USER TOOLKIT

OccDiseaseStats.ca

MINING

This toolkit was designed as a resource for the mining sector to describe how to use the Ontario Occupational Disease Statistics (OccDiseaseStats) data tool.

Occupational Cancer Research Centre

wsib ONTARIO

CCOHS.ca
Canadian Centre for Occupational Health and Safety

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About OccDiseaseStats.ca

Toolkit Overview

What is the OccDiseaseStats website?

Ontario Occupational Disease Statistics (occdiseasestats.ca) was created by the Occupational Cancer Research Centre (OCRC) and the Canadian Centre for Occupational Health and Safety (CCOHS). The project is funded by the Workplace Safety and Insurance Board (WSIB) of Ontario.

The website shares data from the Occupational Disease Surveillance System (ODSS). The ODSS monitors trends in work-related diseases in Ontario and identifies at-risk groups of workers. Workers, employers, and members of the broader health and safety community can explore results from the ODSS using the interactive data tool.

The ODSS includes over 2 million Ontario workers (from former WSIB claims). It links to the following administrative health databases:

- Hospital records (Discharge Abstract Database)
- Cancer records (Ontario Cancer Registry)
- Doctor visits (Ontario Health Insurance Plan (OHIP) eClaims Database)
- Emergency department visits (National Ambulatory Care Reporting System)

What is this toolkit?

This complementary guide helps users navigate the data tool available on OccDiseaseStats.ca. It provides:

1. An overview of the mining sector outlining key occupational exposures and diseases
2. A step-by-step guide on how to navigate the data tool by sector
3. Exposure reduction and control resources

Who is this toolkit for?

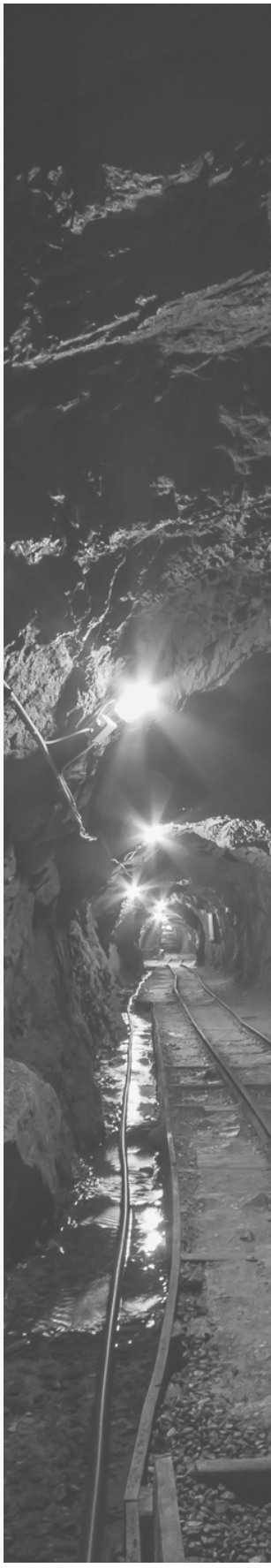
This toolkit is designed for workers, union representatives, and employers (including managers, human resources staff and occupational health and safety specialists) in the mining sector.

WORKERS

Learn how you can use the OccDiseaseStats data tool to understand occupational diseases and exposures in your workplace.

UNIONS & EMPLOYERS

Learn how you and your members/ workers can use the OccDiseaseStats data tool to understand occupational diseases and exposures in the workplace. Get resources on preventive measures that you may be able to implement to help reduce workers' health risks.



Mining Sector

Common occupational exposures

Mining industry workers may be exposed to several known carcinogens at work. Examples of common exposures include:

DIESEL ENGINE EXHAUST

NICKEL

SILICA DUST

Click the icons to learn more about each exposure or visit occdiseasestats.ca

Other exposures that may be encountered in the mining industry include asbestos, arsenic, and radon.

