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# User Guide

## Opioids and Work Data Tool



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# Overview of the Opioids and Work Data Tool

The [Opioids and Work Data Tool](#) is an interactive data visualization tool used for exploring data on cases and rates of opioid-related harms occurring among a large group of Ontario workers.

The tool includes three dashboards, each displaying data for a different opioid-related harm identified in emergency department and hospitalization records.

## The three opioid-related harms examined in this tool include:

- **Opioid-related poisonings:** toxicity due to an excess of opioids in one's body. Poisonings occur when opioids (pharmaceutical, non-pharmaceutical, or a combination of both) are taken incorrectly, whether accidentally or intentionally.
- **Opioid-related mental and behavioural disorders:** disorders of varying severity and clinical form (e.g., dependence, states of withdrawal or intoxication) that can be attributed to the use of opioids, whether prescribed or not.
- **Opioid-related adverse reactions:** harmful or unpleasant effects or reactions caused by prescribed opioids that have been taken or administered as prescribed.

Graphs within each dashboard can be customized to show trends in opioid-related harms over time, as well as the characteristics of the workers experiencing harms (i.e., their age, sex, health region, occupation, and industry).

## Source of the data used in the tool

This tool uses occupational and health data of approximately 1.7 million Ontario workers in the Occupational Disease Surveillance System (ODSS). Workers are included in the ODSS if they had an accepted lost-time workers' compensation claim for a work-related injury or illness between 1983 and 2019.

The data include:

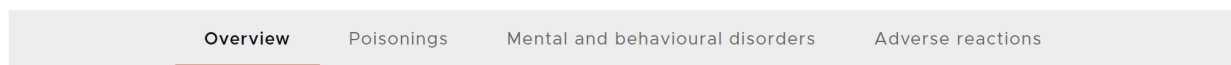
- Occupation and industry information at the time workers experienced their work-related injuries or illnesses
- Diagnoses of each opioid-related harm from records of workers' hospitalizations and visits to emergency departments in Ontario hospitals from 2006 to 2022
- Workers' demographic information (age, sex, and health region)

# Guide to using the Opioids and Work Data Tool

This user guide will walk you through how to navigate the [Opioids and Work Data Tool](#) available on the [Opioid-Related Harms among Ontario Workers project website](#). For more information on the data sources, definitions of terms used in the data tool, and calculations, see the ["Supporting information"](#) section at the end of this document.

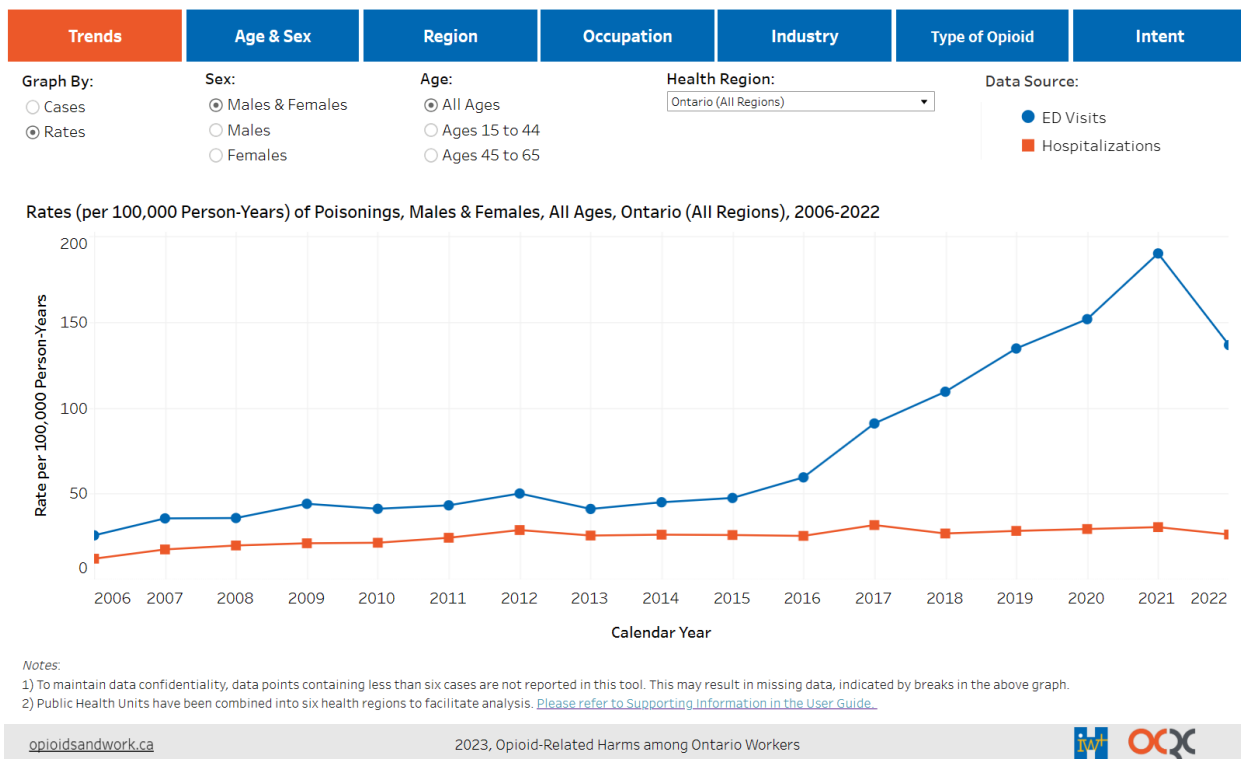
## Viewing dashboards

The [Opioids and Work Data Tool](#) includes dashboards for three different opioid-related harms: poisonings, mental and behavioural disorders, and adverse reactions. You can switch between dashboards by clicking on one of the buttons shown below.



The title of the dashboard appears at the top. For example, the dashboard below displays data for opioid-related poisonings.

### Opioid-related poisonings among 1.7 million Ontario workers



## Exploring the data tabs

Within each dashboard, you can explore the data in different ways by clicking on the tabs. The selected tab will appear orange.

For the **Poisonings** dashboard, the following tabs are available:

Trends	Age & Sex	Region	Occupation	Industry	Type of Opioid	Intent
--------	-----------	--------	------------	----------	----------------	--------

For the **Mental and Behavioural Disorders** dashboard, the following tabs are available:

Trends	Age & Sex	Region	Occupation	Industry	Type of Disorder
--------	-----------	--------	------------	----------	------------------

For the **Adverse Reactions** dashboard, the following tabs are available:

Trends	Age & Sex	Region	Occupation	Industry
--------	-----------	--------	------------	----------

Within each dashboard, measures of opioid-related harms are presented in the following ways:

1. **Cases:** a count of the total number of emergency department (ED) visits or hospitalizations due to the selected harm within a defined group of workers.
2. **Rates per 100,000 person-years:** a measure of the number of cases of an opioid-related harm occurring over a specified period of time relative to the total amount of time all workers in a defined group are followed. For example, a worker who entered the ODSS on January 1, 2006, and was followed until December 31, 2022, would contribute 17 person-years to the total amount of time workers are followed.

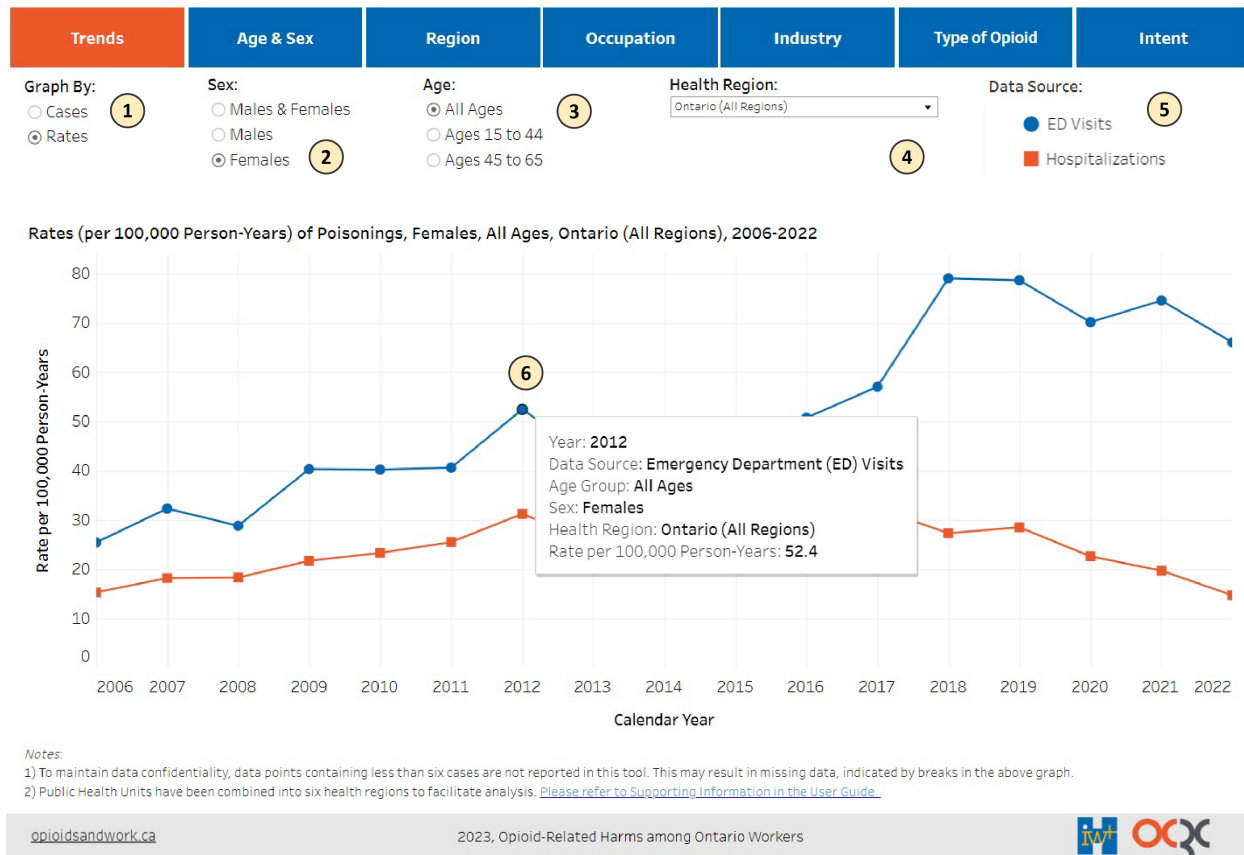
In some instances, cases may be higher or lower than rates. This is because rates take into account the size of the worker population at risk of experiencing the opioid-related harm.

3. **Percent:** a measure of the number of cases of an opioid-related harm among people with a particular characteristic (e.g., female sex) or in a specific category (e.g., intent of poisoning) relative to the total number of cases of that opioid-related harm.

The following sections provide more information on how to use each of these tabs.

## Trends tab

The **Trends** tab provides a graph of the number of cases or rates of opioid-related harms by calendar year from 2006 to 2022.



