

# Health Quality Ontario

*Let's make our health system healthier*

May, 2017

## 9 Million Prescriptions: What we know about the growing use of prescription opioids in Ontario

### Technical Appendix

May 8, 2017

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## Introduction

Health Quality Ontario has produced a report describing opioid prescribing in Ontario, specifically how many opioid prescriptions are filled, who receives opioid prescriptions, whether there is regional variation in the province, and the types of opioids that are being prescribed. This document is the technical appendix to *9 Million Prescriptions*, released May 2017.

The technical appendix provides a description of the methodology used to determine the numbers and rates per population of people who filled an opioid prescription (recipients) and of opioid prescriptions filled (dispenses), the number of opioid prescribers, and the proportion of filled prescriptions for one-off opioid prescriptions for a short duration. A description of each data source is included in this appendix, as well as a list of the short-acting and long-acting opioid drugs considered in the analysis of this report.

For more information, please contact us at [SystemPerformance@HQOntario.ca](mailto:SystemPerformance@HQOntario.ca)

## Data Sources

### **Narcotics Monitoring System, Ministry of Health and Long-Term Care**

The Narcotics Monitoring System (NMS) is a transaction-based system that collects dispensing data on opioids, controlled substances, and other monitored drugs from pharmacies and other dispensaries across Ontario, irrespective of whether the prescription is paid for under a publicly funded drug program, through private insurance, or by cash. The information collected in the NMS includes fields for prescriber identification, patient identification, pharmacy and pharmacist identification, date the drug was dispensed, drug identification number and the amount of drug dispensed. The NMS does not include information about monitored drugs dispensed to in-patients of public hospitals as part of their treatment, but it does include information about dispenses to out-patients of public hospitals and in-patients of private hospitals and healthcare facilities such as long-term care homes. Also, the NMS does not include information about monitored drugs dispensed to prisoners or inmates (i.e., prescriptions written for people confined to correctional institutions, penitentiaries, prisons or youth custody facilities). The Ministry of Health and Long-Term Care maintains the NMS, which was implemented in April 2012, became operational in May 2012 and is refreshed on a monthly basis. The data used in this report were extracted December 2016.

### **Population estimates, Ministry of Finance**

The Ministry of Finance provides population estimates for the province and for each Local Health Integration Network (LHIN) region. The Ministry of Finance uses the most recent Statistics Canada population estimates by census subdivision as the base for the LHIN region population projections. The method of allocating a census sub-division to LHIN regions varies depending on the geographic makeup of the LHIN region but areas are consistently assigned to LHINs over time. The estimates used in this report were accessed December 2016.

### **Corporate Provider Database, Ministry of Health and Long-Term Care**

The Corporate Provider Database (CPDB) is a repository of healthcare provider data. The CPDB contains information on the provider's birth date, gender, graduation date, reported specialties and postal code of practice. The Ministry of Health and Long-Term Care maintains the CPDB, with the College of Physicians and Surgeons of Ontario providing regular updates on provider credentials. The data used in this report were extracted December 2016.

## List of Opioids

### List of Short-Acting (immediate release) Opioids

- Alfentanil
- Butorphanol
- Codeine
- Codeine & acetaminophen
- Codeine & acetylsalicylic acid
- Codeine, acetaminophen & caffeine
- Codeine, acetaminophen & chlorzoxazone
- Codeine, acetaminophen & doxylamine
- Codeine, acetaminophen & methocarbamol
- Codeine, acetaminophen, chlorpheniramine & pseudoephedrine
- Codeine, acetylsalicylic acid & caffeine
- Codeine, acetylsalicylic acid & methocarbamol
- Codeine, acetylsalicylic acid, caffeine & butalbital
- Codeine, acetylsalicylic acid, caffeine & meprobamate
- Codeine, brompheniramine, phenylephrine
- Codeine, pseudoephedrine & guaifenesin
- Codeine, pseudoephedrine & triprolidine
- Dextromethorphan
- Fentanyl
- Hydrocodone
- Hydrocodone & phenylephrine
- Hydrocodone & phenyltoloxamine
- Hydrocodone, etafedrine, doxylamine & sodium citrate
- Hydrocodone, pseudoephedrine & chlorpheniramine
- Hydrocodone, pyrilamine, phenylephrine & ammonium chloride
- Hydromorphone
- Ketamine
- Meperidine
- Morphine
- Morphine & Lidocaine
- Nalbuphine
- Normethadone & p-hydroxyephedrine
- Opium & belladonna
- Opium derivatives & expectorants
- Oxycodone
- Oxycodone & acetaminophen
- Oxycodone & acetylsalicylic acid
- Pentazocine
- Pethidine
- Remifentanil
- Sufentanil
- Tapentadol
- Tramadol
- Tramadol & acetaminophen

### List of Long-Acting Opioids

- Buprenorphine
- Codeine
- Fentanyl
- Hydromorphone
- Methadone
- Morphine
- Oxycodone
- Oxycodone & naloxone
- Tapentadol
- Tramadol

## Methods

Most of the results presented in the report are by fiscal year, meaning that data from April 1 of one year to March 31 of the next year are used in the calculation.

