



# OPIOID USE AMONG FIRST NATIONS IN ONTARIO

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A REPORT OF CURRENT FINDINGS

PREPARED BY  
THE INSTITUTE OF CLINICAL EVALUATIVE SCIENCES  
FOR  
THE CHIEFS OF ONTARIO  
AND THE  
CHIEFS IN ASSEMBLY



# OPIOID USE AMONG FIRST NATIONS IN ONTARIO

## BACKGROUND

The rising use of opioids has become a major concern in Ontario and a public health crisis in First Nations communities in particular. One way that opioids are accessed in Ontario is through prescriptions. The limited high-quality data on prescription opioid use and related adverse events among First Nations people in Ontario is a barrier to effective planning of appropriate services and supports that could target these issues in affected communities. In response to this opioid epidemic, on June 26, 2013, the Chiefs in Assembly passed Resolution 13/10 (Prescription Opioid Surveillance) mandating the Chiefs of Ontario (COO) to work with the Institute for Clinical Evaluative Sciences (ICES) and the Non-Insured Health Benefits (NIHB) Program to develop research that is relevant and appropriate to the needs of First Nations. The Opioid Surveillance Steering Committee acted as the technical advisory group for this work. This report was prepared by ICES for the purpose of sharing current findings on opioid use among registered First Nations with COO and the Chiefs in Assembly.

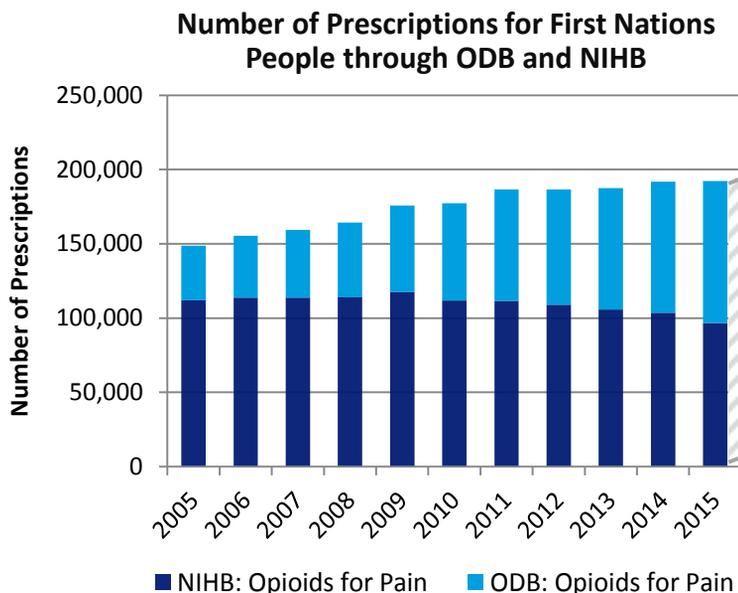
## KEY TERMS

- MEQ** Morphine Equivalents (MEQ) allow us to compare doses between people using different types of opioids and are calculated by converting an opioid dose into its equivalent dose in morphine. This is reported as mg MEQ/day.
- NIHB** The Non-Insured Health Benefits (NIHB) Program is a national program that provides coverage to registered First Nations for a specified range of medically necessary items and services (including drugs) that are not covered by other plans and programs. NIHB is ‘first payer’ for those who are not eligible for ODB.
- ODB** The Ontario Drug Benefit (ODB) database contains claims for prescription drugs received under the Ontario Drug Benefit program. To be eligible for the ODB program, an individual must have a valid Ontario health card and be aged 65+. Individuals under the age of 65 can also qualify if they have low socio-economic status, receive disability support or home care, have high drug costs relative to household income, or reside in a long-term care home.
- OPIOIDS** Opioids are natural or synthetic chemicals that reduce feelings of pain. Common prescription opioid pain relievers include<sup>1</sup>: Oxycodone (e.g. *OxyContin*; *OxyNeo*), Hydromorphone, Fentanyl, Morphine, Codeine, and other combination agents (e.g. *Tylenol No. 2 and 3*; *Percocet*).
- RATE** The frequency with which an event or circumstance occurs per unit of time, population, or other standard of comparison. Example: Based on a rate of *1.5 deaths per 10,000 people*, we can expect approximately 15 deaths in a community of 100,000.

Please refer to the *Technical Appendix* for a comprehensive list of data sources used in the analyses.