You can explore the data by filtering in different ways:

- 1) **“Graph By” filter:** display the data by the number of cases or by rates per 100,000 person-years. [Learn more about how cases and rates were calculated in "Supporting information".](#)
- 2) **“Sex” filter:** display data for both sexes combined, or separately for males or females.
- 3) **“Age” filter:** display data for all ages (i.e., ages 15-65), or separately for individuals of ages 15-44 or ages 45-65.
- 4) **“Health Region” filter:** display data for the entire province or for a specific health region in Ontario. [Learn more about how health regions were created in "Supporting information".](#)

The following features provide useful information about the visualization:

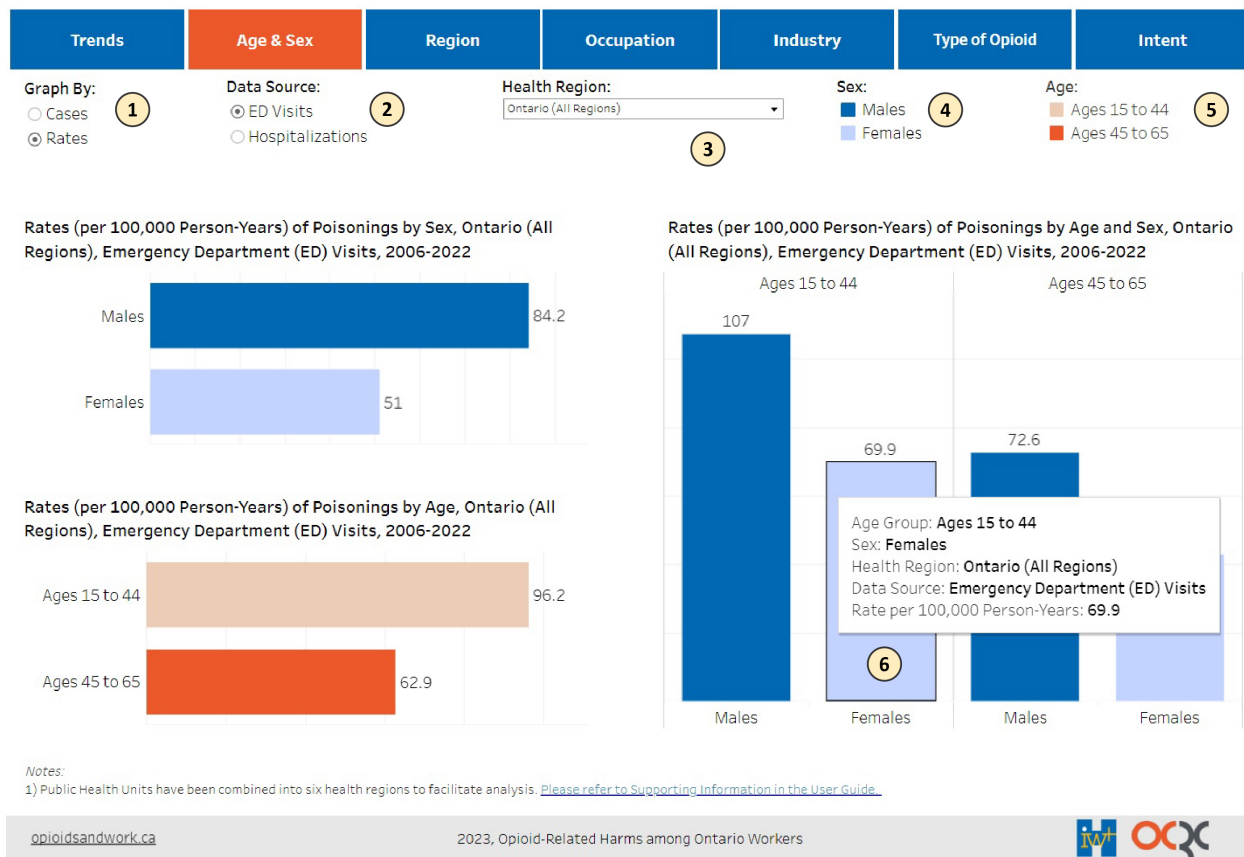
- 5) **“Data Source” legend:** shows the colours and shapes for each data source displayed in the graph. The blue line with circle data points represents emergency department (ED) visits and the orange line with square data points represents hospitalizations. [Learn more about these data sources in "Supporting information"](#).
- 6) **Hover** over any point on the line graph to see a summary of information for the data point, including the exact number of cases or rates for a particular year.

Breaks in the line graphs may occur when there are too few cases at a particular data point. For confidentiality reasons, we suppress the data when there are fewer than six cases. [Learn more about data suppression in "Supporting information"](#).



## Age & Sex tab

The **Age & Sex** tab displays a set of bar charts of the number of cases or rates of opioid-related harms by sex, by age, and by sex and age combined.



You can explore the data by filtering in different ways:

- 1) **“Graph By” filter:** display the data by the number of cases or by rates per 100,000 person-years. [Learn more about how cases and rates were calculated in "Supporting information".](#)
- 2) **“Data Source” filter:** display data from emergency department (ED) visits or hospitalizations. [Learn more about these data sources in "Supporting information".](#)
- 3) **“Health Region” filter:** display data for the entire province or for a specific health region in Ontario. [Learn more about how health regions were created in "Supporting information".](#)

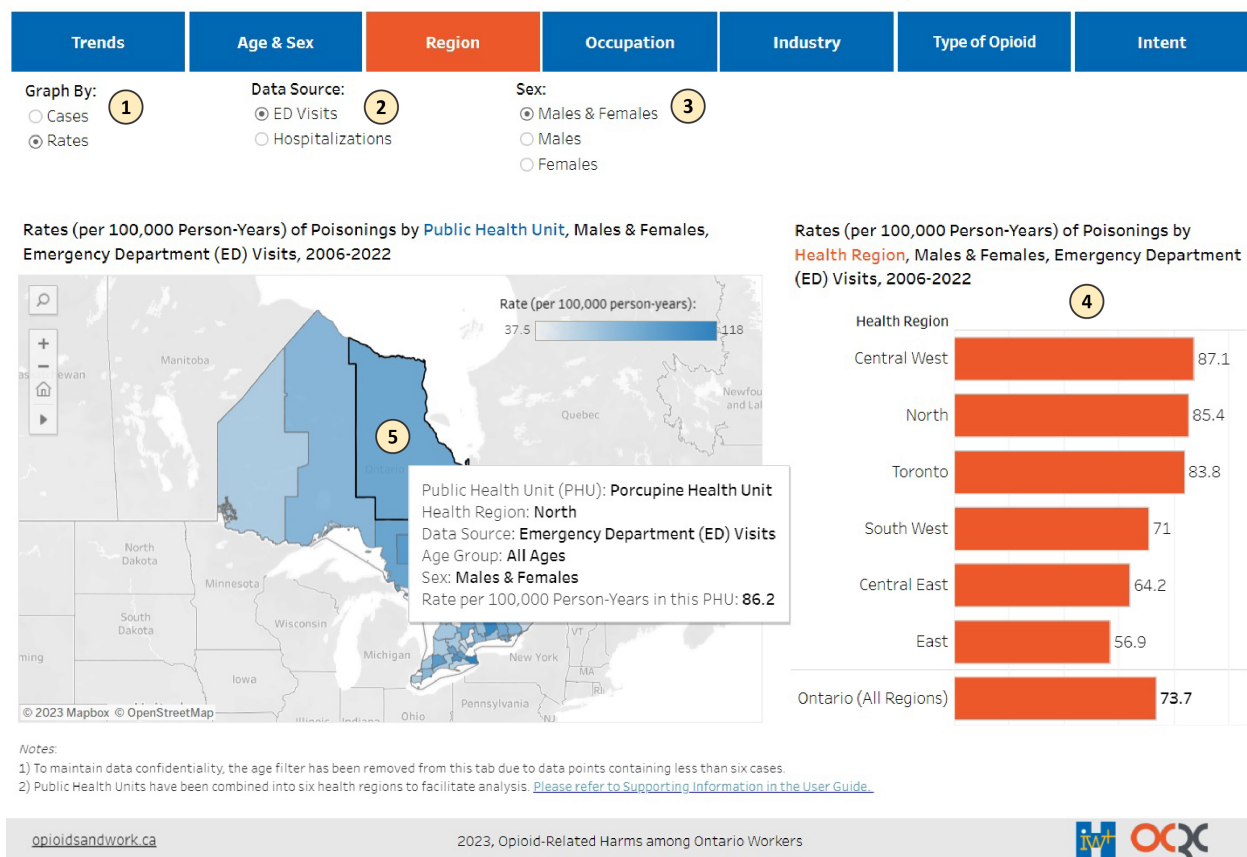
**The following features provide useful information about the visualization:**

- 4) **“Sex” legend:** shows the colours for each sex displayed in the graphs. The light blue bars show data for females and the dark blue bars show data for males.
- 5) **“Age” legend:** shows the colours for each age group displayed in the graphs. The light orange bars show data for ages 15-44 years and the dark orange bars show data for ages 45-65 years.
- 6) **Hover** over any bar on the graphs to see a summary of information for the data point.

## Region tab

The **Region** tab provides two sets of graphs:

- A map on the left side displaying the number of cases or rates of opioid-related harms by Public Health Unit.
- A bar chart on the right side displaying the number of cases or rates of opioid-related harms by health region. These regions were created by combining Public Health Units into six groups. [Learn more about how health regions were created in "Supporting information".](#)

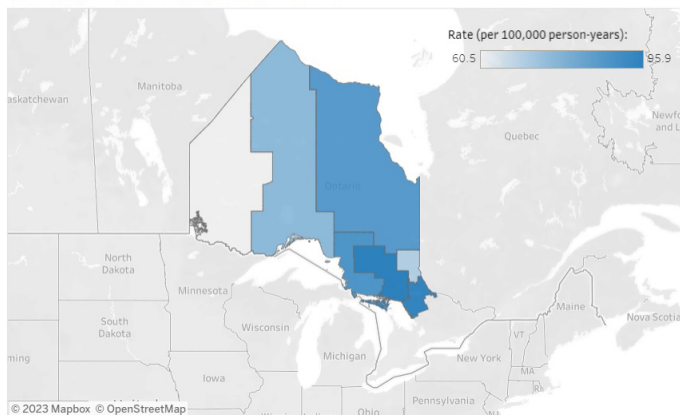


You can explore the data by filtering in different ways:

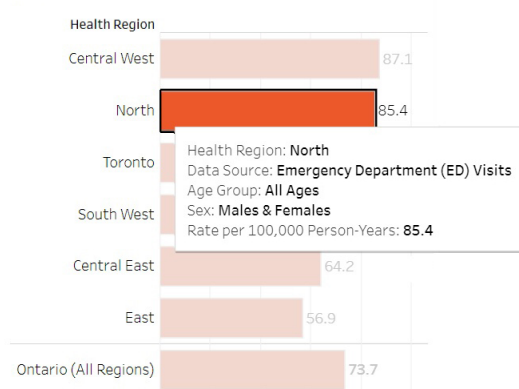
- 1) **"Graph By" filter:** display the data by the number of cases or by rates per 100,000 person-years. [Learn more about how cases and rates were calculated in "Supporting information".](#)

- 2) **“Data Source” filter:** display data from emergency department (ED) visits or hospitalizations. [Learn more about these data sources in "Supporting information"](#).
- 3) **“Sex” filter:** display data for both sexes combined, or separately for males or females.
- 4) **Click on a Health Region bar to filter the map** to view only Public Health Units included in that health region (shown below). To view the entire province in the map, click on the “Ontario (All Regions)” bar.

Rates (per 100,000 Person-Years) of Poisonings by **Public Health Unit**, Males & Females, Emergency Department (ED) Visits, 2006-2022



Rates (per 100,000 Person-Years) of Poisonings by **Health Region**, Males & Females, Emergency Department (ED) Visits, 2006-2022



The following features provide useful information about the visualization:

- 5) **Hover** over any area of the map or any bar of the bar chart to see a summary of information on the data point, including the exact number of cases or rates, as well as public health unit, for a particular area of the map.

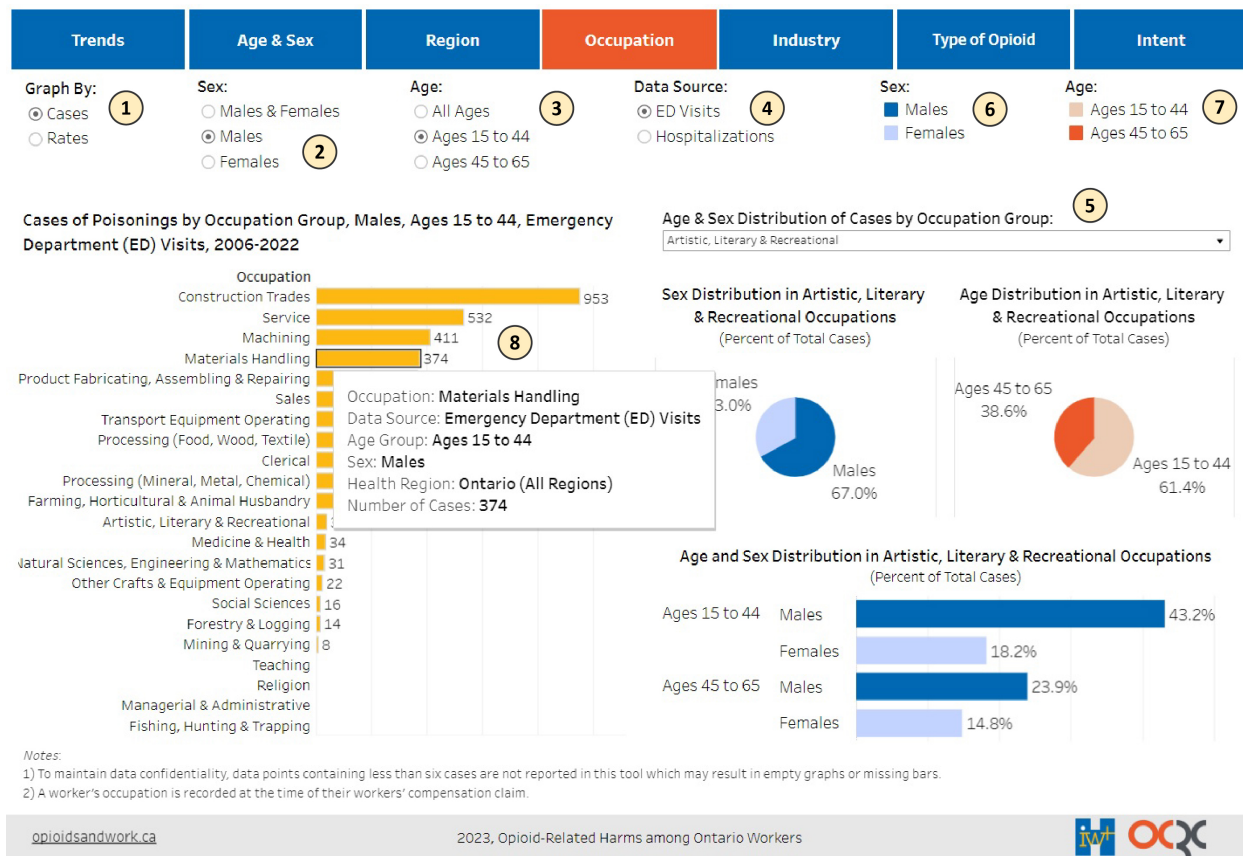
Data may not be displayed when there are too few cases. For confidentiality reasons, we suppress the data when there are fewer than six cases. The “Age” filter has also been removed from this tab because of sparse data. [Learn more about data suppression in "Supporting information"](#).

