

# Looking for Balance

Antipsychotic medication  
use in Ontario long-term  
care homes

# About Us

Health Quality Ontario is the provincial advisor on the quality of Ontario's health system. We play a unique role reporting on the system's performance, sharing the best evidence to guide change and supporting quality improvement. Health Quality Ontario is the operational name for the Ontario Health Quality Council, an agency of the Ministry of Health and Long-Term Care.

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**On the cover:** Long-term care home resident Mary, right, enjoys a moment with her daughter, Benny. (Photo courtesy of Schlegel Villages)

**Suggested citation:** Health Quality Ontario. Looking for Balance: Antipsychotic medication use in Ontario long-term care homes. Toronto: Queen's Printer for Ontario; 2015.

ISBN 978-1-4606-5727-0 (Print)  
ISBN 978-1-4606-5728-7 (PDF)

# Table of Contents

<b>Foreword</b>	<b>2</b>	<b>3. Antipsychotic Medication Use</b>	
<b>Executive Summary</b>	<b>3</b>	<b>According to Resident Diagnosis</b>	<b>12</b>
<hr/>		<hr/>	
<b>1. Introduction</b>	<b>4</b>	<b>Prescribing by resident diagnosis</b>	<b>13</b>
<hr/>		Resident characteristics	13
<b>Antipsychotic Medications: Benefits, Risks and Challenges</b>	<b>5</b>	Characteristics of residents in long-term care homes who are using an antipsychotic medication	14
Why are antipsychotic medications prescribed?	5	Residents in long-term care homes with specific medical diagnoses who are using an antipsychotic medication	14
Antipsychotic medication use in long-term care homes	5	Trends in antipsychotic medication use by diagnosis, over time	15
The focus of this report	5	<hr/>	
Work underway in Ontario to optimize treatment	6	<b>4. The Road Ahead</b>	<b>16</b>
<hr/>		<b>Working toward a better understanding</b>	<b>17</b>
<b>2. Antipsychotic Medication Use in Long-Term Care Homes</b>	<b>7</b>	Opportunities for balance	17
<hr/>		<hr/>	
<b>Antipsychotic medication use in Ontario</b>	<b>8</b>	<b>Methods Notes</b>	<b>18</b>
How we estimated antipsychotic medication use	8	<b>Acknowledgements</b>	<b>20</b>
Who lives in long-term care homes?	8	<b>References</b>	<b>21</b>
Percentage of residents using an antipsychotic medication	9		
Variations in antipsychotic medication use	11		

# Foreword

The use of antipsychotic medications in residents of Ontario's long-term care homes is a complex and often contentious issue. It is also too important to ignore. That is why we at Health Quality Ontario and our partners are pleased to present *Looking for Balance*, a theme report on antipsychotic medication use in the province's long-term care homes.

This report supplements Health Quality Ontario's Common Quality Agenda, a core set of indicators selected to measure how our health system is performing. The Common Quality Agenda includes measures related to long-term care homes, and *Looking for Balance* adds to it by providing new information about antipsychotic medication use in this sector.

While it may be tempting to jump to conclusions about antipsychotic medications, *Looking for Balance* lives up to its title by showing the reasons for prescribing these drugs for long-term care home residents, as well as the relative risks and benefits.

Residents, families and caregivers have generously contributed their points of view, giving us an invaluable picture of their experiences with antipsychotic medications. We are very grateful to them for sharing their perspectives.

We also could not have put this report together without the help of our partners, the Ontario Association of Non-Profit Homes and Services for Seniors, the Ontario Drug Policy Research Network, the Ontario Long Term Care Association and Ontario Long Term Care Physicians.

We hope the findings in this report will spur further research and help inform decisions about quality care for the people living in Ontario's long-term care homes.



Sincerely,

A handwritten signature in black ink, appearing to read 'J. Tepper', with a long, sweeping underline.

Dr. Joshua Tepper  
President and CEO  
Health Quality Ontario

# Executive Summary

For residents of Ontario's long-term care homes, antipsychotic medications may play an important role in managing the behavioural symptoms that sometimes occur with psychosis or dementia, such as agitation and aggression. But the use of these medications has sparked controversy across the province, the country and around the world because of side effects such as sedation, higher risk of falls and slightly increased risk of death. Family members of long-term care home residents may also see their loved ones struggling to communicate or sleeping for large parts of the day as a result of antipsychotic medication use. Without the drugs, however, some residents and their families might suffer because of behaviours that put them or others at risk.

Our goal with this report is to generate an informed conversation about the complex issue of antipsychotic medication use in the province's long-term care homes. To do this, we used available data to estimate the percentage of long-term care residents in Ontario who were using an antipsychotic medication, looked at whether that percentage has changed over time and examined whether antipsychotic medication use varied by region, by long-term care home, or by resident condition.

Across Ontario, there has been a slight decrease over four years in the overall percentage of long-term care home residents using an antipsychotic medication, from 32.1% in 2010 to 28.8% in 2013, but this finding does not tell the whole story. There is wide variation in the proportion of residents using an antipsychotic medication across long-term care homes, from no residents in some to more than 60% in others. Some of the differences can be explained by the fact that different homes care for different types of residents. For example, a home that cares primarily for residents with psychosis, dementia and mental illness may have a

very high proportion of residents using antipsychotic medications. Nevertheless, our findings suggest that there are opportunities for homes to examine and compare their antipsychotic medication use, and to re-evaluate prescribing decisions to help individual residents achieve the best possible quality of life.

Most people working in the long-term care community are aware of the benefits, risks and challenges associated with antipsychotic medications. Many have launched efforts to look more closely at the use of these drugs in their residents. Care teams at some homes have succeeded in reducing antipsychotic medication use by examining prescription data, reviewing individual residents' conditions and behaviours, engaging families and caregivers, and making non-drug changes in care. These initiatives may affect how many residents use antipsychotic medications in Ontario.

