



Opioid Prescribing in Canada

How Are Practices Changing?



Canadian Institute
for Health Information

Institut canadien
d'information sur la santé

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ISBN 978-1-77109-819-9 (PDF)

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How to cite this document:

Canadian Institute for Health Information. *Opioid Prescribing in Canada: How Are Practices Changing?*. Ottawa, ON: CIHI; 2019.

Cette publication est aussi disponible en français sous le titre *Prescription d'opioïdes au Canada : comment les pratiques changent-elles?*.

ISBN 978-1-77109-820-5 (PDF)

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Acknowledgements

The Canadian Institute for Health Information (CIHI) wishes to acknowledge and thank the following groups for their contributions to this report:

- Ontario Pharmaceutical Services Coordination Unit, Ministry of Health and Long-Term Care
- Manitoba Provincial Drug Programs, Department of Health, Seniors and Active Living
- Saskatchewan Drug Plan and Extended Benefits Branch, Ministry of Health
- British Columbia Health and Drug Coverage, Ministry of Health

CIHI would also like to thank the following individuals for their expert review of this report:

- Dr. Tara Gomes, Core Scientist, ICES; Assistant Professor, Leslie Dan Faculty of Pharmacy, University of Toronto; Scientific Lead and Co-Principal Investigator, Ontario Drug Policy Research Network
- Dr. Beth Sproule, Centre for Addiction and Mental Health and Leslie Dan Faculty of Pharmacy, University of Toronto

Please note that the analyses and conclusions in this document do not necessarily reflect those of the individuals or organizations mentioned above.

Key findings

Canada continues to experience an opioid crisis. In 2018, almost 1 in 8 people were prescribed opioids. This report presents trends in opioid prescribing in Ontario, Saskatchewan and British Columbia from 2013 to 2018, and in Manitoba from 2016 to 2018. Manitoba data was available from 2016 onward only, so it was excluded from calculations on previous years.

The report discusses findings within the context of initiatives and guidelines aimed at reducing harms associated with prescription opioid use.

Key findings from the report include the following trends from 2013 to 2018, unless otherwise stated:

Fewer people are being prescribed opioids.

- The proportion of people prescribed opioids decreased from 14.3% to 12.3%. This represents an 8.0% decrease in the number of people taking opioids during the study period.
- Similar proportions of the populations of Ontario, Manitoba and British Columbia were prescribed opioids while the proportion in Saskatchewan was consistently lower.

Fewer people have started opioids.

- The proportion of people starting opioid therapy decreased from 9.5% to 8.1%, with decreases occurring in all age groups. This represents a 9.6% decrease in the number of people who started on opioids during the study period.

Dosage and duration of therapy among people starting opioids remained relatively stable.

- The proportion of people who started opioid therapy prescribed less than 50 morphine milligram equivalents (MMEs) daily increased slightly from 76.2% to 77.0%.
- The proportion of people who were prescribed new opioid therapy for 1 week or less increased slightly from 62.5% to 63.6% in 2017.

Fewer people are being prescribed opioids on a long-term basis.

- Of people prescribed opioids, the proportion who were prescribed them on a long-term basis decreased from 19.8% to 17.6%.

People on long-term opioid therapy are being prescribed smaller doses.

- The proportion of people on long-term opioid therapy prescribed less than 50 MMEs daily increased from 72.1% to 76.3%.
- Of people on long-term opioids who were taking 90 MMEs daily or more, the proportion who tapered to a dose less than 90 MMEs daily increased from 16.6% to 25.7% in 2017.

More people are stopping long-term opioid therapy.

- The proportion of people on long-term opioids who stopped therapy for at least 6 months increased from 18.3% to 20.4% in 2017.

Introduction

Pain is one of the most common reasons for Canadians to seek health care, with 1 out of every 5 adults in Canada experiencing chronic pain.¹ Prescription opioids, such as codeine, oxycodone and hydromorphone, are commonly used for treating pain. Other reasons opioids may be prescribed include treating cough or opioid dependence.^{2, 3} Opioids, when prescribed and used appropriately, are effective drugs that play an important role in pain management for many Canadians. However, opioids can also produce a feeling of euphoria or a “high” and sometimes opioid use can lead to harms, including addiction, poisoning and death.^{4, 5} While there is evidence to support the treatment of acute pain with prescription opioids, there has been much debate regarding their effectiveness for treating people experiencing chronic non-cancer pain.^{6, 7}

In recent years, Canada has been faced with an opioid crisis.⁸ From January 2016 to June 2018, more than 9,000 Canadians died from apparent opioid-related harms.⁹ In 2017, an average of 17 Canadians were hospitalized for opioid poisonings each day — an increase from 16 per day in 2016. Other opioid-related harms, such as hospitalizations for opioid use disorders and neonatal withdrawal symptoms, have also been increasing across the country.⁵

While many of these harms may be due to the use of illicit opioids, such as heroin or fentanyl, prescription opioids are also contributing to the public health issue.¹⁰ Harms can occur not only to people prescribed opioids but also to people without prescriptions, through diversion by family or friends, improper disposal, illegal purchases and theft.¹¹ An American study found that an opioid overdose is more likely to occur in families where somebody in the household is prescribed an opioid.¹² Canada is the second-largest per capita consumer of opioids in the world,¹³ although a Canadian Institute for Health Information (CIHI) report released in June 2018 showed decreases in opioid prescribing. From 2016 to 2017, the total quantity of opioids dispensed in Canada declined by more than 10% and the number of prescriptions for opioids declined by over 400,000 — the first decline in prescriptions since 2012.¹⁴

A variety of initiatives to reduce the harms associated with prescription opioids have been implemented in response to the opioid crisis. Some of these initiatives include the following:

- *The 2017 Canadian Guideline for Opioids for Chronic Non-Cancer Pain* was released in May 2017.¹⁵ This update to the 2010 guideline incorporates new evidence and provides more specific recommendations with a greater focus on harm reduction.¹⁶
- High-strength opioids were delisted from Ontario’s public drug formulary for non-palliative care prescribers in January 2017.¹⁷
- Earlier, some jurisdictions had adopted alternate prescribing guidelines, such as the June 2016 Safe Prescribing of Drugs with Potential for Misuse/Diversion in British Columbia.¹⁸ These guidelines were based on the 2016 CDC Guideline for Prescribing Opioids for Chronic Pain in the United States.¹⁹

- In February 2012, a reformulated tamper-deterrent form of long-acting oxycodone, OxyNEO, was introduced as an initiative to address concerns related to the misuse of the previous controlled-release oxycodone product, OxyContin.^{20, 21}
- Provincial prescription monitoring programs that assist prescribers and pharmacists continued to develop and expand.²²

The 2017 Canadian Guideline for Opioids for Chronic Non-Cancer Pain provided 10 recommendations for the safe prescribing of opioids. Many of these recommendations were present in earlier guidelines (e.g., 2016 Centers for Disease Control and Prevention [CDC] guideline).^{15, 19} These guidelines recommend beginning with non-opioid pharmacotherapy, such as nonsteroidal antiinflammatory drugs (NSAIDs), and non-pharmacological therapy. If pain persists after these therapies have been optimized, recommendations are made to prescribe opioids with short durations of use and a maximum dose. The guidelines also provide recommendations for safely tapering patients who have been using long-term opioid therapy from high doses.ⁱ While it is important to promote or encourage evidence-based prescribing practices that reduce the risk of harms, it is equally important to measure the outcomes of guideline recommendations, including potential negative implications such as inappropriate rapid tapers or switches to other harmful drugs.

This report examines trends in opioid prescribing, focusing on people who are starting opioids as well as people who are prescribed opioids on a long-term basis. Findings are presented in the context of initiatives and guidelines aimed at reducing opioid-related harms from prescription opioids. Given the number of initiatives and the timing of their implementation, it is challenging to accurately attribute a particular initiative to a trend seen in the data. There are also differences in the lag time required to observe changes in the data. For example, it may take several months before prescribing practices are influenced since prescribers are completing their education on new guidelines. Given this, the full impact of *The 2017 Canadian Guideline for Opioids for Chronic Non-Cancer Pain* will not be seen in the findings of this report, which includes data from 2013 to 2018. However, since some of the recommendations in these guidelines align with other guidelines and research released earlier (e.g., 2016 CDC guideline), trends seen in the findings may reflect this alignment.¹⁹ Continued rollout of the guidelines, as well as related education and initiatives, may further enhance alignment with the guideline recommendations in the future.

Additional information on opioid prescribing and opioid-related harms in Canada, such as hospitalizations and emergency department visits due to opioid poisoning, opioid disorders and adverse reactions, is available at [Opioids in Canada](#).

i. The guideline does not look at opioid use for acute pain or for patients with pain due to cancer or in palliative care, or those under treatment for opioid use disorder or opioid addiction.

Analysis

This report analyzes trends in opioid prescribing in Ontario, Manitoba, Saskatchewan and British Columbia, provinces where CIHI has access to data on all prescription opioids dispensed from community pharmacies. Claims data from 2 sources are used in this report: CIHI's National Prescription Drug Utilization Information System (NPDUIS) and Ontario's Narcotics Monitoring System (NMS). For more information about these data sources, see [Appendix A](#). Methodology and terminology used in this report can be found in [Appendix B](#).

