnon.

More importantly, these indoor pollutants can have serious adverse effects on you and your family's health. Experts view indoor pollutants as one of the major culprits for the 160 per cent increase in asthma rates over the past 15 years.

So what can you do to protect your family from the harmful effects of poor indoor air quality? First off, opening windows may actually aggravate your situation. What happens when the temperature, pollution index or pollen counts are high? Pollen, pollution and other allergens are entering your home as your air conditioner wastes energy working overtime. So what is the optimal solution? According to the Canadian Lung Association, effective and efficient mechanical ventilation is an important part of a healthy indoor environment.

Venmar's air exchanger system, the latest technology in indoor air management, offers the best solution to reducing indoor pollution by combining the efficiency of HEPA filtration and effective mechanical ventilation.

"The air exchanger allows polluted air to exit and fresh air, filtered by HEPA filtration, to flow through the home," Gagnon added. "It also allows excess humidity and dangerous mold spores, volatile organic compounds, and carbon monoxide that are not captured by filtration, to escape the home."

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- Only single indoor air quality system to attack all three classes of indoor air contaminants:
  - Small, breathable particles such as dust, dirt, pollen and allergens
  - Airborne mold spores, bacteria and viruses
  - Odors and chemical vapors
- MERV 16* PrecisionPleat™ media filter
- Hospital inpatient care/general surgery level filtration
- Removes OVER 95% of particles ranging in size down to .3 micron**
- Removes OVER 90% of bioaerosols ranging in size down to .01 micron**
- Removes and destroys approximately 50% of household odors and chemical vapors in a 24-hour period***
- Reduces and destroys ozone - a product of pollution and a known lung irritant****
- 5-Year Limited Warranty on covered components

*MERV = Minimum Efficiency Reporting Value. Describes the filter's ability to capture particles and ranges from 1 to 16. Typical fiberglass filter = MERV 1.The higher the MERV rating, the better the filtration.
**One micron = 1/25,000 of an inch in diameter
***Based on laboratory and field studies
****U.S. Environmental Protection Agency, "Ozone Generators that are Sold as Air Cleaners: An Assessment of Effective and Health Consequences," August 2006.