Occupational Cancer Research Centre

CAREX CANADA

Second-Hand Smoke

Burden of Occupational Cancer Fact Sheet

WHAT IS SECOND-HAND SMOKE?

Second-hand smoke (SHS) is **a mixture of tobacco smoke and ambient air produced by cigarettes or other smoking devices**. It is a combination of solid particles and gases from the burning end of tobacco products and exhaled smoke, which enters the surrounding environment and may be inhaled by others.

SHS contains more than 4,000 chemicals, of which at least 250 are known to be carcinogenic or toxic. These include arsenic, benzene, cadmium, chromium, and vinyl chloride, among others. In Canada, smoking is prohibited in nearly all enclosed public places and places of employment.

The International Agency for Research on Cancer classifies SHS as a **known carcinogen** (IARC 1).

WHAT ARE ITS HEALTH EFFECTS?

- Lung cancer
- Laryngeal cancer (suspected)
- Pharyngeal cancer (suspected)
- Eye, nose, and throat irritation
- Dizziness and nausea
- Heart disease
- Aggravation of allergies and asthma symptoms

THE BURDEN OF CANCER FROM WORKPLACE EXPOSURE TO SHS IN CANADA

The term 'burden' refers to the human impact (deaths, illness, years of life lost) and the economic costs (health care, productivity) associated with a cause or group of causes of disease.

130
Lung cancers due to workplace SHS exposure

Approximately **130 lung cancers** and possibly **20 suspected laryngeal cancers** and **35 suspected pharyngeal cancers** are due to occupational exposure to SHS each year in Canada, based on past exposures (1961-2001). This amounts to **0.6% of all lung cancers**, **1.6% of all laryngeal cancers**, and **2.4% of all pharyngeal cancers** diagnosed annually. These estimates are focused on non-smokers due to difficulties in separating the impact of personal smoking and SHS exposure on cancer risk.

WHAT IS THE ECONOMIC IMPACT?

Work-related SHS exposure resulted in approximately **$129 million in costs for newly diagnosed lung cancer cases** in 2011.

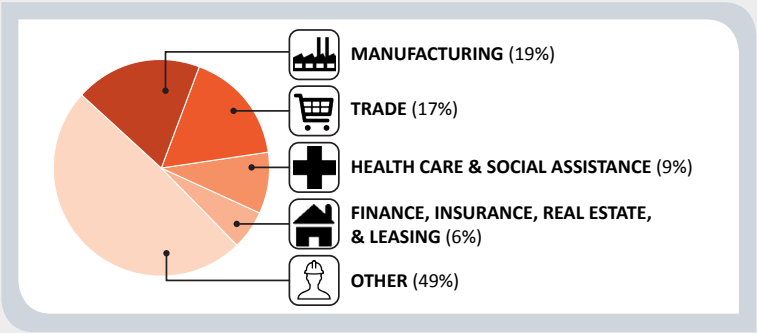
This includes approximately:

- 66% in health-related quality of life losses
- 7% in direct costs including health care, out of pocket expenses, family care giving, and workers' compensation administration
- 27% in indirect costs including output and productivity losses

$129 million
Estimated yearly cost of lung cancer due to workplace SHS exposure

WHAT WORKERS ARE MOST AFFECTED?

Most SHS-related lung cancers occur among workers in the **manufacturing** and **trade** industries (see pie chart on right). These cancers also occur among workers in health care and social assistance, and finance, insurance, real estate and leasing. Some of the other sectors affected include construction and public administration.



CAREX CANADA ASSESSMENT OF OCCUPATIONAL EXPOSURE TO SHS*

Inhalation is the most common route of occupational exposure to SHS. Approximately 520,000 Canadians are exposed to SHS at work.

Occupations with the largest number of exposed workers in Canada include:

- **Trades, transport and equipment operators** (256,000 people exposed)
- **Sales and service** (68,000 exposed)
- **Primary industry** (56,000 exposed)

Patterns of occupational exposure to SHS have changed in Canada with the introduction of smoking ban legislation in most jurisdictions. Current occupational exposure to SHS is substantially lower than in the past. Of the 520,000 exposed workers, an estimated **253,000 are exposed to high levels** (i.e. in workplaces with no smoking restrictions), and approximately 287,000 are exposed to moderate levels (i.e. in workplaces that permit designated smoking areas).

**Note: CAREX Canada estimates of exposure were not used to develop the burden of occupational cancer estimates for SHS.*

HOW CAN EXPOSURE BE REDUCED?

Smoking bans are the most effective way to reduce SHS exposure. Implementing and enforcing smoke-free legislation in all workplaces, including outdoor workplaces (e.g. construction sites), and promoting smoking cessation programs within workplaces, can help reduce exposure. For more details, visit the OCRC exposure controls webpage.

ABOUT THE BURDEN OF OCCUPATIONAL CANCER STUDY

The Burden of Occupational Cancer Study quantified the number of cancers that are caused by exposure to carcinogens in the workplace in order to identify priority areas for prevention. It was a collaboration between researchers at OCRC, CAREX Canada, the Institute for Work & Health (who led the economic analyses), University of British Columbia, Université de Montréal, Institut de recherche Robert-Sauvé en santé et en sécurité du travail, and Imperial College London.

For more information, please visit OCRC at www.occupationalcancer.ca or CAREX Canada at www.carexcanada.ca.

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Institute for Work & Health

Canadian Cancer Society / Société canadienne du cancer

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