

Estimating carcinogen exposure using existing Canadian data

About Us

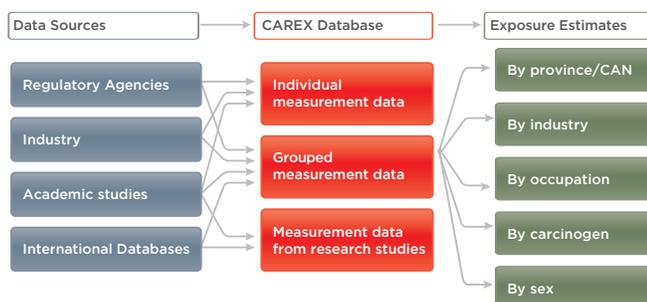
The CAREX Canada project is developing estimates of the number of Canadians exposed to known and suspected carcinogens in workplace and community environments. It will identify how and where people are exposed, and when possible, determine their level of exposure. The ultimate goal of CAREX Canada is to provide significant support for cancer prevention activities.

Our Approach: Occupational carcinogens

Our approach includes gathering and combining current and historically measured levels of potentially carcinogenic substances, from workplaces across the country. These data are being entered into a database, which will allow us to generate information about

- which occupations come into contact with workplace carcinogens;
- where exposure happens; and,
- at what levels exposure may be occurring.

This database will be an important resource not only for the CAREX project, but for all involved in workplace exposure prevention and research.



Which substances are being examined?

To date, we have produced reports on exposure for 33 high priority known and suspected carcinogens. These substances were prioritized based on their carcinogenicity and other toxic potential, the prevalence of exposure in Canada, and the feasibility of assessing exposure.

KNOWN OR SUSPECTED CARCINOGEN	NUMBER OF CANADIANS EXPOSED AT WORK*
Shift work with potential for circadian disruption	2,800,000
Solar radiation	1,500,000
Diesel engine exhaust	804,000
Silica (crystalline)	349,000
Polycyclic aromatic hydrocarbons (PAHs)	307,000
Benzene	297,000
Wood dust	293,000
UV radiation (artificial sources)	207,000
Lead	202,000
Asbestos	152,000
Chromium (hexavalent)	83,000
Nickel	50,000
Formaldehyde	42,000
Styrene	41,000
Cadmium	32,000
Cobalt	26,000
Arsenic	25,000
Toluene diisocyanates (TDI)	24,000
Dichloromethane	20,000
Antineoplastic drugs	17,000
Tetrachloroethylene	14,000
Trichloroethylene	13,000
Antimony trioxide	9,700
Acrylamide	9,000
Polychlorinated biphenyls (PCBs)	8,100
Naphthalene	7,700
Vanadium pentoxide	7,200
Acrylonitrile	5,900
Pentachlorophenol	4,300
Beryllium	3,900
Refractory ceramic fibers (RCF)	3,200
Ethylene oxide	2,400
Creosotes	1,200

*These are initial estimates and will be refined during the course of the CAREX project. Please refer to www.carexcanada.ca for a complete list of substances and estimates.

Integrating new data sources

CAREX Canada is eager to include new data sources in our workplace exposure database. As more data are obtained, our ability to develop exposure measurements for a range of exposures, provinces, and industries will improve.

How will my organization benefit from contributing our data?

Your organization may possess workplace exposure data that could contribute to CAREX Canada's research. Data formats may include paper records or individual electronic files. CAREX Canada staff could help you improve and reorganize your data into a format that is much more useful. We can help you with data management in the following ways:

- Standardization of your data so that it is comparable to other provinces and jurisdictions
- Coding industry and occupation information into a form that can be easily linked with census and labour force data
- Providing advice and assistance with conversion of paper files into a standard electronic format

How can CAREX Canada's exposure estimates be used?

The exposure estimates generated by CAREX Canada can be used by a variety of end-users in the areas of primary prevention, exposure and disease surveillance, and research. These include policy makers, cancer researchers, organizations involved in cancer prevention, health care practitioners and providers, workers' compensation authorities, and worker advocates.

USES OF THE DATA FOR PRIMARY PREVENTION

Targeting high risk groups

Setting priorities for prevention-related activities

Monitoring trends over time

Assessing the impact of regulations

USES OF THE DATA FOR SURVEILLANCE AND RESEARCH

Predicting the number of current and future disease cases likely to be associated with workplace exposures

Identifying research priorities, knowledge gaps and future needs

Improving exposure assessment for epidemiology

Improving risk assessment

Our research results are relevant to a variety of policy and research areas, in addition to cancer. Many of the substances that we are looking at are associated with other serious health effects such as asthma, neurological damage, and reproductive problems.

For example, exposure to beryllium - which has been recognized as a lung carcinogen - may also lead to respiratory disease and skin problems.

A valuable tool for your organization

We believe that CAREX Canada will provide valuable tools for your organization and others interested in workplace health. Here are some examples:

Example 1: Some recent studies indicate that current occupational exposure limits for benzene may be too high to prevent excess cases of leukemia. Your agency is contemplating a review of the exposure limits or other actions. CAREX Canada could help you to answer the following questions:

- How many people in our province are exposed to benzene?
- In what industries are the exposed workers employed?
- What are the levels of exposure and how many people are exposed at levels higher than potential new exposure limits?
- What are the trends in exposure over time?
- Where can we expect new cases of cancer in the future?
- Are there industries in which people are exposed where we (and other provinces) have no measurement data?
- Are there industries that should be targeted for study?



Example 2: New cases of beryllium sensitization and lung disease have been observed in Quebec in industries where cases were not expected. Is this a hazard that requires a response in your province? CWED and CAREX Canada could help provide fast answers to the following questions:

- Based on data from Quebec and the scientific literature, what industries potentially have exposure to beryllium?
- How many people in our province are potentially exposed to beryllium?
- What industries should be targeted for education or inspection?
- Where can we expect new cases of beryllium disease in the future?
- Are there industries that should be targeted for surveillance?

Answering these questions will help set priorities and target efforts for education, regulation, surveillance, and research.

Partnership Opportunities

Is your organization interested in contributing data to CAREX Canada? Please contact us!

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