# HOW ARE OPIOIDS PRESCRIBED AMONG FIRST NATIONS PEOPLE?

Data sources:  
ODB and NIHB



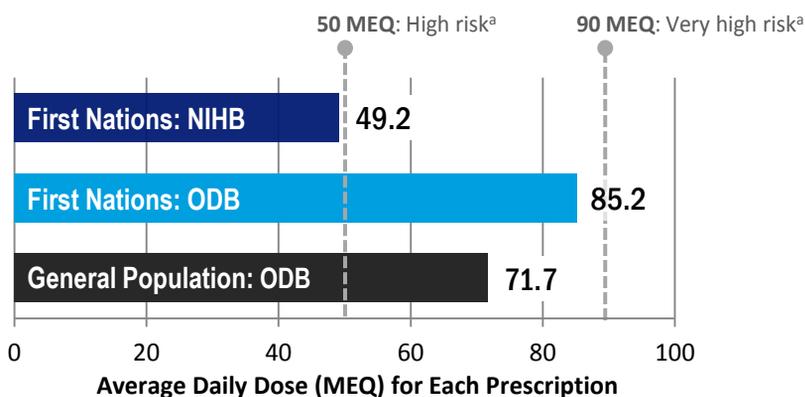
When we look at *different* data sources we see *different* trends. Overall, these results show that the number of prescriptions for opioids has **increased** over time, and is driven by **increased prescribing through ODB in more recent years.**

**NOTE:** Opioid prescription results do **not** include illicit opioid use, opioids used to treat addiction (i.e. methadone), or prescriptions that are not funded through the NIHB or ODB programs (e.g. private payments, cash payments).

## Morphine Equivalents (MEQ) in 2015

<sup>a</sup> These dosage thresholds are based on overdose risk when opioids are prescribed for pain.<sup>2</sup>

↑ Daily dose = ↑ Health risk



Note: people may get multiple prescriptions that could put them over the risk thresholds.

The average daily dose dispensed to First Nations people through ODB is higher than the general population, and higher than that dispensed to First Nations people through NIHB. This is concerning given the higher risk of toxicities associated with higher doses of opioids.

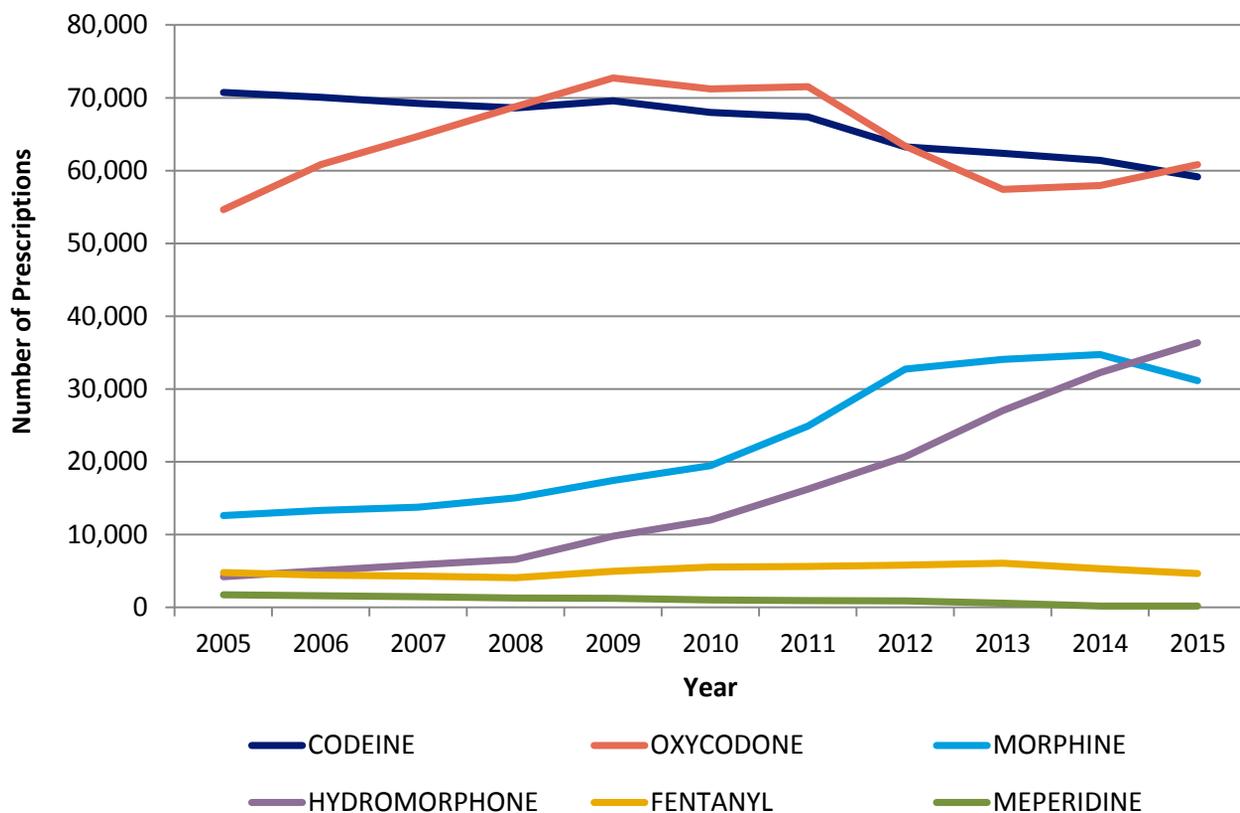
**LIMITATION:** The figure includes two types of opioids: immediate-release and long-acting. The results may be lower than expected because immediate-release opioids are often prescribed, but have very low daily doses.