Trends are reported from 2013 to 2018, with data from 2012 used for a lead-in period. 2019 data was not available to be used for a follow-up period, so some analyses could not be done for 2018. Manitoba was excluded from analyses looking at trends from 2013 to 2018, as complete data was not available prior to March 2015.

This report answers the following questions:

- How many people are prescribed opioids?
- How many people are starting opioids?
- What is the duration of new opioid starts?
- What doses are being prescribed to people starting opioids?
- How many people are prescribed opioids long term?
- How many people on long-term opioid therapy are being tapered to lower doses, switched to non-opioid prescription drug therapies or having their opioid therapy stopped?

These questions are discussed in relation to changing trends over time and patient demographics, and within the context of initiatives aimed at reducing harms associated with prescription opioid use. More information on the study population, generally referred to as “people” throughout this report, can be found in [Appendix C](#).

How many people are prescribed opioids?

1 in **8** people* were prescribed opioids in 2018



Note

* Reflects people who filled prescriptions at community pharmacies in Ontario, Manitoba, Saskatchewan and British Columbia.

In 2018, almost 1 in 8 people in the study population (12.3%) were prescribed opioids — an estimate of more than 4.6 million Canadians nationally.ⁱⁱ As a comparison, the Canadian Tobacco, Alcohol and Drugs Survey reported that 12% of Canadians age 15 years and older were using prescription opioids in 2017.²³

From 2013 to 2018, the proportion of the study population prescribed opioids decreased from 14.3% to 12.3%.ⁱⁱⁱ This represents an 8.0% decrease in the number of people taking opioids during the study period. This was consistent among females and males, as well as across all age groups, and aligns with findings in the CIHI report *Pan-Canadian Trends in the Prescribing of Opioids and Benzodiazepines, 2012 to 2017*.¹⁴

Opioids can be classified as either “strong opioids” or “weak opioids,” depending on their potency.^{iv} In 2018, roughly 8.0% of the study population was prescribed a weak opioid, 3.2% was prescribed a strong opioid and 1.2% was prescribed both a strong and a weak opioid. Codeine, a weaker opioid, was the most common opioid prescribed, with over half of people prescribed opioids in 2018 having a prescription (56.1%). Codeine is indicated for treating symptoms of mild to moderate pain of various causes but can also be used to control cough.^{24, 25} Oxycodone and hydromorphone, strong opioids, were the next most common, being prescribed to 16.7% and 16.5% of people prescribed opioids, respectively. They are indicated for the management of moderate to more severe pain.^{26–29}

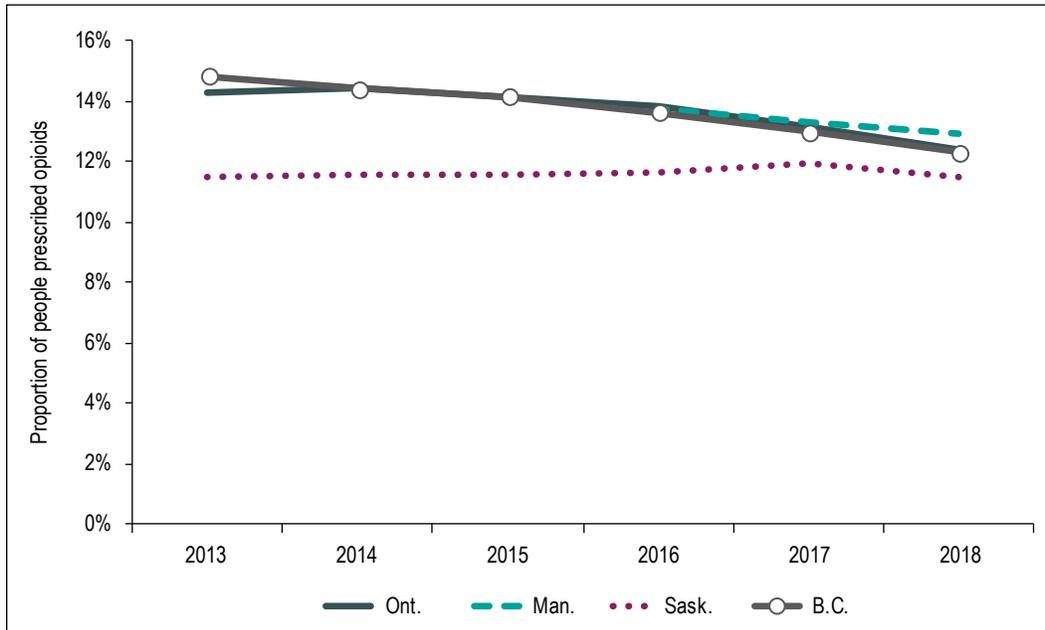
ii. This was calculated by extrapolating the 12.3% across Canada's entire population of 37.1 million.

iii. This includes opioids used primarily for pain or cough suppression, but not for opioid use disorder (see [Appendix B](#) for more details). When only opioids used primarily for pain were included, the rate in 2018 decreased to 10.7%. When all opioids were included, the rate increased to 12.7%.

iv. Strong opioids include all fentanyl, hydromorphone, morphine and oxycodone products.

Similar proportions of the populations of Ontario, Manitoba and British Columbia were prescribed opioids while the proportion in Saskatchewan was consistently lower. The proportions of people prescribed opioids declined in each province, except Saskatchewan, between 2013 and 2018 (Figure 1).

Figure 1 Proportion (%) of people prescribed opioids, by province, 2013 to 2018



Note

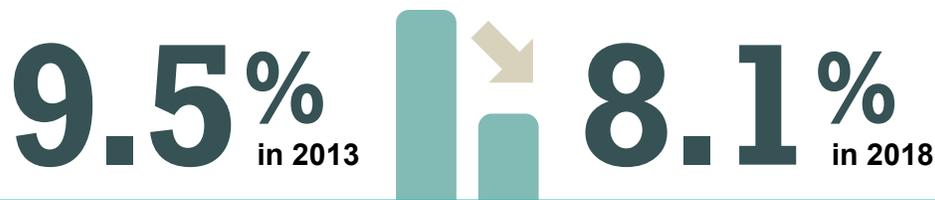
Manitoba data was not available prior to March 2015.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

How many people are starting opioids?

Fewer people are starting new prescribed opioid therapy*

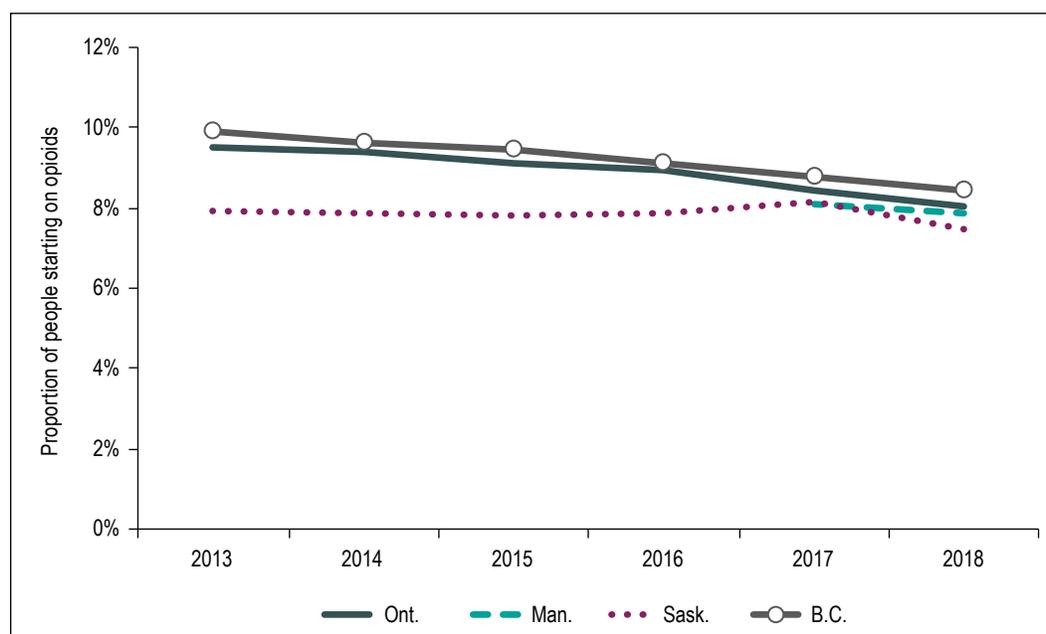


Note

* Reflects people who filled prescriptions at community pharmacies in Ontario, Saskatchewan and British Columbia.

The proportion of the study population starting opioids decreased from 9.5% in 2013 to 8.1% in 2018. This represents a 9.6% decrease in the number of people who started on opioids during the study period. Consistent decreases in the proportion of people starting opioids were observed in all study provinces (Figure 2).