Weaving together data and the real-life experiences of residents, family members, caregivers and long-term care home teams, this report sheds further light on antipsychotic medication use in the province's long-term care homes.

# Introduction



# Antipsychotic Medications: Benefits, Risks and Challenges

For some residents of Ontario's long-term care homes, antipsychotic medications improve quality of life and reduce suffering. But for others, these drugs may bring more risks than benefits. With this report, we aim to stimulate a conversation about an important issue that affects many Ontarians.

## Why are antipsychotic medications prescribed?

Antipsychotic medications are often used to treat psychosis, a term used to describe the hallucinations and other behaviours that frequently occur in people with conditions such as schizophrenia and bipolar disorder. These medications may also be effective at relieving symptoms such as agitation and aggression, and can improve quality of life in people with dementia[1-3] (see sidebar: Joseph's Move to a Long-Term Care Home and Angela's Hospital Stay).

## Antipsychotic medication use in long-term care homes

The use of antipsychotic medications in people over age 65 has been a medical and political issue for

decades, not only in Ontario, but around the world.[4, 5, 6-13] It is particularly relevant for Ontario's more than 600 long-term care homes, where residents are often old, frail and need around-the-clock care.

Many experts are concerned about the use of antipsychotic medications because of their side effects. The drugs can cause people to lose their energy and motivation, and to feel drowsy.[13] These symptoms can seriously affect people's quality of life and make it difficult for family members to communicate with their loved ones.

Antipsychotic medications also appear to increase the risk of stroke, pneumonia, heart disease, kidney injury, diabetes and falls. Furthermore, older adults with dementia using certain antipsychotic drugs have a slightly higher chance of dying than those prescribed a placebo.[2, 3, 14-16]

A 2007 study found that in Ontario, there was substantial variation from home to home in the percentage of residents with a prescription for an antipsychotic medication.[17]

## The focus of this report

To gain more insight into the current state of antipsychotic medication use in Ontario, we have addressed the following questions:

- What is the percentage of Ontario long-term care home residents who are using an antipsychotic medication, and has that percentage changed over the last few years?

## Real-life experiences

### Joseph's Move to a Long-Term Care Home

When it became too difficult for his family to support him at home, Joseph [not his real name] was admitted to a long-term care home. He was suspicious of his caregivers and would sometimes try to hit them while they were helping him bathe or change his clothes. He also pushed other residents in the hallways if they were in his way.

Joseph's care team tried to address these behaviours by making sure he was aware of what they needed to do to care for him, and by providing a calm atmosphere. But his physical aggression continued.

Joseph's doctor prescribed him a small dose of an antipsychotic medication – just enough to reduce his suspicion and aggressive behaviours.

### Angela's Hospital Stay

Angela [not her real name], a long-term care home resident, became confused and disoriented while she was being treated in hospital for a serious blood infection. She tried to pull out her intravenous line and hit a nurse who was caring for her. Angela was prescribed antipsychotic medication during her hospital stay so that the treatment she needed could continue. After she returned to the long-term care home, Angela's confusion resolved, and her aggressive behaviours stopped. The home's doctor was then able to taper her off the medication.

- Is the percentage of residents using an antipsychotic medication similar between regions and across long-term care homes?
- What percentage of residents with psychosis or dementia use antipsychotic medications, and has this percentage changed over time?

In this report, we have looked at antipsychotic medication use in Ontario long-term care homes by determining the percentage of residents who had a filled prescription for an antipsychotic medication. Although this method does not guarantee that all residents with a prescription are actually using these medications, it is as close as we can get to assessing medication use with the data that are available.

## Work underway in Ontario to optimize treatment

Given the risks related to antipsychotic medication use, most experts recommend first trying non-drug interventions to treat behavioural symptoms in long-term care residents. Making sure residents are not uncomfortable, hungry or in pain, adjusting their surroundings, and introducing social activities such as exercise programs or music therapy may reduce the need for antipsychotic medications. Only after these treatments fail to improve behavioural symptoms should antipsychotic drugs be prescribed.[11, 18]

## Real-life experiences

### Mary and Her Daughters

When she was still living at home, a psychiatrist had prescribed Mary an antipsychotic medication because she had been experiencing outbursts of screaming. While the medication appeared to help with the yelling, Mary's daughter Benny noticed other changes as well. "We lost the emotions," Benny said. "She would be sleeping all the time. She just wasn't there." Nevertheless, Mary continued to use the medication through two years of supportive care after breaking her hip, and for several months after moving into a long-term care home.

Mary spent many of her days at the long-term care home in a deep sleep. When she was awake, she did not talk. After a careful assessment and consultations with Mary's three daughters, doctors at the home decided to reduce and eventually stop her antipsychotic medication. Mary began to perk up immediately, smiling and

laughing. "We got that little moment back with her," Benny said. "Her eyes were always so bright and sparkly, and it was like she was back."

Although stopping the medication appeared to make Mary more alert, it also led to new challenges for the family as they saw their mother struggle to think and communicate. "Sometimes you'd walk out angry," Benny said. "Other times, it was wonderful to walk in and see her smiling, laughing and enjoying some of her tablemates. There were truly mixed emotions."

One day, Mary was able to go to her daughter Paula's house for a family lunch. "Mom was smiling and excited," Benny recalled. "She looked at Paula and said, 'I love you.' Paula beamed with excitement, saying 'I love you more.'" It was the first time in years that they had heard their mother speak.

