

Second-hand smoke and cancer

Second-hand smoke, also known as environmental tobacco smoke or passive smoke, can increase the risk of cancer among non-smokers. Second-hand smoke consists of a combination of smoke that comes from the burning end of a cigarette (termed sidestream smoke) and the smoke that is exhaled by a smoker (termed mainstream smoke), with sidestream smoke being about four times more toxic than mainstream smoke.¹ Among the more than 7,000 chemicals that have been identified in second-hand tobacco smoke, at least 250 are known to be harmful including hydrogen cyanide, carbon monoxide, and ammonia.²

In Canada, more than 1,100 deaths among non-smokers are attributed to second-hand smoke annually, of which over 360 are from lung cancer.³ Inhaling second-hand smoke can increase a non-smoker's risk of getting lung cancer by 20-30% and may increase the risk of breast cancer, nasal sinus cavity cancer and nasopharyngeal cancer in adults and the risk of leukemia, lymphoma, and brain tumors in children.⁴ Second-hand smoke also contributes to other adverse health conditions, including cardiovascular diseases, and among children, increases the risk of sudden infant death syndrome, ear infections, colds, pneumonia, bronchitis, and asthma. People can be exposed to second-hand smoke in homes, cars, the workplace, and public places such as bars and restaurants.

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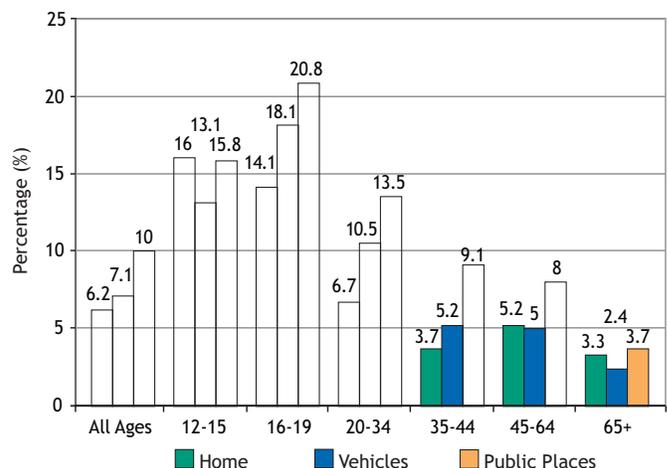
Despite the dangers of second-hand smoke, most Canadians generally think one only has to stop smoking in order to reduce one's risk of cancer. A Canada-wide survey* conducted in 2008 examining cancer prevention attitudes, awareness and behaviours found that, when asked what they can do to prevent or reduce their chance of getting cancer, only 1% of

* The Canadian Prevention - Attitudes, Awareness and Behaviours Survey was conducted by Environics Research Group on behalf of the Canadian Partnership Against Cancer in 2008. The survey used random digit dialing methodology and results are based on questions asked to 3,307 residents of Canada aged 18 or older from August to September 2008. The margin of error is +/- 1.7 percentage points, 19 times in 20. Results are weighted using population data to ensure sample representativeness of the Canadian population.

Canadians mentioned reducing one's exposure to second-hand smoke, compared to 30% who mentioned stop smoking and 6% who mentioned cutting down on smoking.

In Canada, the highest rates of second-hand smoke exposure among non-smoking Canadians are among youth aged 12-15 and 16-19 years and decline with age (Figure 1).

Figure 1: Percentage of non-smokers aged 12+ reporting second-hand smoke exposure by location of exposure and age, Canada, 2009



Data Source: Statistics Canada, Canadian Community Health Survey

- IN H I I E • The highest rates of second-hand smoke exposure among non-smoking Canadians are among youth aged 12-15 and 16-19
- Canadians in lower income quintiles are more likely to be exposed to second-hand smoke than those in higher income quintiles
- Trends show that exposure to second-hand smoke has decreased in Canada
- Many jurisdictions have introduced smoking bans in public, work and outdoor areas and private vehicles