# Occupation tab

The **Occupation** tab provides two sets of graphs:

- A bar chart on the left side displaying the number of cases or rates of opioid-related harms by occupation.
- A set of charts on the right side displaying the percent of cases of opioid-related harms occurring among different occupational groups by sex, by age, and by sex and age combined.

[Learn more about the occupation groups in “Supporting information”.](#)





**You can explore the data by filtering in different ways:**

- 1) **“Graph By” filter:** display the data by the number of cases or by rates per 100,000 person-years. [Learn more about how cases and rates were calculated in "Supporting information"](#). *Please note this filter will apply only to the bar chart on the left side of the dashboard.*
- 2) **“Sex” filter:** display data for both sexes combined, or separately for males or females. *Please note this filter will apply only to the bar chart on the left side of the dashboard.*
- 3) **“Age” filter:** display data for all ages (i.e., ages 15-65), or separately for individuals of ages 15-44 or ages 45-65. *Please note this filter will apply only to the bar chart on the left side of the dashboard.*
- 4) **“Data Source” filter:** display data from emergency department (ED) visits or hospitalizations. [Learn more about these data sources in "Supporting information"](#). *This filter applies to all graphs on this tab simultaneously.*
- 5) **“Age and Sex Distribution of Cases by Occupation Group” filter:** select a particular occupation group from the drop-down menu to display the percent of cases occurring within that occupation by age and sex. [Learn more about how percent was calculated in "Supporting information"](#). *Please note that this filter will apply only to the pie and bar charts on the right side of the dashboard.*

**The following features provide useful information about the visualization:**

- 6) **“Sex” legend:** shows the colours for each sex displayed in the graphs on the right side of the dashboard. The light blue bars show data for females and the dark blue bars show data for males. *Please note this legend will apply only to the pie and bar charts on the right side of the dashboard.*
- 7) **“Age” legend:** shows the colours for each age group displayed in the graphs on the right side of the dashboard. The light orange bars show data for ages 15-44 years and the dark orange bars show data for ages 45-65 years. *Please note this legend will apply only to the pie charts on the right side of the dashboard.*
- 8) **Hover** over any bar of the bar chart or any piece of a pie chart to see a summary of information for the data point.

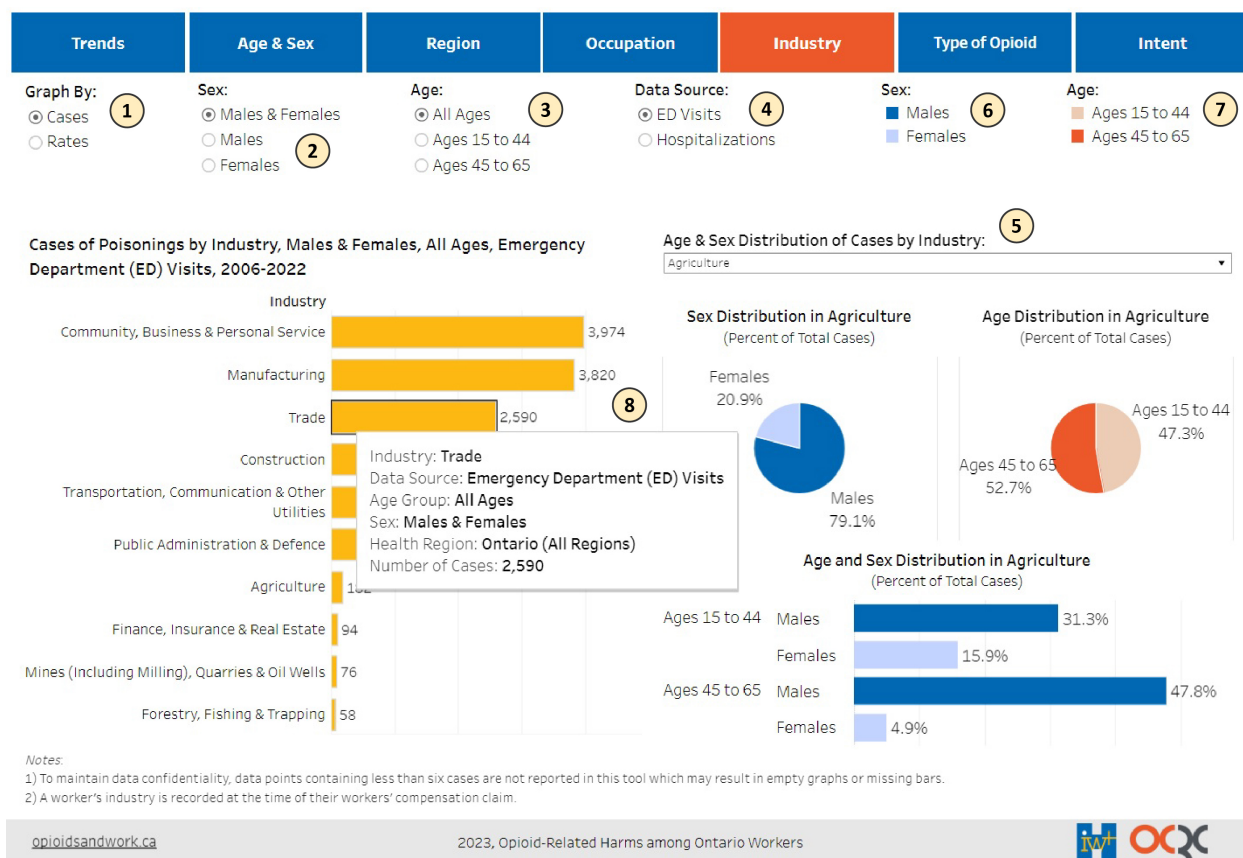
Data may not be displayed when there are too few cases. For confidentiality reasons, we suppress the data when there are fewer than six cases. [Learn more about data suppression in "Supporting information"](#).

## Industry tab

The **Industry** tab provides two sets of graphs:

- A bar chart on the left side displaying the number of cases or rates of opioid-related harms by industry.
- A set of charts on the right side displaying the percent of cases of opioid-related harms occurring among different industry groups by sex, by age, and by sex and age combined.

[Learn more about the industry groups in “Supporting information”.](#)



You can explore the data by filtering in different ways:

- 1) **“Graph By” filter:** display the data by the number of cases or by rates per 100,000 person-years. [Learn more about how cases and rates were calculated in “Supporting information”.](#) Please note this filter will apply only to the bar chart on the left side of the dashboard.

- 2) **“Sex” filter:** display data for both sexes combined, or separately for males or females. *Please note this filter will apply only to the bar chart on the left side of the dashboard.*
- 3) **“Age” filter:** display data for all ages (i.e., ages 15-65), or separately for individuals of ages 15-44 or ages 45-65. *Please note this filter will apply only to the bar chart on the left side of the dashboard.*
- 4) **“Data Source” filter:** display data from emergency department (ED) visits or hospitalizations. [Learn more about these data sources in "Supporting information"](#). *This filter applies to all graphs on this tab simultaneously.*
- 5) **“Age and Sex Distribution of Cases by Industry” filter:** select a particular industry from the drop-down menu to display the percent of cases occurring within that industry by age and sex. [Learn more about how percent was calculated in "Supporting information"](#). *Please note that this filter will apply only to the pie and bar charts on the right side of the dashboard.*

**The following features provide useful information about the visualization:**

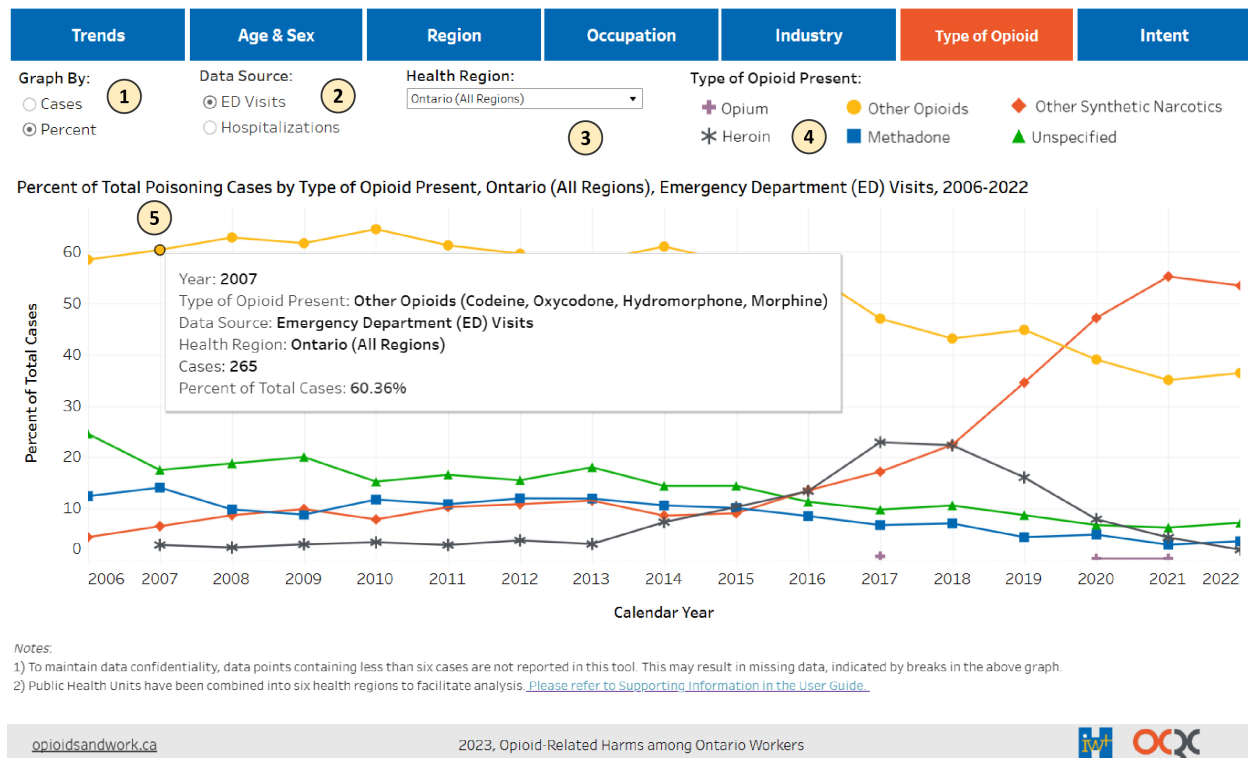
- 6) **“Sex” legend:** shows the colours for each sex displayed in the graphs on the right side of the dashboard. The light blue bars show data for females and the dark blue bars show data for males. *Please note this legend will apply only to the pie and bar charts on the right side of the dashboard.*
- 7) **“Age” legend:** shows the colours for each age group displayed in the graphs on the right side of the dashboard. The light orange bars show data for ages 15-44 years and the dark orange bars show data for ages 45-65 years. *Please note this legend will apply only to the pie and bar charts on the right side of the dashboard.*
- 8) **Hover** over any bar of the bar charts or any piece of a pie chart to see a summary of information for the data point.