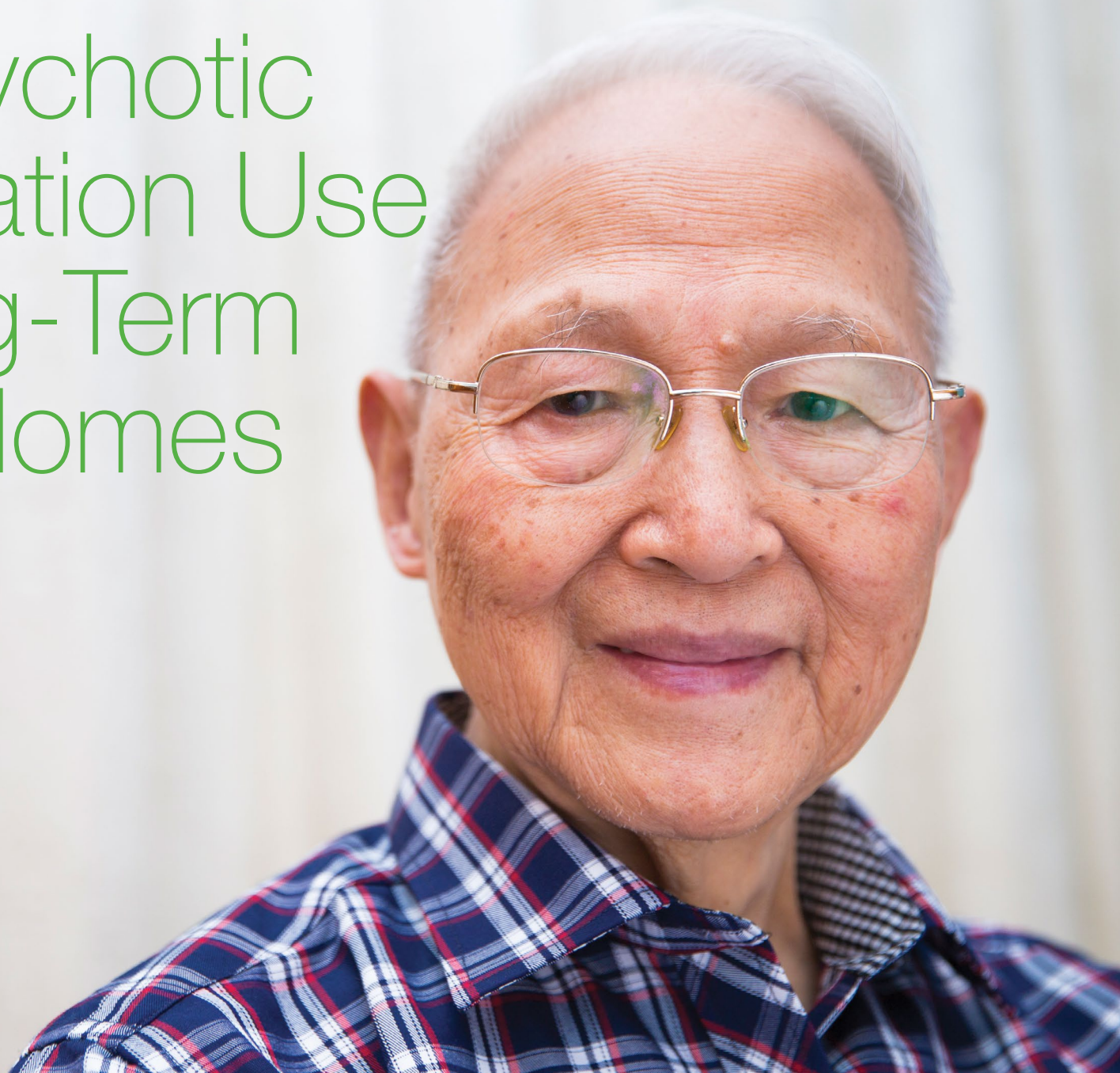
*Mary and Benny appear on the cover of this report.*

*The Long-Term Care Homes Act, 2007* in Ontario requires that long-term care homes have medication tracking systems and regularly review drug use trends and patterns in their homes. Many initiatives are underway in Ontario and Canada to help long-term care homes approach residents with challenging behaviours in ways that relieve their symptoms, keep them safe and maintain or improve their overall quality of life. For example, the Ontario Association of Non-Profit Homes and Services for Seniors, the Ontario Long Term Care Association and Ontario Long Term Care

Physicians all provide training and resources to support reviews of prescribing practices and implementation of non-drug methods for treating residents with behavioural symptoms. The Canadian Institute for Health Information publicly reports on potentially inappropriate prescribing of antipsychotic medications in long-term care homes, and it has partnered with the Canadian Foundation for Healthcare Improvement to help homes across Canada optimize antipsychotic medication use among their residents.



# Antipsychotic Medication Use in Long-Term Care Homes



# Antipsychotic medication use in Ontario

Residents receive around-the-clock access to medical care in Ontario's long-term care homes, including management of their medications. When medical directors or attending doctors prescribe medications for residents, including antipsychotic drugs, they work in collaboration with nurses and other care team members in the home. We can analyze the data from these prescriptions to determine the proportion of residents in Ontario long-term care homes who are using antipsychotic medications. We can also examine the variation across the province's long-term care homes.

Nearly one-third of Ontario long-term care home residents were **prescribed antipsychotic medications**

## How we estimated antipsychotic medication use

To determine the use of antipsychotic medications in long-term care homes, we examined how the percentage of residents with a prescription for an antipsychotic medication changed between 2010 and 2013 (the most recent time frame with the best available data). We estimated this by looking at the percentage of long-term care home residents with a filled prescription for an antipsychotic drug that covers the date of March 31 for each of the four years in the study. We focused on residents who were age 65 or older and who had been living in an Ontario long-term care home for at least 100 days.

For a full description of our analyses, see the Methods Notes at the back of this report and the supporting technical appendix on HQO's website.

