ASPE
ASSISTANT SECRETARY FOR PLANNING AND EVALUATION

ISSUE BRIEF
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ANTIPSYCHOTIC MEDICATION PRESCRIBING IN LONG-TERM CARE FACILITIES INCREASED IN THE EARLY MONTHS OF THE COVID-19 PANDEMIC

KEY POINTS

- Prescriptions dispensed for antipsychotics in nursing homes and assisted living facilities increased since the beginning of the pandemic, with 20.8 million dispensed in 2020 compared to 20.5 million in 2019. This represents a 1.5% increase in total prescriptions since the beginning of the pandemic despite lower resident census levels in long-term care facilities (LTCFs).
- In 2020, the highest increase in the number of prescriptions dispensed occurred during the first quarter of the pandemic, with an increase of 7.4% compared to the first quarter of 2019. After this initial increase, the quarterly number of prescriptions for antipsychotic medications dropped close to pre-pandemic levels, despite a declining nursing home resident census and likely a declining LTCF resident census overall.
- The number of prescriptions dispensed for four out of the five most frequently prescribed antipsychotics in LTCFs increased in both 2020 and 2021 compared to pre-pandemic levels. Aripiprazole had the largest increase, of 14% in the first quarter of 2020 compared to 2019 levels.

INTRODUCTION

Residents of congregate long-term care settings, including nursing homes and assisted living facilities, were disproportionately affected by the COVID-19 pandemic. Since the pandemic started in January 2020, 5% of total cases and 31% of total deaths have occurred in long-term care facilities (LTCFs), representing more than 186,000 deaths of residents and staff.[1] The beginning of the year 2020 marked the highest number of COVID-19 cases and deaths in LTCFs. Facilities reported facing substantial hardships in procuring resources, and hiring and keeping staff to help control outbreaks.[2] Many facilities also reported added financial strains resulting from costs of personal protective equipment, testing, and acquiring and retaining staff. In addition, the lockdown and in-person visitation restrictions in LTCFs raised concerns about the impacts on resident treatment, safety, and mental health.[3]

These acute difficulties that arose during the COVID-19 pandemic added to other long-standing challenges and concerns related to the quality of care provided in LTCFs. Media outlets have reported on the increasing use of antipsychotics by LTCFs to help manage the challenging behaviors of residents with behavioral and psychological symptoms, a concerning trend even before the pandemic.[4] Antipsychotic drugs are used to treat symptoms of psychiatric disorders such as schizophrenia and bipolar disorder, and have been shown to improve daily functioning in individuals with these disorders. The Food and Drug Administration (FDA) has issued a "black box" warning regarding the risks of atypical antipsychotic use among older adults with dementia. A recent news report in the *New York Times* stated that, according to Medicare's public database of nursing home ratings (Nursing Home Compare), Medicare insurance claims and resident assessment data, and facility-by-facility data that a resident advocacy group got from Medicare via an open records request and shared with the Times, at least 21% of nursing home residents (about 225,000 people) were using antipsychotics as of the fourth quarter of 2020.

The Centers for Medicare & Medicaid Services (CMS), the government agency that oversees nursing homes, tracks the use of antipsychotic medications as one of many statistics used to assess the quality of care in nursing homes and seeks to discourage over-utilization of these drugs. On November 12, 2021, CMS released State Survey Guidance stating that inappropriate use of antipsychotic medications continues to be an area of concern related to quality of care, directing oversight efforts on identifying inappropriate use and emphasizing non-pharmacologic practices.[5] CMS also worked with the Substance Abuse and Mental Health Services Administration (SAMHSA) to issue guidance on inappropriate use of antipsychotics in older adults and people with disabilities who live in the community.[6]

The purpose of this study is to examine trends in the prescribing of antipsychotics in LTCFs during the COVID-19 pandemic. This brief presents results of a descriptive analysis using prescription claims data from January 2019 to June 2021.

METHODS

Prescription data were drawn from IQVIA's National Prescription Audit (NPA) database. NPA includes over 3 billion prescriptions per year, representing more than 92% of prescriptions dispensed at retail pharmacies (chain, independent, and food store pharmacies), 72% of mail-order medications, and 78% of medications used in LTCFs. Long-term care data in IQVIA tracks prescriptions dispensed through pharmacies that service residential care facilities, institutional providers, and nursing home pharmacies. IQVIA's data include prescriptions dispensed to nursing homes and assisted living providers nationwide. The IQVIA data did not allow us to distinguish between prescriptions dispensed in these two settings, therefore, we refer to all prescriptions dispensed in our sample more broadly as dispensed to LTCFs. In addition, these data include claims for antipsychotic medications dispensed in these settings, regardless of payer. The NPA does not include U.S. Department of Veterans Affairs (VA) nursing homes (i.e., nursing homes with which the VA contracts, state veteran homes, and the VA Community Living Centers). Monthly data on prescriptions for antipsychotics dispensed in LTCFs were analyzed to estimate how the number of antipsychotic prescriptions dispensed differed between 2020 and 2021 compared to 2019. For 2021, prescription data was available through the second quarter. Antipsychotic drugs were identified through IQVIA's Uniform System of Classifications.