Data may not be displayed when there are too few cases. For confidentiality reasons, we suppress the data when there are fewer than six cases. [Learn more about data suppression in "Supporting information"](#).

## Type of Opioid tab (Poisonings dashboard only)

The **Type of Opioid** tab provides a graph of the number or percent of poisoning cases over time (from 2006 to 2022) by type of opioid present.

[Learn more about the types of opioids in "Supporting information".](#)



You can explore the data by filtering in different ways:

- 1) **"Graph By" filter:** display the data by the number of cases or by percent of total cases. [Learn more about how cases and percent were calculated in "Supporting information".](#)
- 2) **"Data Source" filter:** display data from emergency department (ED) visits or hospitalizations. [Learn more about these data sources in "Supporting information".](#)
- 3) **"Health Region" filter:** display data for the entire province or for a specific health region in Ontario. [Learn more about how health regions were created in "Supporting information".](#)

The following features provide useful information about the visualization:

- 4) **"Type of Opioid Present" legend:** shows the colours and shapes for each type of opioid displayed in the graph. The grey line with asterisk data points represents heroin; the blue

line with square data points represents methadone; the purple line with cross data points represents opium; the yellow line with circle data points represents other opioids; the dark orange line with diamond data points represents other synthetic narcotics; and the green line with triangle data points represents unspecified and other narcotics. [Learn more about these types of opioids in "Supporting information".](#)

- 5) **Hover** over any point on the line graph to see a summary of information for the data point, including the exact number of cases or percent for a particular year.

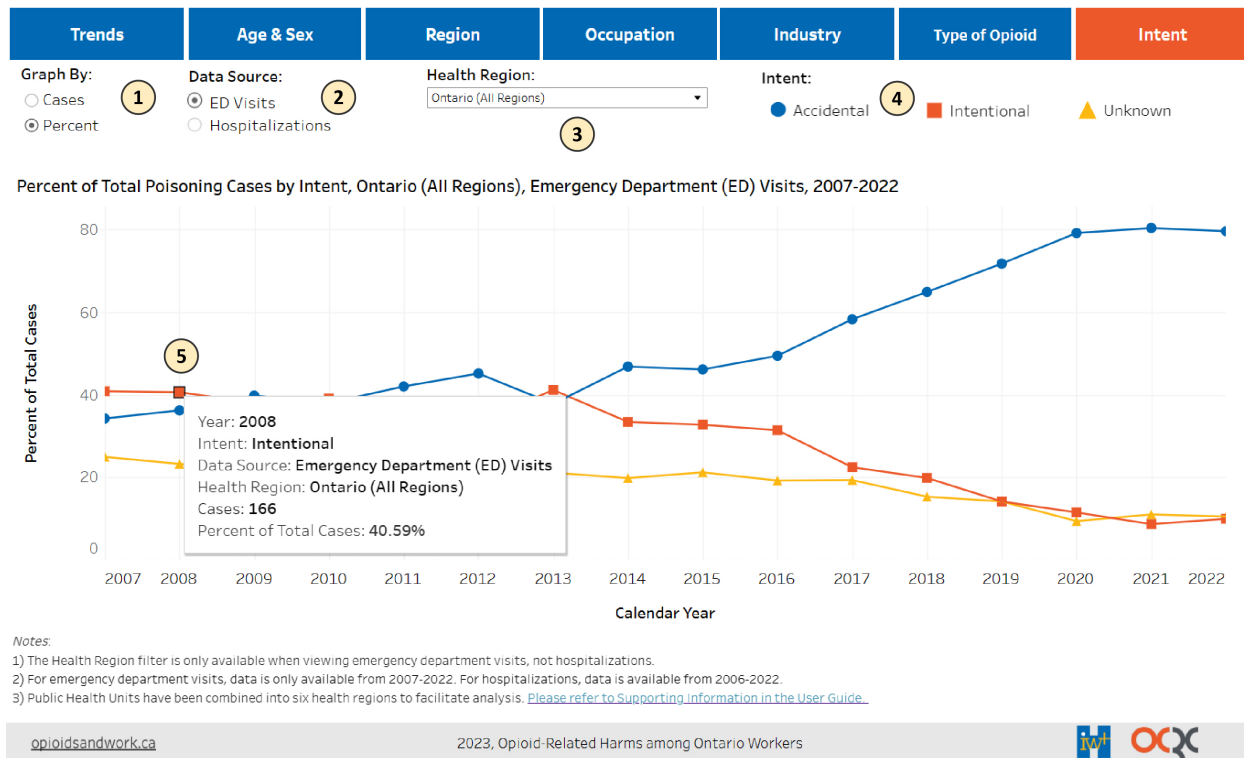
Breaks in the line graphs may occur when there are too few cases at a particular data point. For confidentiality reasons, we suppress the data when there are fewer than six cases. [Learn more about data suppression in "Supporting information".](#)



## Intent tab (Poisonings dashboard only)

The **Intent** tab provides a graph of the number or percent of poisoning cases over time (from 2006/2007 to 2022) by the intent behind the poisoning.

[Learn more about the poisoning intent categories in "Supporting information".](#)



You can explore the data by filtering in different ways:

- 1) **“Graph By” filter:** display the data by the number of cases or by percent of total cases. [Learn more about how cases and percent were calculated in "Supporting information".](#)
- 2) **“Data Source” filter:** display data from emergency department (ED) visits or hospitalizations. [Learn more about these data sources in "Supporting information".](#)
- 3) **“Health Region” filter:** display data for the entire province or for a specific health region in Ontario. [Learn more about how health regions were created in "Supporting information".](#) Please note this filter will only apply when viewing data for emergency department visits, not hospitalizations.

The following features provide useful information about the visualization:

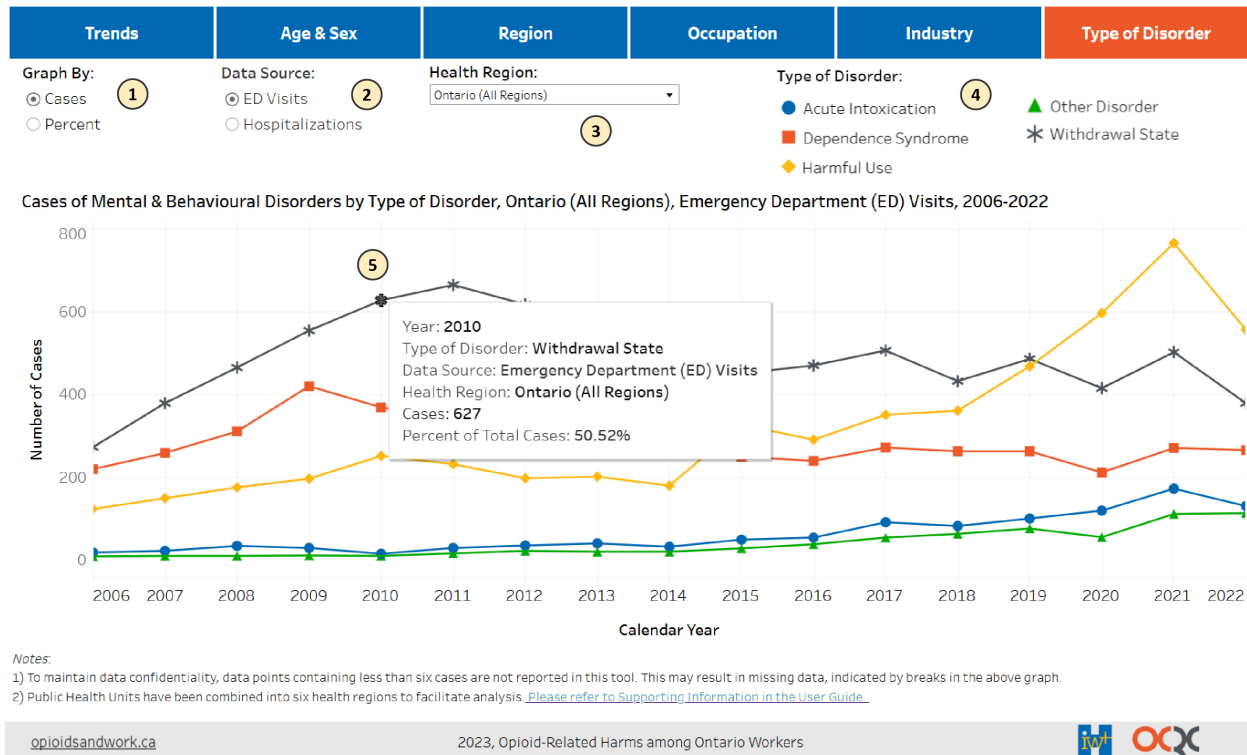
- 4) **“Intent” legend:** shows the colours and shapes for each intent category displayed in the graph. The blue line with circle data points represents accidental poisonings; the orange line with square data points represents intentional poisonings; and the yellow line with triangle data points represents poisonings of unknown intent. [Learn more about these intent categories in "Supporting information"](#).
- 5) **Hover** over any point on the line graph to see a summary of information for the data point, including the exact number of cases or percent for a particular year.

Breaks in the line graphs may occur when there are too few cases at a particular data point. For confidentiality reasons, we suppress the data when there are fewer than six cases. [Learn more about data suppression in "Supporting information"](#).

## Type of Disorder tab (Mental and behavioural disorders dashboard only)

The **Type of Disorder** tab provides a graph of the number or percent of mental and behavioural disorder cases over time (from 2006 to 2022) by the type of disorder diagnosis.

[Learn more about the types of disorders in "Supporting information".](#)



You can explore the data by filtering in different ways:

- 1) **"Graph By" filter:** display the data by the number of cases or percent of total cases. [Learn more about how cases and percent were calculated in "Supporting information".](#)
- 2) **"Data Source" filter:** display data from emergency department (ED) visits or hospitalizations. [Learn more about these data sources in "Supporting information".](#)
- 3) **"Health Region" filter:** display data for the entire province or for a specific health region in Ontario. [Learn more about how health regions were created in "Supporting information".](#)

The following features provide useful information about the visualization:

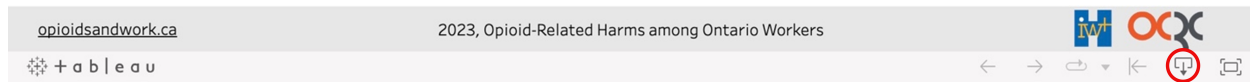
- 4) **“Type of Disorder” legend:** shows the colours and shapes for each disorder diagnosis category displayed in the graph. The blue line with circle data points represents acute intoxication; the orange line with square data points represents dependence syndrome; the yellow line with diamond data points represents harmful use; the green line with triangle data points represents other disorder; and the grey line with asterisk data points represents withdrawal state (with or without delirium). [Learn more about these disorder categories in "Supporting information"](#).
- 5) **Hover** over any point on the line graph to see a summary of information for the data point, including the exact number of cases or percent for a particular year.

Breaks in the line graphs may occur when there are too few cases at a particular data point. For confidentiality reasons, we suppress the data when there are fewer than six cases. [Learn more about data suppression in "Supporting information"](#).

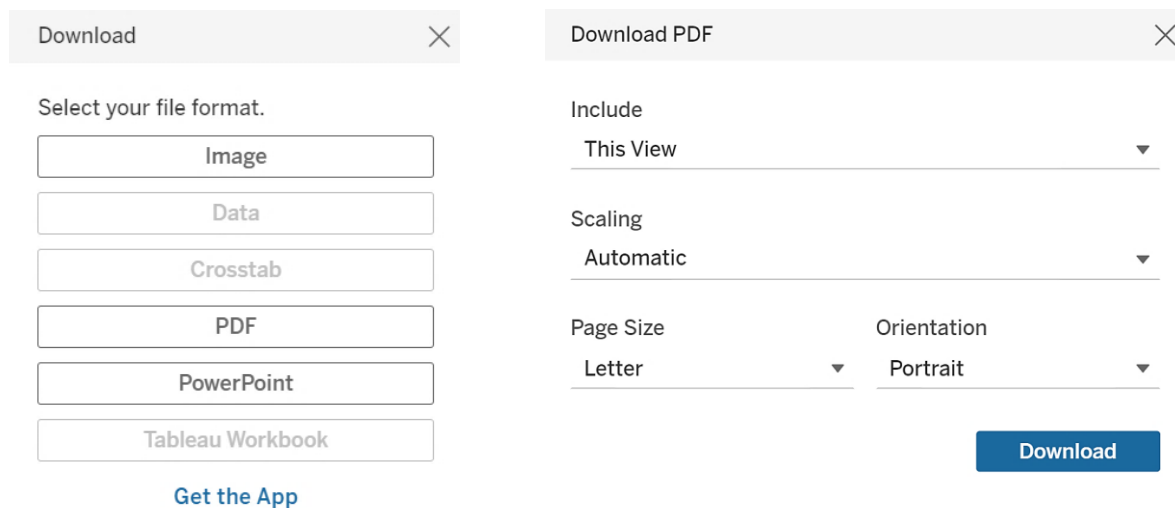
## Downloading, sharing, and printing

### Downloading graphs

You can download the graphs using the icon on the bar at the bottom of each dashboard as circled below.