## Who lives in long-term care homes?

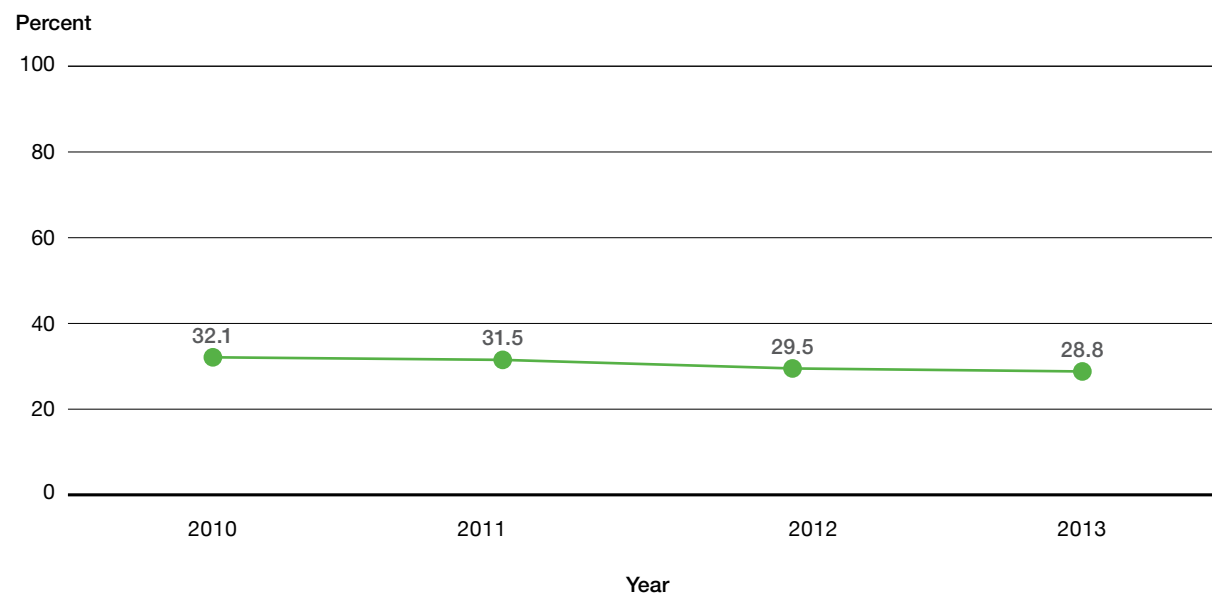
In 2013, three out of five residents (58.9%) were 85 years or older and nearly three-quarters (72.7%) were women. Approximately four out of five (79.1%) showed some impairment in cognition (that is, trouble with memory, consciousness, decision-making, eating or making themselves understood); almost a third (28.3%) displayed severe impairment. About half of residents (47.1%) showed signs of aggressive behaviour, which included verbal abuse, physical abuse, disruptive behaviour and resistance to care; one in 10 (9.6%) exhibited severely aggressive behaviour.

## Percentage of residents using an antipsychotic medication

Across Ontario, the percentage of long-term care home residents using an antipsychotic medication has decreased over the last four years for which we have data, from 32.1% in 2010 to 28.8% in 2013 (Figure 2.1).

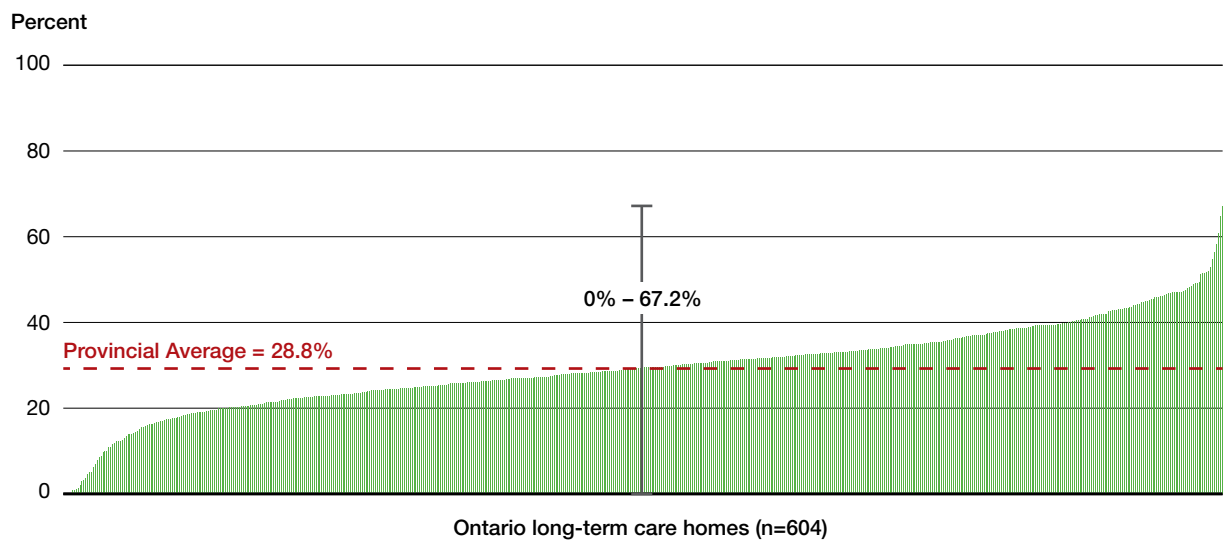
FIGURE 2.1

Percentage of long-term care home residents 65 years or older using an antipsychotic medication on March 31 of each year, 2010 to 2013, in Ontario



Data sources: CCRS, DAD, ODB claims database and RPDB, provided by ICES. Notes: Values were adjusted for sex, age group and comorbidity. There was a statistically significant difference between the percentages in 2012 (29.5%) and 2013 (28.8%) and the percentage in 2010 (32.1%; reference). See the online technical appendix for descriptions of risk adjustment and statistical significance.

