Drug Use among Seniors on Public Drug Programs in Canada, 2012

Jeff Proulx and Jordan Hunt

Abstract

Seniors take more drugs than younger Canadians because, on average, they have a higher number of chronic conditions. Although taking multiple medications may be necessary to manage these conditions, it is important to consider the benefits and risks of each medication and the therapeutic goals of the patient. This article provides an in-depth look at the number and types of drugs used by seniors using drug claims data from the CIHI's National Prescription Drug Utilization Information System Database, representing approximately 70% of seniors in Canada. In 2012, almost two-thirds (65.9%) of seniors on public drug programs had claims for five or more drug classes, while 27.2% had claims for 10 or more, and 8.6% had claims for 15 or more. The most commonly used drug class was statins, used by nearly half (46.6%) of seniors. Nearly two-thirds (60.9%) of seniors living in long-term care (LTC) facilities had claims for 10 or more drug classes. Proton pump inhibitors were the most commonly used drug class among seniors living in LTC facilities (used by 37.0% of seniors in LTC facilities), while statins ranked seventh (29.8%).

Introduction

Seniors take more drugs than younger Canadians because, on average, they have a higher number of chronic conditions (Ramage-Morin 2009; CIHI 2011). Using multiple prescription medications is an important part of managing many of these conditions (CIHI 2011; Terner et al. 2011; Kwan and Farrell 2012). Although taking multiple medications may be necessary to manage these conditions, it is important to consider the benefits and risks of each medication and the therapeutic goals of the patient.

This article uses drug claims data from the CIHI's National Prescription Drug Utilization Information System (NPDUIS) Database to provide an in-depth look at the number and types of drugs used by seniors, and to compare drug use among seniors living in long-term care (LTC) facilities and those living in the community. The NPDUIS Database currently contains claims data from public drug programs in eight Canadian provinces – Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia – as well as one federal drug program, managed by the First Nations and Inuit Health Branch. Data include drug claims for approximately 70% of Canadian seniors.

How Many Drugs Are Seniors Using?

In 2012, almost two-thirds (65.9%) of seniors on public drug programs had claims for five or more drug classes, while 27.2% had claims for 10 or more, and 8.6% had claims for 15 or more. The number of drug classes used by seniors increased with age (Figure 1). In 2012, 42.7% of seniors aged 65–74 had claims for fewer than five drug classes and 20.0% had claims for 10 or more. Among seniors aged 85 and older, 20.5% had claims for fewer than five drug classes, while 39.3% had claims for 10 or more, including 13.2% with claims for 15 or more classes. As seniors age, they tend to use more prescription drugs owing to a higher prevalence of certain chronic conditions (Ramage-Morin 2009; CIHI 2011; Kwan and Farrell 2012).

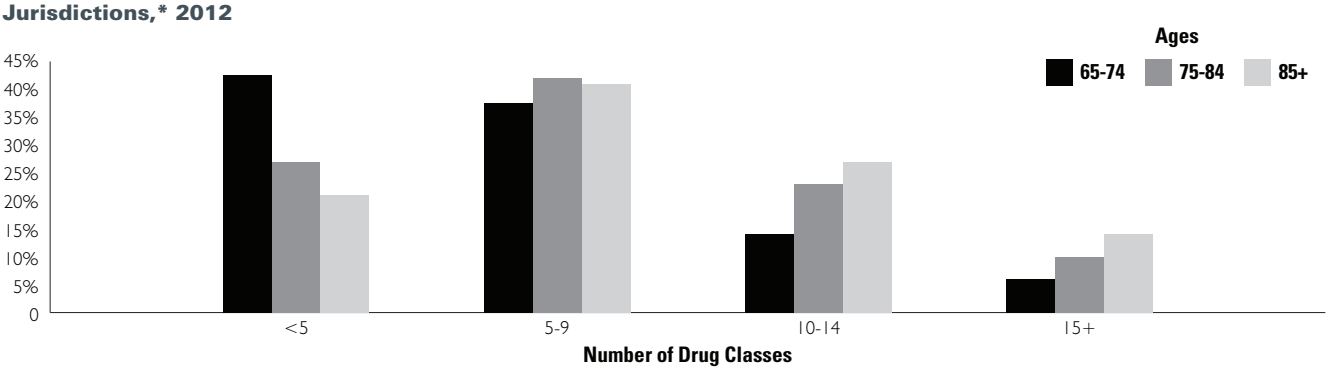
Which Drugs Are Most Commonly Used by Seniors?