Download the current graph as an image (.png), as a PDF, or as a PowerPoint file. *Note: for PDF and PowerPoint downloads, choose the “This View” download option.*



### Sharing and printing dashboard webpages

Click on the Facebook, LinkedIn, X (formerly Twitter), and email icons below each dashboard to create a link to share the dashboard. Please note that the link created points to the selected dashboard webpage, which includes the dashboard with the default graph view.

You can also print the selected dashboard webpage using the print icon below each dashboard. Please note that the current graph will be printed.





# Supporting information

## Data sources

There are four administrative databases that have been linked in the Occupational Disease Surveillance System (ODSS) and that are used for the creation of this tool.

### 1. Ontario Workplace Safety and Insurance Board (WSIB) accepted lost-time compensation claim records

All workers included in the ODSS have had at least one lost-time workers' compensation claim accepted by the WSIB from 1983 to 2019 for a work-related injury or illness. Occupation and industry information used in this tool are obtained from these claim records and represent occupation and industry at the time the worker experienced their work-related injury or illness.

### 2. Discharge Abstract Database (DAD)

The DAD contains data for hospital discharges from acute care institutions (including deaths, sign-outs and transfers), as well as day surgery procedures, long-term care, rehabilitation and other types of care. Opioid-related hospitalizations are identified in this data source from 2006 to 2022 using [International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Canada \(ICD-10-CA\) diagnostic codes](#).

In the DAD, a maximum of 25 diagnostic codes can be entered for a single admission record. For each diagnostic field, there is also an associated diagnosis type. Diagnosis type is used to classify the impact of a diagnosis on the patient's care. The following diagnosis types identify "significant" diagnoses (i.e., those considered to be influential to the time spent in hospital and/or patient treatment received in hospital):

- Type M: Most responsible diagnosis (the diagnosis or condition that can be described as being most responsible for the patient's stay in a facility)
- Type 1: Pre-admit comorbidity (a diagnosis or condition that existed prior to admission)
- Type 2: Post-admit comorbidity (a diagnosis or condition that arises post-admission)
- Type 6: Proxy most responsible diagnosis (assigned to a designated asterisk code in a dagger/asterisk convention when the condition it represents fulfills the requirements stated in the definition for diagnosis Type M. Asterisk codes are manifestations of an underlying condition and, according to World Health Organization (WHO) rules, must be sequenced following the code for the underlying cause. The underlying cause codes are identified with a dagger symbol in the ICD-10-CA classification.)
- Types W, X, Y: Service transfer diagnoses (diagnoses associated with the first, second or third service transfer, respectively)

For the purposes of identifying hospitalizations for opioid-related poisonings and opioid-related mental and behavioural disorders in the DAD, relevant diagnostic codes with a diagnosis type M, 1, 2, 6, W, X, or Y are included.

For the purposes of identifying hospitalizations for opioid-related adverse reactions in the DAD, relevant diagnostic codes with a diagnosis type 9 are included, used to identify external cause of injury codes.

However, for all opioid-related harms, ICD-10-CA diagnostic codes with a prefix of Q, indicating a suspected rather than confirmed diagnosis, are excluded.

### 3. National Ambulatory Care Reporting System (NACRS)

The NACRS contains data on hospital and community ambulatory care, including day surgeries, outpatient visits, community clinics, and emergency departments. Opioid-related emergency department visits are identified in this data source from 2006 to 2022 using [International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Canada \(ICD-10-CA\) diagnostic codes](#).

In the NACRS, a main diagnostic code and a maximum of nine additional diagnostic codes can be entered for a single registration record. There is no diagnosis type field in the NACRS. Therefore, for the purposes of identifying opioid-related emergency department visits in the NACRS, relevant diagnostic codes in all fields are included.

However, ICD-10-CA diagnostic codes with a prefix of Q, indicating a suspected rather than confirmed diagnosis, are excluded. Records are also excluded if they are not Level 3 submission level abstracts or a true emergency department visit.

### 4. Registered Persons Database (RPDB)

The RPDB contains demographic information (i.e., age, sex, postal code, death, and emigration out-of-province) on all Ontarians registered for provincial health insurance from 1990 to 2022.

# Calculations

## Cases

Cases are calculated by summing the total number of emergency department (ED) visits or hospitalizations due to a given opioid-related harm within a defined group of workers. Cases are calculated for all workers in the ODSS or among workers with specific characteristic(s) (e.g., female sex, aged 15 to 44, in Service occupations, etc.).

## Rates per 100,000 person-years

Rates per 100,000 person-years are a measure of the number of cases of an opioid-related harm occurring over a specified period of time relative to the total amount of time all workers in a defined group are followed. For example, a worker who entered the ODSS on January 1, 2006, and was followed until December 31, 2022, would contribute 17 person-years to the total amount of time workers are followed. Rates are calculated for all workers in the ODSS or among workers with specific characteristic(s) (e.g., female sex, aged 15 to 44, in Service occupations, etc.).

In the data visualization tool, you may notice that in some instances, cases may be higher or lower than rates. This is because rates take into account the size of the worker population at risk of experiencing the opioid-related harm.

### Hospitalizations:

In this tool, hospitalization rates are calculated by dividing the total number of cases of a selected opioid-related harm that occurred among workers in the ODSS cohort or workers in a defined group during a specified time period (numerator) by the sum of the number of years each person in the population (i.e., all workers in the ODSS cohort or workers in the defined group) was observed in that time period (denominator). The calculation for rates per 100,000 person-years is outlined below:

$$\frac{\text{\# hospitalizations for selected type of harm}}{\text{\# person-years}} \times 100,000$$

Where person-years are the total number of years all workers or a defined group of workers were under observation.

**Example:** calculating rate of poisoning hospitalizations among males aged 45 to 65 in the year 2020.

$$\frac{\text{\# hospitalizations for opioid-related poisonings occurring among males aged 45 to 65 in 2020}}{\text{\# person-years among males aged 45 to 65 in 2020}} \times 100,000$$

$$= \frac{191}{577,041.59} \times 100,000$$

= 33.1 poisoning hospitalizations per 100,000 person-years

### Emergency department (ED) visits:

In this tool, ED visit rates are calculated by dividing the total number of cases of a selected opioid-related harm that occurred among workers in the ODSS cohort or workers in a defined group during a specified time period (numerator) by the sum of the number of years each person in the population (i.e., all workers in the ODSS cohort or workers in the defined group) was observed in that time period (denominator). The calculation for rates per 100,000 person-years is outlined below:

$$\frac{\text{\# ED visits for selected type of harm}}{\text{\# person-years}} \times 100,000$$

Where person-years are the total number of years all workers or a defined group of workers were under observation.

**Example:** calculating rate of poisoning ED visits among males in Construction Trades occupations.

$$\begin{aligned} & \frac{\text{\# ED visits for opioid-related poisonings occurring among males in Construction Trades}}{\text{\# person-years among males in Construction Trades}} \times 100,000 \\ &= \frac{1,502}{1,510,969.39} \times 100,000 \\ &= 99.4 \text{ poisoning ED visits per 100,000 person-years} \end{aligned}$$

## Percent

Percent is calculated by determining the number of cases of an opioid-related harm among people with a particular characteristic (e.g., female sex) or in a specific category (e.g., type of opioid present, type of mental or behavioural disorder, intent of poisoning) and dividing it by the total number of cases of that opioid-related harm within a specified period of time. It serves as a measure to assess the proportion or relative frequency of an opioid-related harm in each category.

Calculations for percent are outlined below:

**Occupation & Industry tabs:**

$$\frac{\text{\# cases per age and/or sex category within a selected occupation or industry}}{\text{\# total cases within a selected occupation or industry}} \times 100\%$$

**Type of Opioid tab (Poisonings dashboard only):**

$$\frac{\text{\# poisoning cases involving a particular type of opioid within a specific year}}{\text{\# total poisoning cases within a specific year}} \times 100\%$$

*Note: Type of Opioid categories are not mutually exclusive. Therefore, the sum of percentages per year may be greater than 100%.*

**Intent tab (Poisonings dashboard only):**

$$\frac{\text{\# poisoning cases by intent of poisoning within a specific year}}{\text{\# total poisoning cases within a specific year}} \times 100\%$$

*Note: Intent categories are mutually exclusive. Individuals with missing data related to intent are excluded from the denominator in the percent calculation, so the total number of cases each year on the Trends tab may not equal the total number of cases each year on the Intent tab.*

**Type of Disorder tab (Mental and behavioural disorders dashboard only):**

$$\frac{\text{\# mental & behavioural disorder cases by type of disorder within a specific year}}{\text{\# total mental & behavioural disorder cases within a specific year}} \times 100\%$$

*Note: Type of Disorder categories are not mutually exclusive. Therefore, the sum of percentages per year may be greater than 100%.*

# Definitions

## Opioid-related harms

Three types of opioid-related harms are shown in the [Opioids and Work Data Tool](#): poisonings, mental and behavioural disorders, and adverse reactions. Each type of harm is identified in the Discharge Abstract Database (hospitalizations) and the National Ambulatory Care Reporting System (emergency department visits) using diagnostic codes set out in the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Canada (ICD-10-CA). Definitions for each type of opioid-related harm included in this tool and their respective diagnostic codes can be found below.

### Opioid-related poisonings

Poisonings (commonly known as overdoses) are defined as toxicity due to an excess of opioids in one's body. Poisonings occur when opioids (pharmaceutical, non-pharmaceutical, or a combination of both) are taken incorrectly, whether accidentally or intentionally.

The following ICD-10-CA codes are used to identify opioid-related poisonings in hospitalization and ED records:

- T40.0 (poisoning by opium)
- T40.1 (poisoning by heroin)
- T40.2 (poisoning by other opioids)
  - T40.20 (poisoning by codeine and derivatives)
  - T40.21 (poisoning by morphine)
  - T40.22 (poisoning by hydromorphone)
  - T40.23 (poisoning by oxycodone)
  - T40.28 (poisoning by other opioids, not elsewhere classified)
- T40.3 (poisoning by methadone)
- T40.4 (poisoning by other synthetic narcotics)
  - T40.40 (poisoning by fentanyl and derivatives)
  - T40.41 (poisoning by tramadol)
  - T40.48 (poisoning by other synthetic narcotics, not elsewhere classified)
- T40.6 (poisoning by other and unspecified narcotics)

### Opioid-related mental and behavioural disorders

This category of harm includes mental and behavioural disorders of varying severity and clinical form (e.g., dependence, states of withdrawal or intoxication) that can be attributed to the use of opioids, whether prescribed or not.

The following ICD-10-CA codes are used to identify opioid-related mental and behavioural disorders in hospitalization and ED records:

- F11.0 (mental and behavioural disorders due to use of opioids, acute intoxication)
- F11.1 (mental and behavioural disorders due to use of opioids, harmful use)
- F11.2 (mental and behavioural disorders due to use of opioids, dependence syndrome)
- F11.3 (mental and behavioural disorders due to use of opioids, withdrawal state)
- F11.4 (mental and behavioural disorders due to use of opioids, withdrawal state with delirium)
- F11.5 (mental and behavioural disorders due to use of opioids, psychotic disorder)
- F11.6 (mental and behavioural disorders due to use of opioids, amnesic syndrome)
- F11.7 (mental and behavioural disorders due to use of opioids, residual and late-onset psychiatric disorder)
- F11.8 (mental and behavioural disorders due to use of opioids, other mental and behavioural disorders)
- F11.9 (mental and behavioural disorders due to use of opioids, unspecified mental and behavioural disorder)

### **Opioid-related adverse reactions**

Adverse reactions are defined as harmful or unpleasant effects or reactions caused by prescribed opioids that have been taken or administered as prescribed.