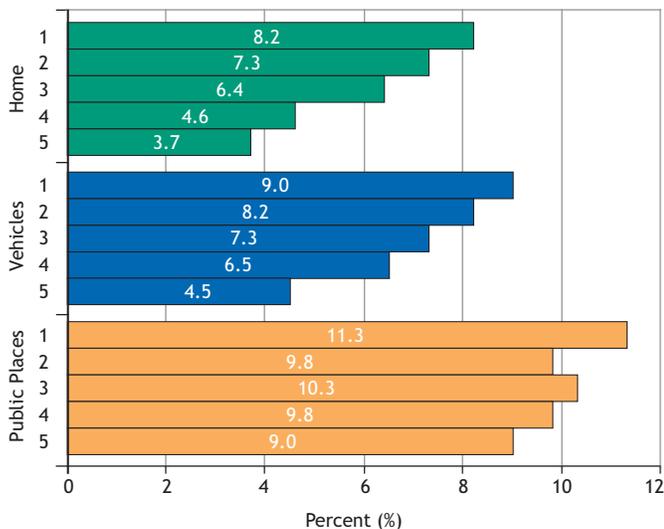
Public places are the most common type of location for exposure among non-smoking Canadians in all age groups except in the youngest age group (12-15) where exposure at home is just as common. The home is also a common source of second-hand smoke exposure in children ages younger than 12.⁵ Canadian data from 2007 shows that 7% of children under the age of 12 are regularly exposed to second-hand smoke in the home.⁶ Studies of youths show that those exposed to second-hand smoke are more likely to initiate smoking,⁷⁻⁸ become daily smokers⁹ or be open to future smoking.¹⁰

Canadians in lower income quintiles are more likely to be exposed to second-hand smoke than those in higher income quintiles. Exposure to second-hand smoke among non-smokers in the home and in vehicles is about twice as common in the lowest income quintile than in the highest income quintile (Figure 2). The data show that 8.2% and 9.0% of Canadians in the lowest income quintile report exposure in the home or in vehicles compared to 3.7% and 4.5% of Canadians in the highest income quintile, respectively. The trend is less distinct when examining exposure to second-hand smoke in public places where 11.3% of non-smoking Canadians in the lowest income quintile report exposure in public places compared to 9.0% of Canadians in the highest income quintile.

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From 2003 to 2009, exposure to second-hand smoke among non-smoking Canadians has decreased, particularly exposure

F 2: Percentage of non-smokers aged 12+ reporting second-hand smoke exposure by location of exposure and income quintile (1=lowest, 5=highest), Canada, 2009



Data Source: Statistics Canada, Canadian Community Health Survey

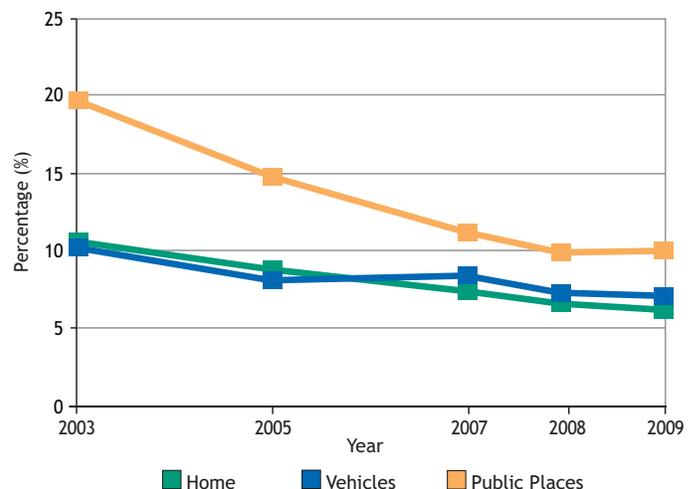
in public spaces (Figure 3). In 2003, 20% of Canadians reported exposure to second-hand smoke in public places compared to 10% in 2009. Exposure to second-hand smoke at home and in vehicles has also decreased in Canada from about 11% in 2003 to about 7% in 2009. The reasons for these declines may reflect the decreasing prevalence of smoking in Canada,¹¹⁻¹² the introduction of public smoking ban bylaws over the last several years in many jurisdictions, public education and awareness and higher cigarette prices through taxation.¹³

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The health risks associated with second-hand smoke has prompted many jurisdictions to introduce smoking bans in public, work and outdoor areas. A recent systematic review showed that legislation restricting or prohibiting smoking in work and public places does lead to a reduction in exposure to second-hand smoke¹⁴ and may have the additional benefit of decreasing exposures to second-hand smoke in private settings.¹⁴⁻¹⁵ To date, all provinces and territories have implemented comprehensive smoke-free laws in work, public and outdoor areas and eight provinces and one territory have passed smoke-free private vehicle legislation (Table 1).