Common occupational diseases

Mining industry workers in the ODSS show increased risks of various cancers and other diseases, compared to all other workers in the ODSS. Examples of occupational diseases that affect mining industry workers at greater rates include:

LUNG DISEASES

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

LUNG CANCER

IDIOPATHIC PULMONARY FIBROSIS

SILICOSIS

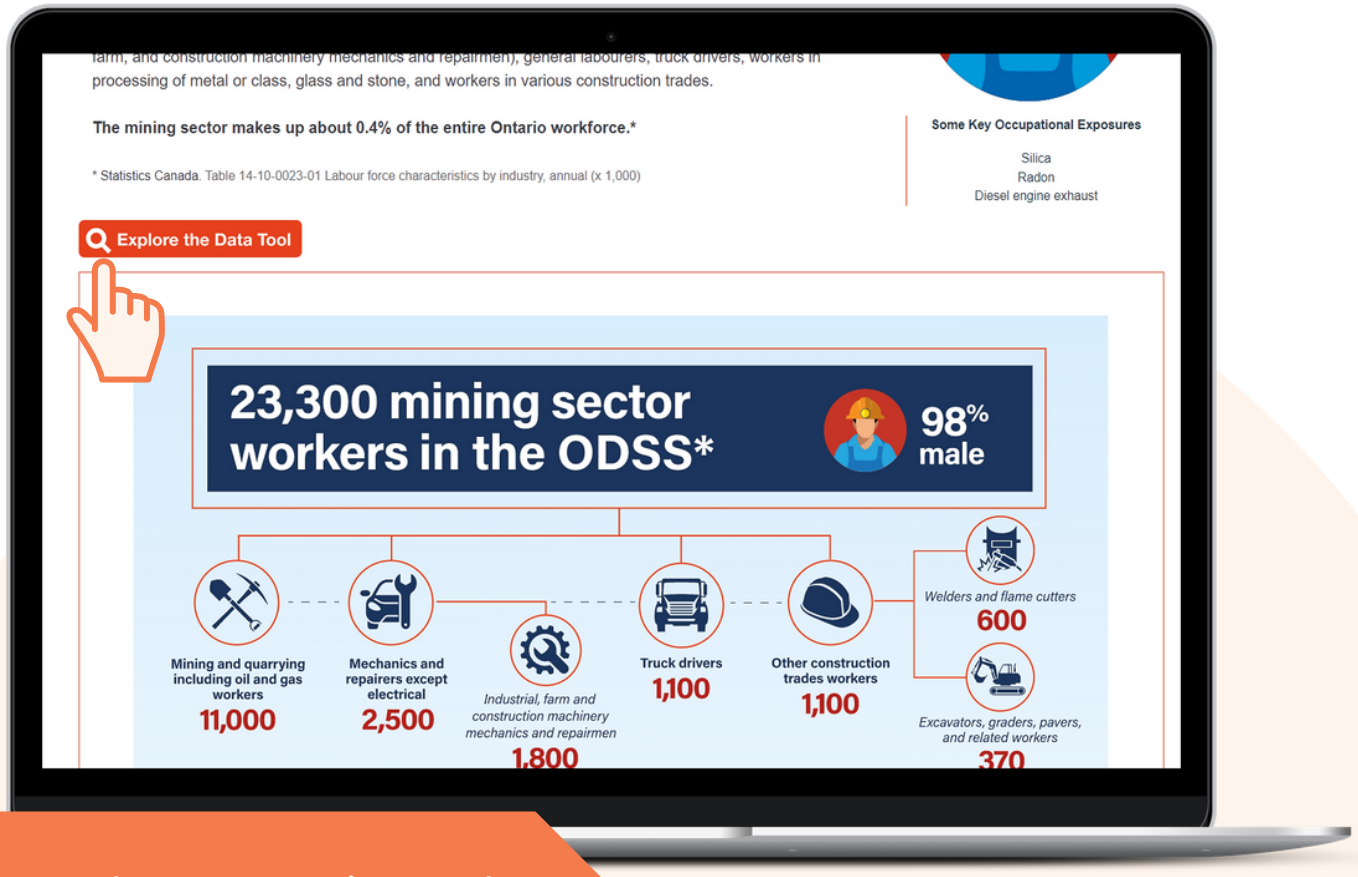
NON-LUNG DISEASES

CARPAL TUNNEL SYNDROME

RAYNAUD'S SYNDROME

Using the Data Tool

www.OccDiseaseStats.ca



Learn how to navigate the data tool step-by-step.

Data Tool Overview