Figure 2 Proportion (%) of people starting opioid therapy, by province, 2013 to 2018



Note

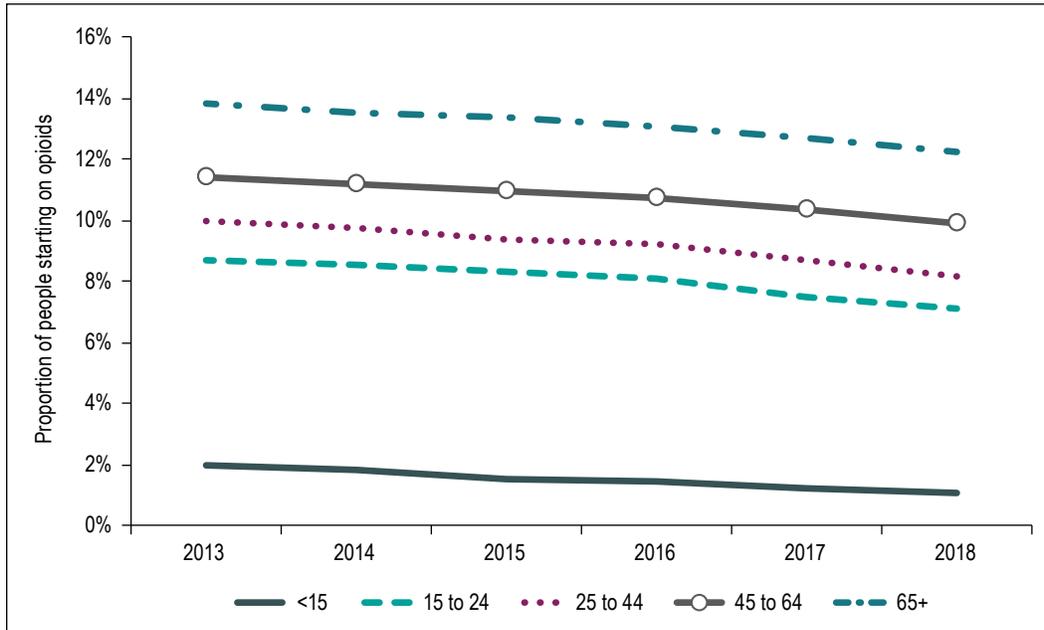
Manitoba data was not available prior to March 2015.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Trends were similar among males and females. Steady decreases for people starting opioid therapy occurred across all age groups (Figure 3).

Figure 3 Proportion (%) of people starting opioid therapy, by age group,* 2013 to 2018



Note

* Includes data from Ontario, Saskatchewan and British Columbia. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

About 3 in 4 people starting opioid therapy began on a weak opioid, while 1 in 4 started on a strong opioid. This finding was consistent over the study period. Of the weak opioids, codeine was prescribed to over half of those who started opioid therapy (55.1%), followed by tramadol (12.3%) and hydrocodone (7.8%). Hydromorphone (11.7%) was the most commonly prescribed strong opioid, followed by oxycodone (10.1%) and morphine (4.1%).

Guidelines released in Canada and the United States during the study period recommend non-opioid pharmacotherapy and non-pharmacological therapy as the preferred treatment for chronic non-cancer pain.^{15, 18, 19} In 2018, roughly 1 in 4 people (27.3%) had a previous prescription for a non-opioid pain medication (products with approved indications for pain relief) within the 6 months prior to starting opioids.^v This proportion increased over the study period, with 23.3% having had a previous prescription for a non-opioid pain medication within the 6 months prior to starting opioids in 2013. Non-opioid pain medications included prescription drugs such as antiinflammatories, anti-migraine products and gabapentin (a complete list can be found in [Appendix B](#)).



Note

* Reflects people who filled prescriptions at community pharmacies in Manitoba, Saskatchewan and British Columbia. This excludes Ontario because the Narcotics Monitoring System data does not include all non-opioid pain medications.

NSAIDs were the most common type of non-opioid pain medication prescribed to people prior to starting opioids. Of those who were prescribed a non-opioid pain medication, 82.5% were prescribed an NSAID within the 6 months before starting opioids. This finding was consistent over the study period.

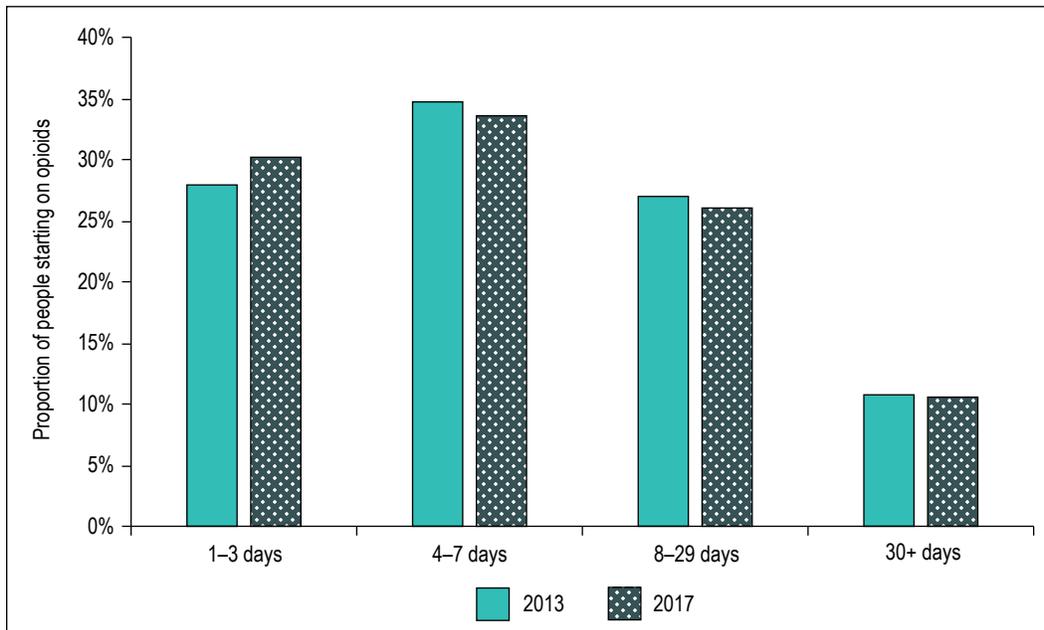
It is important to note that the data sources used for this analysis did not include information on over-the-counter pain relievers obtained without a prescription, such as acetaminophen or ibuprofen, or non-pharmacological treatments, such as physiotherapy. Therefore, it was not possible to examine other treatments for pain, which may have been tried prior to starting opioids. For information on additional limitations, see [Appendix B](#).

v. This excludes Ontario because the NMS data does not include all non-opioid pain medications.

What is the duration of new opioid starts?

The duration for which opioids were continuously prescribed to people starting therapy was examined.^{vi} Overall, for people starting opioids, the duration of use was slightly shorter, on average, in 2017 (12.8 days) compared with 2013 (13.4 days). Compared with 2013, a higher proportion of the study population was prescribed opioids for 1 to 3 days in 2017 (increasing from 27.8% to 30.1%) while fewer people were prescribed opioids for longer than one week (Figure 4).

Figure 4 Duration of use for people starting opioids (in days),* 2013 and 2017



Note

* Includes data from Ontario, Saskatchewan and British Columbia. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

^{vi.} People were considered to be continuously prescribing until a 30-day gap in therapy appeared after the end of a prescription.

From 2013 to 2017, the proportion of people starting opioids who used them for 1 week or less increased slightly from 62.5% to 63.6%. The duration of use increased with age, with seniors being prescribed opioids for an average of 18.6 days in 2017, compared with only 6.6 days for people age 15 to 24. As people age, they tend to develop more chronic pain and are more likely to be prescribed opioids for long periods.³⁰

The duration of use for people starting opioids also varied by province in 2017, with Manitoba having the highest proportion using opioids for 1 week or less (64.6%), followed by B.C. (64.4%), Ontario (63.9%) and Saskatchewan (55.5%). Males and females had similar prescription durations.

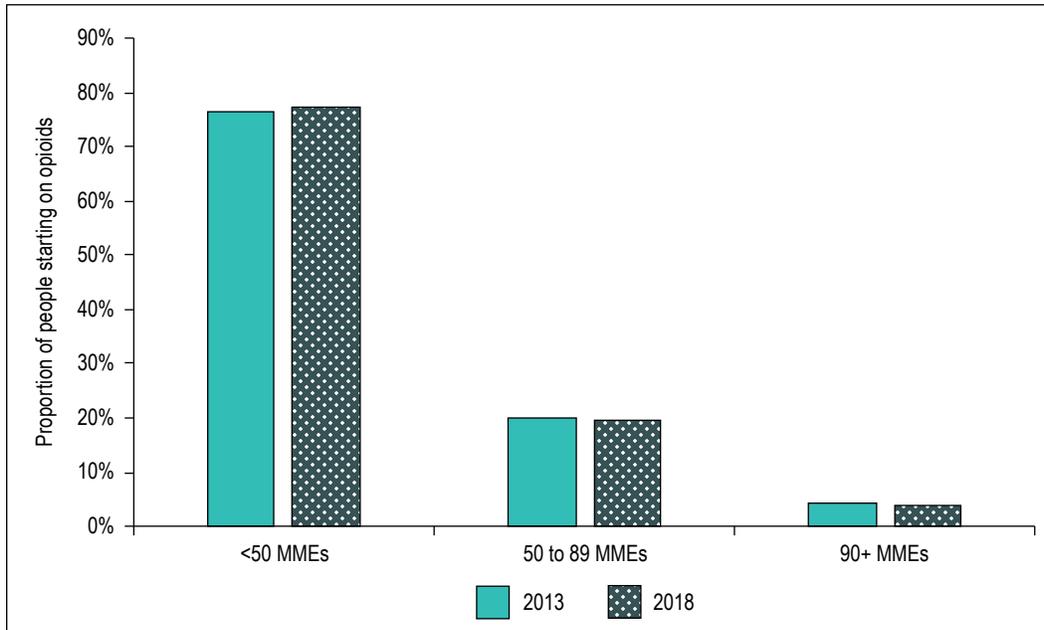
What doses are being prescribed to people starting opioids?