LIMITATIONS

Controlling for Resident Census Changes

Accounting for changes in the nursing home and assisted living resident census during the study period would have been ideal in order to determine changes in antipsychotic prescribing rates per capita of LTCF residents; however, the IQVIA NPA data does not include data on the size of the LTCF resident population. We were also unable to obtain this information from other sources because, although there is data available for the nursing home census, there is no national yearly standardized data on the number of residents in assisted living facilities. The IQVIA NPA data also does not allow us to distinguish prescriptions dispensed to nursing homes from those dispensed to assisted living facilities, so it is not possible to separately examine changes in prescriptions dispensed per capita to nursing home residents, only.

Despite not being able to account for total LTCF population census in our analyses, we believe our findings likely underestimate the number of prescriptions per capita dispensed during our study period due to declines in the resident census in congregate care settings during the COVID-19 pandemic. To understand this further, we examined publicly available data from the Nursing Home Payroll-Based Journal (PBJ) files, which contains nursing home census information for the period of this study. We then compared the nursing home census with the total LTCF prescriptions dispensed from the first quarter of 2019 to the second quarter 2021 (**Appendix Figure 1a and 1b**). We found that nursing home resident census in fact decreased during our study

period despite increases in the number of total prescriptions dispensed in LTCFs. Between the fourth quarter of 2019 and the first quarter of 2021, nursing home resident census decreased 16.9%, from 1.3 million residents to 1.08 million residents, and remained well below pre-pandemic levels as of June 2021. While there is no available data source to track the number of residents living in assisted living facilities, news stories and anecdotal accounts from the industry reported that people were reluctant to go or send their family members, friends, and significant others to congregate settings, and that some residents even moved out due to the fear of outbreaks. It is therefore likely that the census for assisted living facilities also declined, or at least stayed fairly constant during the COVID-19 pandemic. Given the likely decline in the combined census of nursing home and assisted living facility residents during the study period, any observed increase in the number of prescriptions dispensed likely underestimates increases in prescriptions per capita. Analyses that control more accurately for LTCF resident census should be considered in future research to determine whether these increases in prescriptions are higher than the existing trend observed prior to the pandemic.

Controlling for Medication Formulation or Duration

Another limitation of this study is that we did not examine medication formulation or the duration of prescriptions, both of which could help discern which medications are being used chronically as opposed to for acute agitation, potentially providing further insight into the appropriateness of antipsychotic use.

Representativeness of the IQVIA NPA Data

Although these data include the majority of long-term care and covers 78% of medications used in LTCFs, the representativeness of these data for the entire long-term care market is not known.