Users can explore risks of occupational disease by sector or by exposure in the interactive data tool. The website is available in both English and French.

BY SECTOR

- Construction
- Food and beverage
- Healthcare
- Metal manufacturing
- **Mining***
- Plastic products
- Protective services
- Rubber products
- Transportation

BY EXPOSURE

- Asbestos
- Cleaning agents
- **Diesel engine exhaust**
- Grain and flour dust
- **Nickel**
- Polycyclic aromatic hydrocarbons
- **Silica**
- UV radiation
- Welding fumes
- Wood dust

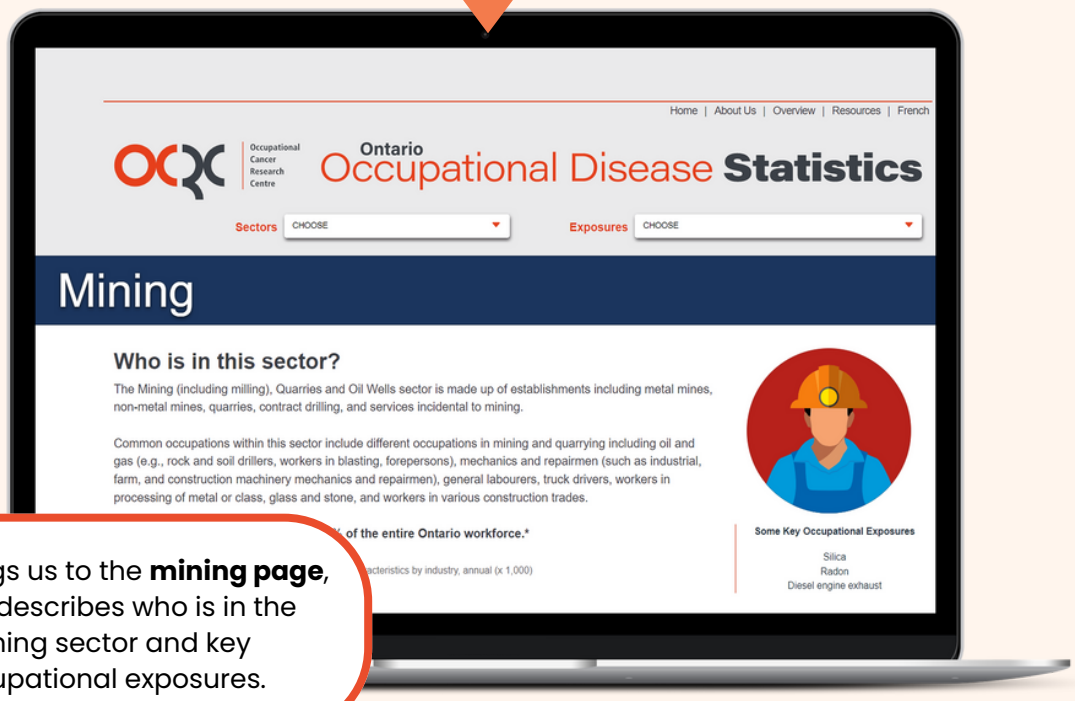
For this toolkit, you will be guided through navigating the data tool by the Mining sector. The data tool can also be navigated by other sectors, or by specific exposures.

