



Solar Radiation

Burden of Occupational Cancer Fact Sheet



WHAT IS SOLAR RADIATION?

The sun, or 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 CANCER FROM WORKPLACE EXPOSURE TO SOLAR RADIATION IN CANADA

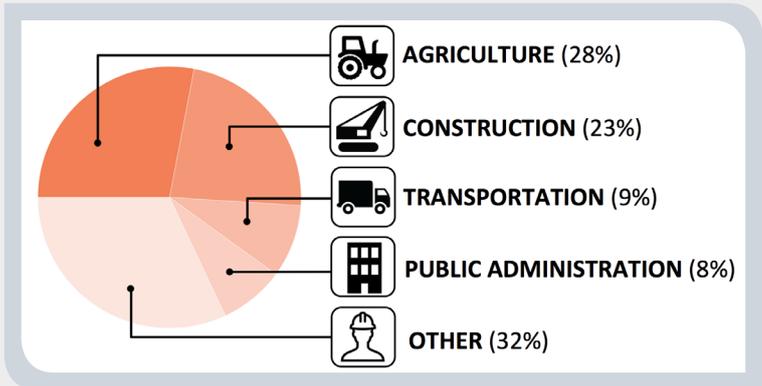
The term 'burden' refers to the human impact (deaths, illness, years of life lost) and the economic costs (health care, productivity) associated with a cause or group of causes of disease.

4560
Skin cancers caused by workplace sun exposure

Preliminary results show that approximately **4560 non-melanoma skin cancers** are attributed to occupational solar radiation each year, based on 2011 cancer statistics. This amounts to **6.3% of non-melanoma skin cancer cases** diagnosed annually.

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.

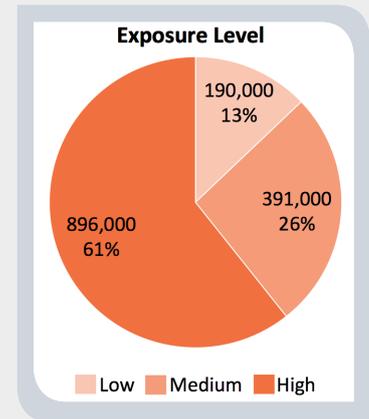
Approximately 1.5 million Canadians are exposed to solar radiation at work.

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** (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?

Solar radiation-related cancers can be prevented by reducing the number of workers exposed and ensuring that the levels of exposures are as low as reasonably achievable (ALARA). Organizations should evaluate the risk of exposure in the workplace and implement the hierarchy of controls to address the safety needs of workers.

ABOUT THE BURDEN OF OCCUPATIONAL CANCER STUDY

The Burden of Occupational Cancer Study aims to quantify the number of cancers that are caused by exposure to carcinogens in the workplace in order to identify priority areas for prevention. It is a collaboration between researchers at OCRC, CAREX Canada, the Institute for Work & Health, 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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