**NOTE:** If we were able to link opioid prescription data from ODB to NIHB, the average daily dose dispensed may be even higher in First Nations people compared to the general population (as some individuals may be accessing opioids from both ODB and NIHB).

# HOW ARE OPIOIDS PRESCRIBED AMONG FIRST NATIONS PEOPLE?

Data sources:  
ODB and NIHB

Number of Prescriptions for First Nations People through ODB and NIHB, by Type of Opioid



## Between 2005 and 2015:

- Codeine and oxycodone (single agents and combination agents) are the most commonly prescribed opioids over the 10 years shown, largely driven by use of the combination agents that are prescribed more often for short term use (e.g. Tylenol No. 2 and 3; Percocet).
- Despite the high use of codeine, the number of codeine prescriptions have **decreased by 16%** over the past 10 years.
- The opioids with the most noticeable increase in number of prescriptions are morphine (**147% increase**) and hydromorphone (**768% increase**).
- The number of fentanyl and meperidine prescriptions have remained below 10,000 prescriptions per year, over the last 10 years.

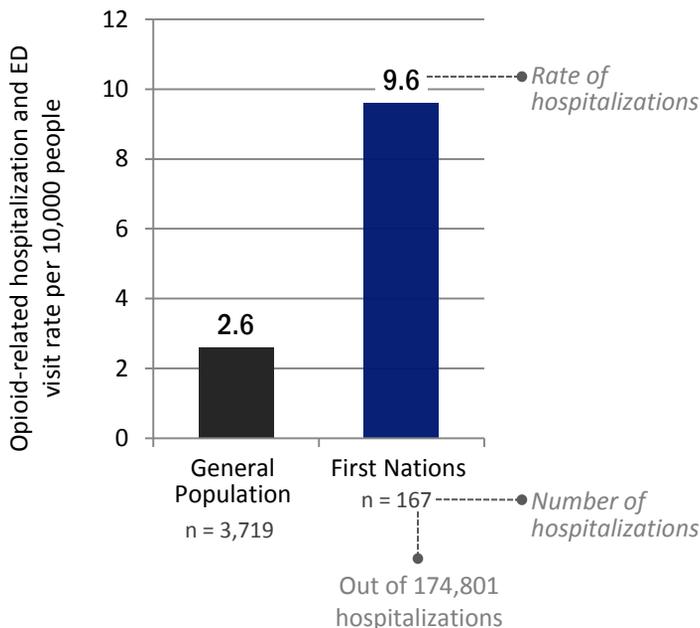
# WHAT ARE THE IMPLICATIONS OF OPIOID USE?

Data sources:  
CIHI-DAD,  
CIHI-NACRS

## Opioid-Related Toxicity

(may be related to prescription and/or illicit use)

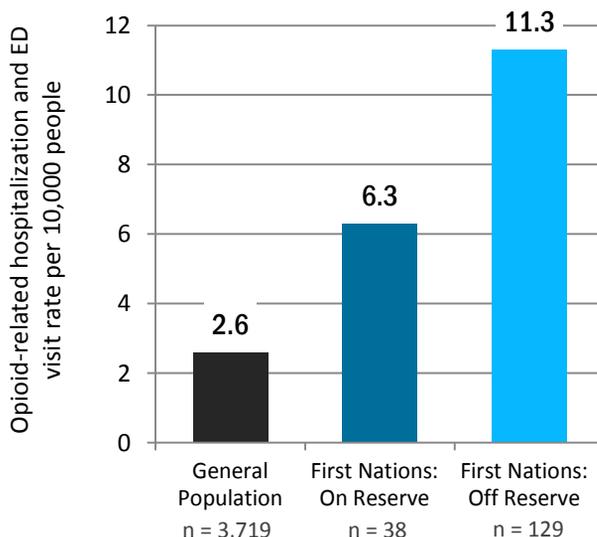
### Rate of Opioid-Related Hospitalizations and Emergency Department Visits in 2015



Rates of opioid-related hospitalizations and emergency department visits are nearly **4 times** higher among First Nations people compared to the general population.

Rates of opioid-related hospitalizations and emergency department visits are nearly **2 times** higher among First Nations people off reserve compared to First Nations people on reserve.

### Rate of Opioid-Related Hospitalizations and Emergency Department Visits in 2015



**LIMITATION:** Opioid-related toxicity may not be well-captured in emergency department and hospitalization data; therefore we are likely underestimating the true number of events in this report.