Morphine milligram equivalent (MME) is a standardized method for measuring opioid doses and reflects the potency of an opioid (detailed information on how this measure is calculated is in [Appendix B](#)). Guidelines released in Canada and the United States recommend clinicians prescribe the lowest effective dose for chronic non-cancer pain. Guidelines in the United States recommend clinicians carefully reassess evidence of individual benefits and risks when increasing dosage to 50 MMEs or more daily, and avoid increasing dosage to 90 MMEs or more daily or carefully justify a decision to increase dosage to 90 MMEs or more daily.¹⁹ Canadian guidelines recommend that, for people starting opioid therapy, the prescribed dose be restricted to less than 50 MMEs daily, and for those currently using 90 MMEs daily or more to taper to the lowest effective dose, potentially discontinuing opioids.^{15, 18} Throughout this report, a dose equal to or greater than 90 MMEs daily is considered high-dose opioid therapy.

In 2018, over three-quarters (77.0%) of people starting opioids were initially prescribed a dose below 50 MMEs daily (Figure 5). It is possible that some people who started opioids may have begun therapy earlier in hospital. This would not be included in the analysis. Manitoba had a higher proportion of people starting opioids on a dose below 50 MMEs, at 86.0%, compared with 78.8% in B.C., 77.2% in Saskatchewan and 76.3% in Ontario. This is likely due in large part to Manitoba being the only province included in the study to require a prescription for low-dose codeine products.

Starting on a lower dose was more common among women. Across age groups, those younger than 15 and seniors were most likely to start opioids on a lower dose.

Figure 5 Proportion (%) of people starting opioids by average MMEs daily (initial dose),* 2013 and 2018



Notes

* Includes data from Ontario, Saskatchewan and British Columbia. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

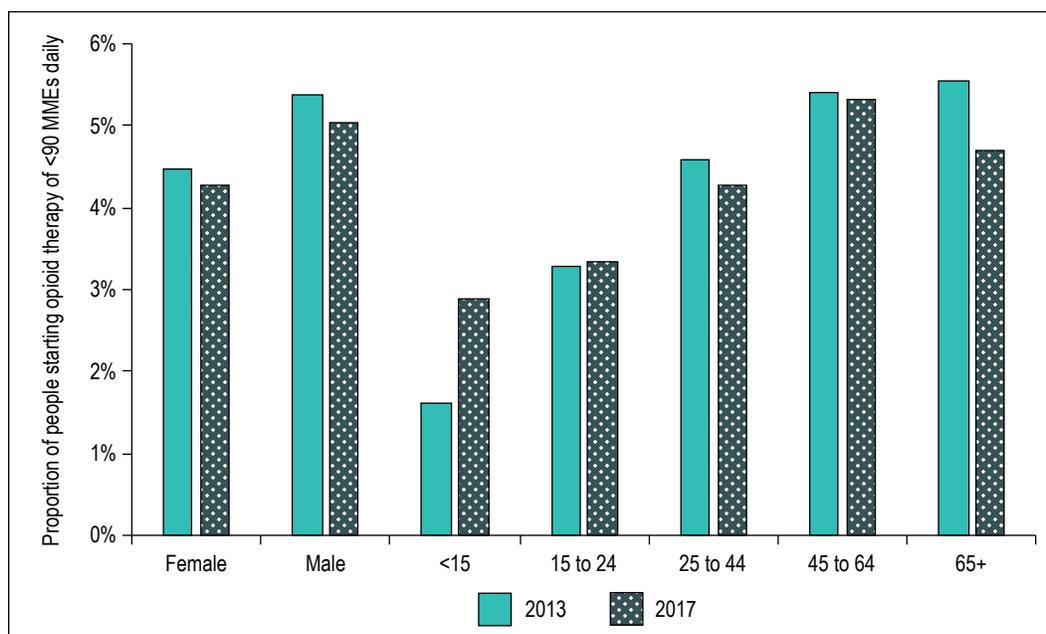
MMEs: Morphine milligram equivalents.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

In 2017, 4.6% of the study population who started opioids at a dose below 90 MMEs daily increased to a high dose (90 MMEs or more daily) within 6 months of initiating therapy, a slight decrease from 4.9% in 2013. High-dose opioid therapy was more common among males and older people (Figure 6).

Figure 6 Proportion (%) of people starting opioids below 90 MMEs daily who increased to high doses (90 MMEs or more daily) within 6 months, by sex and age group,* 2013 and 2017



Notes

* Includes data from Ontario, Saskatchewan and British Columbia. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

Includes people who started opioids at a dose below 90 MMEs daily who were increased to 90 MMEs or more daily within 6 months.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

High doses of opioids are associated with an increased risk of harms — it has been found that people on an opioid dose greater than 90 MMEs daily had an increased risk of drug-related death relative to lower prescribed doses.³¹ However, despite the increased risk of harm, some patients may gain important benefit at a dose of more than 90 MMEs daily.¹⁵

How many people are prescribed opioids long term?

Long-term opioid use is defined as someone prescribed opioids for 90 days out of a 100-day period. While it may be an appropriate pain management approach for some people, it comes with an increased risk of harms, including addiction, dependence and death, especially at high doses.³² It has been found that 1 of every 550 people on long-term opioid therapy die within roughly 2.5 years of their first opioid prescription, while a further 1 in 32 of those receiving 200 MMEs daily or more die of opioid-related causes.³³

1 out of **5*** **people** were prescribed opioids on a **long-term basis** in 2018



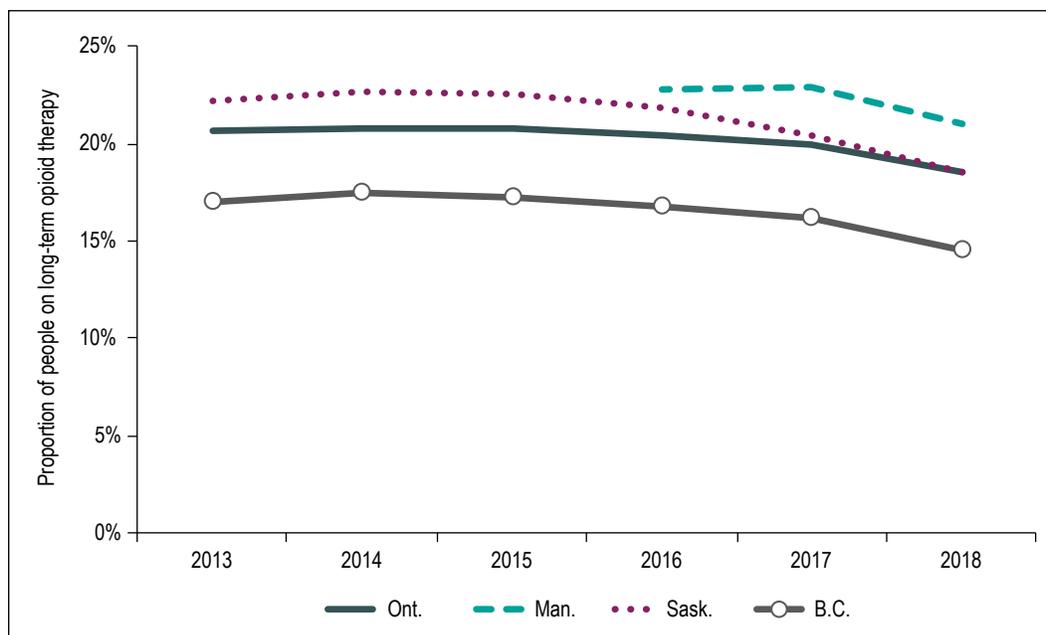
Note

* Reflects people who filled prescriptions at community pharmacies in Ontario, Manitoba, Saskatchewan and British Columbia.

In 2018, 17.6% of people prescribed opioids were using them long term, a decrease from 19.8% in 2013. About two-thirds of people on long-term therapy (62.8%) were prescribed strong opioids.^{vii} The most common strong opioids prescribed to the study population on long-term therapy in 2018 were oxycodone (32.7%), hydromorphone (25.6%), morphine (9.4%) and fentanyl (3.7%). There was some variation by province (Figure 7).

^{vii}. These people were prescribed strong opioids at some point during their long-term therapy.