**Data for specific industry and occupation groups within mining are available. Examples of industry groups include: metal mines, non-metal mines, quarries and sand pits, and services incidental to mining. Examples of occupation groups include: architects and engineers; mining and quarrying including oil and gas field occupations; metal machining; mineral ore treating; and motor transport operating occupations.*

Navigating by Sector

Click here to navigate in French!

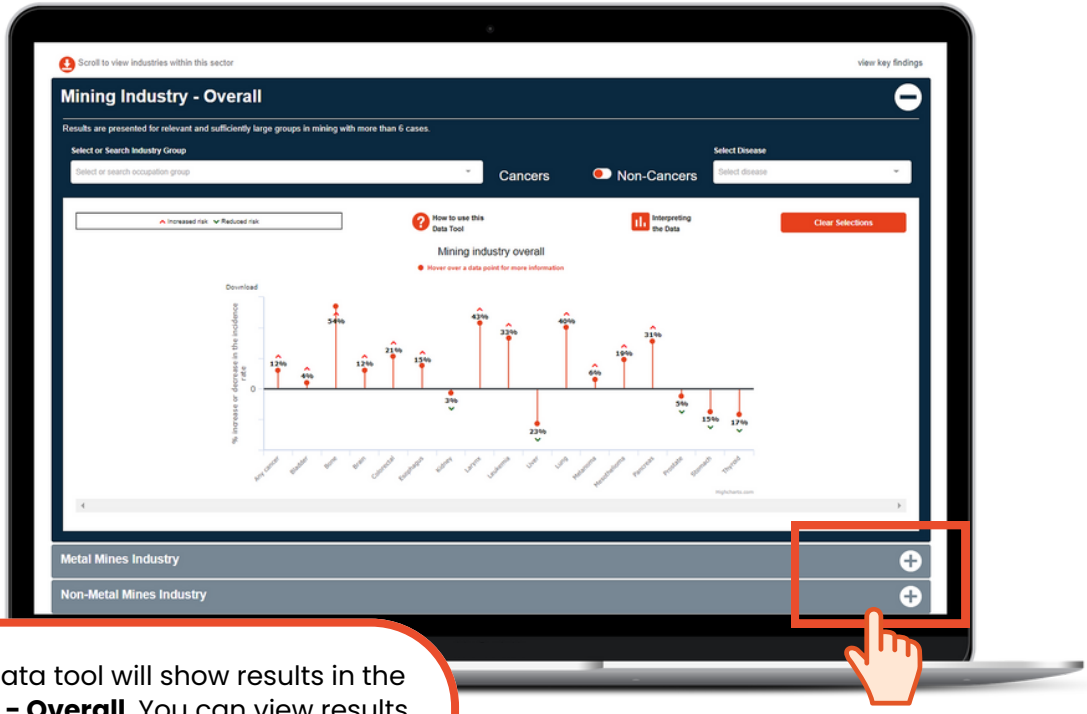
To navigate the data tool by sector, use the top left drop-down menu. In this case, you can select **Mining**.