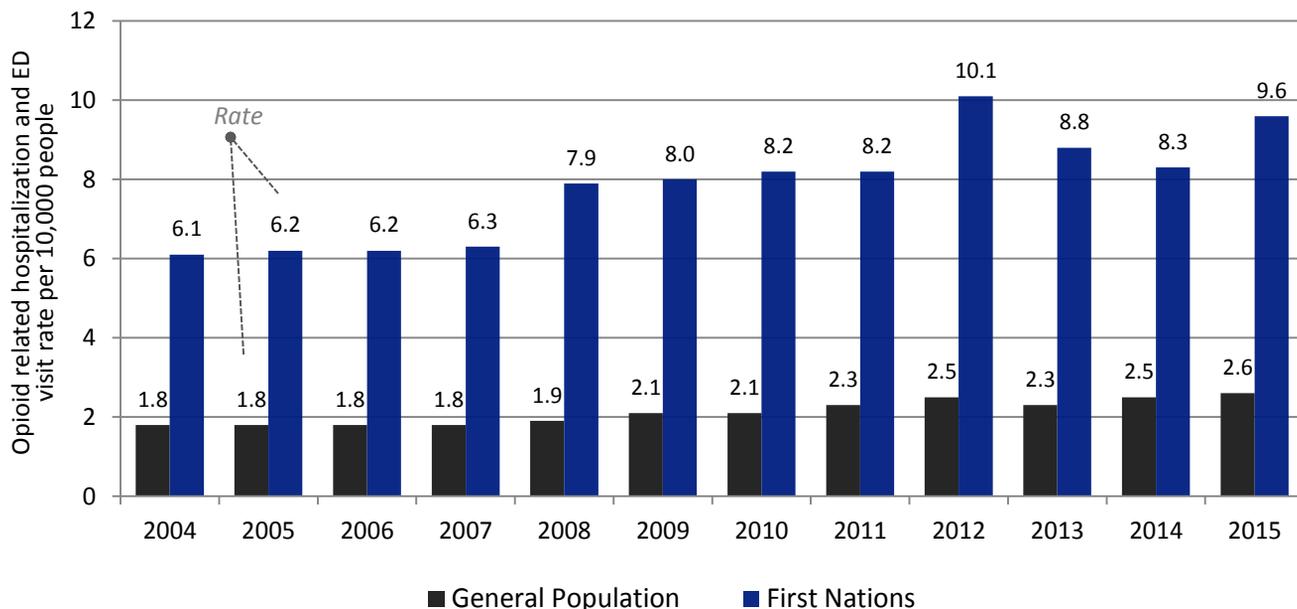
**LIMITATION:** Emergency Department visits and hospitalizations will not capture opioid-related toxicities that occur in nursing stations or in remote communities, which may underestimate events among First Nations.

**NOTE:** Higher rates of opioid toxicity are seen in urban areas among First Nations; in contrast, higher rates are seen in rural areas among the general population.

## Opioid-Related Toxicity

(may be related to prescription and/or illicit use)

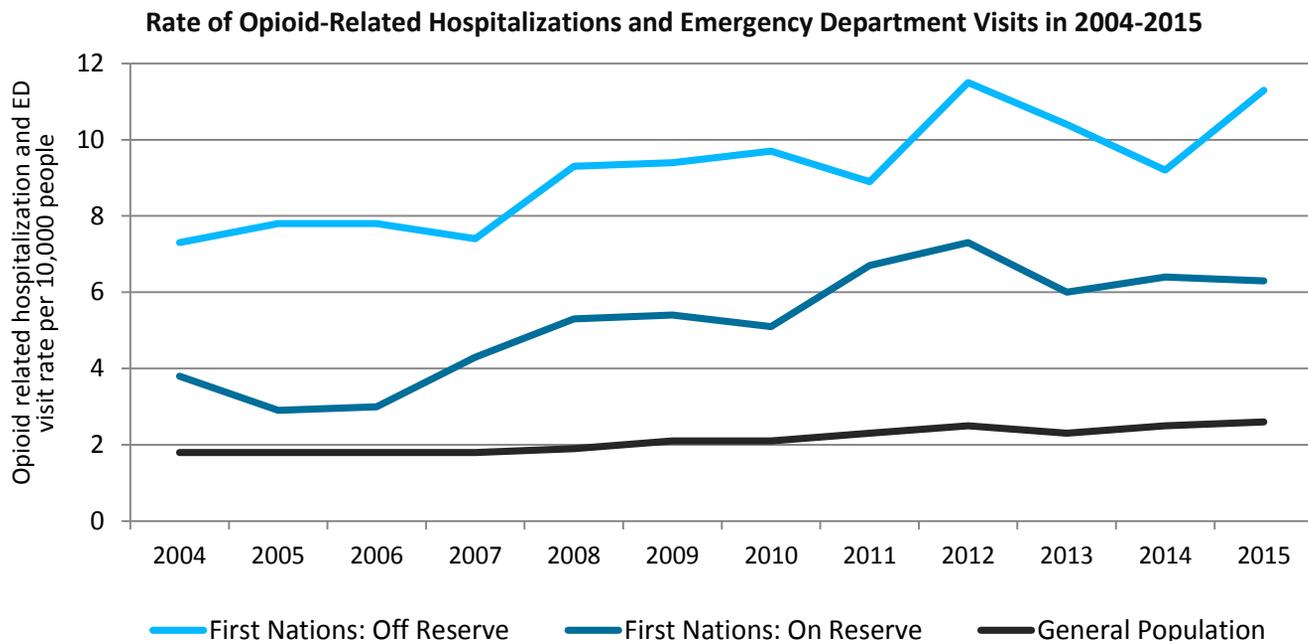
### Rate of Opioid-Related Hospitalizations and Emergency Department Visits in 2004-2015