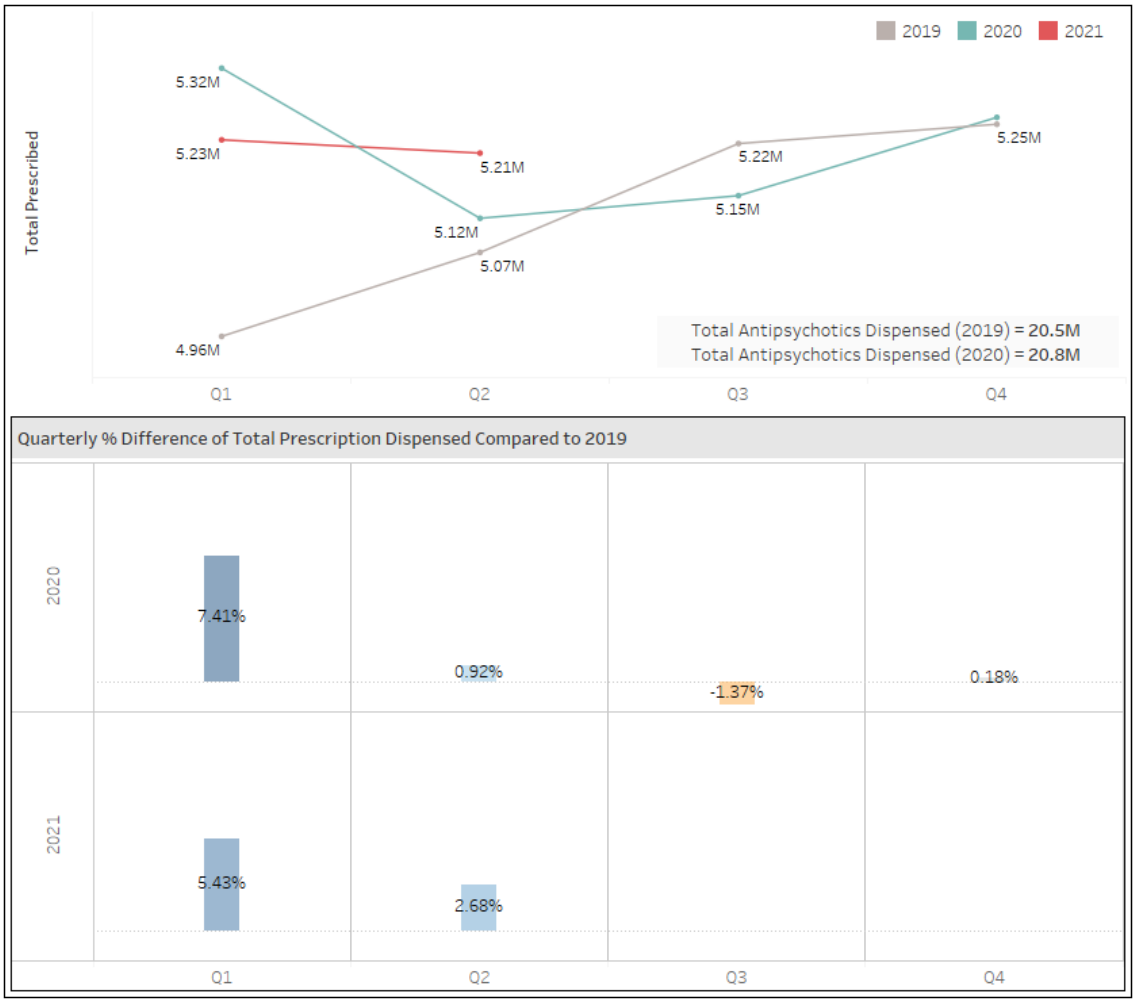
RESULTS

Overall Trends in Antipsychotic Drug Prescriptions in LTCFs during COVID-19

Prescriptions for antipsychotic medications in LTCFs have been steadily increasing since 2016 (the earliest year in our sample -- **Appendix Figure 2**). During the COVID-19 pandemic, total prescriptions for all antipsychotics in LTCFs increased by 1.5%, from 20.5 million prescriptions dispensed in 2019 to 20.8 million in 2020 (**Figure 1**). We did not account for a likely decrease in LTCF resident census during this time, thus, the increase in *per capita* prescriptions in 2020 and 2021 may have been higher.

Because antipsychotic prescribing levels show some evidence of seasonality with substantial variations between quarters within the same year (**Appendix Figure 2**), we compared prescribing levels for corresponding quarters across different years. We cannot explain the variations we found in prescribing across different months. The first quarter of 2020 (the beginning of the COVID-19 pandemic) had the highest increase of 7.4% compared to the first quarter of 2019. This increase in prescriptions is relatively high compared to historical trends dating back to 2016 (**Appendix Figure 3**). After the first quarter of 2020, prescriptions decreased and later stabilized close to 2019 levels through the end of 2020 and during the first two quarters of 2021, despite an overall decreasing trend in nursing home resident census.

Figure 1. Overall Antipsychotic Prescribing and Percent Difference of Total Prescribing: January 2019-June 2021

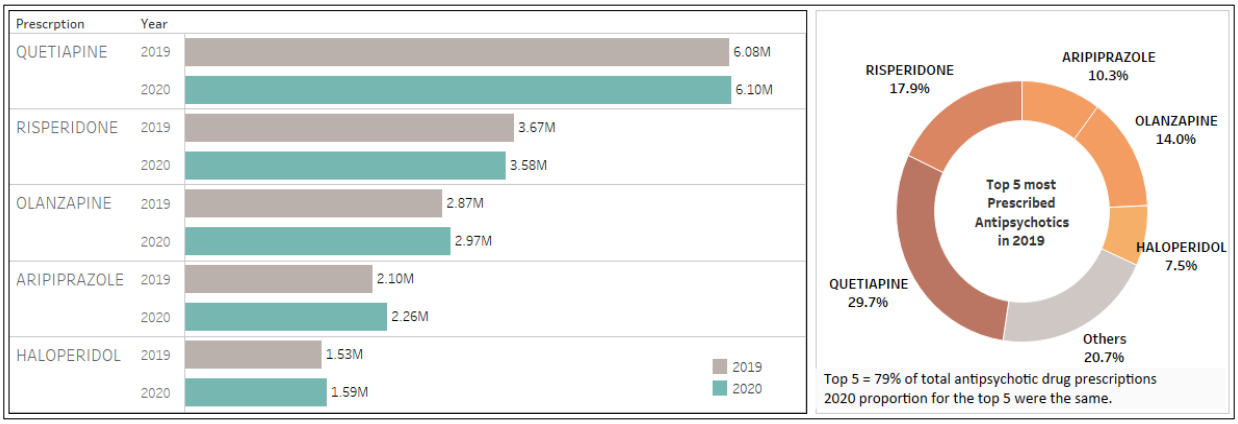


SOURCE: Internal ASPE analysis using IQVIA National Prescription Audit, 2015-2021.

Trends in the Five Most Prescribed Antipsychotic Medications in LTCFs during COVID-19

Figure 2 shows the most common antipsychotic drugs prescribed in LTCFs. These five medications represent about 80% of all antipsychotics prescribed in our sample in 2019 and 2020. Quetiapine was the most frequently prescribed drug, followed by risperidone, olanzapine, aripiprazole, and haloperidol, respectively. Except for risperidone, total prescriptions for the four other medications increased by the end of 2020 and into 2021.