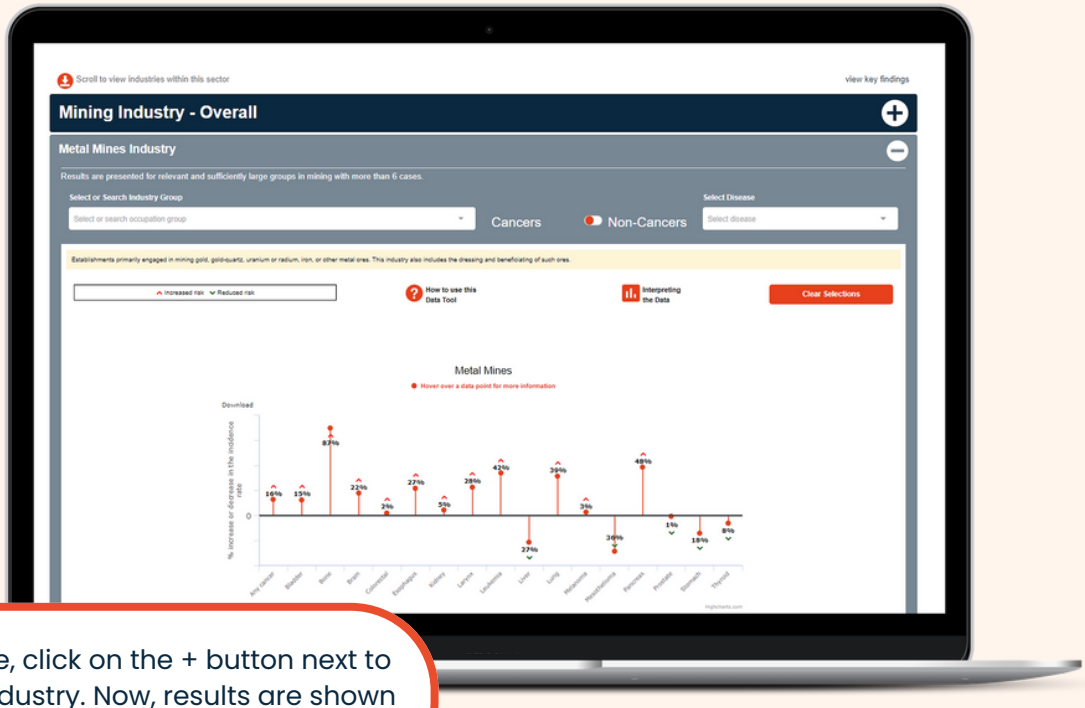
This brings us to the **mining page**, which describes who is in the mining sector and key occupational exposures.

Scroll down to view and download an infographic summarizing key findings for the **mining sector** in the ODSS. A download icon can be found at the bottom right corner.

To launch the interactive data tool for the mining sector, click the **Explore the Data Tool** button on the top left.



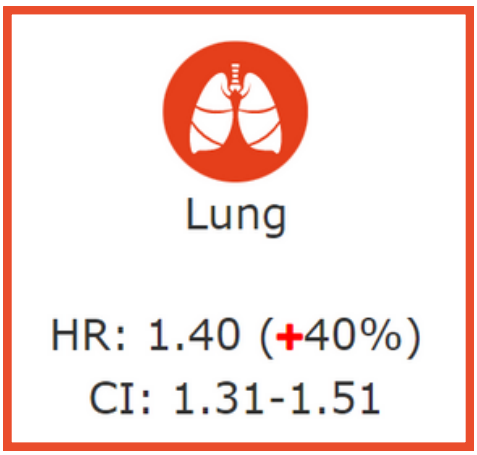
By default, the data tool will show results in the **Mining Industry - Overall**. You can view results for the metal mines industry, non-metal mines industry, quarries and sand pits industry, and services incidental to mining industry by scrolling down and clicking the + buttons on the right.



As an example, click on the + button next to Metal Mines Industry. Now, results are shown for workers in the **Metal Mines Industry.**

Interpreting risk

Returning to the **Mining industry overall** section, hover over a data point for more information on a specific disease. Here, you can hover over **lung cancer**.