Rates of hospitalizations and emergency department visits between 2004 and 2015 are **consistently higher** among First Nations people compared to the general population. Moreover, these rates have been **increasing to a greater extent** in First Nations people compared to the general population.

## Opioid-Related Toxicity

(may be related to prescription and/or illicit use)



Rates of hospitalizations and emergency department visits between 2004 and 2015 are **consistently higher** among First Nations people living off reserve compared to First Nations people living on reserve. The increase in rates are evident in First Nations living on and off reserve.

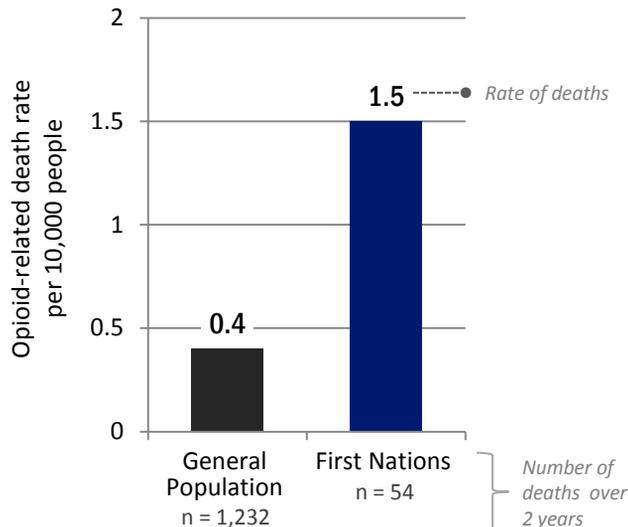
# WHAT ARE THE IMPLICATIONS OF OPIOID USE?

Data source:  
Coroner  
Death Data

## Opioid-Related Mortality

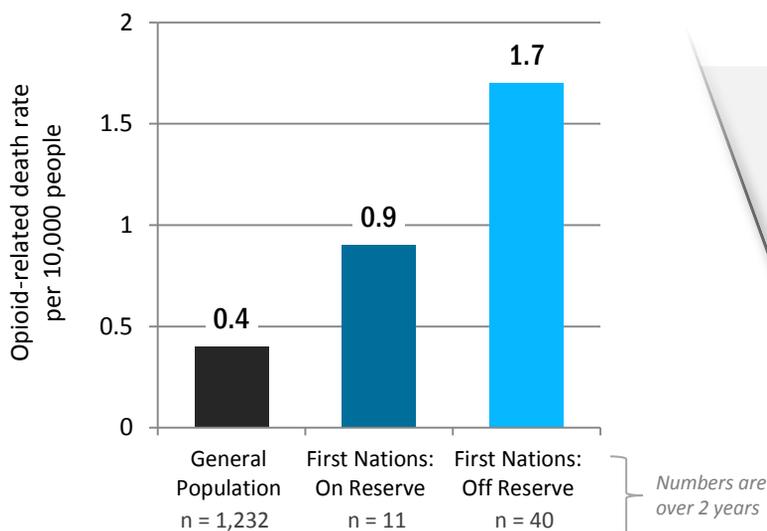
(may be related to prescription and/or illicit use)

Average Rate of Opioid-Related Deaths in 2014-2015



Rates of opioid-related deaths are nearly **4 times** higher among First Nations people compared to the general population.

Average Rate of Opioid-Related Deaths in 2014-2015



Rates of opioid-related deaths are nearly **2 times** higher among First Nations people off reserve compared to First Nations people on reserve.

**NOTE:** Charts depicting on/off reserve comparisons contain small numbers, which may be more likely to fluctuate from year to year. However, we have found that between 2004 and 2015, rates of opioid-related toxicity and mortality are consistently higher among First Nations people off reserve than those on reserve.

