

# A quantitative evaluation of the growth in non-physician prescribing in Canada and the resultant impact to key provinces and therapeutic areas

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## Introduction

Access to safe and appropriate medication in the primary care setting is an important aspect of patient care. To improve patient access, reduce ambulatory physician visits and increase healthcare system efficiency provinces have differentially introduced legislative changes that expand prescribing practice to select non-physician healthcare providers. As a result, non-physician prescriptions (NPPs) by pharmacists, nurses and optometrists have shown marked growth. The aim of this study was to quantify national NPP growth in order to understand the key geographies and therapeutic areas affected.

### Study aims:

1. Characterize NPP volume and growth across Canada by geography and prescriber
2. Recognize trends in NPP activity over time and in response to novel legislation
3. Identify key therapeutic areas with high NPP activity, with a focus on analgesic prescribing

## Methods

IMS Brogan GPM retail pharmacy prescription database (July 2013 to June 2016) was used for this analysis. This database is projected to cover all retail pharmacy prescriptions in Canada and includes information on prescribers, therapeutic class, products and provinces. This prescription database captures activity of numerous non-physician prescribers, however this study focuses on the activity of pharmacists, nurses and optometrist.

The IMS Uniform System of Classification (USC) codes were used to categorize prescription therapeutic areas. USC codes are similar to Anatomical Therapeutic Chemical (ATC) classification system used by Health Canada. Specifically USC2 (Table 1) and USC3 (Figure 4) level codes were used in reported analyses.

Non-physician prescribers		Focus of study
Audiologist	Nurse	
Dentist	Optometrist	
Dietician	Pharmacist	
Midwife	Podiatrist	
Naturopath	Veterinarian	

## Conclusions

### Key findings:

- Canadian NPP growth has continued to expand at a marked rate in recent years.
- Differential provincial legislation is resulting in varied regional non-physician prescriber foci. Ontario nurses are the current drivers of NPPs, while Quebec pharmacists have seen the largest NPP growth since Bill 41 passing.
- Chronic illnesses such as cardiovascular disease, diabetes and hyperlipidemia were among the top 10 therapeutic classes with NPP prescribing.
- Interestingly, over 400,000 narcotic analgesic NPPs have been dispensed nationally from July 2015 to June 2016, with Quebec and Alberta pharmacists accounting for the majority of these prescriptions.

## Results

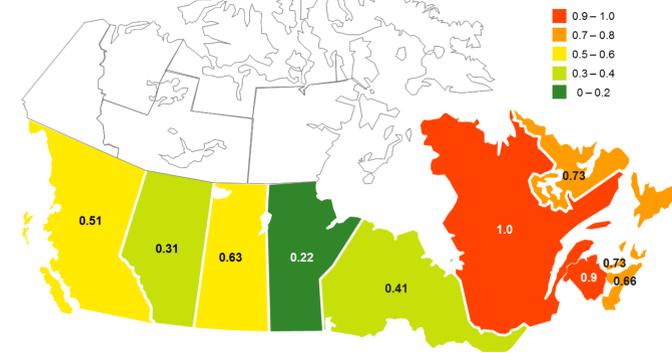


Figure 1. Non-physician prescribing per capita across Canada, July 2015 to June 2016

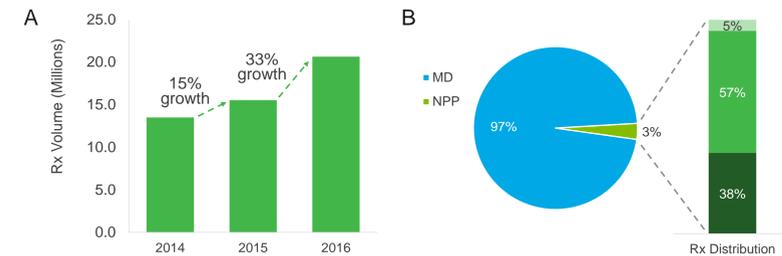


Figure 2. National non-physician prescription volume and distribution by prescriber type

- Quebec has the highest provincial non-physician prescriptions (NPP) per capita at 1.0. The Atlantic provinces (NFL, PEI, NB, NS) have higher per capita NPP than the national average of 0.57 (June 2016 MAT) (Figure 1).
- Over 20 million NPPs were dispensed in Canada from July 2013 to June 2016, a marked 33% increase from the previous year (Figure 2A).
- NPPs represent 3% of all prescriptions filled from July 2015 to June 2016. Nearly 12 million NPPs were filled by pharmacists, while 7.8 million were filled by nurses (Figure 2B).

## Future Directions

- The impact of NPPs to patient access, outcomes, and healthcare system efficiency will need evaluation to understand its full impact across provinces.
- Additional insight into NPP classification by prescription initiation versus refill prescription is needed to fully appreciate the nature of non-physician prescribing.
- Knowledge gaps remain in identifying the differential impact of NPP activity on key therapeutic areas including the growing burden of chronic disease.
- Future studies focusing on patient outcomes and health economics are needed to further our understanding of NPP activity in Canada.