Figure 7 Proportion (%) of people prescribed opioids who were on long-term therapy, by province, 2013 to 2018



Note

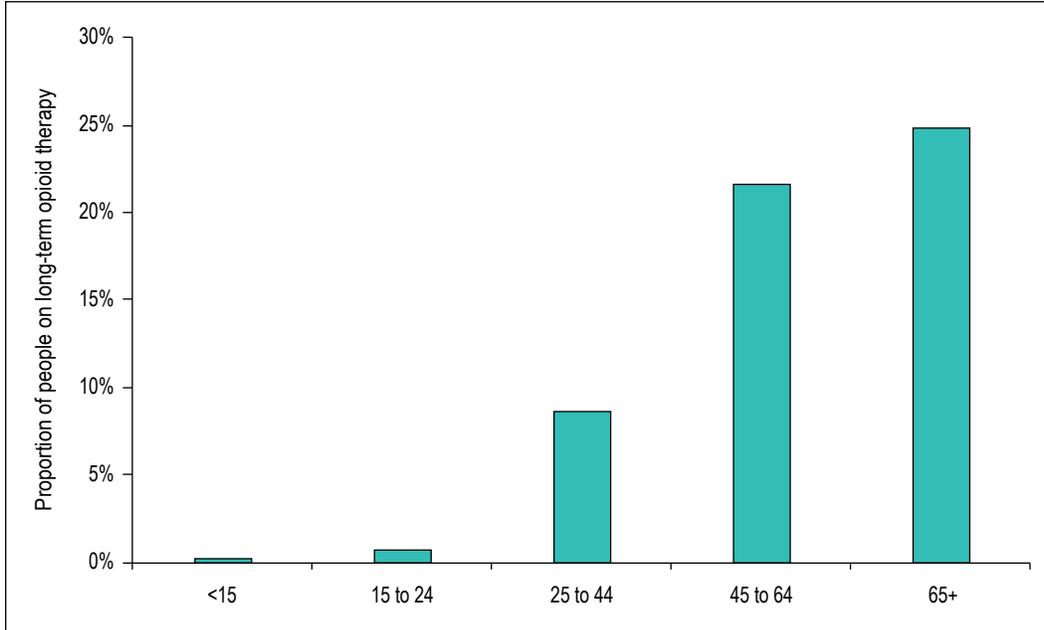
Manitoba data was not available prior to March 2015.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Long-term use was more common among seniors, with 24.8% on long-term opioid therapy compared with only 0.7% of people under 25 years of age (Figure 8). There were no significant differences between males and females.

Figure 8 Proportion (%) of people prescribed long-term opioid therapy, by age group,* 2018



Note

* Includes data from Ontario, Manitoba, Saskatchewan and British Columbia.

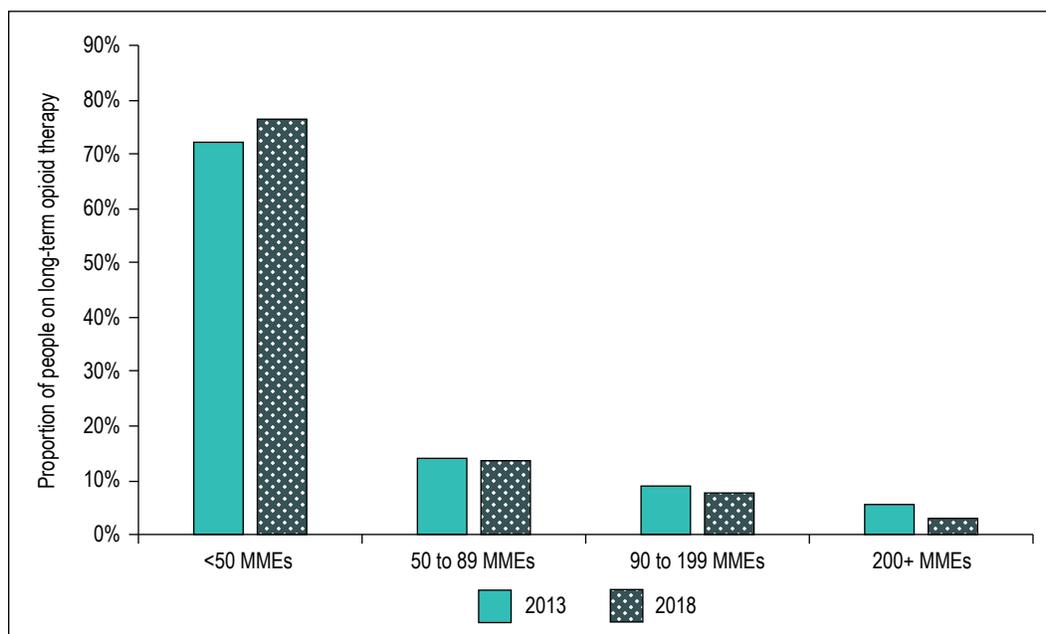
Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Seniors are more likely to use opioids long term due to a higher prevalence of chronic pain. However, they are also more likely to experience opioid-related harms.^{5, 30} A recent CIHI report *Opioid-Related Harms in Canada, December 2018* found that Canadian seniors experience higher rates of hospitalizations due to opioid poisoning (although more recently, these rates have started to decrease). High rates of opioid poisonings causing hospitalization among seniors may be due to increased rates of polypharmacy, biological changes to the body that occur with older age and comorbid conditions.^{34, 35}

The decline in average doses prescribed for people on long-term therapy was more pronounced, dropping by almost 20% between 2013 and 2018 (57 MMEs daily to 48 MMEs daily). Decreases occurred among males and females as well as across all age groups, except for those younger than 15. Most people on long-term opioid therapy (76.3%) were prescribed less than 50 MMEs daily (Figure 9).

Figure 9 Proportion (%) of people on long-term opioid therapy by average MMEs daily,* 2013 and 2018



Notes

* Includes data from Ontario, Saskatchewan and British Columbia. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

MMEs: Morphine milligram equivalents.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

How many people on long-term opioid therapy are being prescribed fewer opioids?

Those tapering opioid therapy

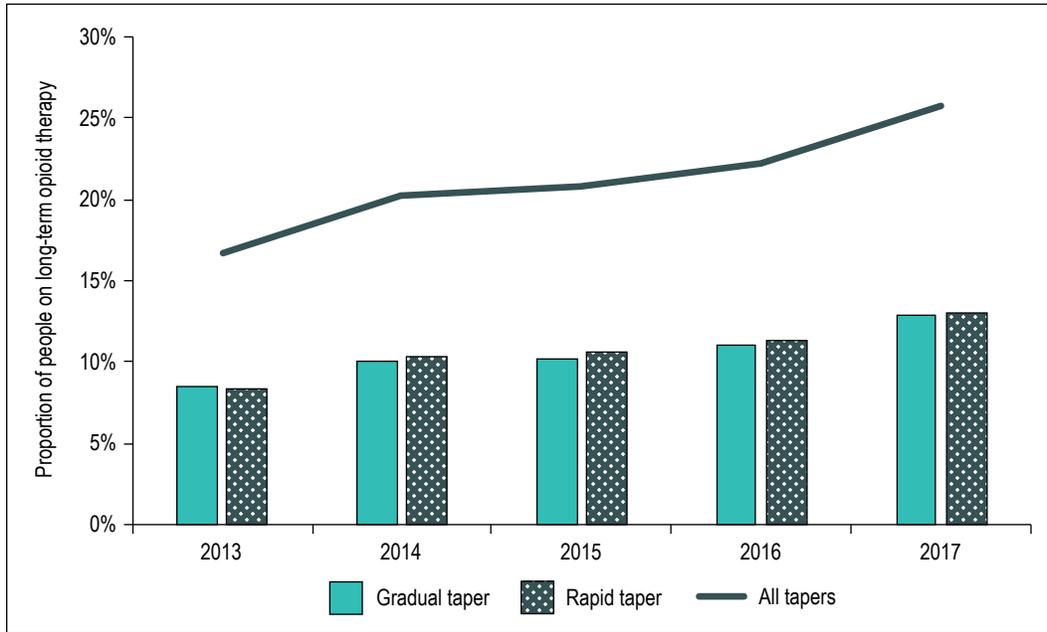
Guidelines released in Canada and the United States advise clinicians that when benefits do not outweigh harms, patients should be tapered to lower doses or to discontinuation.^{15, 18, 19} Specifically, *The 2017 Canadian Guideline for Opioids for Chronic Non-Cancer Pain* recommends that patients using 90 or more MMEs daily taper to the lowest effective dose, potentially discontinuing therapy. Opioid tapering protocols should be slow enough to minimize symptoms of withdrawal (a 5% to 10% daily dose reduction of MMEs every 2 to 4 weeks is considered reasonable).^{15, 18}

Withdrawal symptoms from stopping opioids can include anxiety, chills, muscle pain, weakness, nausea and vomiting.³⁶ For people who have developed opioid physical dependence, it is not recommended to abruptly stop opioid use as it may lead to these withdrawal symptoms. Gradual tapering, a reduction in the dosage of opioids slowly over time, can be an effective method for reducing symptoms of withdrawal.^{15, 37} If a rapid taper is necessary — for instance, stopping opioid treatment immediately or over a few days — it should be done in a medically supervised setting where symptoms can be managed.¹⁶ It's important to note that the abrupt discontinuation of prescription opioids can be a vulnerable time for some patients and some may resort to using illicit opioids to alleviate unpleasant withdrawal symptoms. This increases the risk of harms due to unknown composition and potency.^{38, 39}