Figure 2. Share of Top 5 Prescribed Antipsychotics in LTCFs in 2019 and 2020



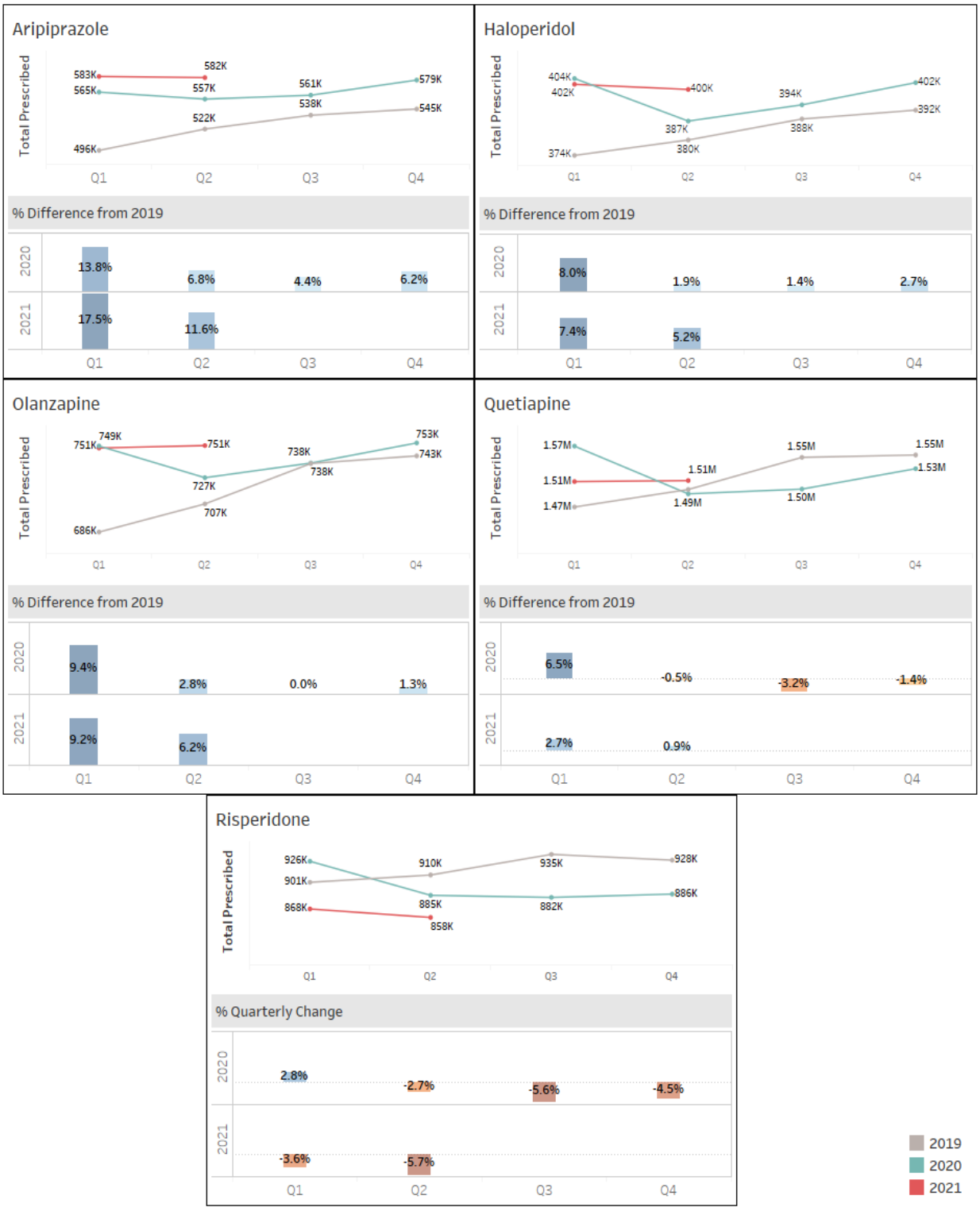
SOURCE: Internal ASPE analysis using IQVIA National Prescription Audit, 2015-2021.

Figure 3 shows the trends in the numbers of prescriptions dispensed for all five drugs separately. With the exception of risperidone, prescriptions for the other four antipsychotics increased both in 2020, and in the first two quarters of 2021, compared to 2019 levels.

Aripiprazole had the highest increase in the total number of prescriptions, with 2.26 million prescriptions dispensed in 2020 compared to 2.10 million in 2019. Prescriptions for haloperidol and olanzapine also increased in 2020 and 2021 compared to 2019. For each of these three medications, there were marked increases in prescribing levels during the first quarter of 2020 compared to the first quarter of 2019. Prescriptions for aripiprazole increased 13.8% in the first quarter of 2020 compared to the first quarter of 2019; and prescriptions for haloperidol and olanzapine increased 8% and 9.4%, respectively, in the first quarter of 2020 compared to the first quarter of 2019.

Quetiapine and risperidone, by contrast, had similar or lower levels of prescriptions in 2020 compared to 2019, with risperidone maintaining steady decreases in the number of prescriptions for most months in 2020 and into 2021.