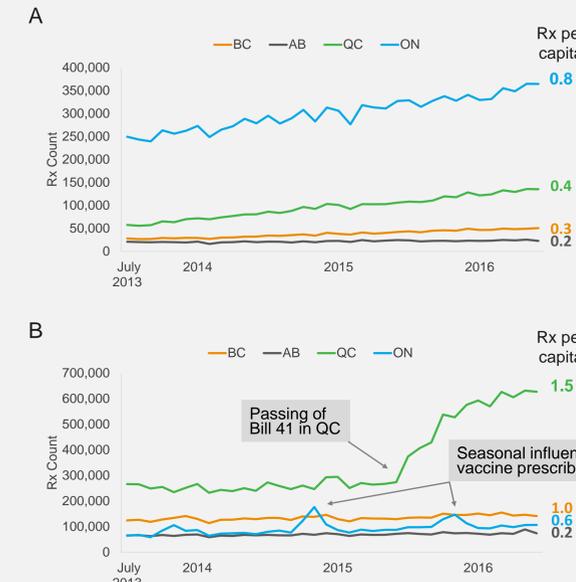


Figure 3. Nurse (A) and pharmacist (B) prescribing in key Canadian provinces from July 2013 to June 2016.

- Nurse prescribing has steadily increased in ON, QC, BC and AB. Highest provincial prescriptions per capita was seen in Ontario for nurse prescribers (Figure 3A).
- Pharmacist prescribing is highest in Quebec and has increased by 135% since June 2015 due to passing of Bill 41, expanding prescribing practice (Figure 3B).

Table 1. Non-physician prescription volume across therapeutic classes. Highlighted in green are the top 10 therapeutic classes prescribed by represented prescribers.

Class	Total NPP TRx (% of classes)	Nurse TRx (% within class)	Pharmacist TRx (% within class)	Optometrist TRx (% within class)
1 Cardiovasculars	2,331,248 (11%)	1,140,053 (49%)	1,184,517 (51%)	6,678 (0%)
2 Analgesics	1,620,192 (8%)	177,230 (11%)	1,436,774 (89%)	6,188 (0%)
3 Psychotherapeutics	1,597,572 (8%)	856,035 (54%)	734,254 (46%)	7,283 (0%)
4 Gastrointestinal	1,219,965 (6%)	608,837 (50%)	607,131 (50%)	3,997 (0%)
5 Diabetes Therapy	1,197,928 (6%)	454,164 (38%)	741,197 (62%)	2,567 (0%)
6 Ophthalmics	1,024,695 (5%)	39,656 (4%)	383,159 (37%)	601,880 (59%)
7 Antihyperlipidemics	997,483 (5%)	535,280 (54%)	459,318 (46%)	2,885 (0%)
8 Hormones	838,911 (4%)	300,732 (36%)	252,964 (30%)	285,215 (34%)
9 Anti-Infectives	758,015 (4%)	418,039 (55%)	316,424 (42%)	23,552 (3%)
10 Contraceptives	662,882 (3%)	298,340 (45%)	362,380 (55%)	2,162 (0%)
11 Respiratory Therapy	597,497 (3%)	342,048 (57%)	253,379 (42%)	2,070 (0%)
12 Laxatives	538,652 (3%)	149,262 (28%)	388,848 (72%)	542 (0%)
13 Neurologicals	538,339 (3%)	281,552 (52%)	253,820 (47%)	2,967 (1%)
14 Diuretics	537,241 (3%)	309,554 (58%)	226,285 (42%)	1,402 (0%)
15 Thyroid Therapy	510,670 (2%)	244,213 (48%)	264,451 (52%)	2,006 (0%)
16 Vitamins	510,259 (2%)	149,570 (29%)	277,998 (54%)	82,691 (16%)
17 Analgesics, proprietary	394,048 (2%)	110,871 (28%)	282,393 (72%)	784 (0%)
18 Antiarthritics	381,589 (2%)	199,670 (52%)	177,969 (47%)	3,950 (1%)
19 Hematinics	377,645 (2%)	161,848 (43%)	214,782 (57%)	1,015 (0%)
20 Hemostatic Modifiers	371,288 (2%)	160,413 (43%)	210,020 (57%)	855 (0%)
Other	3,640,766 (18%)	855,280 (23%)	2,759,985 (76%)	25,501 (1%)
<b>Total</b>	<b>20,646,885</b>	<b>7,792,647</b>	<b>11,788,048</b>	<b>1,066,190</b>

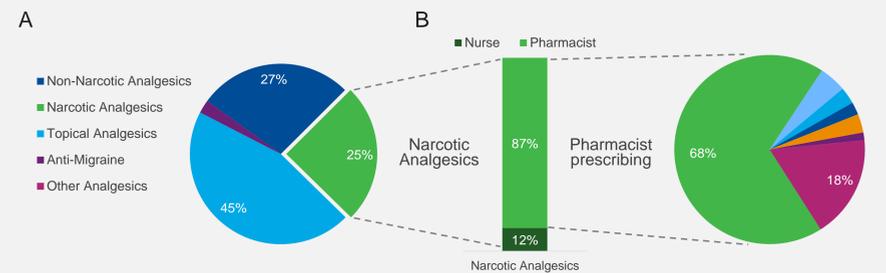


Figure 4. Analgesic prescription distribution across sub-classifications, and narcotic analgesic distribution by prescriber type, and pharmacist prescribing by province (July 2015 to June 2016)

- As anticipated, chronic illnesses such as cardiovascular disease, diabetes and hyperlipidemia were among the top 10 therapeutic classes with NPP prescribing. Other therapeutic areas include analgesics, psychotherapeutics, hormones and contraceptives (Table 1).
- Prescriptions pertaining to pain therapy were in the second highest rank for NPPs overall, and the highest ranked class prescribed by pharmacists (Table 1).
- Over a quarter of non-physician prescribing pertaining to pain relief therapy were narcotic analgesic products (Figure 4A).
- The majority of NPP narcotic analgesic prescriptions were given by pharmacist prescribers, predominantly in Quebec and Alberta (Figure 4B).