**FIGURE 2.2**  
**Percentage of long-term care home residents 65 years or older using an antipsychotic medication, by individual home (ordered lowest to highest) on March 31, 2013, in Ontario**



Data sources: CCRS, DAD, ODB claims database and RPDB, provided by ICES. Notes: Values were adjusted for sex, age group and comorbidity. Homes with fewer than 25 ministry-designated long-term care beds were excluded from the figure. See the online technical appendix for a description of risk adjustment and calculation of home level results.

Across long-term care homes, the percentage of residents using an antipsychotic medication varies from a low of 0% to a high of 67.2%

Across Local Health Integration Network regions in Ontario, there was modest variation in the percentage of residents using an antipsychotic medication in 2013, from a low of 25.4% to a high of 32.4%, compared to the provincial rate of 28.8%.<sup>[19]</sup>

Across the 604 long-term care homes, there was substantially more variation in the percentage of residents using an antipsychotic medication, from a low of zero to over two-thirds (67.2%) (Figure 2.2).

Care teams (medical directors, attending doctors, nursing staff, pharmacists and personal support workers) in a number of long-term care homes have managed to decrease the use of antipsychotic medications using a range of approaches, such as tracking medication data, assessing individual residents on a case-by-case basis and engaging families (see sidebar: Changes for the Better on page 11).

## Variations in antipsychotic medication use

There could be many reasons for the variations demonstrated in this report. Some long-term care homes are specialized or have specialized wings that treat residents with psychosis, dementia and mental illness, and would therefore have more residents using antipsychotic medications than homes without such specialty care. Local Health Integration Network regions that include these homes would also likely have a higher proportion of residents using these drugs.

Ontario long-term care homes may be at various starting points in their quality-improvement work related to antipsychotic medication use, so the effects of more recent initiatives might not show up in the results presented here.

Finally, a variety of other factors can influence antipsychotic medication use in long-term care homes, including local prescribing practices, staffing levels, staff resources and training, and size of home.[20, 21]

## Real-life experiences

### Changes for the Better

Sherly, a personal support worker at a long-term care home in Etobicoke, noticed a change in some of the residents almost immediately when their antipsychotic medications were reduced or stopped. She says she saw them walking around and able to describe the things they wanted. “There were times when residents resisted care a little bit, but nothing we couldn’t handle,” Sherly said.

Caroline, the director of nursing care at the same home, was convinced they could help residents live quality lives without relying on antipsychotic medications, and in January 2014 she and her team launched a plan they hoped would lead to a reduction in the use of these drugs. By conducting a detailed patient-by-patient review of current cases, making non-drug changes to care and providing education programs for team members about the benefits and risks of antipsychotic medications, the percentage of residents using these drugs decreased by nearly half — from 32% to 17% — after three months. “I would like to see antipsychotic medication use in older adults become the exception,” Caroline said.

Consultant pharmacist Bella, who also worked with the team at the home, said she hoped to see a significant decrease in the use of antipsychotic medications to “provide the mental clarity that can lead to better resident quality of life.”

The personal support workers were supportive of the program, according to Sherly. “You can interact with the residents now,” she said. “You can see them go and play bingo, that kind of thing — even to let us know they need to go to the bathroom.” Paolo [not his real name], one of the residents in Sherly’s care, became much more animated after he was weaned off antipsychotic medications. “Before, he didn’t want to do anything,” Sherly said. “He was always tired. He didn’t want to eat — he would just sit and look at the food, very confused. But now, I see big changes. When I go in, he is the first one to say, ‘Hi, good morning! How are you today?’ and ‘It’s good to see you.’”

# Antipsychotic Medication Use According to Resident Diagnosis



## Prescribing by resident diagnosis

To get a clearer view of who is using antipsychotic medications in long-term care homes, we took a closer look at residents' relevant medical diagnoses and the percentage of residents using an antipsychotic medication relative to these diagnoses.

Based on the data, we categorized the residents into three mutually exclusive groups: a diagnosis of psychosis, a diagnosis of dementia (with no diagnosis of psychosis) or no documented diagnosis of psychosis or dementia.

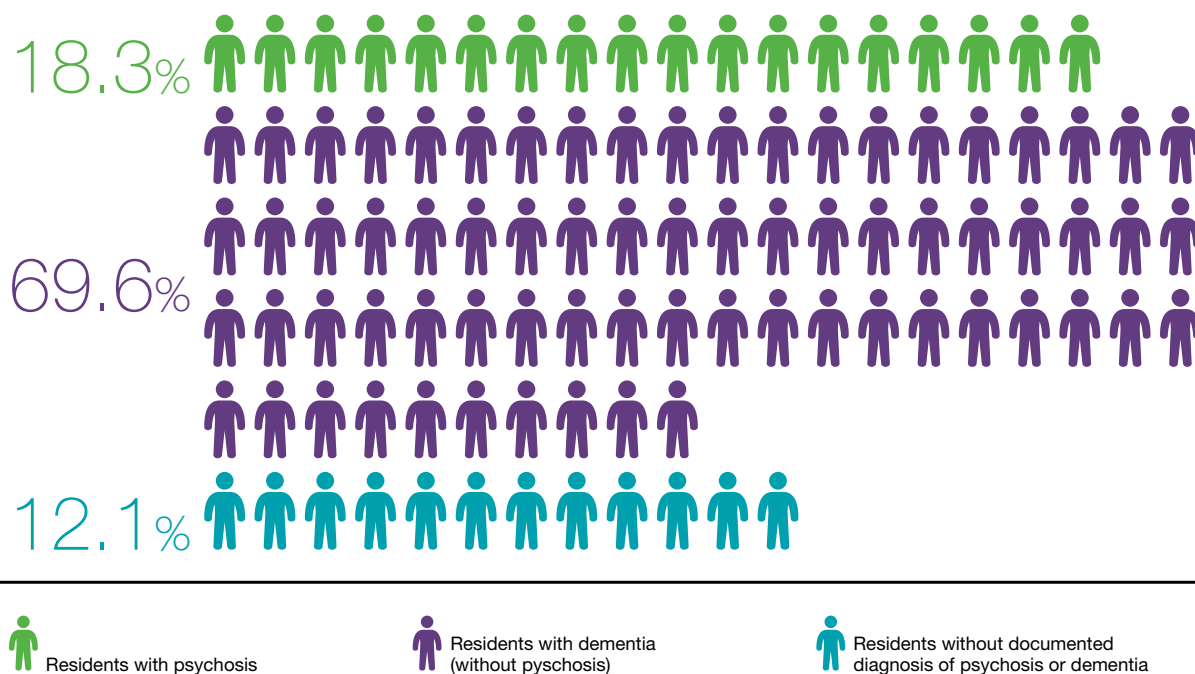
For a full description of our analyses, see the Methods Notes at the back of this report and the supporting technical appendix on HQO's website.