Figure 3. Trends in 5 Most Prescribed Antipsychotics, January 2019-June 2021



SOURCE: Internal ASPE analysis using IQVIA National Prescription Audit, 2015-2021.

DISCUSSION

Antipsychotic medications may be prescribed in nursing homes as an intervention for behavioral and psychological symptoms. When residents are aggressive, agitated, or intrusive, and redirection, distraction,

and other interventions are not effective, atypical antipsychotics[7] are one means of controlling harmful behavior in support of resident and staff safety. In such situations, antipsychotic use is recommended only after the patient is thoroughly evaluated for physical and mental health conditions, and when the benefit outweighs the risks, which include increased mortality in people with dementia. However, inappropriate off-label[8] and over-prescribing of these drugs to reduce behavioral and psychological symptoms of people living in LTCFs, many of whom are older, frail, and have dementia, or the symptoms of dementia, has been a concern for years, long before COVID-19.[9,10] Side effects from antipsychotics vary from mild sedation to more severe adverse reactions, including blood clots, diabetes, dyskinesia, fall risk, irreversible cognitive decompensation, pneumonia, severe nervous system problems, stroke, visual disturbances, and death.[11] Older adults receiving antipsychotics are more vulnerable to falls and cognitive impairment,[11] and adults with dementia have an increased risk of death, stroke, and other severe side effects associated with antipsychotic use.[12] In addition, the efficacy of off-label use of antipsychotic medications in this group is mixed.[13]

This analysis sought to understand whether overall antipsychotic prescribing increased during the COVID-19 pandemic. Using a sample of 78% of medications dispensed in LTCFs, our analyses found that prescriptions for antipsychotics in LTCFs increased by 1.5% during the beginning of the COVID-19 pandemic, from 20.5 million in 2019 to 20.8 million in 2020. This increase in prescriptions occurred despite a likely decline in total LTCF census in 2020, which suggests that the total increase in per capita prescriptions may be higher. Further research is needed to verify whether this trend holds after accounting for the entire LTCF resident census.

We also observed that the number of prescriptions dispensed in 2020 and 2021 varied across time and by the specific medication used. We found that by the end of the first quarter of 2020, when the COVID-19 pandemic had just started, overall prescribing had increased by 7.4% compared to the first quarter of 2019, an increase that is historically high relative to prior years. During this time, LTCFs were experiencing a disproportionately high number of infections and deaths from COVID-19 outbreaks, and there was still a fair amount of uncertainty about the disease and infection control measures, in addition to a lack of personal protective equipment, staffing shortages, and new federal requirements for isolation and limiting in-person visits.[14,15] These added challenges disrupted care in many facilities, likely affecting residents' physical, mental, and behavioral health, which may have influenced changes in care practices, including medication prescribing. Our study did not assess whether this increase in prescriptions was clinically justified, what caused the increase in prescribing, and what effects it may have on residents' overall physical and mental health and well-being.

After the first quarter of 2020, the number of prescriptions returned to levels similar to 2019. However, nursing home census -- and likely LTCF census overall -- was decreasing throughout 2020, so it is likely that the number of antipsychotic prescriptions per capita in 2020 exceeded that in 2019. In the first two quarters of 2021, the number of prescriptions increased again and remained high compared to 2019 levels.[16]

This study also examined differences in prescribing trends for the five most frequently prescribed antipsychotic drugs during the COVID-19 pandemic. Aripiprazole had the highest absolute increase in the total number of prescriptions in 2020 and 2021 compared to 2019. The reasons are unclear. Aripiprazole is used to treat the symptoms of schizophrenia and has also been used in LTCFs to manage behavioral and psychological symptoms of dementia (BPSD), possibly because it is perceived to have a milder side effect profile than other antipsychotics,[17,18] and may also be used to manage chronic conditions such as depression and bipolar disorder. These factors may explain the higher rates of prescribing observed during the COVID-19 pandemic. Risperidone is an atypical antipsychotic for people with certain mental disorders such as schizophrenia, bipolar disorder, and autism spectrum disorders; it is not approved for BPSD. Risperidone, by contrast, maintained a steady decrease in prescriptions for most months in 2020 and 2021 compared to 2019. Risperidone can cause some serious side effects, the most concerning of which are motor side effects that mimic Parkinson's disease, which may explain its more restrictive use relative to other antipsychotic options used by clinicians to treat

BPSD. Understanding the reasons for these divergent trends in the use of specific antipsychotic medications during the COVID-19 pandemic is an important area for future research.

The observed growth in antipsychotic prescribing in LTCFs during the COVID-19 pandemic raises concerns, and warrants further investigation to determine whether these changes represent a significant and meaningful increase beyond the pre-existing trend of rising antipsychotic use over time; the reasons for higher levels of antipsychotic prescribing over time more generally, the types of antipsychotics prescribed, as well as the factors related specifically to the COVID-19 pandemic; and, how increasing rates of antipsychotic prescribing have affected people living in nursing homes and assisted living facilities, especially people with dementia who have a higher risk of adverse effects when receiving these medications. In addition, further research could examine differences in antipsychotic prescribing patterns by resident characteristics (e.g., race/ethnicity, disability, income, and the effect on health outcomes).