The transfer of secondhand smoke between apartments in multi-unit dwellings, also referred to as “neighbor smoke”,¹⁶ is an emerging public health concern that has recently received much attention. For more information, visit <http://www.smokefreehousing.ca/>

F 3: Percentage of non-smokers aged 12+ reporting second-hand smoke exposure by location of exposure, Canada 2003 to 2009

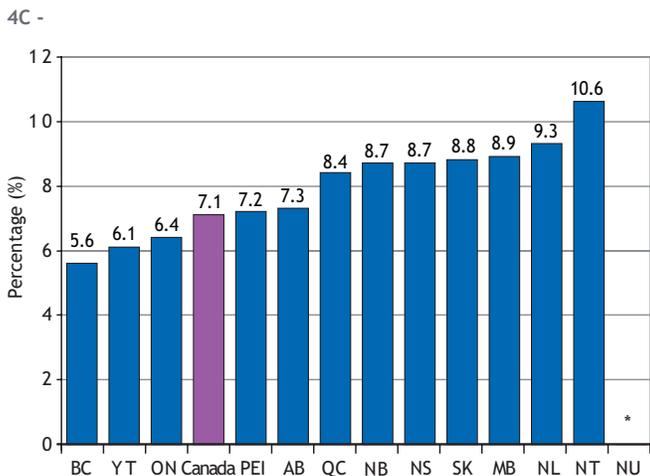
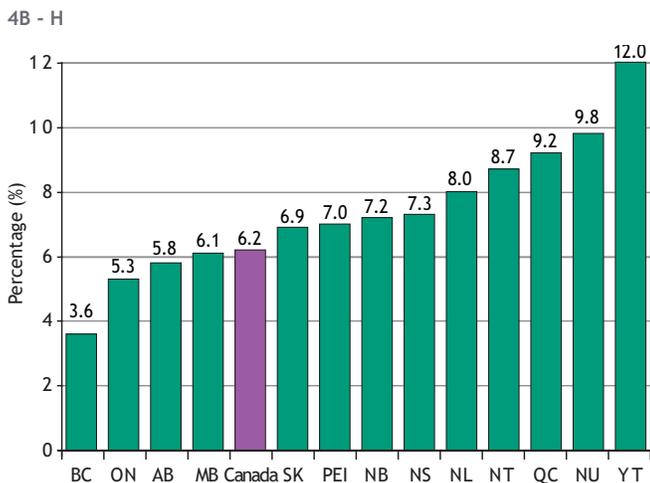
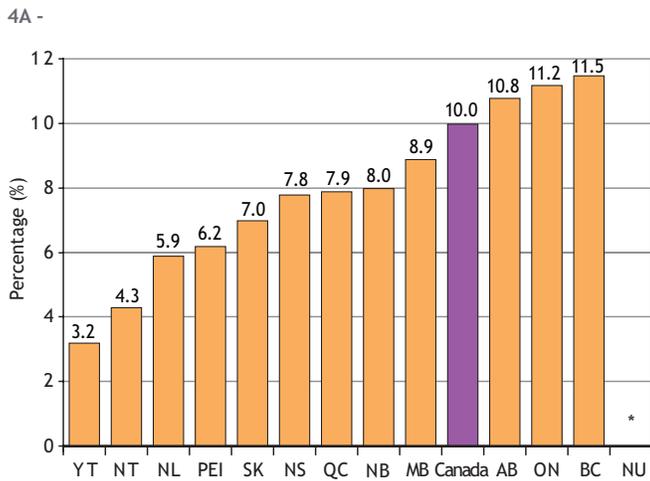


Data Source: Statistics Canada, Canadian Community Health Survey

1: Provincial and territorial legislation, and implementation year, on second-hand smoke exposure