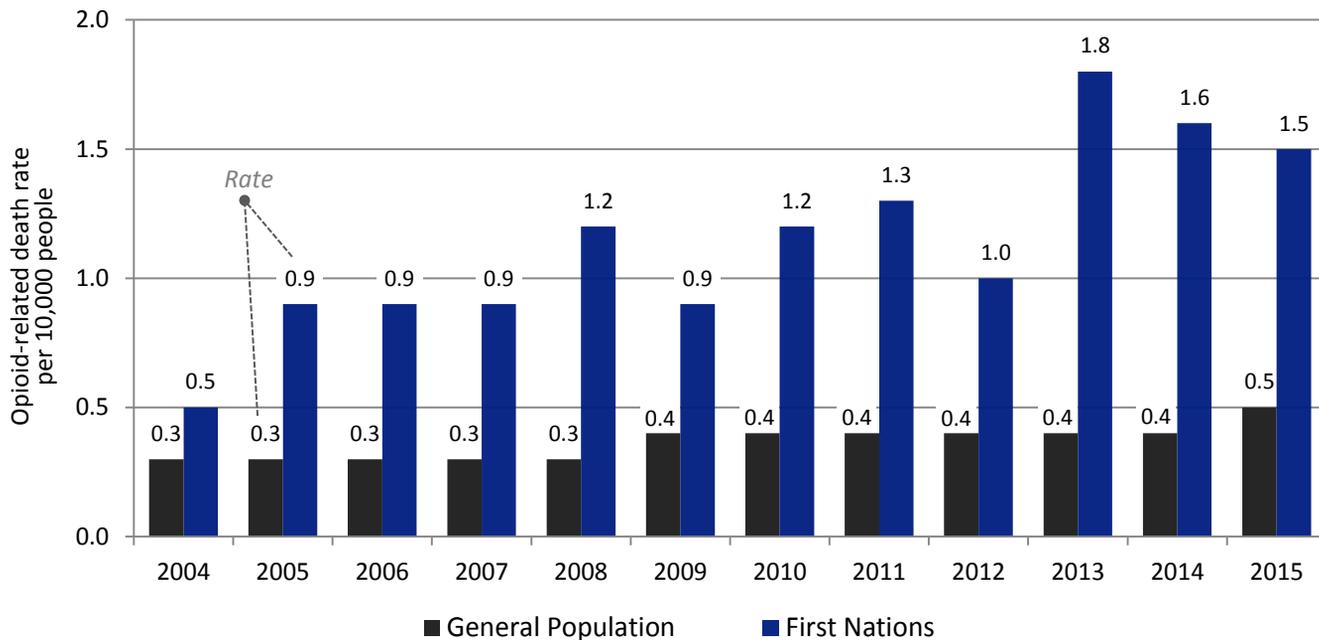
**NOTE:** Due to the presence of small cells when presenting 2015 opioid-related deaths by on/off reserve information, the results for 2014 and 2015 were combined for all opioid-related death data.

**NOTE:** Coroner investigations are completed through the same process for on and off reserve populations.

## Opioid-Related Mortality

(may be related to prescription and/or illicit use)

### Rate of Opioid-Related Deaths in 2004-2015



Rates of opioid-related deaths between 2004 and 2015 are **consistently higher** among First Nations people compared to the general population.

Moreover, the rates of opioid-related deaths have been **increasing to a greater extent** in First Nations people compared to the general population.

**NOTE:** We were not able to present the 2004-2015 opioid-related deaths by on/off reserve due to the presence of small cells.

# OVERVIEW & MOVING FORWARD

In summary, the rates of prescribing of opioids, doses dispensed, and opioid-related hospitalizations are higher in First Nations people compared to the general population; and higher among First Nations people living off reserve compared to those living on reserve. The rate of opioid-related deaths also appear to be higher in First Nations people compared to the general population. Moving forward, it will be important to understand if clustering of high rates of prescribing and toxicity events exist in certain regions in Ontario. Another key step will be to work towards obtaining permission to link the IRS data to the Narcotics Monitoring System (NMS) database for future work. The NMS includes records on all prescription opioids dispensed in Ontario, regardless of the type of payer (NIHB, ODB, cash, etc.) The NMS will allow us to better characterize prescribing patterns and dose of opioids.

## TECHNICAL APPENDIX

TABLE 1. SOURCES OF DATA USED IN ANALYSIS

ICES Database	Details
Indian Registry System (IRS) file	Registered/status First Nations living in Ontario, including non-Ontario Band members, up to 2010.
Registered Persons Database (RPDB)	Individuals living in Ontario who are eligible for the Ontario Health Insurance Plan. Includes demographic details (sex, age etc.)
Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD)	Dataset contains inpatient hospitalization records with reason for visit. Opioid-related toxicity codes used to identify hospitalizations include International Classification of Diseases (ICD-10) codes T40.0, T40.1, T40.2, T40.3, T40.4, T40.6.
Canadian Institute for Health Information National Ambulatory Care Reporting System (CIHI-NACRS)	Dataset contains emergency department visit records with reason for visit. Opioid-related toxicity codes used to identify emergency department visits include ICD-10 codes T40.0, T40.1, T40.2, T40.3, T40.4, T40.6.
Office of the Chief Coroner Death Data	Opioid-related deaths in Ontario abstracted from chart records.
Ontario Drug Benefit (ODB) Database	Prescription drugs received under the ODB program. To be eligible, an individual must have a valid Ontario health card and be aged 65+. Individuals under the age of 65 can also qualify if they have low socio-economic status, receive disability support or home care, have high drug costs relative to household income, or reside in a long-term care home.
NIHB Dataset	Details
Non-Insured Health Benefits (NIHB) first payer prescription data	Drugs covered for registered First Nations individuals in Ontario. NIHB is 'first payer' for those who are not eligible for ODB.