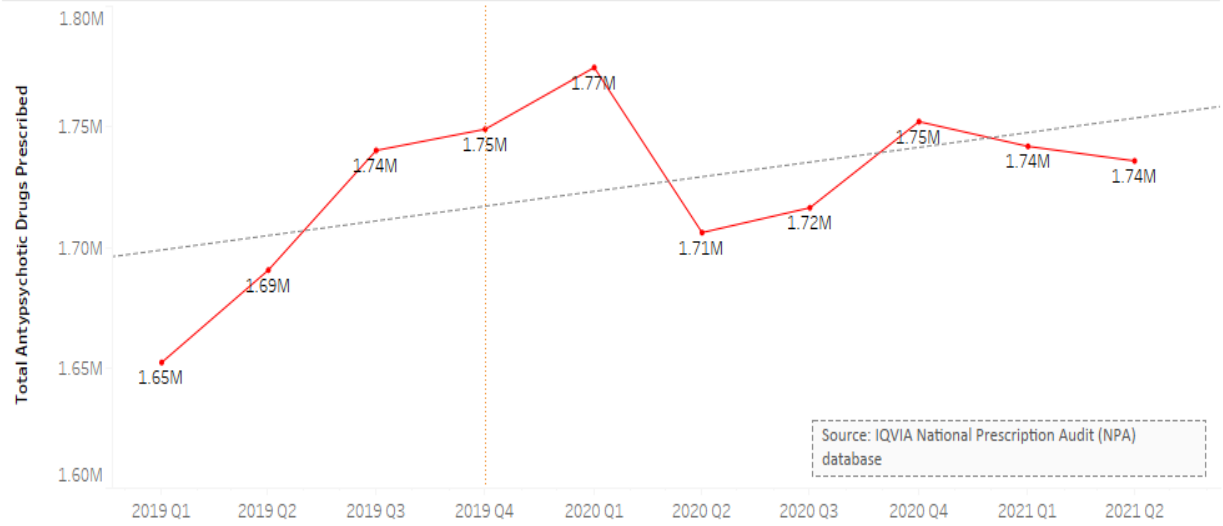
CONCLUSION

The COVID-19 pandemic created considerable challenges and hardships for LTCFs and the residents who live in them. Our study showed that prescriptions of antipsychotic medications appear to have increased in 2020 relative to 2019, especially in the first few months of the pandemic. Given the known drop in nursing home resident census -- and likely drop in overall LTCF census -- during 2020 and 2021, the increase in antipsychotic prescriptions per resident may be even larger, raising questions about the short-term and long-term effects on quality of care and health outcomes. Future studies could extend this work to focus specifically on the nursing home population, with an emphasis on residents with dementia and other common comorbidities, to explore the reasons for changes in antipsychotic prescribing, disparities in prescribing by facility and resident characteristics, and impacts on resident care and health outcomes.

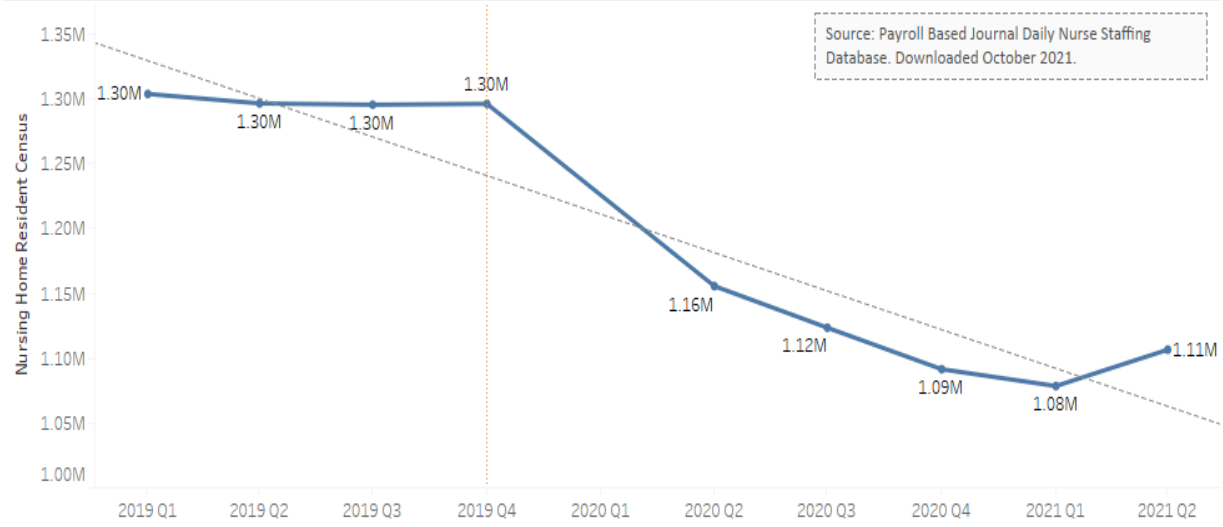
APPENDIX

Appendix Figure 1a and 1b. Number of Antipsychotic Prescriptions Dispensed in LTCFs Increasing Despite Decreasing Nursing Home Census