In 2012, 6 of the 10 most commonly used drug classes among seniors on public drug programs were cardiovascular-related (Table 1). The most commonly used drug class was statins, which are used to lower cholesterol. Nearly half (46.6%) of seniors had at least one claim for a statin in 2012. The next most commonly used drug classes were angiotensin-converting-enzyme inhibitors, used to treat high blood pressure and heart failure, and proton pump inhibitors (PPIs), which are used to treat gastroesophageal reflux and peptic ulcer disease. These were used by 28.2% and 26.9% of seniors, respectively.

Statins were the most commonly used drug class in each age group, although the rate of statin use varied with age, from 46.1% among seniors aged 65–74, peaking at 50.9% in seniors aged 75–84 and declining to a low of 39.1% in seniors aged 85 and older.

Two drug classes – sulfonamide diuretics (used to treat high

FIGURE 1.
Percentage of Seniors on Public Drug Programs, by Number of Drug Classes and Age Group, Selected Jurisdictions,* 2012



* Eight jurisdictions submitting claims data to the NPDUIS Database as of March 2013: Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia. FNIHB is excluded due to the limited availability of age data. Source: National Prescription Drug Utilization Information System Database, Canadian Institute for Health Information.

TABLE 1.
Top 10 drug classes by rate of use among seniors on public drug programs, by age group, selected jurisdictions,* 2012

Drug Class	Common Uses	65–74 (%)	75–84 (%)	85+ (%)	Total (%)
HMG-CoA reductase inhibitors (statins)	High cholesterol	46.1	50.9	39.1	46.6
Angiotensin-converting-enzyme (ACE) inhibitors, excluding combinations	High blood pressure, heart failure	25.5	30.9	31.9	28.2
Proton pump inhibitors (PPIs)	Gastroesophageal reflux disease, peptic ulcer disease	23.2	29.9	33.2	26.9
Beta-blocking agents, selective	High blood pressure, heart failure, angina (chest pain)	19.3	27.6	30.8	23.8
Dihydropyridine calcium channel blockers	High blood pressure	17.1	24.3	27.7	21.1
Thyroid hormones	Hypothyroidism	15.1	19.2	24.3	17.8
Natural opium alkaloids	Management of moderate to severe pain	15.1	16.3	17.8	15.9
Angiotensin II antagonists, excluding combinations	High blood pressure, heart failure	13.8	17.6	16.7	15.5
Biguanides	Diabetes	16.1	16.0	10.6	15.3
Thiazides, excluding combinations	High blood pressure	14.1	16.6	15.9	15.2

*Eight jurisdictions submitting claims data to the NPDUIS Database as of March 2013: Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia. FNIHB is excluded due to the limited availability of age data. Source: National Prescription Drug Utilization Information System Database, Canadian Institute for Health Information.

blood pressure and heart failure) and fluoroquinolones (a class of antibiotics used to treat pneumonia and urinary tract infections) – were among the top 10 most commonly used drug classes for seniors aged 85 and older but not for younger seniors. The rate of sulfonamide diuretic use had the biggest increase across age groups, from 6.0% among seniors aged 65–74 to 25.3% among seniors aged 85 and older. For fluoroquinolones, the rate of use ranged from 11.2% among seniors aged 65–74 to 19.3% among seniors aged 85 and older. The increase of sulfonamide diuretic use as seniors age is likely because the prevalence of heart failure also increases with age, while the increase in fluoroquinolones use is likely due to an increased prevalence of pneumonia and urinary tract infections in older seniors (Bleumink 2004; Anderson 2008; Toward Optimized Practice 2010).

How Does Drug Utilization Differ among Seniors Living in Long-Term Care Facilities?

Nearly two-thirds (60.9%) of seniors living in LTC facilities in five provinces (the five provinces where LTC data can be identified: Prince Edward Island, New Brunswick, Ontario, Manitoba and British Columbia) had claims for 10 or more drug classes in 2012.This is more than double the rate among seniors living in the community (26.1%). The difference is even greater when looking at seniors using 15 or more drug classes. A total of 26.6% of seniors in LTC facilities were using 15 or more drug classes, compared with 8.1% of seniors living in the community.

PPIs were the most commonly used drug class among seniors living in LTC facilities (used by 37.0% in the LTC facilities) but ranked third among seniors in the community (25.9%)

(Table 2). Statins, the most commonly used drug class among seniors in the community (used by 48.0% of seniors in the community), were ranked seventh among seniors in LTC facilities (29.8%).