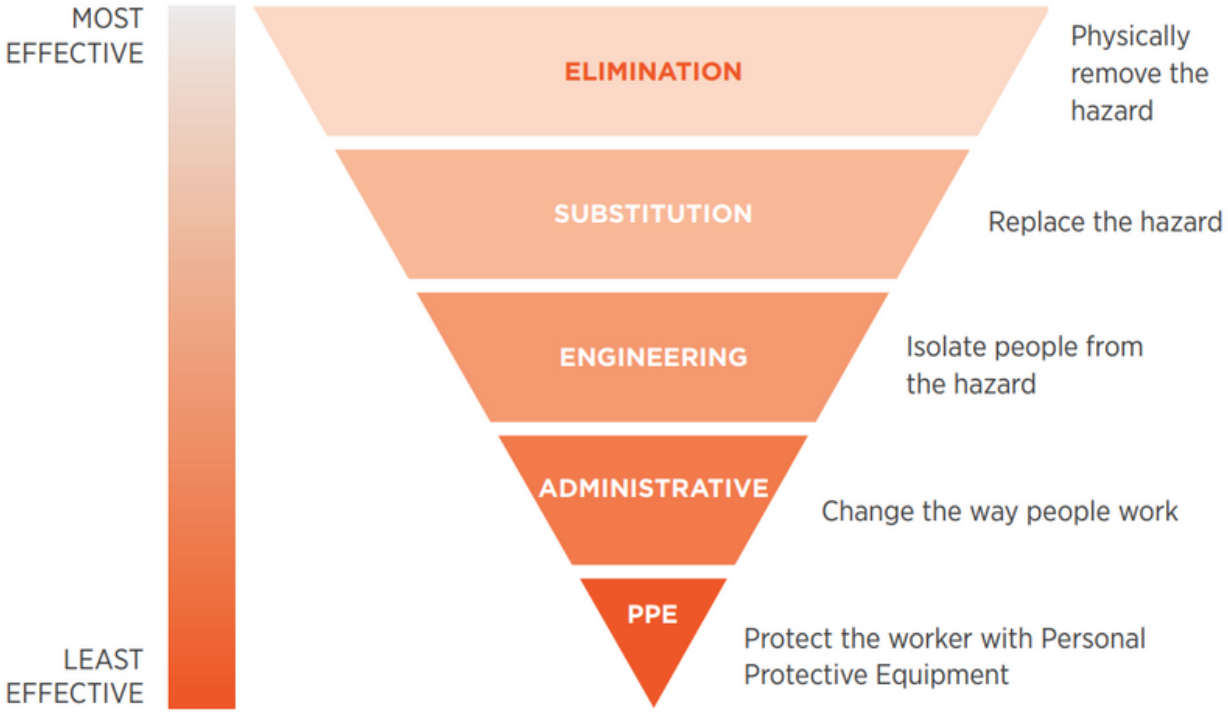
Hazard ratio (HR)* of 1.40: This indicates that workers in the mining industry show 1.40 times the risk of lung cancer, compared to all other workers in the ODSS. This is the same as saying that workers in the mining industry have a **40% increased risk** of lung cancer, compared to all workers in the ODSS.

95% confidence interval (CI)* of 1.31-1.51: This indicates that we are 95% certain that the true value of the HR is between 1.31 and 1.51.

**For more information on hazard ratios and 95% confidence intervals, click here to see Appendix.*

Resources

Hierarchy of Controls



The hierarchy of controls is a framework used to describe different control methods that reduce exposures in the workplace. The hierarchy ranks the controls from most (top) to least (bottom) effective in reducing exposures. A comprehensive hazard control program includes multiple control types across the hierarchy. We encourage employers to prioritize control strategies at the top. Control strategies with lower effectiveness (e.g., personal protective equipment) can be used as additional protection, or when other control strategies are not possible. Learn more about the hierarchy of controls here.

Reducing exposure

Learn about ways to reduce exposure to carcinogens in the workplace using higher level controls: elimination, substitution, engineering, and administrative controls. PPE can be used as additional protection for all exposures.

DIESEL ENGINE EXHAUST

Workplaces can reduce workers' exposure to diesel emissions by implementing substitution (e.g., using diesel fuel alternatives, such as natural gas, electricity, and propane), engineering (e.g., using new low-emission engines, engine exhaust treatment systems, and enclosed cabs with filtered air), and administrative controls (e.g., performing regular engine maintenance, reducing engine idling).