## Resident characteristics

Of all the long-term care home residents over age 65 that we analyzed in 2013, almost one-fifth (18.3%) had a diagnosis of psychosis, more than two-thirds (69.6%) had a diagnosis of dementia (without psychosis) and the remainder (12.1%) had no documented diagnosis of dementia or psychosis (Figure 3.1). In other words, based on this analysis, nearly 90% of residents had a diagnosis of a condition associated with behavioural or cognitive challenges that could negatively affect their behaviour and quality of life.

FIGURE 3.1

Percentage of long-term care home residents 65 years or older with a diagnosis of a specific medical condition on March 31, 2013, in Ontario



Data sources: CCRS, DAD, ODB claims database, OHIP claims database, OMHRS and RPDB, provided by ICES. Notes: Residents were identified as having a documented diagnosis of psychosis or dementia based on physician, drug and hospital claims data (DAD, ODB claims database, OHIP claims database and OMHRS). Residents with neither psychosis nor dementia according to the administrative sources listed above may have a diagnosis of psychosis or dementia noted in other data sources, such as the RAI-MDS data in the CCRS. See the online technical appendix for more information.

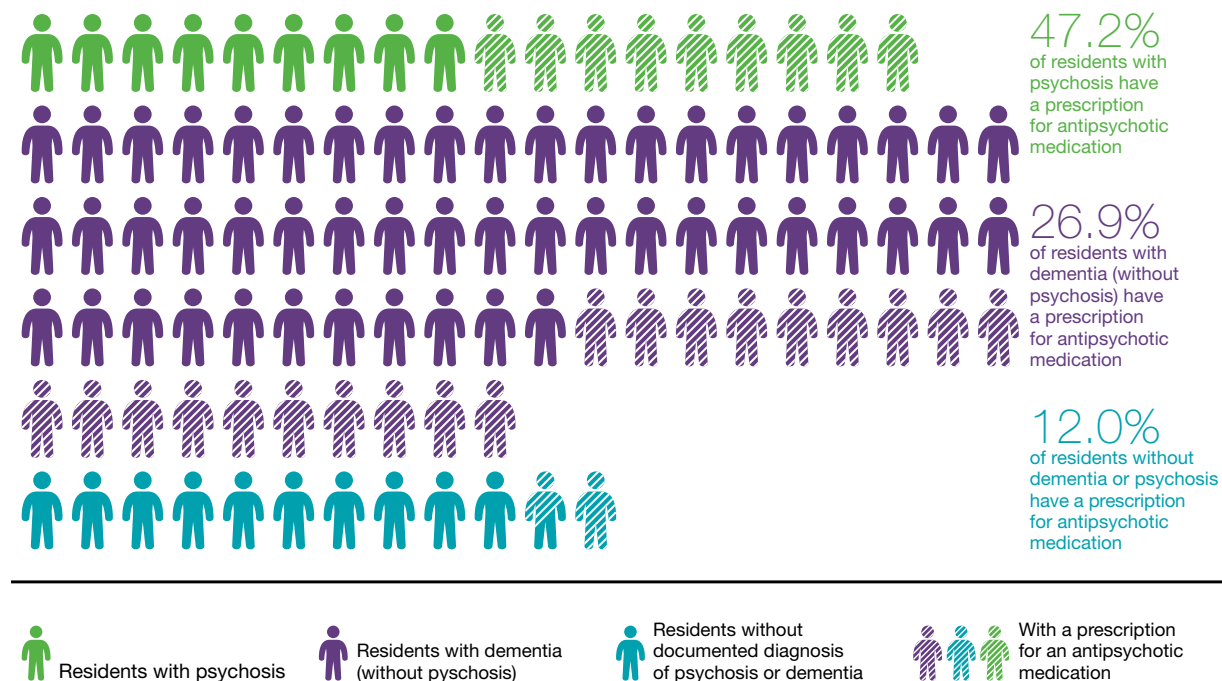
## Characteristics of residents in long-term care homes who are using an antipsychotic medication

Looking more closely at the group of long-term care home residents over age 65 who were using an antipsychotic medication in 2013, 94.9% had a diagnosis of either psychosis or dementia.

## Residents in long-term care homes with specific medical diagnoses who are using an antipsychotic medication

We also evaluated the three medical diagnosis groups to determine the proportion of each group who were using an antipsychotic medication. In 2013, almost half (47.2%) of the residents with a diagnosis of psychosis, just over one-quarter (26.9%) of the residents with a diagnosis of dementia (but not psychosis) and 12.0% of residents who did not have a documented diagnosis of dementia or psychosis were using an antipsychotic medication (Figure 3.2). It is possible that residents without a documented diagnosis of dementia or psychosis may still have these conditions, but we were not able to confirm this from the administrative data sources we used for this study.