Seniors living in LTC facilities are older than seniors living in the community, with 57.7% of LTC facility residents aged 85 and older, compared with 14.7% of seniors living in the community. The age distribution of LTC facility residents was similar across provinces, although the population in Manitoba was older than in the other four provinces, with 64.2% of seniors living in LTC facilities aged 85 and older, compared with 57.0% of seniors in the other four provinces. Differences in age can influence the number and types of chronic conditions being treated, which in turn can influence the number and types of drugs being used.

These findings and others – as well as more information on data, terminology and methods – are described in detail in a recent Canadian Institute for Health Information publication *Drug Use Among Seniors on Public Drug Programs in Canada, 2012* (2014). This report is available free of charge at: <https://secure.cihi.ca/estore/productFamily.htm?pf=PFC2594&lang=en&media=0>. HQ

About the Authors

Jeff Proulx, BSc, is a Program Lead in the Pharmaceuticals Department at the Canadian Institute for Health Information (CIHI), in Ottawa, Ontario. He leads and coordinates the analysis and writing of pharmaceutical-related reports at CIHI.

Jordan Hunt, MA, is the Manager of the Pharmaceuticals Department at the Canadian Institute for Health Information (CIHI), in Ottawa, Ontario. He oversees the development of pharmaceutical databases and pharmaceutical-related reports at CIHI.

References

Anderson, K. 2008. "Are Female Lower Urinary Tract Symptoms Alleviated by Alpha-Adrenoreceptor Antagonists?" *Nature Clinical Practice Urology* 5(11): 586–87.

Bleumink, G., A.M. Knetsch, M.C.J.M. Sturkenboom, S.M.J.M. Straus, A. Hofman, J.W. Deckers et al. 2004. "Quantifying the Heart Failure Epidemic: Prevalence, Incidence Rate, Lifetime Risk and Prognosis of Heart Failure: the Rotterdam Study." *European Heart Journal* 25: 1614–19. Retrieved March 10, 2014. <http://eurheartj.oxfordjournals.org/content/25/18/1614.full.pdf+html>.

Canadian Institute for Health Information. 2011. *Health Care in Canada, 2011: A Focus on Seniors and Aging*. Ottawa, ON: Author.

Kwan, D. and B. Farrell. 2012. "Polypharmacy—Optimizing Medication Use in Elderly Patients." *Pharmacy Practice* 29(2): 20–25.

Ramage-Morin, P. 2009. "Medication Use among Senior Canadians." *Health Reports* (Statistics Canada) 20(1). Retrieved March 10, 2014. <http://www.statcan.gc.ca/pub/82-003-x/2009001/article/10801-eng.pdf>. Catalogue no 82-003-XPE>.

Terner, M., B. Reason, A.M. McKeag, B. Tipper and G. Webster. 2011. "Chronic Conditions More Than Age Drive Health System Use in Canadian Seniors." *Healthcare Quarterly* 14(3): 19–22.

Toward Optimized Practice. 2010. "Guideline for the Diagnosis and Management of Urinary Tract Infections in Long Term Care." Retrieved March 10, 2014. <http://www.topalbertadoctors.org/cpgs/?sid=15&cpg_cats=66>.

TABLE 2.

Top 10 drug classes in long-term care facilities, by age-sex standardized rate of use by seniors on public drug programs, selected jurisdictions,* 2012

		Long-Term Care Facility		Community	
Drug Class	**Common Uses**	**Rate (%)**	**Rank**	**Rate (%)**	**Rank**
Proton pump inhibitors (PPIs)	Gastroesophageal reflux disease, peptic ulcer disease	37.0	1	25.9	3
Selective serotonin reuptake inhibitors (SSRIs)	Depression	36.1	2	9.5	19
Other antidepressants	Depression	32.6	3	7.7	23
Natural opium alkaloids	Management of moderate to severe pain	30.7	4	15.4	8
Fluoroquinolones	Antibiotics	30.5	5	13.1	11
Sulfonamide diuretics	High blood pressure, heart failure	30.5	6	10.2	18
HMG-CoA reductase inhibitors (statins)	High cholesterol	29.8	7	48.0	1
Angiotensin converting enzyme (ACE) inhibitors, excluding combinations	High blood pressure, heart failure	28.9	8	28.7	2
Diazepines, oxazepines, thiazepines and oxepines	Schizophrenia, bipolar disorder	26.0	9	2.3	72
Beta-blocking agents, selective	High blood pressure, heart failure, angina (chest pain)	26.0	10	23.7	4

Note: *Five jurisdictions submitting claims that can be identified as LTC facility data in the NPDUIS Database, as of March 2013: Prince Edward Island, New Brunswick, Ontario, Manitoba and British Columbia.
Source: National Prescription Drug Utilization Information System Database, Canadian Institute for Health Information.