Learn more about diesel engine exhaust control on the **Government of Canada** webpage, the **Workplace Safety North** webpage, and the **OCRC infographic**.

NICKEL

Workers can be exposed to nickel by inhaling dusts or fumes containing nickel or nickel compounds. Strategies to reduce exposure include engineering (e.g., improving general ventilation; using local exhaust ventilation in mining plants and other enclosed areas) and administrative controls (e.g., using wetting agents to reduce dust levels; and routine cleanup using vacuums or wet sweeping). Protective clothing and gloves can reduce the risk of allergic contact dermatitis due to skin exposure.

Learn more about nickel control from the **Nickel Institute** health guide.

SILICA DUST

Processes such as drilling, crushing or blasting rock and soil can release silica dust into the air. Silica exposure control strategies include engineering (e.g., using dust collectors and filters for local exhaust ventilation in mining plants and enclosed spaces, and using enclosed positive pressure cabs with filtered air) and administrative controls (e.g., using wetting agents to reduce dust levels, and using vacuums and wet sweeping instead of dry sweeping or cleaning with compressed air).

Learn more about silica control on the **WorkSafeBC** webpage.

Additional Resources

Occupational Disease Surveillance System (OCRC)

Learn more about potential hazardous exposure and occupational diseases in Ontario by navigating disease pages, bulletins, and alerts.

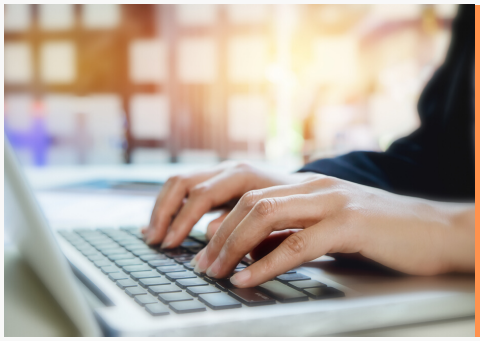
OSH Answers Fact Sheet (CCOHS)

Get resources on health and safety issues, preventive measures, and general safe work practices for work in the mining industry.

Mining Occupational Exposures (CAREX Canada)

Learn more about specific exposures in mining, how they affect health, and prevention strategies.

Additional resources for workers and employers are available on OccDiseaseStats.ca.



Acknowledgements

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The Occupational Disease Surveillance System (ODSS) is funded by the Ontario Ministry of Labour, Immigration, Training and Skills Development and Ministry of Health. The Occupational Disease Statistics: Data to Dissemination project is supported by the Workplace Safety and Insurance Board (WSIB).

Land Acknowledgment

The Occupational Cancer Research Centre (OCRC) operates on the traditional territories of the Mississauga of the New Credit First Nation, Anishnawbe, Wendat, Huron, and Haudenosaunee Indigenous Peoples. We also acknowledge that Toronto is covered by Treaty 13 with the Mississaugas of the Credit. Today, where we are able to live and work, is still the home and gathering place to many Indigenous people from across Turtle Island.

We recognize that our readers may be situated in different regions and encourage you to commit to learning and reflection about the Indigenous communities who traditionally lived and live on the lands you live on today. To learn more about the traditional territories and treaties you are on, visit **native-land.ca**.

Appendix

The ODSS estimates hazard ratios and 95% confidence intervals using Cox Proportional Hazards models. The results are adjusted for sex, year of birth, and age at start of follow-up.

HR: Hazard ratio
A hazard ratio is a measure of the risk of disease for a certain group, compared to other groups.

- HR > 1: A hazard ratio **greater than one** indicates an increased risk for that group, compared to other groups.
- HR = 1: A hazard ratio of **exactly one** indicates that the risk is the same as other groups.
- HR < 1: A hazard ratio **less than one** indicates a decreased risk for that group, compared to other groups.

CI: 95% Confidence Interval (CI)
A 95% confidence interval is a range of values within which the estimated measure, in this case hazard ratio, will be found with 95% probability.