In 2017, 25.7% of people on long-term high-dose opioid therapy (90 MMEs or more daily) were tapered to doses below 90 MMEs daily, compared with 16.6% in 2013 (Figure 10). Roughly half of all tapers were gradually tapered to a dose below 90 MMEs daily while the other half had a rapid taper. A rapid taper is defined as a sustained decrease of 50% or more in the daily dose over a 30-day period.^{viii} An example of a rapid taper is decreasing a dose of oxycodone from 200 MMEs per day to 80 MMEs per day over a week. An example of a gradual taper would be decreasing a dose of oxycodone from 200 MMEs per day to 80 MMEs per day, reducing by 5% to 10% every 2 weeks, over an 18- to 36-week period. A detailed example of gradual tapering can be found at [RxFiles](#). Additional information can be found in [Appendix B](#).

viii. Excluding people who were switched between different classes of opioids, where opioid prescribing is recommended to have a 50% or more MME decrease.¹⁵

Figure 10 Proportion (%) of people on long-term high-dose opioid therapy who tapered gradually and rapidly,* 2013 to 2017



Note

* Includes data from Ontario, Saskatchewan and British Columbia. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

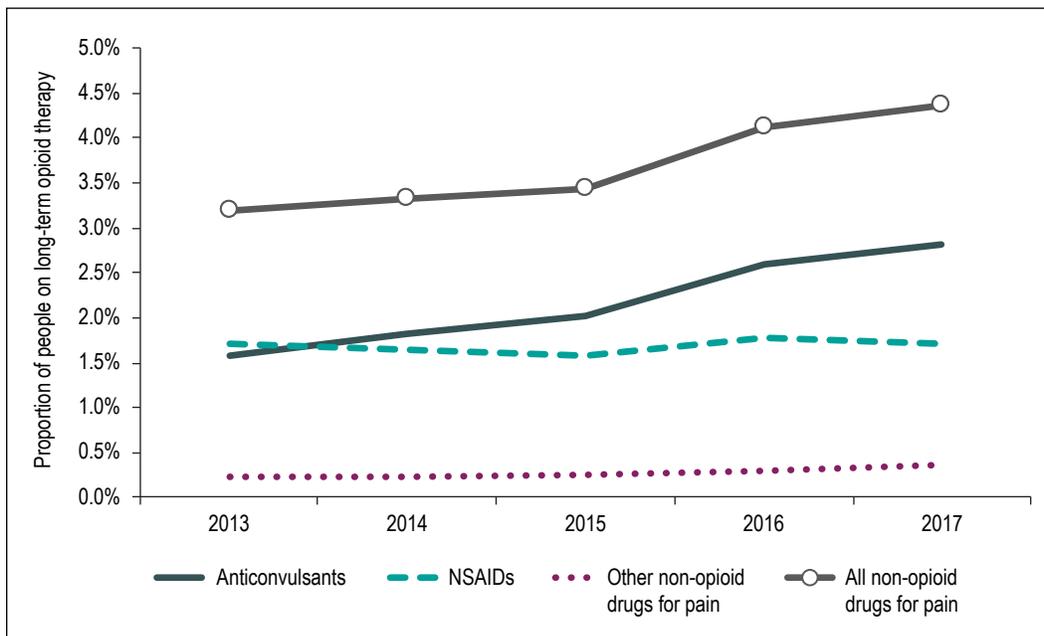
Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Those switching to non-opioid prescription drug therapies

Since 2013, slightly more people stopped long-term opioid therapy and switched to non-opioid prescription pain medications, such as NSAIDs and anticonvulsants. In 2017, 4.4% of people on long-term opioid therapy were switched to non-opioid pain medications within 30 days of stopping opioid therapy, compared with 3.2% of people in 2013 (Figure 11).

Figure 11 Proportion (%) of people who stopped long-term opioid therapy and switched to non-opioid pain medications within 6 months,* 2013 to 2017



Notes

* Includes data from Saskatchewan and British Columbia. Ontario is excluded because the Narcotics Monitoring System database does not include data on non-opioid prescriptions for pain relief. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

NSAIDs: Nonsteroidal antiinflammatory drugs.

Excludes over-the-counter pain relievers.

Source

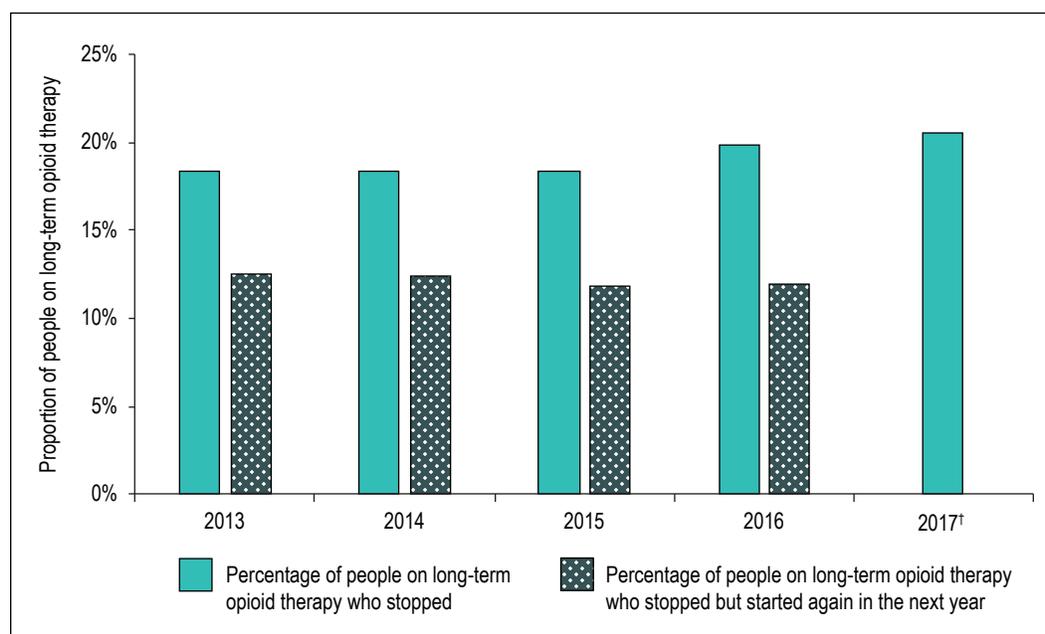
National Prescription Drug Utilization Information System, Canadian Institute for Health Information.

The most common prescription drugs people switched to include gabapentin, naproxen and pregabalin. The data sources used for this analysis did not include information on over-the-counter pain relievers obtained without a prescription; therefore, it is likely that some drugs may be under-represented. It is important to note that all drugs have some risk and the risks can be greater, depending on dose, length of use and age of the person taking the product. For instance, long-term use of NSAIDs can cause gastrointestinal bleeds, ulcers and kidney problems while use of anticonvulsants, such as gabapentin and pregabalin, may cause dizziness, drowsiness and depression.⁴⁰ Gabapentinoids also have the potential for misuse and addiction.⁴¹

Those stopping opioid therapy

In 2017, 20.4% of people on long-term opioids stopped therapy for at least 6 months and did not switch to a non-opioid prescription drug to manage their pain, an increase from 18.3% in 2013. However, it was found that approximately two-thirds of people on long-term therapy who stopped for at least 6 months started an opioid again in the following year (Figure 12). It is possible that some people may appear to have stopped opioid therapy due to the nature of the data sources used (e.g., hospital prescriptions are not included in this analysis). For detailed limitations, see [Appendix B](#).

Figure 12 Proportion (%) of people who stopped long-term opioid therapy for at least 6 months,* 2013 to 2017



Notes

* Includes data from Saskatchewan and British Columbia. Ontario Narcotics Monitoring System data is excluded because it is limited to claims for narcotics. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

† Results from 2017 are excluded because data for the entire follow-up period is not available.

Source

National Prescription Drug Utilization Information System, Canadian Institute for Health Information.

It is common for people on long-term opioids to have intermittent periods of use throughout their lives. For instance, it has been found that over half of people receiving 90 days of continuous opioid therapy remain on opioids years later. The 2 factors most strongly associated with continuation were intermittent prior opioid exposure and high-dose therapy.⁴²

Conclusion

Despite overall decreasing trends in the prescribing of opioids, opioid-related harms and deaths have continued to rise across the country in recent years. This report found that between 2013 and 2018 fewer people started on prescription opioids, and those who started were prescribed smaller doses of opioids for shorter durations. In addition, fewer people were on long-term opioid therapy and more people on long-term therapy were either switching to non-opioid prescription drugs to manage pain or stopping prescription opioids altogether. It is important to note that caution should be used when making changes to opioid therapy. Stopping opioid therapy can be a vulnerable time for some patients and some may resort to using illicit opioids. This increases risk of harms due to unknown composition and potency.^{38, 39}

A variety of initiatives to reduce the harms associated with prescription opioids were implemented over the study period. These initiatives included a greater focus on optimizing non-opioid pharmacotherapy and non-pharmacological therapy as the preferred treatment for chronic non-cancer pain.^{15, 17, 18, 20–22, 36} These initiatives, along with an increased awareness of Canada's opioid crisis and increased publication of opioid-related harms, are likely influencing the decreasing trends in opioid prescribing. However, given the number of initiatives and the timing of their implementation, it is challenging to accurately attribute a particular initiative to a trend seen in the data. It is likely that the full impact of some initiatives, such as *The 2017 Canadian Guideline for Opioids for Chronic Non-Cancer Pain*, may not be seen in the findings of this report.