Appendix Figure 1a: Total Antipsychotic Drugs Prescribed (Q1 of 2019 - Q2 of 2021)

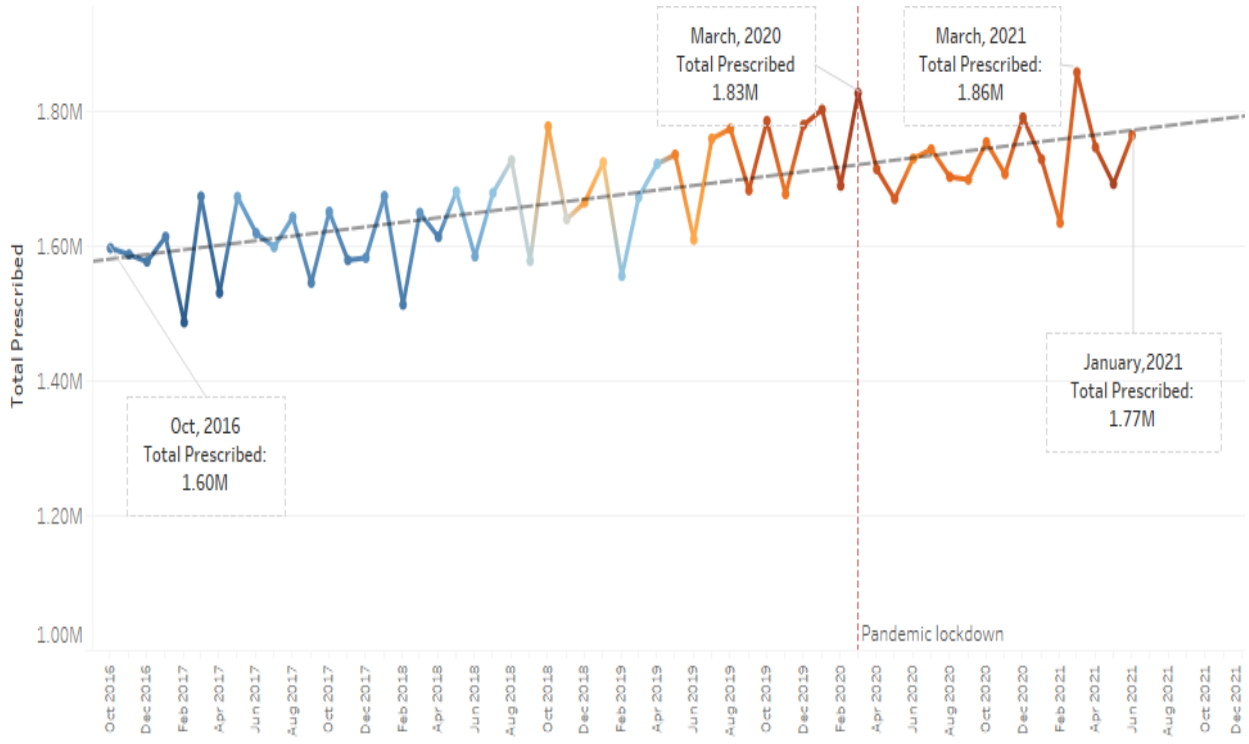


Appendix Figure 1b: Nursing Home Residents (Q1 of 2019 - Q2 of 2021)



NOTE: Appendix Figure 1b shows total nursing home resident census from the first quarter of 2019 to the 2nd quarter of 2021, using the CMS PBJ database. Under the COVID-19 Emergency Declaration Blanket Waivers for Health Care Providers, CMS temporarily waived the requirement for nursing homes to submit PBJ data during the first quarter of 2020 to allow facilities to focus on efforts on combating COVID-19 and to reduce administrative burden on nursing homes. CMS stated that about 40% of nursing homes did not submit the data during the first quarter of 2020. Due to this large volume of missing data submissions, we excluded first quarter data from this analysis. Despite this omission, census remained low until the end of year 2020 and into 2021.

Appendix Figure 2. Historical Trend of Antipsychotic Prescribing (October 2016-June 2021)



SOURCE: Internal ASPE analysis using IQVIA National Prescription Audit, 2015-2021.

Appendix Figure 3. Percent Change of All Antipsychotics Combined Compared to the Previous Year

SOURCE: Internal ASPE analysis using IQVIA National Prescription Audit, 2015-2021.

REFERENCES

1. Kaiser Family Foundation. (2021). *State COVID-19 Data and Policy Actions*. Accessed 15 September 2021 at: https://www.kff.org/coronavirus-covid-19/issue-brief/state-covid-19-data-and-policy-actions/#long-term-care-cases-deaths.
2. Denny-Brown N, Stone D, Hays B, Gallagher D. (2020). *COVID-19 Intensifies Nursing Home Workforce Challenges*. Available at: https://aspe.hhs.gov/reports/covid-19-intensifies-nursing-home-workforce-challenges.
3. Barbaro M. (2021). *A Hidden Shame in Nursing Homes*. [Podcast]. Available at: https://www.nytimes.com/2021/09/14/podcasts/the-daily/nursing-homes-antipsychotics.html?action=click&module=audio-series-bar&region=header&pgtype=Article.