### Prescribers

The number of healthcare professionals who prescribed opioids is a count of the number of health care professionals in Ontario who prescribed at least one of the opioids listed on the previous page (page 4) within the fiscal year. This number excludes prescribers who only prescribed methadone maintenance treatment (MMT) or buprenorphine/naloxone during this period.

### People who filled an opioid prescription (recipients)

The number of people who filled an opioid prescription (recipients) is the count of the number of people for whom an opioid was dispensed during a one year period between April 1 and March 31. We did not count people who *only* filled prescriptions for MMT or buprenorphine/naloxone, however, if an individual was dispensed either of these treatments and also dispensed another opioid from the list on page 4, then they would be counted as having filled an opioid prescription.

#### **Number of people who filled an opioid prescription**

*Count of the number of people who filled an opioid prescription in a given fiscal year*

##### *Inclusion*

- Record in the NMS is valid and complete
- Recipient has a valid Ontario health card number

##### *Exclusion*

- People who were only dispensed methadone maintenance treatment or buprenorphine/naloxone

The rates of opioid recipients (people who filled an opioid prescription) were calculated by dividing the count of the number of recipients by the estimated number of people in the province or LHIN region for the given fiscal year, and expressed using a 100 population denominator.

#### **Rate of people who filled an opioid prescription (per 100 population)**

*The rate of the number of people who filled an opioid prescription per 100 people in the population in a given fiscal year*

Numerator: Count of the number of people who filled an opioid prescription in a given fiscal year

##### *Inclusion*

- Record in the NMS is valid and complete
- Recipient has a valid Ontario health card number

##### *Exclusion*

- People who were only dispensed methadone maintenance treatment or buprenorphine/naloxone

Denominator: Number of people in the population

The report describes the number and rate for Ontario and the rate for the 14 LHIN regions. The LHIN region is determined according to the LHIN where the recipient resides.

The report also describes the number, rate, and proportion of recipients by sex (male/female) and age group (0-18, 19-44, 45-64, 65+) of the person who filled an opioid prescription, as well as by type of opioid drug dispensed. Age was calculated from the first day of the fiscal year (April 1).

### **Opioid prescriptions filled (dispenses)**

The number of opioid prescriptions filled (dispenses) is the count of the number of opioid dispenses during a one year period between April 1 and March 31. Prescriptions filled for MMT or buprenorphine/naloxone were not included.

#### **Number of opioid prescriptions filled**

*Count of the number of opioid prescriptions filled in a given fiscal year*

##### *Inclusion*

- Record in the NMS is valid and complete
- Recipient has a valid Ontario health card number

##### *Exclusion*

- Dispenses for methadone maintenance treatment or buprenorphine/naloxone

The rates of opioid prescriptions filled were calculated by dividing the count of the number of prescriptions filled by the estimated number of people in the province or LHIN region for the given fiscal year, and expressed using a 100 population denominator.

#### **Rate of opioid prescriptions filled (per 100 population)**

*The rate of the opioid prescriptions filled per 100 people in a given fiscal year*

Numerator: Count of the number of opioid prescriptions filled in a given fiscal year

##### *Inclusion*

- Record in the NMS is valid and complete
- Recipient has a valid Ontario health card number

##### *Exclusion*

- Dispenses for methadone maintenance treatment or buprenorphine/naloxone

Denominator: Number of people in the population

The report describes the number and rate for Ontario and the rate for the 14 LHIN regions. The LHIN region is determined according to the LHIN where the person who filled the opioid prescription resides.

## One-time, short-term prescriptions

In order to understand the proportion of one-time, short-term prescriptions among opioid recipients, we looked among all recipients during a three-month period to identify the number of people who filled a single prescription for an immediate-release drug with a supply of 14 days or less. We looked back one year and forward six months to confirm that the recipient had not filled another prescription during these periods.

### **Proportion of people who filled a prescription for a one-time, short-term prescription for an immediate-release opioid drug**

Numerator (subset of the denominator): Number of people who had a single prescription filled for an immediate-release opioid drug with a supply of 14 days or less in the first three months of 2016

#### *Inclusion*

- Recipients who had a single dispense only for an immediate-release/short-acting opioid with a supply of 14 days or less in the period from January to March 2016

#### *Exclusion*

- Recipients with any opioid dispense in the previous 12 months (January to December 2015)
- Recipients with any opioid dispense in the subsequent 6 months (April to September 2016)

Denominator: Number of people who had at least one opioid prescription filled in the first three months of 2016

#### *Inclusion*

- Recipients of at least one short-acting or long-acting opioid in the period from January to March 2016
- Record in the NMS is valid and complete
- Recipient has a valid Ontario health card number

#### *Exclusion*

- Recipients who only had a single dispense or multiple dispenses for methadone maintenance therapy or buprenorphine/naloxone from January to March 2016

The report describes the proportion of people who filled an opioid prescription that was for a one-time prescription for a short-term, immediate-release opioid in Ontario by age group (0-18, 19-44, 45-64, 65+) of the person who filled an opioid prescription. Age was calculated from the first day of the fiscal year (April 1).

## Analysis and Data Acknowledgements

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