The following ICD-10-CA codes are used to identify opioid-related adverse reactions in hospitalization and ED records:

- Y45.0 (drugs, medicaments and biological substances causing adverse effects in therapeutic use, opioids and related analgesics)
  - Y45.01 (codeine and derivatives)
  - Y45.02 (morphine)
  - Y45.03 (hydromorphone)
  - Y45.04 (oxycodone)
  - Y45.05 (fentanyl and derivatives)
  - Y45.06 (tramadol)
  - Y45.09 (other and unspecified opioids and related analgesics)



## Type of opioids involved in poisoning events

The [ICD-10-CA codes used to identify opioid-related poisonings](#) in hospitalization and ED records are used to identify the type of opioids present in the poisoning event.

The [Opioids and Work Data Tool](#) includes six categories for the type of opioid present during the poisoning event:

- **Heroin:** poisoning by heroin (heroin, diacetylmorphine)
- **Methadone:** poisoning by methadone (methadone)
- **Opium:** poisoning by opium (opium alkaloids)
- **Other opioids:** poisoning by other opioids (codeine and derivatives, morphine, oxycodone, hydromorphone, other opioids not elsewhere classified)
- **Other synthetic narcotics:** poisoning by other synthetic narcotics (fentanyl and derivatives, tramadol, other synthetic opioids not elsewhere classified)
- **Other and unspecified narcotics:** poisoning by unspecified and other narcotics (opiates not elsewhere classified)

Multiple opioids may be present in a single poisoning event. Therefore, these categories are not mutually exclusive.

Individuals with missing data related to the type of drug present were not included in the **Type of Opioid** tab of the [Opioids and Work Data Tool](#).

## Intent of poisoning

For each opioid-related poisoning reported in hospitalization and ED records, ICD-10-CA codes are used to identify the intent behind the poisoning.

The [Opioids and Work Data Tool](#) includes three categories for the intent behind opioid-related poisonings, based on the following ICD-10-CA codes:

- **X42 Accidental poisoning:** the poisoning was considered to be non-intentional in nature. This includes accidental poisoning of drug, wrong drug given or taken in error, and drug taken inadvertently

- **X62 Intentional poisoning:** the poisoning occurred as a result of purposely self-inflicted harm
- **Y12 Unknown poisoning:** categorization of the poisoning is due to physician documentation of undetermined or unknown intent

Individuals with missing data related to intent were not included in the **Intent** tab of the [Opioids and Work Data Tool](#).

## Type of mental and behavioural disorder

The [ICD-10-CA codes used to identify opioid-related mental and behavioural disorders](#) in hospitalization and ED records are used to identify the type of disorder.

The [Opioids and Work Data Tool](#) includes five categories for type of mental and behavioural disorder:

- **Acute intoxication:** a condition that follows the administration of a psychoactive substance resulting in disturbances in level of consciousness, cognition, perception, affect or behaviour, or other psycho-physiological functions and responses. The disturbances are directly related to the acute pharmacological effects of the substance and resolve with time, with complete recovery, except where tissue damage or other complications have arisen. Complications may include trauma, inhalation of vomitus, delirium, coma, convulsions, and other medical complications. The nature of these complications depends on the pharmacological class of substance and mode of administration.
- **Harmful use:** a pattern of psychoactive substance use that is causing damage to health. The damage may be physical (as in cases of hepatitis from the self-administration of injected psychoactive substances) or mental (e.g., episodes of depressive disorder secondary to heavy consumption of alcohol).
- **Dependence syndrome:** a cluster of behavioural, cognitive, and physiological phenomena that develop after repeated substance use and that typically include a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to drug use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal state. The dependence syndrome may be present for a specific psychoactive substance (e.g., tobacco, alcohol, or diazepam), for a class of substances (e.g., opioid drugs), or for a wider range of pharmacologically different psychoactive substances.
- **Withdrawal state:** *This category includes the following ICD-10-CA disorders:*

- **Withdrawal state:** a group of symptoms of variable clustering and severity occurring on absolute or relative withdrawal of a psychoactive substance after persistent use of that substance. The onset and course of the withdrawal state are time-limited and are related to the type of psychoactive substance and dose being used immediately before cessation or reduction of use. The withdrawal state may be complicated by convulsions.
- **Withdrawal state with delirium:** a condition where the withdrawal state is complicated by delirium (i.e., an etiologically nonspecific organic cerebral syndrome characterized by concurrent disturbances of consciousness and attention, perception, thinking, memory, psychomotor behaviour, emotion, and the sleep-wake schedule. The duration is variable and the degree of severity ranges from mild to very severe.). Convulsions may also occur.
- **Other mental and behavioural disorders:** *This category includes the following ICD-10-CA disorders:*
  - **Psychotic disorder:** a cluster of psychotic phenomena that occur during or following psychoactive substance use but that are not explained on the basis of acute intoxication alone and do not form part of a withdrawal state. The disorder is characterized by hallucinations (typically auditory, but often in more than one sensory modality), perceptual distortions, delusions (often of a paranoid or persecutory nature), psychomotor disturbances (excitement or stupor), and an abnormal affect, which may range from intense fear to ecstasy. The sensorium is usually clear but some degree of clouding of consciousness, though not severe confusion, may be present.
  - **Residual and late-onset psychotic disorder:** a disorder in which alcohol- or psychoactive substance-induced changes of cognition, affect, personality, or behaviour persist beyond the period during which a direct psychoactive substance-related effect might reasonably be assumed to be operating. Onset of the disorder should be directly related to the use of the psychoactive substance. Cases in which initial onset of the state occurs later than episode(s) of such substance use should be coded here only where clear and strong evidence is available to attribute the state to the residual effect of the psychoactive substance. Flashbacks may be distinguished from psychotic state partly by their episodic nature, frequently of very short duration, and by their duplication of previous alcohol- or other psychoactive substance-related experiences.
  - **Amnesic syndrome:** a syndrome associated with chronic prominent impairment of recent and remote memory. Immediate recall is usually preserved and recent memory is characteristically more disturbed than remote memory. Disturbances of time sense and ordering of events are usually evident, as are difficulties in learning new material. Confabulation may be marked but is not invariably present. Other cognitive functions are usually relatively well preserved and amnesic defects are out of proportion to other disturbances.
  - **Other mental and behavioural disorders**
  - **Unspecified mental and behavioural disorder**

Individuals with missing data related to type of mental/behavioural disorder were not included in the **Type of Disorder** tab of the [Opioids and Work Data Tool](#).

## Age and sex

Information on age is obtained from the Registered Persons Database (RPDB). Due to sparse data, workers are categorized into one of two age categories to facilitate analysis: ages 15 to 44 or ages 45 to 65.

Information on sex is also obtained from the RPDB. In this tool, sex represents sex assigned at birth (male, female). We do not currently have data related to gender.

## Health regions

Postal code information is obtained from the Registered Persons Database (RPDB). These postal codes are used to identify a worker's Public Health Unit using Statistics Canada's Postal Code Conversion File. In Ontario, there are 34 Public Health Units that offer health-related information, programs, and data monitoring at the local level.

Due to sparse data, public health units are grouped to create six health regions to facilitate data analysis. The list below details the Public Health Units included in each health region:

- **Central East:** Durham Region Health Department; Haliburton, Kawartha, Pine Ridge District Health Unit; Peel Public Health; Peterborough Public Health; Simcoe Muskoka District Health Unit; York Region Public Health
- **Central West:** Brant County Health Unit; Haldimand-Norfolk Health Unit; Halton Region Health Department; Hamilton Public Health Services; Niagara Region Public Health; Region of Waterloo, Public Health; Wellington-Dufferin-Guelph Public Health
- **East:** Eastern Ontario Health Unit; Hastings Prince Edward Public Health; Kingston, Frontenac and Lennox & Addington Public Health; Leeds, Grenville and Lanark District Health Unit; Ottawa Public Health; Renfrew County & District Health Unit
- **North:** Algoma Public Health; North Bay Parry Sound District Health Unit; Northwestern Health Unit; Porcupine Health Unit; Public Health Sudbury and Districts; Thunder Bay District Health Unit; Timiskaming Health Unit

- **South West:** Chatham-Kent Public Health; Grey Bruce Public Health; Huron Perth Public Health; Lambton Public Health; Middlesex-London Health Unit; Southwestern Public Health; Windsor-Essex County Health Unit
- **Toronto:** Toronto Public Health

Individuals located outside of Ontario and those with missing postal code data are not included in any tab of the [Opioids and Work Data Tool](#).

## Occupation

Occupation information is obtained from Ontario Workplace Safety and Insurance Board (WSIB) accepted lost-time claim records. This information represents occupation at the time the worker experienced their work-related injury or illness.

Occupations are coded according to the [1971 Canadian Classification Dictionary of Occupations \(CCDO\)](#) at the two-digit division level for this tool. Using these codes, occupations are classified into 22 division-level groups. The list below details each group and the types of occupations that are included in each group:

- **Artistic, Literary, Recreational & Related:**
  - Fine and commercial art, photography, and related fields occupations (painters, sculptors, product and interior designers, advertising and illustrating artists, photographers, etc.)
  - Performing and audiovisual arts occupations (producers and directors, musicians, dancers, choreographers, actors, radio and television announcers, etc.)
  - Writing occupations (writers, editors, translators, interpreters, etc.)
  - Sport and recreation occupations (coaches, trainers, instructors and managers in sport and recreation, referees and related officials, athletes, attendants in sport and recreation, etc.)
- **Clerical & Related:**
  - Stenography and typing occupations (supervisors, secretaries, stenographers, typists, clerk-typists, etc.)
  - Bookkeeping, account-recording and related fields occupations (supervisors, bookkeepers, accounting clerks, tellers, cashiers, insurance/bank/other finance clerks, statistical clerks, etc.)
  - Office machine and electronic data-processing equipment operators (supervisors, office machine operators, electronic data-processing equipment operators, etc.)
  - Material recording, scheduling, and distributing occupations (supervisors, production clerks, shipping and receiving clerks, stock clerks, weighers, etc.)
  - Library, file and correspondence clerks and related fields occupations (supervisors, library and file clerks, etc.)

- Reception, information, mail, and message distribution occupations (supervisors, receptionists, information clerks, mail carriers, mail and postal clerks, telephone operators, messengers, etc.)
- Other clerical and related occupations (supervisors, collectors, claim adjusters, travel clerks, ticket/station/freight agents, hotel clerks, personnel clerks, general office clerks, etc.)
- **Construction Trades:**
  - Excavating, grading, paving, and related occupations (foremen/women, excavating, grading, paving, surfacing, railway section and track work, etc.)
  - Electrical power, lighting, and wire communications equipment erecting, installing, and repairing occupations (foremen/women, electrical power linepersons, construction electricians and repairers, wire communications and related equipment installing and repairing, inspecting/testing/grading/sampling occupations, etc.)
  - Other construction trades (foremen/women, carpenters, brick and stone masons, tile setters, concrete finishing, plasterers, painters, paperhangers, insulating occupations, roofing, waterproofing, pipefitting, plumbing, structural metal erectors, glaziers, inspecting/testing/grading/sampling occupations, etc.)
- **Farming, Horticultural & Animal Husbandry:**
  - Farmers
  - Farm management occupations
  - Other farming, horticultural, and animal husbandry occupations (foremen/women, farm workers, nursery and related workers, farm machinery operators, etc.)
- **Fishing, Hunting, Trapping & Related:**
  - Captains and other officers of fishing vessels
  - Fishermen/women (net, trap, and line)
  - Hunting, trapping and related occupations
  - Other fishing, hunting, trapping and related occupations (workers who hunt whales and seals, gather seaweed, breed and raise fish, repair nets, etc.)
- **Forestry & Logging:**
  - Foremen/women
  - Forestry conservation occupations
  - Timber cutting and related occupations
  - Log inspecting, grading, scaling and related occupations
  - Log hoisting, sorting, moving and related occupations
  - Labouring and other elemental work (forestry and logging)
- **Machining & Related:**
  - Metal machining occupations (foremen/women, tool and die making occupations, machinist and machine tool setting-up occupations, machine tool operating occupations, inspecting/testing/grading/sampling occupations, etc.)