**FIGURE 3.2**  
**Percentage of long-term care home residents 65 years or older who were using antipsychotic medication with a diagnosis of a specific medical condition on March 31, 2013, in Ontario**



Data sources: CCRS, DAD, ODB claims database, OHIP claims database, OMHRS and RPDB, provided by ICES. Notes: Antipsychotic use values were adjusted for sex, age group and comorbidity. Residents were identified as having a documented diagnosis of psychosis or dementia based on physician, drug and hospital claims data (DAD, ODB claims database, OHIP claims database and OMHRS). Residents with neither psychosis nor dementia according to the administrative sources listed above may have a diagnosis of psychosis or dementia noted in other data sources, such as the RAI-MDS data in the CCRS. See the online technical appendix for more information.



## Trends in antipsychotic medication use by diagnosis, over time

How has antipsychotic medication use by diagnosis changed over time? In Chapter 2 we showed that the overall percentage of residents using an antipsychotic medication decreased from 2010 to 2013. We can also look at this trend in each of the three diagnosis groups. Between 2010 and 2013, the percentage of residents using an antipsychotic medication decreased among residents with a diagnosis of psychosis from 53.7% to 47.2%; it also decreased among those with a diagnosis of dementia (without psychosis), from 30.5% to 26.9% (see sidebar: One Simple Question).

Among residents who had no documented diagnosis of psychosis or dementia, the percentage using an antipsychotic medication remained stable at about 12%.

## Real-life experiences

### One Simple Question

When Simon walked around the long-term care home in the Ottawa area where he served as executive director, he noticed some of the residents were much more alert than they had been in recent months. As he strolled through the dining room, he saw a man in his 80s holding his daughter's hand and telling her about his bingo game that morning. The next table over, a woman in her 70s was smiling and laughing as her granddaughter told a joke.

Two months earlier, the home had launched a quality improvement plan to reduce antipsychotic medication use among its residents. "Their quality of life improved greatly," Simon said. "Before, people would come and visit and there wasn't a lot of interaction. But now, there's that new level of communication."

Working with a team of eight doctors, the home's medical director took 10 random charts, reviewed them with a nurse practitioner and held a meeting with the doctor and care team assigned to each resident. For each resident, the goal was to answer one simple question: why was this antipsychotic medication prescribed?

The program worked. Half of the residents in the review had their antipsychotic medications reduced or discontinued. In each case, the resident was re-evaluated to see if the medication could be reduced further or eliminated. The team found that it was easier to reduce or stop antipsychotic medications for residents who

were on them for a shorter period of time. The care team complemented this process with best practices and other behaviour management strategies to help those with dementia and/or aggressive behaviour.

There were a few challenges during the process, Simon noted. Among residents who had been prescribed antipsychotic medications for a decade or longer, doctors found it more difficult to discontinue the medications completely. If the residents had recurring problems with aggressive behaviour, the antipsychotic medication might be reduced, but not stopped. "If somebody is really agitated or upset, that is not a great quality of life, either," Simon said.

The second issue was getting residents' families on board. Simon says it was essential to involve the families in the process. "They might say, 'Mom was on this forever – why are we taking this away?' We need to shift the paradigm to have the families say, 'Why is my loved one on this medication?'" Simon said. "Families are more informed now."

Some care team members and families were afraid of repercussions such as aggressive behaviour if the antipsychotic medication was stopped, but there were no major incidents, Simon said. In fact, after positive results in the original small group of 10 residents, the organization rolled out the program across its two long-term care homes, which housed a total of more than 250 residents.

# The Road Ahead



## Working toward a better understanding

The good news is that the percentage of residents using an antipsychotic medication has decreased over the past four years: a favourable trend. However, the substantial variation across regions and long-term care homes highlights the challenges for system-wide improvement.

This report builds on Health Quality Ontario's Common Quality Agenda, a core set of indicators that measure the performance of Ontario's health system and used in our yearly report, *Measuring Up*. Although the Common Quality Agenda contains a number of indicators for long-term care homes, it does not cover aspects of medication management or the appropriate prescribing of antipsychotic medications.

*Looking for Balance* begins to explore the issue of antipsychotic medication use, but we need more and better data to get a clearer picture of where we are in terms of overall performance, and to determine

how we should optimize use in long-term care residents. Currently, no data sources can provide a complete picture of antipsychotic medication use in residents of long-term care homes in Ontario.

In June 2015, the Canadian Institute for Health Information will launch nationwide reporting at the long-term care home level on an indicator for potentially inappropriate prescribing of antipsychotic medications. This indicator uses different methods and data sources than the analysis in this report and will provide additional insight into antipsychotic medication use in long-term care homes, not only for Ontario but also for the rest of Canada.

Health Quality Ontario is supporting an initiative designed to improve medication prescribing in long-term care that is co-sponsored by the Ministry of Health and Long-Term Care and the Ontario Medical Association. The goal is to address prescribing broadly; the prescription of antipsychotic medications will be just one topic area. As part of the project, doctors who care for residents of long-term care homes will be able to register and receive a personalized report with their prescribing patterns, putting better data into the hands of those who can make changes.

## Opportunities for balance

Our report highlights the fact that prescribing antipsychotic medications in older Ontarians is a challenging health system issue that needs to be addressed on a person-by-person basis at the long-term care home level. However, it takes time to evaluate the use of these drugs, and while non-drug interventions to treat behavioural symptoms might be preferable, they may not always be effective, and can use time and resources that are in short supply at long-term care homes. Tackling this issue will require coordination between health system leaders, resident and caregiver organizations, front-line staff, and families to find the right balance.

This report provides a snapshot of the current state of antipsychotic medication use. It shows that many long-term care residents in this province are using these drugs, and that there is substantial variation across homes in the percentage of residents with a prescription for an antipsychotic medication. These findings show the opportunity to further improve residents' quality of life across Ontario.

# Methods Notes

The Methods Notes provide a brief description of the methods used in this report. For a more detailed description please see the technical appendix on HQO's website.

