Occupational Cancer Research Centre

CAREX CANADA

Solar Radiation

Burden of Occupational Cancer Fact Sheet

WHAT IS SOLAR RADIATION?

Solar radiation is the **main natural source of exposure to ultraviolet radiation**.

Levels of exposure vary depending on geography, seasonality, time of day and meteorology, as well as time spent out of doors and the amount of skin exposed. All outdoor occupations have a potential for exposure to solar radiation.

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

WHAT ARE ITS HEALTH EFFECTS?

- Skin cancer
- Sunburns
- Heat stress/stroke
- Thick, scaly skin patches
- Cataracts
- Eye lesions and cancer

THE BURDEN OF SKIN CANCER FROM WORKPLACE EXPOSURE TO SOLAR RADIATION 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.

4,600
Skin cancers due to workplace sun exposure

Approximately **4,600 non-melanoma skin cancers** are due to occupational solar radiation each year, based on past exposures (1961-2001). This amounts to **6.3% of non-melanoma skin cancer cases** diagnosed annually.

WHAT IS THE ECONOMIC IMPACT?

Work-related solar radiation exposure resulted in approximately **$34.2 million in costs for newly diagnosed non-melanoma skin cancer cases** in 2011.

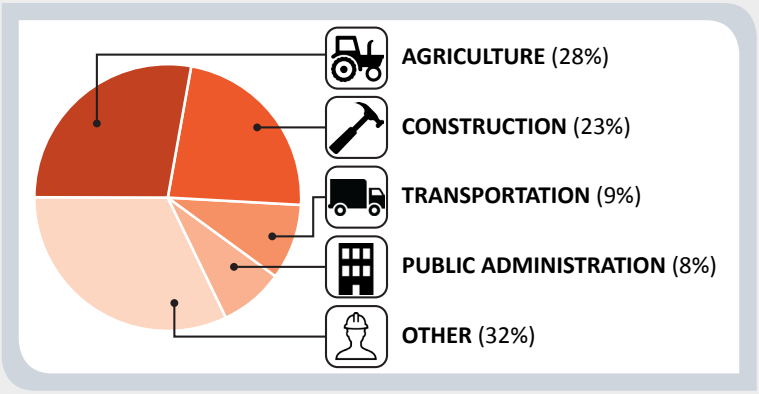
This includes approximately:

- 17% in health-related quality of life losses
- 58% in direct costs including health care, out of pocket expenses, family care giving, and workers' compensation administration
- 25% in indirect costs including output and productivity losses

$34.2 million
Estimated yearly cost of non-melanoma skin cancer due to workplace sun exposure

WHAT WORKERS ARE MOST AFFECTED?

Most occupational non-melanoma skin cancers associated with solar radiation occur among workers in the **agricultural** and **construction sectors** (see pie chart on right). These cancers also occur among workers in the transportation and public administration sectors. Some of the other sectors affected include forestry and logging, manufacturing, and mining and oil and gas extraction.



CAREX CANADA ASSESSMENT OF OCCUPATIONAL EXPOSURE TO SOLAR RADIATION

Exposure to solar radiation can occur via skin or eyes.

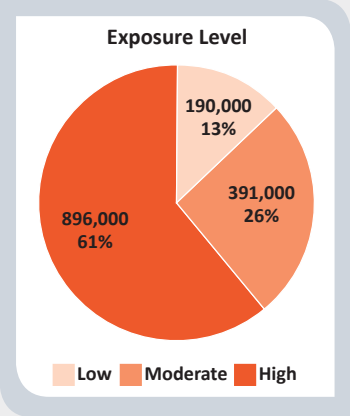
Approximately 1.5 million Canadians are exposed to solar radiation at work.

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

- **Construction (all types)** (343,000 people exposed)
- **Farms** (264,000 exposed)
- **Services to buildings and dwellings** (83,000 exposed)

Occupations with the largest number of exposed workers include:

- **Farmers and farm managers** (150,000 exposed)
- **Construction trades helpers and labourers** (125,000 exposed)
- **Landscaping and ground maintenance labourers** (115,000 exposed)



Results show the majority of workers exposed to solar radiation are in the high exposure level category, with a significant number at risk for low to moderate exposure (see pie chart above). To learn more about how these exposure levels are defined, visit the CAREX Canada website.

HOW CAN EXPOSURE BE REDUCED?

Providing shade is the best way to protect workers from solar radiation. Other controls include modifying reflective surfaces, tinting windows on vehicles, and minimizing time spent in the sun during peak UV hours (11am – 3pm). Sun Safety at Work Canada provides resources on how workplaces can develop and implement sun safety programs. 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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