

The elderly still take too many potentially inappropriate drugs

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In Canada, prescribing potentially inappropriate medications (PIMs)—drugs whose harms may outweigh their benefits, which may be ineffective, or for which a safer alternative exists—remains very

common among the elderly. Moreover, although overall spending on PIMs decreased between 2013 and 2021, seniors' exposure to three categories of PIMs increased during this period: gabapentinoids, proton pump inhibitors (PPIs) and antipsychotics.

These are the findings of a study conducted at the Research Institute of the McGill University Health Centre (RI-MUHC), the first since 2013 to examine national expenditures on prescribing PIMs to the elderly and to provide a trend analysis by drug category.

"Despite recommendations from many medical societies to avoid potentially inappropriate medications and various initiatives to educate the public and physicians about their dangers, PIMs remain a major problem worldwide, including in Canada," says senior author of the study Dr. Emily McDonald, Scientist in the Infectious Diseases and Immunity in Global Health Program at the RI-MUHC and Director of the Canadian Medication Appropriateness and Deprescribing Network (CADeN).

"Indeed, despite the risks and [harmful effects](#) associated with them, 42% of people over 65 in Canada took at least one PIM in 2021. Our study provides a detailed picture of the situation, with a view to guiding the actions needed to reduce their use."

The present study, [published in the *Journal of the American Geriatrics Society*](#), assessed the evolution of costs and prescribing trends for PIMs among people aged 65 and over in Canada, between 2013 and 2021, based on data from the National Prescription Drug Utilization Information System. The authors of the study used Statistics Canada's Consumer Price Index to account for inflation during that period, and all financial information included in their findings is expressed in Canadian dollars for the year 2022 (CAD\$).

From 2013 to 2021:

- The quarterly exposure rate to PIMs per 10,000 seniors decreased by 16.4%, except for gabapentinoids (83.7% increase), PPIs (6.5% increase) and antipsychotics (5.4% increase).
- Although the population aged 65 and over increased by 32% between 2013 and 2021, total spending on PIMs for seniors in Canada fell from \$1.5 billion to \$1 billion, a 33.6% decrease, but a heavy burden nonetheless.
- Quarterly spending per exposed senior decreased from \$95 to \$57.
- Lower prices for many drugs, rather than fewer prescriptions, accounted for most of the savings.
- Notable differences between men and women were seen in spending on potentially inappropriate antipsychotics, which increased by 19.2% for men and remained stable for women, and on potentially inappropriate opioids, which decreased by 34.7% for women, compared with 0.8% for men.

In 2021:

- PPIs and gabapentinoids accounted for the highest overall annual expenditures (\$211 million and \$126 million respectively).
- Opioids and antipsychotics had the highest average costs per person (\$138 and \$118 per exposure respectively).

For the purposes of the study, exposure to PIMs was defined as a patient filling one or more prescriptions for a given PIM during a given quarter of the year.

Three drug categories in the spotlight

PPIs are the most potent drugs available for the treatment of gastric

acidity. Previous studies have shown that their use is not evidence-based in 40 to 50% of cases.

Gabapentinoids are anticonvulsant agents commonly used to treat neuropathic pain, i.e. pain caused by dysfunction of nerves. Despite an increased risk of adverse effects and death, particularly when taken in combination with opioids, gabapentinoids are among the 10 most prescribed drugs in North America and are mostly prescribed inappropriately.

Antipsychotics are frequently prescribed inappropriately. According to the Canadian Institute for Health Information, one in four residents of long-term care facilities takes antipsychotics without having been diagnosed with psychosis.

As with other PIMs, the use of these drugs carries an excessive risk of adverse events, such as falls, fractures, cognitive impairment and death. Additionally, their use places a strain on the health care system, contributing to increased [emergency room visits](#) and hospitalizations.

A methodology based on existing data

The authors developed a list of PIMs based on various reference criteria, and then grouped them into 10 categories. Not having access to individual data to determine a posteriori whether a prescription was appropriate or inappropriate for a given patient, the authors limited their analysis to prescriptions meeting certain criteria or for which they judged that at least a moderate proportion (40% or more) would be considered inappropriate, irrespective of clinical diagnoses.

"PIMs are not always inappropriate; it depends on how they are used and the individual case," explains Dr. McDonald, who is also the Associate Chair, Quality and Safety and an Associate Professor in the Department

of Medicine at McGill University.

"For example, even in the absence of individual clinical data, we know that chronic use of sedative hypnotics in the elderly should be avoided in most cases, as they are indicated for short-term treatment (~10 days). In contrast, opioids were included in the study as PIMs only when taken continuously, rather than in an acute care setting. For their part PPIs were included when prescribed over two consecutive trimesters and in the absence of non-steroidal anti-inflammatory drugs (NSAIDs)."

Deprescribing: From research to action

Research into how to deprescribe (stop, reduce or switch to a safer alternative) is seen worldwide as a promising way to curb overprescribing and reduce associated adverse effects and costs.

"In many countries, PIMs are used as a proxy for low-value care, as their use is associated with increased health care expenditure due to downstream effects, such as emergency room visits and hospitalizations," explains the first author of the study, Dr. Jean-François Huon, a pharmacist and a researcher at the MUHC and Nantes University Hospital and member of CADeN, along with other study co-authors.

"Our study demonstrates that targeted strategies to reduce problems arising from drug overprescribing and PIM prescribing in the elderly are needed. It also suggests that sex and gender differences in PIM prescribing rates should be explored in future studies."

More information: Jean-François Huon et al, The cost of potentially inappropriate medications for older adults in Canada: A comparative cross-sectional study, *Journal of the American Geriatrics Society* (2024). DOI: [10.1111/jgs.19164](https://doi.org/10.1111/jgs.19164)

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