## Data sources

We combined several data sources to identify long-term care home residents, their drug prescriptions and medical diagnoses. Specifically, we linked:

- demographic information from the Registered Persons Database (RPDB);
- resident admission date and Resident Assessment Instrument – Minimum Data Set (RAI-MDS) information from the Continuing Care Reporting System (CCRS);
- drug prescription information from the Ontario Drug Benefit (ODB) claims database; and,
- diagnosis information from the Discharge Abstract Database (DAD), the Ontario Health Insurance

Plan (OHIP) claims database, and the Ontario Mental Health Reporting System (OMHRS).

These databases have been similarly linked by others to study drug prescribing in adults aged 65 years and older in Ontario.[17, 22]

## Analysis group

We included data only for residents who had been living in a long-term care home for at least 100 days to exclude residents who were newly admitted and residents who stayed in long-term care homes for short periods of time.

We included data only for residents aged 65 years and older.

For analysis of home-level variation, we excluded long-term care homes with fewer than 25 ministry-designated beds, because the percentage of filled antipsychotic medication prescriptions would be unstable due to such a small sample of residents.

## Estimating antipsychotic use

When a drug has been prescribed for a long-term care home resident by the medical director or attending doctor, a pharmacist fills it at the pharmacy that works with the home and submits a claim to the Ontario Drug Benefit program (all residents in long-term care are covered by this program). We used data from these claims to determine the percentage of residents with filled prescriptions for antipsychotic medications on March 31; these data were used as an estimate for the percentage of residents using antipsychotic drugs (see Limitations on page 19). Here is how we determined this estimate:

- We looked at this proportion at one point in time for each of the four years we examined (that is, a point prevalence). We chose March 31 as the day on which we identified residents with a filled prescription for an antipsychotic medication.
- We started from March 31, 2010, when the best-quality data first became available, and looked at March 31 in the three following years to 2013 – the year with the most recent available data.

- We looked at the number of residents who had a filled antipsychotic prescription on March 31; this means that we included residents who had a prescription for an antipsychotic medication that had been filled on or before March 31 and covered the date of March 31.

## Categorizing residents' behaviours

Information on cognitive impairment and aggressive behaviour is based on the standardized Cognitive Performance Scale and Aggressive Behaviour Scale scores from RAI-MDS assessment data in the CCRS.

## Diagnosis groups

Residents were categorized into groups by medical condition based on diagnosis information from the last five years in the DAD (hospital claims), the OMHRS (hospital claims), and the OHIP claims database (doctor claims), as well as drug claims information from the last 100 days in the ODB claims database for drugs used to treat symptoms of dementia.

The percentages of residents with an antipsychotic medication prescription in 2010, 2011, 2012 and 2013 were presented by medical diagnosis:

- **Residents with psychosis** referred to residents who had a diagnosis of psychosis and may or may not also have a diagnosis of dementia documented in the databases used.

- **Residents with dementia (without psychosis)** referred to residents who had a diagnosis of dementia and no diagnosis of psychosis documented in the databases used.
- **Residents without documented diagnosis of psychosis or dementia** referred to residents who did not have a diagnosis of psychosis or dementia documented in the databases used.

## Limitations

Since the information in the ODB claims database is derived from claims for filled antipsychotic medication prescriptions, we calculated the proportion of residents who had a filled prescription for an antipsychotic medication that overlapped with March 31 and used this as a proxy for antipsychotic medication use. We could not measure whether these filled prescriptions were actually used by long-term care residents, or the proportion of residents who were prescribed the drug but did not have the prescription filled. Therefore, all filled prescriptions for antipsychotic medications, even if prescribed for use “as needed” (or what is often referred to as pro re nata, or PRN), were included in this analysis, potentially overestimating the percentage of long-term care residents using antipsychotic medications.

For those residents without a documented diagnosis of psychosis or dementia, it is possible that they could have a diagnosis of psychosis or dementia recorded in other sources of medical information, such as RAI-MDS assessments, which are not

captured in the data sources used to determine the diagnosis groups in this report. Some residents may have been misclassified by diagnosis, particularly those in the dementia (with no psychosis) group. We do not know the extent of these possible misclassifications.

The reported results were risk-adjusted for age, sex and comorbidity. Results were not adjusted for resident diagnoses (such as dementia), or for behaviours that are known to be associated with the prescription of antipsychotic medication (such as aggression).

The report did not distinguish between the type of antipsychotic medication prescribed, the dosage prescribed or changes that were being made to medications, such as tapering protocols. Some residents receive a prescription for an antipsychotic medication that requires a single dose that continues to act for several days (long-acting antipsychotic medications). Residents with a filled prescription for a long-acting antipsychotic medication may not be included if their dose did not include March 31, which would potentially underestimate the use of these types of drugs.

Since the analysis was based on administrative data, we were not able to assess the medical reason for antipsychotic medication prescriptions among residents.

# Acknowledgements

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## Report development

This report was developed in partnership with the Ontario Association of Non-Profit Homes and Services for Seniors, the Ontario Drug Policy Research Network, the Ontario Long Term Care Association and Ontario Long Term Care Physicians.

Health Quality Ontario acknowledges and thanks Paula Rochon and Hadas Fischer for their contributions to the report.

Health Quality Ontario also thanks the review panel: Nancy Cooper, David Juurlink, Muhammad Mamdani, Kathryn Pilkington, Paula Rochon, Sandie Seaman, Mina Tadrous and Evelyn Williams.

A multidisciplinary team at Health Quality Ontario led the development of the report and included Susan Brien, Naushaba Degani, Maaïke de Vries, Gail Dobell, Ryan Emond, Michal Kapral, Eseeri Mabira, Ivana McVety, Jennifer Riley, Angus Steele and Lauren Webster.

The following organizations provided reviews or data for the report: the Institute for Clinical Evaluative Sciences, the Ministry of Health and Long-Term Care and Women's College Hospital.

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