

Prevalence of Potentially Inappropriate Prescriptions (PIPs) in Québec's Elderly Population, 2000-2006

Conseil du médicament

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Background

A drop in the percentage of people 65 and over who have had at least one potentially inappropriate prescription (PIP) was noted in some Canadian provinces from 2000 to 2006.

The objectives were to determine and track the prevalence of PIPs in Québec's elderly population.

Methods

A retrospective repeated cross-sectional study was conducted using data banks administered by the Régie de l'assurance maladie du Québec (RAMQ).

Study population

For each fiscal year from 2000-2001 to 2005-2006, the study population included all users 65 and over, that is, people who had had at least one prescription paid for under Québec's public prescription drug insurance plan.

Identification of PIPs

PIPs were identified using the 2002 Beers criteria; diagnosis and conditions were not taken into account.

"Chronic Beers use" refers to seniors who received at least 3 prescriptions totalling a minimum of 100 solid units in a fiscal year.

"High-risk Beers use" corresponds to seniors who received prescriptions for drugs potentially causing adverse outcomes of high severity.

Analysis

Proportions of users with at least one PIP were assessed for each fiscal year using data provided by pharmaceutical services.

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Results

Figure 1. Percentage of users 65 and over having had at least one PIP, in fiscal 2000-2001 to 2005-2006

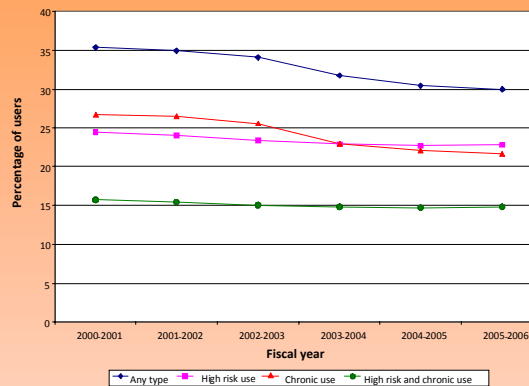


Table 1. Number and percentage of users 65 and over having had at least one PIP in fiscal 2005-2006 (total = 857 239), by user characteristics

User characteristics	Users having had at least one PIP					
	Any type		Chronic use		High risk	
	N	%	N	%	N	%
Sex and age						
Women						
65 to 74	92 391	35.9	68 989	26.8	65 896	25.6
75 to 84	62 831	33.2	45 683	24.1	48 540	25.6
85 and over	18 574	30.7	13 430	22.2	14 027	23.2
Total	173 796	34.3	128 102	25.3	128 463	25.3
Men						
65 to 74	45 539	22.1	30 479	14.8	37 865	18.4
75 to 84	31 374	26.0	22 514	18.7	24 210	20.1
85 and over	6 356	26.9	4 608	19.5	4 553	19.3
Total	83 269	23.8	57 601	16.5	66 628	19.0
Income indicator						
No guaranteed income supplement	121 818	27.7	84 593	19.2	89 954	20.5
1 to 99% of maximum guaranteed income supplement	119 953	32.1	89 374	23.9	92 915	24.9
Maximum guaranteed income supplement	14 208	34.7	10 936	26.7	11 292	27.6
Other	1 086	34.5	800	25.4	930	29.5
Number of medications						
1 to 5	41 188	13.8	27 678	9.3	28 940	9.7
6 to 10	93 279	29.5	66 389	21.0	69 960	22.1
11 to 15	70 082	44.6	51 460	32.7	54 205	34.5
16 to 20	33 475	58.4	25 280	44.1	26 429	46.1
21 or more	19 041	71.9	14 896	56.3	15 557	58.8
Number of prescribing physicians						
1	53 359	20.3	40 996	15.6	38 889	14.8
2	62 012	26.6	45 406	19.5	46 059	19.8
3	49 645	32.5	35 281	23.1	37 025	24.6
4	34 439	38.1	24 099	36.6	26 644	29.5
5	22 222	43.4	15 400	30.1	17 481	34.1
6 or more	35 388	53.2	24 521	36.9	28 393	42.7

Table 2. Average annual increase in the percentage (%) of users having had at least one PIP of any type, from 2000-2001 to 2005-2006

Drug	Users having had at least one PIP				Average annual increase (%)
	2000-2001 (total = 773 954)		2005-2006 (total = 857 239)		
	N	%	N	%	
Decreasing					
Conjugated estrogens (oral only)	65 413	8.5	33 713	3.9	-14.2
Digoxin (> 0.125 mg/day)	21 939	2.8	12 294	1.4	-12.7
Flurazepam*	19 545	2.5	12 807	1.5	-10.0
Diazepam*	15 961	2.1	12 195	1.4	-7.2
Temazepam* (> 15 mg/day)	13 637	1.8	12 848	1.5	-3.2
Bromazepam*	20 296	2.6	19 159	2.2	-3.1
Hydroxyzine*	20 447	2.6	19 360	2.3	-3.1
Increasing					
Amitriptyline*	24 900	3.2	28 675	3.3	0.8
Oxybutynin*	15 560	2.0	18 334	2.1	1.2
Clonazepam*	28 175	3.6	35 592	4.2	2.7
Amiodarone*	9 296	1.2	11 867	1.4	2.9
Nitrofurantoin*	8 187	1.1	11 469	1.3	4.8
Cyclobenzaprine*	8 616	1.1	14 493	1.7	8.7
Clonidine	7 547	1.0	12 720	1.5	8.8
Ferrous sulfate (> 325 mg/day)	12 729	1.6	21 771	2.5	9.1
For all drugs studied	273 914	35.4	257 065	30.0	-3.3

* Drugs having a high risk of severe adverse outcomes.

Discussion

The percentage of users 65 and over having had at least one PIP of any type remains significant in Québec, despite a decrease between 2000 and 2006. Moreover, almost three quarters of the individuals in question had at least one PIP associated with chronic use or with a high-risk drug in 2005-2006. The percentage of users having had at least one PIP associated with a high-risk drug was more stable. This is explained primarily by the fact that the drugs showing the greatest decrease in both the number and percentage of users were oral conjugated estrogens and digoxin, drugs which are at low risk of causing severe adverse side effects and whose use is almost exclusively chronic.

The limits of this study lie in the very nature of the data banks consulted, the relevance of using the Beers criteria and the underestimation of the actual prevalence of PIPs resulting from the exclusion of drug interactions, duplications and therapeutic errors (including incorrect indications and non-compliance with contra-indications).

Conclusion

The percentage of users 65 and over who had at least one PIP of any type or with a high-risk drug remains comparable to that observed elsewhere in Canada. Chronic Beers use, however, was higher in Québec than in the Canadian Prairies. The gap regarding chronic-use drugs may be due to different prescribing or prescription-filling practices in Québec.