	BC	AB	K	MB	N	C	NB	N	EI	NL	K	N	N
Workplaces	2008	2008	2009	2004	2006	2006	2004	2006	2010	2005*	2008	2004	2004
Public places	2008	2008	2005†	2004	2006	2006‡	2004	2006	2010	2005	2008	2004	2004
Outdoors													
Patios	2008†	2008		2004†	2006†	2006†	2004†	2006	2009†	2005	2008	2006†	
Near doorways, windows or air intakes§	2008	2008	2010		2006	2006		2006	2009		2008	2006	2004
Schools	2008		2010		2006	2006	2004	2006	2006		2008	2006	
Private vehicle	2009		2010	2010	2009		2010	2008	2009	2011	2008		

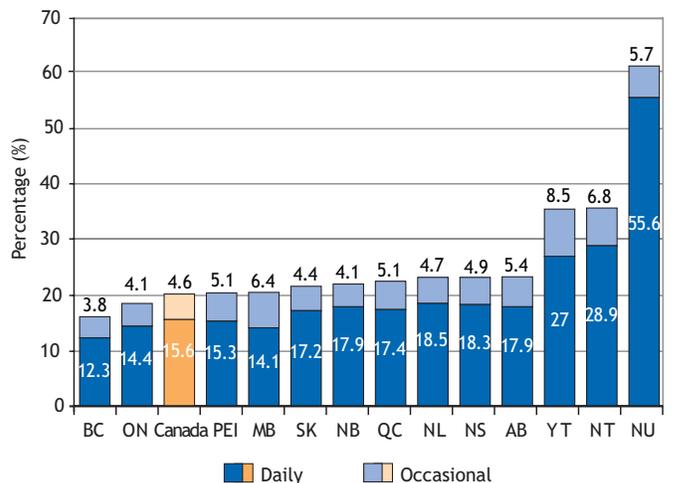
F 4: Percentage of non-smokers aged 12+ reporting second-hand smoke exposure in (A) public places, (B) the home, and (C) in vehicles by province and territory, 2009



*Suppressed due to small numbers

There is much variability across provinces and territories in exposure to second-hand smoke in public places, the home and in private vehicles (Figure 4A, B and C). Exposure to second-hand smoke in public places tends to be highest in British Columbia, Ontario and Alberta and lowest in the territories. In contrast, rates of exposure in the home are highest in the territories and lowest in British Columbia and Ontario. Exposure in private vehicles is highest in the Northwest Territories and Newfoundland and lowest in British Columbia, Yukon and Ontario. Exposure rates are related, to some extent, with smoking rates, which are high in the territories (Figure 5), and to differences across provinces and territories in anti-smoking legislation. Further exploration is needed to understand why British Columbia and Ontario have the highest rates of exposure in public places yet the prevalence of daily or occasional smoking is lowest in these two provinces.

F 5: Percentage of population aged 12+ reporting daily or occasional smoking by province and territory, 2009



† Smoking permitted on patios with restrictions.

* In Newfoundland & Labrador, designated smoking rooms (DSRs) are permitted in remote worksites.

‡ In Quebec, smoking is permitted in existing separately enclosed and ventilated cigar rooms.

§ Of public and workplaces. In ON, restriction applies to health care facilities. In QC, restriction applies to health care facilities, colleges, universities and childcare facilities.

In PEI, restriction applies to doorways of any non-smoking indoor area. In NU, restriction also includes entrances/exits of schools.

Note: PEI also prohibits smoking on hospital property, construction sites, areas of outdoor public places used as daycare centres, nursery school or kindergarten. Ontario also prohibits smoking in outdoor sports arenas and entertainment venues.

Source: Non-Smokers' Rights Association¹⁷ and Reid and Hammond (2012)¹⁸

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- While progress has been made in decreasing exposure to second hand smoke, non smoking youth living in homes with smokers continue to have higher rates of exposure to second hand smoke than adults.
- Exposure to second hand smoke among non smoking Canadians has decreased in Canada, particularly exposure in public spaces.
- All provinces and territories have implemented smoke free laws in work, public and outdoor areas and some have passed smoke free private vehicle legislation.

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