The opioid crisis is a complex public health issue. Safe and appropriate prescribing of opioids is only part of the solution, and illicit opioids continue to be a big part of the problem. An American study found that an opioid overdose is more likely to occur in families where somebody in the household is prescribed an opioid.¹² Harms such as deaths, hospitalizations and emergency department visits due to opioids continue to increase, even with the downward trend in opioid prescribing. This highlights the importance of using a broad range of evidence-based strategies to combat the crisis. Other strategies include, but are not limited to,

- Improved access to harm reduction and overdose prevention, such as naloxone kits and safe consumption sites;⁴³
- Increased availability of resources to treat opioid use disorders,⁴⁴ among other mental health conditions; and
- Enhanced access to alternate treatments for chronic non-cancer pain.⁴⁵

More information on opioid prescribing and opioid-related harms in Canada, such as hospitalizations and emergency department visits due to opioid poisoning, opioid disorders and adverse reactions, is available at [Opioids in Canada](#).

Appendix A: Data sources

National Prescription Drug Utilization Information System

NPDUIS contains prescription claims data submitted by 10 provincial and territorial public drug programs (excluding Quebec, the Northwest Territories and Nunavut), as well as the First Nations and Inuit Health Branch federal public drug program. NPDUIS houses pan-Canadian information related to public program formularies, drug claims, policies and population statistics. It was designed to provide information that supports accurate, timely and comparative analytical and reporting requirements for the establishment of sound pharmaceutical policies and the effective management of Canada's public drug benefit programs.

NPDUIS includes prescription drug claims accepted by public drug programs, either for reimbursement or to be applied toward a deductible. The database also contains claims data from Manitoba, Saskatchewan and British Columbia that were paid for by non-public drug programs, such as private insurance or patient out-of-pocket expenditures, allowing for population-based reporting in these provinces.

Narcotics Monitoring System

The NMS captures all prescriptions for monitored drugs dispensed from community pharmacies in Ontario, excluding prescriptions filled in hospitals or prisons. Monitored drugs are defined as any controlled substance under the federal *Controlled Drugs and Substances Act*. Other opioid medications not listed in this act may also be captured. The system includes patient, prescriber and pharmacist identifiers.

Appendix B: Methodology

For analysis, all drug claims accepted by public drug programs and non-adjudicated claims in Manitoba, Saskatchewan and British Columbia — the jurisdictions with the most comprehensive data in NPDUIS — were used. For Ontario, data from the NMS was used. The analysis is presented by calendar year (January 1 to December 31) for each year reported. Population data from Statistics Canada was used to calculate proportions and rates.

Drug classification systems

This analysis uses the World Health Organization's Anatomical Therapeutic Chemical (ATC) Classification System to define drug classes. The following ATC codes were used to identify opioid prescriptions:

- N01AH (opioid anesthetics)
- N02A (opioids)
- R05DA (opium alkaloids and derivatives)
- R05FA (opium derivatives and expectorants)
- R05FB (other cough suppressants and expectorants)

Drugs from the above ATCs were included in the analysis if one of the chemical ingredients was considered an opioid.

The following ATC codes were used to identify non-opioid prescriptions with indications for pain relief:

- M01 (antiinflammatory and anti-rheumatic products)
- M02 (topical products for joint and muscular pain)
- N01BB (local anesthetics, amides)
- N02C (anti-migraine preparations)
- N03AX12 (gabapentin)
- N03AX16 (pregabalin)
- N03AF01 (carbamazepine)

Exclusions

Not all drugs and/or dosage forms were included in the analysis. Injectable and rectal dosage forms were included in overall general statistics only and were excluded from all dosing (i.e., MME) calculations. Methadone and buprenorphine/naloxone combinations were excluded from all analyses, as these products are most often used to treat addiction and the focus of this report is opioids used for pain relief.

Definitions

Please note that some of the terms in this analysis may have alternate definitions. The stated definitions are meant only to reflect how these terms were used in the context of this report.

Duration of opioid use: The amount of time (in days) in which opioids were continuously used before a 30-day gap in therapy appeared after the end of a prescription (using the prescription's supply days in the data).

Day supply: The duration (in days) of the opioid prescription, as indicated by the dispensing pharmacy.

High-dose opioid therapy: Doses of opioids greater or equal to 90 MMEs daily.

MME: MME, which means "morphine milligram equivalent," is a measure used to reflect the potency of an opioid. It is used to convert an opioid to an equivalent dose of oral morphine. See [Table B1](#) in Appendix B for more details.

Person prescribed opioids: A person with 1 or more claims for a prescribed opioid.

Person starting opioid therapy: A person who had a claim for a prescribed opioid without having a prescription claim for a prescribed opioid in the previous 365 days.

Person on long-term opioid therapy: A person who had 90 days' supply for any prescribed opioid drug in a 100-day time period.

Prior non-opioid prescription for pain: This applies to a person who was prescribed a non-opioid drug intended to manage pain within the 6 months before being prescribed an opioid for the first time.

Prior prescription NSAID use: This applies to a person who was prescribed a non-steroid antiinflammatory drug (NSAID) within the 6 months before being prescribed an opioid for the first time.

Rapid taper: This applies to a person with a 30-day average daily dose of 90 MMEs or more who had at least a 50% decrease in daily dose in a 30-day follow-up period.

Stopping opioids: This applies to a person who had no opioid claims for 6 months but had another claim for any prescription drug in that time period.

Strong opioids: Strong opioids include all oxycodone, hydromorphone, morphine or fentanyl products.

Switching to a non-opioid drug: This applies to a person who had no opioid claims for 6 months but had claims for another drug with indications for pain in the first 30 days of stopping opioids.

Limitations

There are limitations using drug claim data. NPDUIS and the NMS do not include information about

- Prescriptions that were written but never dispensed;
- Prescriptions dispensed in hospital for inpatient use or in prisons;
- Whether the medication was actually taken; and
- Diagnoses or conditions for which prescriptions were written.

Population-based opioid prescribing data was not available for all provinces and territories in Canada (only Ontario, Manitoba, Saskatchewan and British Columbia); therefore, the analyses in this report may not represent Canada as a whole. Manitoba data was not available prior to March 2015; the province is therefore excluded from analysis before that point or the analysis of trends between 2013 and 2018.

The NMS did not include data on non-opioid prescriptions for pain relief; therefore, Ontario was excluded from that analysis. The 2 data sources used for this report, NPDUIS and the NMS, also did not include information on over-the-counter pain relievers or non-pharmacological therapies. Therefore, it was not possible to examine other non-opioid treatments that may have been optimized prior to starting opioid therapy.

It is important to note that the “day supply” fields for opioids in drug claims data may not always be accurate. For instance, opioid prescriptions for acute pain are often written this way: “Take 1 or 2 tablets every 4 to 6 hours as needed for pain, give 30 tablets.” A pharmacist then must enter how long they think the prescription will last. In this example, the shortest day supply could be calculated as 2 to 3 days (12 tablets a day maximum) while longer day supplies could be calculated as 8 days to 30 days. It is also possible that the entire quantity dispensed is not taken by the patient.

The data sources used do not contain information on clinical indication or morbidity. The analysis of opioid stops was limited to people who had a claim for any drug within 6 months of stopping therapy to exclude people who died, moved out of study provinces, became incarcerated or were receiving drugs in hospital. Therefore, the proportion of people who stopped long-term opioids is likely underestimated in this report. It is also possible that some people whose data was captured as starting opioids may have begun therapy earlier in hospital. This would not be included in the analysis.

Morphine milligram equivalent conversions

The following table contains the information used to calculate MME conversions.

Table B1 Morphine milligram equivalent conversion factors

Drug name	Conversion factor
Morphine	1.000
Codeine	0.150
Oxycodone	1.500
Hydromorphone	5.000
Tramadol	0.150
Hydrocodone	1.000
Meperidine	0.100
Pentazocine	0.370
Tapentadol	0.400
Fentanyl (oral)	0.130
Fentanyl 12 mcg/hour (864 mcg/patch)*	0.170
Fentanyl 25 mcg/hour (1,800 mcg/patch)*	0.162
Fentanyl 37 mcg/hour (2,664 mcg/patch)*	0.177
Fentanyl 50 mcg/hour (3,600 mcg/patch)*	0.168
Fentanyl 75 mcg/hour (5,400 mcg/patch)*	0.162
Fentanyl 100 mcg/hour (7,200 mcg/patch)*	0.159

Notes

* The conversion to fentanyl from morphine is based on a range of daily morphine identified in *The 2017 Canadian Guideline for Opioids for Chronic Non-Cancer Pain*. The above conversion from fentanyl to morphine is based on the middle of this range for analysis only and not for clinical practice.

mcg: Microgram.

Source

Busse JW, ed.; National Pain Centre at McMaster University. *The 2017 Canadian Guideline for Opioids for Chronic Non-Cancer Pain*. 2017.