# TECHNICAL APPENDIX

## ADDITIONAL LIMITATIONS

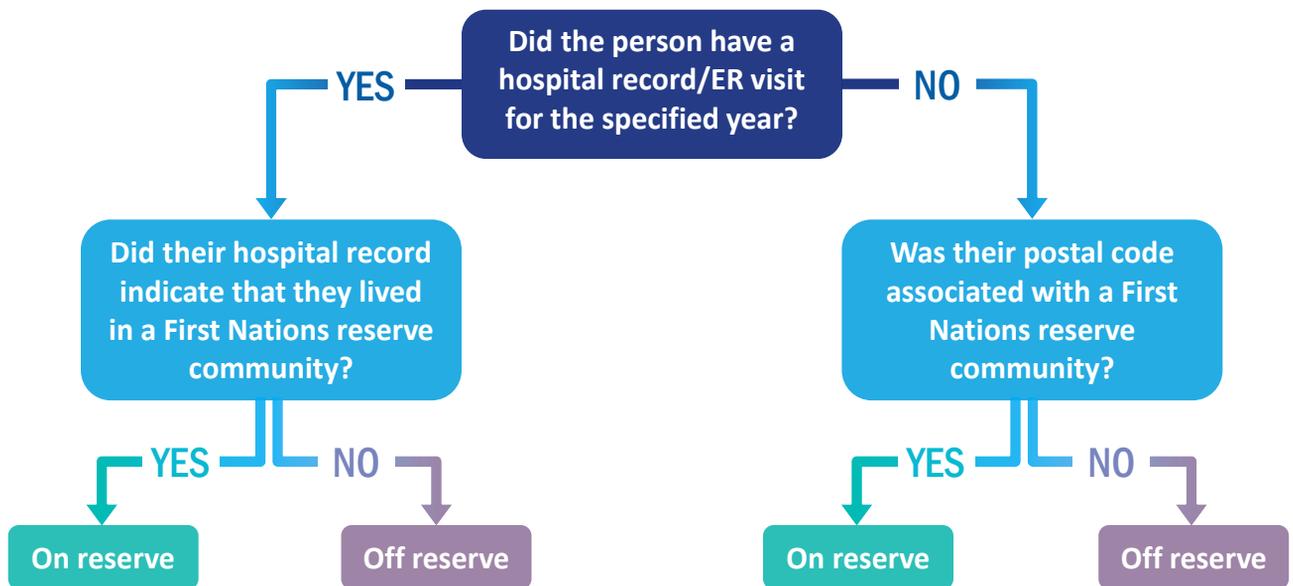
Prescribing data for ODB and NIHB are not linked at the user level, and so we could not calculate the number of individuals receiving prescription opioids from both sources. In addition, some opioid-related deaths in Ontario are missing person identifiers. These will not be counted in the estimates shown since it is unknown if this was a First Nations individual.

## METHODS OVERVIEW

A cross-sectional analysis was conducted among individuals living in Ontario to evaluate the rates of opioid prescribing, opioid-related hospitalizations and emergency department visits, and opioid-related deaths, among registered First Nations and the general population in Ontario. All databases used in this study were linked using unique, encoded identifiers and analyzed at the Institute for Clinical Evaluative Sciences (ICES; [www.ices.on.ca](http://www.ices.on.ca)) using SAS Enterprise Guide Version 6.1. More detail on the methods used can be found elsewhere.<sup>3</sup>