- Metal shaping and forming occupations (foremen/women, forging occupations, sheet metal workers, metalworking-machine operators, welding and flame cutting occupations, inspecting/testing/grading/sampling occupations, boilermakers, platers, structural metal workers, etc.)
- Wood machining occupations (foremen/women, wood patternmaking occupations, wood sawing occupations, planing/turning/shaping occupations, inspecting/testing/grading/sampling occupations, wood sanding occupations, etc.)
- Clay, glass, stone, and related materials machining occupations (foremen/women, cutting and shaping occupations, abrading and polishing occupations, inspecting/testing/grading/sampling occupations, etc.)
- Other machining and related occupations (foremen/women, engravers, etchers, filing/grinding/buffing/cleaning/polishing occupations, patternmakers, mouldmakers, inspecting/testing/grading/sampling occupations, etc.)
- **Managerial, Administrative & Related:**
  - Officials and administrators unique to government (members of legislative bodies, government administrators, postmasters, inspectors, regulatory officers, etc.)
  - Other managers and administrators (in natural sciences, engineering, social sciences, teaching, medicine and health, financial management, industrial relations, sales and advertising, purchasing, services, production, construction, transport, communications, etc.)
  - Other management and administration (accountants, auditors, other financial officers, personnel and related officers, purchasing officers and buyers except wholesale and retail trade, inspectors and regulatory officers (non-government), etc.)
- **Materials Handling & Related:**
  - Foremen/women
  - Hoisting occupations
  - Longshoremen/women, stevedores, and freight handlers
  - Materials handling equipment operators
  - Packaging occupations
  - Other materials handling and related (labourers, etc.)
- **Medicine & Health:**
  - Health diagnosing and treating occupations (physicians, surgeons, dentists, veterinarians, osteopaths, chiropractors, naturopaths, podiatrists, etc.)
  - Nursing, therapy and related assisting occupations (supervisors, nurses, nurses-in-training, nursing assistants, nursing aides and orderlies, physiotherapists, occupational therapists, etc.)
  - Other medicine and health occupations (pharmacists, medical laboratory technologists and technicians, dietitians, nutritionists, optometrists, dispensing opticians, radiological technologists and technicians, dental hygienists/assistants/technicians, etc.)



- **Mining & Quarrying:**
  - Foremen/women
  - Rotary well-drilling and related occupations
  - Other rock and soil drilling occupations
  - Blasting occupations
  - Mining and quarrying: cutting, handling, and loading occupations
  - Labouring and other elemental work (mining and quarrying including oil and gas fields)
- **Natural Sciences, Engineering & Mathematics:**
  - Physical sciences occupations (chemists, geologists, physicists, meteorologists, physical sciences technologists and technicians, etc.)
  - Life sciences occupations (agriculturists, biologists, life sciences technologists and technicians, etc.)
  - Architects and engineers
  - Other architecture and engineering occupations (supervisors, surveyors, draughtsmen/women, architectural and engineering technologists and technicians, etc.)
  - Mathematics, statistics, systems analysis and related fields occupations (mathematicians, statisticians, actuaries, systems analysts, computer programmers, etc.)
- **Other Crafts & Equipment Operating:**
  - Printing and related occupations (foremen/women, typesetters and compositors, printing press operators, stereotypers and electrotypers, printing engravers, photoengravers, bookbinders, etc.)
  - Stationary engine and utilities equipment operating and related occupations (foremen/women, power station operators, etc.)
  - Electronic and related communications equipment operating (foremen/women, radio and television broadcasting equipment operators, telegraph operators, sound recording and reproduction equipment operators, motion picture projectionists, etc.)
  - Other crafts and equipment operating occupations (foremen/women, photographic processing occupations, etc.)
- **Processing (Food, Wood, Textile):**
  - Food, beverage and related processing occupations (foremen/women, flour and grain milling occupations, baking and confectionary making occupations, slaughtering and meat cutting/canning/curing/packing occupations, fish canning/curing/packing occupations, fruit and vegetable canning/preserving/packing occupations, milk processing occupations, sugar processing occupations, inspecting/testing/grading/sampling, beverage processing occupations, etc.)
  - Wood processing occupations (foremen/women, sawmill sawyers, plywood making occupations, wood treating occupations, inspecting/testing/grading/sampling occupations, etc.)

- Pulp and papermaking and related occupations (foremen/women, cellulose pulp preparing occupations, papermaking and finishing occupations, inspecting/testing/grading/sampling occupations, etc.)
  - Textile processing occupations (foremen/women, textile fiber preparing, spinning and twisting, winding and reeling, weaving, knitting, bleaching and dyeing, finishing and calendering occupations, inspecting/testing/grading/sampling occupations, etc.)
  - Other processing occupations (foremen/women, tobacco processing occupations, hide and pelt processing occupations, inspecting/testing/grading/sampling occupations, etc.)
- **Processing (Mineral, Metal, Chemical):**
    - Mineral ore treating occupations (foremen/women, crushing and grinding occupations, mixing/separating/filtering and related occupations, melting and roasting occupations, inspecting/testing/grading/sampling occupations, etc.)
    - Metal processing and related (foremen/women, metal smelting/converting/refining occupations, metal heat treating occupations, metal rolling occupations, moulding/coremaking/metal casting occupations, metal extruding and drawing occupations, plating/metal spraying and related occupations, inspecting/testing/grading/sampling occupations, etc.)
    - Clay, glass, and stone processing, forming and related (foremen/women, furnacemen/women and kilnmen/women, separating/grinding/crushing/mixing occupations, forming occupations, inspecting/testing/grading/sampling occupations, etc.)
    - Chemicals, petroleum, rubber, plastic, and related materials processing (foremen/women, mixing and blending occupations, filtering/straining/separating occupations, distilling/subliming/carbonizing occupations, roasting/cooking/drying occupations, crushing and grinding occupations, coating and calendering occupations, inspecting/testing/grading/sampling occupations, etc.)
- **Product Fabricating, Assembling & Repairing:**
    - Fabricating, assembling, installing and/or repairing occupations including:
      - Metal products and mechanized equipment (fabricating and assembling of engines, motor vehicles, aircraft, industrial/farm/construction/other mechanized equipment and machines, business/commercial machines, precision instruments, etc.)
      - Electrical, electronic and related equipment (fabricating, assembling, and repairing of electrical and electronic equipment, radio and television service repairmen/women, etc.)
      - Wood products (cabinet and wood furniture makers, etc.)
      - Textiles, fur, and leather products (patternmaking, marking and cutting, tailors and dressmakers, shoemaking and repairing occupations, upholsterers, sewing machine operators, etc.)
      - Rubber, plastic, and related products (bonding and cementing, moulding, cutting, finishing, etc.)

- Other product fabricating, assembling, and repairing (jewelry, silverware, marine craft, paper products, painting and decorating (except construction), etc.)
  - Mechanics and repairers except electrical (motor vehicle mechanics and repairers, aircraft mechanics and repairers, rail transport equipment mechanics and repairers, industrial/farm/construction machinery mechanics and repairers, business and commercial machine mechanics and repairers, watch and clock repairers, precision instrument mechanics and repairers, etc.)
- **Religion:**
  - Ministers of religion
  - Nuns and brother
  - Other religion occupations (members of a religious order, qualified laity, etc.)
- **Sales:**
  - Sales, commodities occupations (supervisors, technical salespersons and related advisers, commercial travellers, salespersons and salesclerks (commodities), door-to-door salespersons, service station attendants, etc.)
  - Sales, services occupations (supervisors, insurance salespersons and agents, real estate salespersons and agents, salespersons and traders (securities), advertising salespersons, business service salespersons, etc.)
  - Other sales occupations (supervisors, buyers in wholesale and retail trade, driver-salespersons, etc.)
- **Service:**
  - Protective service occupations (firefighting, police, detectives, private investigators, guards and watchmen/women, etc.)
  - Food and beverage preparation and related service occupations (supervisors, chefs, cooks, bartenders, waiters, hostesses, stewards, etc.)
  - Lodging and other accommodation occupations (supervisors, managers (hotel, motel, other accommodations), chambermaids, housekeepers, baggage porters, bellmen/women, etc.)
  - Personal service occupations (funeral directors, embalmers, barbers, hairdressers, guides, hostesses and stewards (except food and beverage), babysitters, etc.)
  - Apparel and furnishings service occupations (supervisors, laundering, dry cleaning, pressing, etc.)
  - Other service occupations (supervisors, janitors, cleaners, elevator operating occupations, etc.)
- **Social Sciences & Related:**
  - Social sciences occupations (economists, sociologists, anthropologists, psychologists, etc.)
  - Social work and related fields occupations (social workers, welfare and community services workers, etc.)

- Law and jurisprudence occupations (judges, magistrates, lawyers, notaries, etc.)
- Library, museum and archival sciences occupations (supervisors, librarians, archivists, technicians in library, museum and archival sciences, etc.)
- Other social sciences and related fields occupations (educational and vocational counsellors, etc.)
- **Teaching & Related:**
  - University teaching and related occupations
  - Elementary and secondary school teaching and related occupations (elementary and kindergarten teachers, secondary school teachers, etc.)
  - Other teaching and related occupations (community college teachers, vocational schoolteachers, fine arts schoolteachers, post-secondary school teachers, teachers of exceptional students, instructors and training officers, etc.)
- **Transport Equipment Operating:**
  - Air transport operating occupations (foremen/women, air pilots, navigators, flight engineers, air transport operating and support occupations, etc.)
  - Railway transport operating occupations (foremen/women, locomotive engineers, conductors, brakemen, railway transport operating support occupations, etc.)
  - Water transport operating occupations (deck officers, engineering officers, deck crew, engine and boiler room crew, etc.)
  - Motor transport operating occupations (foremen/women, bus drivers, taxi drivers, chauffeurs, truck drivers, etc.)
  - Other transport equipment operating occupations (foremen/women, subway/street railway operating, motor operators, dinkey operators, etc.)

Individuals with missing occupation information or who were coded as having an occupation not elsewhere classified were excluded from the **Occupation** tab of the [Opioids and Work Data Tool](#).

## Industry

Industry information is obtained from Ontario Workplace Safety and Insurance Board (WSIB) accepted lost-time claim records. This information represents industry at the time the worker experienced their work-related injury or illness.

Industry is coded according to the [Standard Industrial Classification 1970 \(SIC-70\)](#) and, more recently, the [Standard Industrial Classification 1980 \(SIC-80\)](#) codes at the one-digit division level. Using these codes, industries are classified into 10 division-level groups. The list below details each group and the types of industrial sectors included in each group:

- **Agriculture:**
  - Experimental and university farms
  - Institutional farms
  - Livestock and livestock combination farms (dairy, poultry and poultry products, cattle, hogs, sheep, feed lot, etc.)
  - Field crop and field crop combination farms (wheat, other cash grains, field crops, such as potatoes, sugar beets, hay, forage crops, tobacco, etc.)
  - Fruit and vegetable farms
  - Other crop and livestock combination farms
  - Miscellaneous specialty farms (horses, fur-bearing animals and furs, honeybees and wax, goats and goat milk, maple products, greenhouse and nursery products, etc.)
  - Services incidental to agriculture (corn shelling, hay baling, and threshing services, contract sorting/grading/packing of farm products for the grower, contract crop dusting, fruit picking, grain cleaning, harvesting and ploughing, animal husbandry services such as veterinary services, poultry hatcheries, animal breeding and boarding services, etc.)
  
- **Community, Business & Personal Service:**
  - Education and related industries (kindergartens and nursery schools, elementary and secondary schools, schools of art and the performing arts, vocational schools, trade schools, business colleges, post-secondary or non-university educational institutions, universities and colleges, libraries, museums and other repositories, etc.)
  - Health and welfare services (hospitals, related health care institutions, offices of physicians/surgeons/dentists/para-medical personnel and practitioners, diagnostic and therapeutic services, welfare organizations, etc.)
  - Religious organizations
  - Amusement and recreation services (motion picture theatres, motion picture production and distribution, bowling alleys and billiard parlours, golf clubs, country clubs, theatrical and other staged entertainment services, etc.)
  - Services to business management (employment agencies, personnel suppliers, computer services, security and investigation services, offices of accountants, advertising services, offices of architects, engineering and scientific services, offices of lawyers and notaries, offices of management and business consultants, etc.)
  - Personal services (shoe repair shops, barber and beauty shops, private households, laundries/cleaners/pressers, self-service laundries and dry cleaners, funeral services, etc.)
  - Accommodation and food services (hotels and motels, lodging houses, residential clubs, camping grounds, trailer parks, restaurants, caterers, taverns, etc.)
  - Miscellaneous services (labour organizations, trade associations, photographic services, automobile and truck rental, machinery and equipment rental, blacksmithing and welding shops, miscellaneous repair shops, services to buildings and dwellings, etc.)