Appendix C: Study population

Table C1 Study population, by jurisdiction, sex and age group, 2018

Jurisdiction	Sex/age group	Overall population	All people prescribed opioids	People starting opioid therapy	People prescribed long-term opioid therapy
Ontario	Female	50.6%	55.3%	52.5%	55.7%
	Male	49.4%	44.7%	47.5%	44.3%
	<15	15.8%	1.7%	4.1%	0.0%
	15 to 24	13.1%	8.1%	16.4%	0.3%
	25 to 44	26.7%	22.5%	28.7%	11.5%
	45 to 64	27.4%	37.3%	29.6%	46.3%
	65+	16.9%	30.4%	21.2%	41.8%
Manitoba	Female	50.0%	55.1%	52.6%	56.8%
	Male	50.0%	44.9%	47.4%	43.2%
	<15	18.9%	0.3%	0.7%	n/a
	15 to 24	13.6%	9.0%	14.9%	0.7%
	25 to 44	27.2%	28.1%	32.3%	19.0%
	45 to 64	24.9%	36.7%	31.1%	44.8%
	65+	15.4%	25.9%	21.0%	35.4%
Saskatchewan	Female	49.6%	54.8%	51.4%	57.9%
	Male	50.4%	45.2%	48.6%	42.1%
	<15	19.6%	1.1%	3.0%	0.0%
	15 to 24	12.5%	9.3%	16.2%	0.7%
	25 to 44	27.8%	28.5%	31.5%	15.6%
	45 to 64	24.8%	35.3%	28.8%	43.8%
	65+	15.4%	25.7%	20.4%	39.9%
British Columbia	Female	50.5%	53.9%	51.7%	55.9%
	Male	49.5%	46.1%	48.3%	44.1%
	<15	14.2%	0.7%	1.6%	0.0%
	15 to 24	12.1%	8.2%	15.3%	0.3%
	25 to 44	27.1%	23.9%	30.2%	9.6%
	45 to 64	28.3%	35.8%	29.9%	42.8%
	65+	18.3%	31.3%	23.0%	47.3%

Note

n/a: Not applicable.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System; Statistics Canada.

Appendix D: Text alternative for figures

Text alternative for Figure 1: Proportion (%) of people prescribed opioids, by province, 2013 to 2018

Province	2013	2014	2015	2016	2017	2018
Ont.	14.3%	14.4%	14.1%	13.8%	13.2%	12.4%
Man.	n/a	n/a	n/a	13.7%	13.3%	12.9%
Sask.	11.5%	11.5%	11.6%	11.6%	11.9%	11.5%
B.C.	14.8%	14.4%	14.2%	13.6%	13.0%	12.3%

Notes

n/a: Not available.

Manitoba data was not available prior to March 2015.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Text alternative for Figure 2: Proportion (%) of people starting opioid therapy, by province, 2013 to 2018

Province	2013	2014	2015	2016	2017	2018
Ont.	9.5%	9.4%	9.1%	8.9%	8.5%	8.0%
Man.	n/a	n/a	n/a	n/a	8.1%	7.9%
Sask.	7.9%	7.9%	7.8%	7.9%	8.1%	7.5%
B.C.	9.9%	9.6%	9.5%	9.1%	8.8%	8.4%

Notes

n/a: Not available.

Manitoba data was not available prior to March 2015.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Text alternative for Figure 3: Proportion (%) of people starting opioid therapy, by age group,* 2013 to 2018

Age group	2013	2014	2015	2016	2017	2018
<15	2.0%	1.8%	1.5%	1.4%	1.2%	1.0%
15 to 24	8.7%	8.5%	8.3%	8.1%	7.5%	7.1%
25 to 44	9.9%	9.8%	9.4%	9.2%	8.7%	8.1%
45 to 64	11.4%	11.2%	11.0%	10.7%	10.4%	9.9%
65+	13.8%	13.5%	13.4%	13.0%	12.7%	12.2%

Note

* Includes data from Ontario, Saskatchewan and British Columbia. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Text alternative for Figure 4: Duration of use for people starting opioids (in days),* 2013 and 2017

Duration (in days)	2013	2017
1–3 days	27.8%	30.1%
4–7 days	34.7%	33.5%
8–29 days	26.9%	26.0%
30+ days	10.6%	10.4%

Note

* Includes data from Ontario, Saskatchewan and British Columbia. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Text alternative for Figure 5: Proportion (%) of people starting opioids by average MMEs daily (initial dose),* 2013 and 2018

Average MMEs daily	2013	2018
<50 MMEs	76.2%	77.0%
50 to 89 MMEs	19.9%	19.4%
90+ MMEs	3.9%	3.6%

Notes

* Includes data from Ontario, Saskatchewan and British Columbia. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

MMEs: Morphine milligram equivalents.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Text alternative for Figure 6: Proportion (%) of people starting opioids below 90 MMEs daily who increased to high doses (90 MMEs or more daily) within 6 months, by sex and age group,* 2013 and 2017

Sex/age group	2013	2017
Female	4.5%	4.3%
Male	5.4%	5.0%
<15	1.6%	2.9%
15 to 24	3.3%	3.3%
25 to 44	4.6%	4.3%
45 to 64	5.4%	5.3%
65+	5.5%	4.7%

Notes

* Includes data from Ontario, Saskatchewan and British Columbia. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

Includes people who started opioids at a dose below 90 MMEs daily who were increased to 90 MMEs or more daily within 6 months.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Text alternative for Figure 7: Proportion (%) of people prescribed opioids who were on long-term therapy, by province, 2013 to 2018

Province	2013	2014	2015	2016	2017	2018
Ont.	20.6%	20.7%	20.8%	20.4%	20.0%	18.6%
Man.	n/a	n/a	n/a	22.8%	22.9%	21.0%
Sask.	22.1%	22.7%	22.5%	21.8%	20.4%	18.5%
B.C.	17.0%	17.5%	17.2%	16.8%	16.1%	14.5%

Notes

n/a: Not available.

Manitoba data was not available prior to March 2015.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Text alternative for Figure 8: Proportion (%) of people prescribed long-term opioid therapy, by age group,* 2018

Age group	2018
<15	0.2%
15 to 24	0.7%
25 to 44	8.7%
45 to 64	21.7%
65+	24.8%

Note

* Includes data from Ontario, Manitoba, Saskatchewan and British Columbia.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Text alternative for Figure 9: Proportion (%) of people on long-term opioid therapy by average MMEs daily,* 2013 and 2018

Average MMEs daily	2013	2018
<50 MMEs	72.1%	76.3%
50 to 89 MMEs	13.9%	13.2%
90 to 199 MMEs	8.7%	7.5%
200+ MMEs	5.2%	3.0%

Notes

* Includes data from Ontario, Saskatchewan and British Columbia. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

MMEs: Morphine milligram equivalents.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Text alternative for Figure 10: Proportion (%) of people on long-term high-dose opioid therapy who tapered gradually and rapidly,* 2013 to 2017

Taper	2013	2014	2015	2016	2017
Gradual taper	8.4%	9.9%	10.2%	11.0%	12.8%
Rapid taper	8.3%	10.3%	10.6%	11.3%	12.9%
All tapers	16.6%	20.2%	20.8%	22.3%	25.7%

Note

* Includes data from Ontario, Saskatchewan and British Columbia. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

Sources

National Prescription Drug Utilization Information System, Canadian Institute for Health Information; Ontario Narcotics Monitoring System.

Text alternative for Figure 11: Proportion (%) of people who stopped long-term opioid therapy and switched to non-opioid pain medications within 6 months,* 2013 to 2017

Drug group	2013	2014	2015	2016	2017
Anticonvulsants	1.6%	1.8%	2.0%	2.6%	2.8%
NSAIDs	1.7%	1.6%	1.6%	1.8%	1.7%
Other non-opioid drugs for pain	0.2%	0.2%	0.2%	0.3%	0.4%
All non-opioid drugs for pain	3.2%	3.3%	3.4%	4.1%	4.4%

Notes

* Includes data from Saskatchewan and British Columbia. Ontario is excluded because the Narcotics Monitoring System database does not include data on non-opioid prescriptions for pain relief. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

NSAIDs: Nonsteroidal antiinflammatory drugs.

Excludes over-the-counter pain relievers.

Source

National Prescription Drug Utilization Information System, Canadian Institute for Health Information.

Text alternative for Figure 12: Proportion (%) of people who stopped long-term opioid therapy for at least 6 months,* 2013 to 2017

Group	2013	2014	2015	2016	2017 [†]
Percentage of people on long-term opioids who stopped	18.3%	18.3%	18.3%	19.8%	20.4%
Percentage of people on long-term opioids who stopped but started again the next year	12.4%	12.4%	11.8%	11.9%	n/a

Notes

* Includes data from Saskatchewan and British Columbia. Ontario Narcotics Monitoring System data is excluded because it is limited to claims for narcotics. Manitoba is excluded from trends because data prior to March 2015 is unavailable.

† Results from 2017 are excluded because data for the entire follow-up period is not available.

n/a: Not available.

Source

National Prescription Drug Utilization Information System, Canadian Institute for Health Information.

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