## ON/OFF RESERVE METHODOLOGY

*How did we determine if someone lived **on reserve** or **off reserve**?*



# OPIOIDS USE AMONG FIRST NATIONS PEOPLE IN ONTARIO

## CONTRIBUTORS

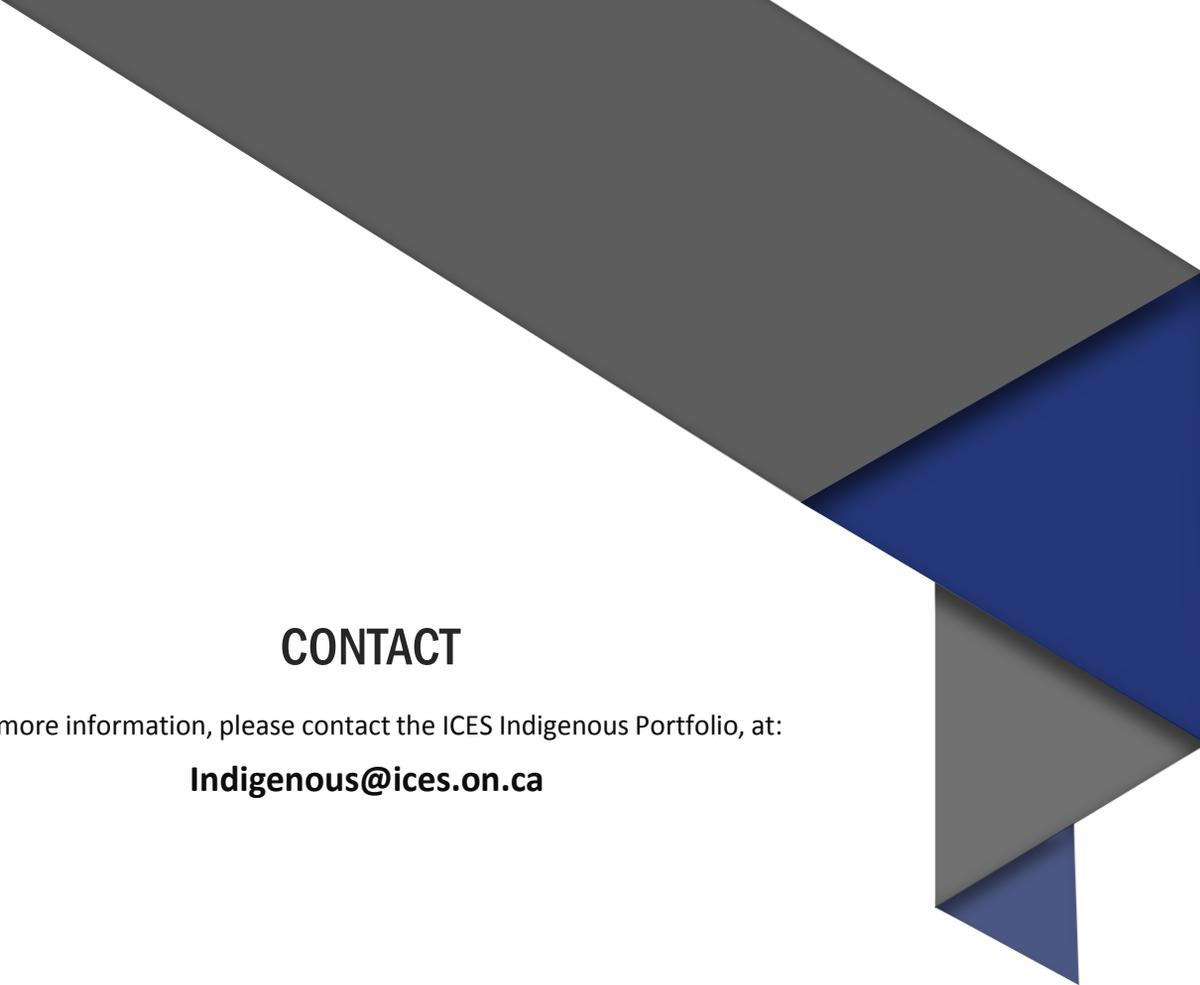
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- Parts of this material are based on data and information provided by Cancer Care Ontario (CCO). The opinions, results, view, and conclusions reported in this paper are those of the authors and do not necessarily reflect those of CCO. No endorsement by CCO is intended or should be inferred.
- Parts of this material are based on data and information compiled and provided by the Canadian Institute for Health Information (CIHI). However, the analyses, conclusions, opinions and statements expressed herein are those of the author, and not necessarily those of CIHI.
- These datasets were linked using unique encoded identifiers and analyzed at the Institute for Clinical Evaluative Sciences.



## CONTACT

For more information, please contact the ICES Indigenous Portfolio, at:

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## REFERENCES

1. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Division of Unintentional Injury Prevention. [Webpage]. Available from: <https://www.cdc.gov/drugoverdose/prescribing/patients.html>
2. Centers for Disease Control and Prevention. Calculating Total Daily Dose of Opioids for Safer Dosage. 2017. [Clinical Guideline]. Available from: [https://www.cdc.gov/drugoverdose/pdf/calculating\\_total\\_daily\\_dose-a.pdf](https://www.cdc.gov/drugoverdose/pdf/calculating_total_daily_dose-a.pdf)
3. The Ontario Drug Policy Research Network. Opioid Use and Related Adverse Events in Ontario. November 2016. [Report]. Available from: <http://odprn.ca/wp-content/uploads/2016/11/ODPRN-Opioid-Use-and-Related-Adverse-Events-Nov-2016.pdf>