4. U.S. House of Representatives, Committee on Ways and Means Majority. 2020. *Under-Enforced and Over-Prescribed: The Antipsychotic Drug Epidemic Ravaging America's Nursing Homes*. Available at: https://waysandmeans.house.gov/sites/democrats.waysandmeans.house.gov/files/documents/WMD%20Nursing%20Home%20Report_Final.pdf.
5. CMS. (2021). Changes to COVID-19 Survey Activities and Increased Oversight in Nursing Homes. [CMS Center for Clinical Standards and Quality memorandum] Accessed 16 November 2021 at: https://www.cms.gov/files/document/qso-22-02-all.pdf.
6. SAMHSA Publications and Digital Products. (n.d.). *Guidance on Inappropriate Use of Antipsychotics: Older Adults and People with Intellectual and Developmental Disabilities in Community Settings*. Accessed 18 February 2022 at: https://store.samhsa.gov/product/Guidance-on-Inappropriate-Use-of-Antipsychotics-Older-Adults-and-People-with-Intellectual-and-Developmental-Disabilities-in-Community-Settings/PEP19-INAPPUSE-BR.
7. Typical antipsychotics and atypical antipsychotics are two different subtypes of antipsychotics. The main difference between typical and atypical antipsychotics is that atypical antipsychotics have fewer side effects than typical antipsychotics. The FDA has approved the use of certain atypical antipsychotic drugs for the treatment of schizophrenia and bipolar disorder.
8. Antipsychotic drugs are often provided "off-label" for certain diagnosed disorders outside of the FDA-approved conditions of schizophrenia and bipolar disorder. Some antipsychotics are also approved for treatment of bipolar disorder, treatment-resistant depression, autism, or Tourette's disorder. These medications can be prescribed off-label for individuals with conditions such as borderline personality disorder, obsessive-compulsive disorder, insomnia, delirium, and various dementia syndromes including Alzheimer's disease.
9. Institute of Medicine. (1986). *Improving the Quality of Care in Nursing Homes*. Washington, DC: National Academies Press. doi.org/10.17226/646.
10. Office of Inspector General. (2011). *Medicare Atypical Antipsychotic Drug Claims for Elderly Nursing Home Residents*. https://oig.hhs.gov/oei/reports/oei-07-08-00150.pdf.
11. Stroup TS, Gray N. (2018). Management of common adverse effects of antipsychotic medications. *World Psychiatry*; 17(3): 341-356. doi:10.1002/wps.20567.
12. NIH National Library of Medicine. (2021). Aripiprazole. Accessed 12 September 2021 at https://medlineplus.gov/druginfo/meds/a603012.html.
13. Davies SJC, Burhan AM, Kim D, Gerretsen P, Graff-Guerrero A, Woo VL, Kumar S, Colman S, Pollock BG, Mulsant BH, Rajji TK. (2018). Sequential drug treatment algorithm for agitation and aggression in Alzheimer's and mixed dementia. *Journal of Psychopharmacology*, 32(5), 509-523. Available at: https://journals.sagepub.com/doi/full/10.1177/0269881117744996.
14. CMS. (2021). Guidance for Infection Control and Prevention of Coronavirus Disease 2019 (COVID-19) in Nursing Homes (REVISED). [CMS Center for Clinical Standards and Quality/Quality, Safety and Oversight Group memorandum] Accessed 14 September 2021 at: https://www.cms.gov/files/document/qso-20-14-nh-revised.pdf.
15. Kaiser Family Foundation. (2020). *COVID-19 Outbreaks in Long-Term Care Facilities Were Most Severe in the Early Months of the Pandemic, but Data Show Cases and Deaths in Such Facilities May Be On the Rise Again*. Available at: https://www.kff.org/coronavirus-covid-19/press-release/covid-19-outbreaks-in-long-term-care-facilities-were-most-severe-in-the-early-months-of-the-pandemic-but-data-show-cases-and-deaths-in-such-facilities-may-be-on-the-rise-again/.
16. Chidambaram P, Garfield R. (2021). *Nursing Homes Experienced Steeper Increase In COVID-19 Cases and Deaths in August 2021 Than the Rest of the Country*. Available at: https://www.kff.org/coronavirus-covid-19/issue-brief/nursing-homes-experienced-steeper-increase-in-covid-19-cases-and-deaths-in-august-2021-than-the-rest-of-the-country/.

17. Goodnick PJ, Jerry JM. (2002). Aripiprazole: Profile on efficacy and safety. *Expert Opinion on Pharmacotherapy*; 3(12), 1773-1781. doi:10.1517/14656566.3.12.1773.

18. Kim DD, Barr AM, Lian L, Yuen JWY, Fredrikson D, Honer WG, Thornton AE, Procyshyn RM. (2021). Efficacy and tolerability of aripiprazole versus D2 antagonists in the early course of schizophrenia: A systematic review and meta-analysis. *npj Schizophr*; 7(29). doi:10.1038/s41537-021-00158-z.

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