- **Construction:**
  - General contractors (building construction, highway/bridge/street construction, other construction, etc.)
  - Special-trade contractors
- **Finance, Insurance & Real Estate:**
  - Finance industries (banks and other deposit accepting establishments, other credit agencies, security brokers and dealers (including exchanges), investment and holding companies, etc.)
  - Insurance and real estate industries (insurance carriers, insurance and real estate agencies, real estate operators, etc.)
- **Forestry, Fishing & Trapping:**
  - Forestry (logging, forestry services)
  - Fishing and trapping (fishing, fishery services, hunting, trapping)
- **Manufacturing:**
  - Food and beverage industries (meat and poultry products, fish products, fruit and vegetable processing, dairy products, flour and breakfast cereal products, feed, bakery products, beverages, etc.)
  - Tobacco products industries (leaf tobacco processors, tobacco products manufacturers, etc.)
  - Rubber and plastics products industries (rubber products, plastics fabricating)
  - Leather industries (tanneries, shoe factories, leather glove factories, luggage/handbag/small leather goods manufacturers, etc.)
  - Textile industries (cotton yarn and cloth mills, wool yarn and cloth mills, man-made fibre/yarn/cloth mills, cordage and twine, felt and fibre processing mills, carpets/mats/rugs, canvas products and cotton and jute bags, automobile fabric accessories, etc.)
  - Knitting mills (hosiery mills, knitting mills)
  - Clothing industries (adults and children's clothing, fur goods)
  - Wood industries (sawmills, planing mills, shingle mills, veneer and plywood mills, sash/door/other millwork, wooden box factories, coffins and caskets, etc.)
  - Furniture and fixture industries (household and office furniture manufacturers, electric lamp and shade manufacturers, etc.)
  - Paper and allied industries (pulp and paper mills, asphalt roofing manufacturers, paper box and bag manufacturers, etc.)
  - Printing, publishing and allied industries (commercial printing, platemaking, typesetting, trade bindery, publishing, printing, etc.)
  - Primary metal industries (iron and steel mills, steel pipe and tube mills, iron foundries, smelting and refining, aluminum/copper/copper alloy/metal rolling/casting/extruding, etc.)
  - Metal fabricating industries (boiler and plate works, fabricated structural metal, ornamental/architectural metal, metal stamping/pressing/coating, wire and wire

- products manufacturers, hardware/tool/cutlery manufacturers, heating equipment manufacturers, machine shops, etc.)
- Machinery industries (except electrical machinery) (agricultural implements, commercial refrigeration and air conditioning equipment, office and store manufacturers, etc.)
- Transportation equipment industries (aircraft and aircraft parts manufacturers, motor vehicle manufacturers, truck body and trailer manufacturers, motor vehicle parts and accessories manufacturers, railroad rolling stock industry, shipbuilding and repair, boatbuilding and repair, etc.)
- Electrical products industries (manufacturers of small electrical and major electric and non-electric appliances, lighting fixtures, household radio and television receivers, communications equipment, electrical industrial equipment, electric wire and cable, etc.)
- Non-metallic mineral products industries (manufacturers of clay products, cement, stone products, concrete products, ready-mix concrete, glass and glass products, abrasives, lime, etc.)
- Petroleum and coal industries
- Chemical and chemical products industries (manufacturers of mixed fertilizers, plastics and synthetic resins, pharmaceuticals and medicine, paint and varnish, soap and cleaning compounds, toilet preparations, industrial chemicals, etc.)
- Miscellaneous manufacturing industries (scientific and professional equipment, jewellery and silverware, sporting goods and toys, signs and displays, etc.)
- **Mines (Including Milling), Quarries & Oil Wells:**
  - Metal mines (placer gold, gold quartz, uranium, iron, miscellaneous metal mines, etc.)
  - Non-metal mines (coal, crude petroleum and natural gas, asbestos, peat, gypsum, miscellaneous non-metal mines, etc.)
  - Quarries and sand pits (stone quarries, sand pits and quarries, etc.)
  - Services incidental to mineral (contract drilling, etc.)
- **Public Administration & Defence:**
  - Federal administration (defense services, other federal administration, etc.)
  - Provincial administration
  - Local administration
  - Other government offices
- **Trade:**
  - Wholesale trade (wholesalers of farm products, coal and coke, petroleum products, paper and paper products, general merchandise, food, tobacco products, drugs and toilet preparations, apparel and dry goods, household furniture and furnishings, motor vehicles and accessories, electrical machinery/equipment/supplies, farm machinery and equipment, hardware/plumbing/heating equipment, metals and metal products, lumber and building materials, scrap and waste material, etc.)

- Retail trade (food stores, general merchandise stores, tire/battery/accessory stores, gasoline service stations, motor vehicle dealers and repair shops, clothing and shoe stores, hardware stores, household furniture and appliance stores, radio/television/electric appliance repair shops, drug stores, book and stationery stores, florists, jewellery stores, watch and jewellery repair shops, liquor/wine/beer stores, tobacconists, etc.)
- **Transportation, Communication & Other Utilities:**
  - Transportation (air transport, services incidental to air transport, railway transport, water transport, services incidental to water transport, used goods moving and storage, other truck transport, public passenger transit systems, taxicab operations, pipeline transport, highway and bridge maintenance, etc.)
  - Storage (grain elevators, other storage and warehousing, etc.)
  - Communication (radio and television broadcasting, telephone systems, telegraph and cable systems, post office, etc.)
  - Electric power, gas and water utilities (electric power, gas distribution, water systems, other utilities, etc.)

Individuals with missing industry information or who were coded as having an unspecified or undefined industry were excluded from the **Industry** tab of the [Opioids and Work Data Tool](#).



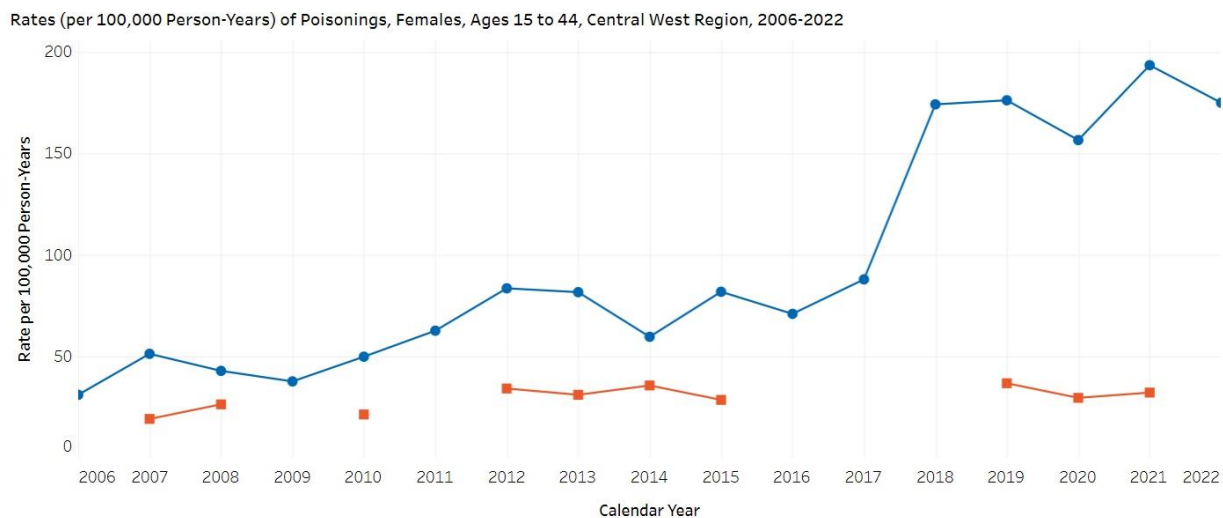
# Data suppression and missing data

## Data suppression

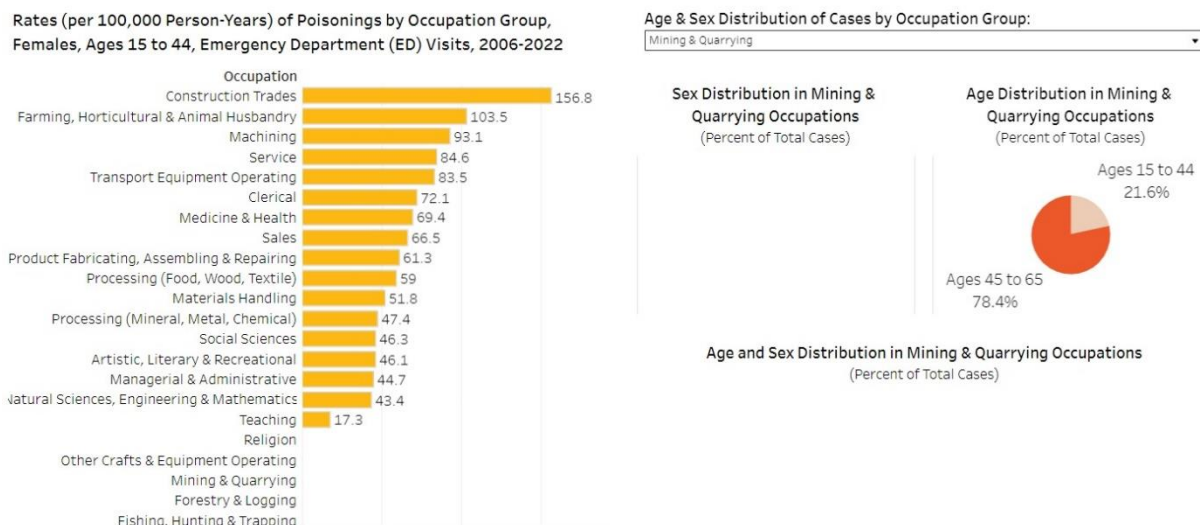
When the number of cases for any particular data point is less than six cases, it is not reported in the data visualization tool (i.e., data is suppressed). This is to ensure the privacy and confidentiality of Ontario workers included in the ODSS and to adhere to reporting guidelines.

As a result of this data suppression, you may see breaks in line graphs, hidden bars in bar charts, or hidden graphs entirely.

An example of breaks in trend line graphs due to data suppression is shown below:



An example of missing bars (on the left side) and hidden pie charts (on the right side) due to data suppression is shown below:



## Missing data

For some workers in the ODSS, information on certain worker characteristics may be missing.

Workers with missing occupation information for their entire follow-up are excluded from the **Occupation** tab (4.2 percent of workers in the ODSS). Likewise, workers with missing industry information for their entire follow-up (2.1 percent of workers in the ODSS) are excluded from the **Industry** tab. However, these workers are included in all other tabs. Additionally, less than 1 percent of workers in the ODSS had missing data related to occupation and industry for a portion of their follow-up time. Workers with missing industry or occupation data for certain periods of time did not contribute to the person-years for these periods.

On the other hand, workers located outside of Ontario and those with missing data related to geographical location are excluded entirely from all tabs of this tool (2.2 percent of workers in the ODSS).

## Data considerations

Below are some important considerations to keep in mind when using the [Opioids and Work Data Tool](#):

- The ODSS only includes workers who have filed a lost-time workers' compensation claim that has been accepted by the Ontario Workplace Safety and Insurance Board (WSIB). As such, the results are not necessarily applicable to workers with no-lost-time claims, rejected claims, workers not covered by the WSIB, or workers with work-related injuries and illnesses who have not submitted a claim.
- Opioid-related harms occurring in this group cannot necessarily be attributed to any opioids prescribed or used for the work-related injury or illness reported in the workers' compensation claim records. The ODSS does not contain direct information on opioid use, and therefore, we cannot determine:
  - Whether opioids were prescribed or used for the injury reported to the workers' compensation system or for another condition
  - Whether opioids leading to harm were prescribed or non-prescribed
  - When workers began using opioids and whether they were using opioids before their compensation claim.
- Occupation and industry information are obtained from the WSIB accepted lost-time claim records. As such, this information represents occupation and industry at the time the worker experienced their work-related injury or illness. Data does not account for whether individuals change their occupation or industry over time.
- Data in this tool capture cases of opioid-related harms only if the worker visited an Ontario hospital. In many cases, people who experience an opioid-related poisoning do not make it to a hospital.
- The outcome of the opioid-related harm (whether fatal or non-fatal) is unknown.
- Data on sex reflects sex assigned at birth, not gender. We acknowledge there may be gender differences in opioid-related harms that we cannot examine due to the nature of the data available.

# Contact information



If you have questions regarding the Opioid-Related Harms among Ontario Workers project or the [Opioids and Work Data Tool](#), please contact [opioidsandwork@iwh.on.ca](mailto:opioidsandwork@iwh.on.ca).



# Acknowledgements

## Acknowledging the workers experiencing opioid-related harms

Behind the data used in this project are the individual stories of workers who have experienced opioid-related harms. We recognize that these workers' stories are not reflected in the data, but we would like to acknowledge the pain and suffering of these workers, and their families, friends, colleagues, and others who support them.

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All inferences, opinions, and conclusions drawn in this study are those of the authors and do not reflect those of the Province of Ontario.

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