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Antipsychotic Use Among Nursing Home Residents

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To the Editor

The prescribing of antipsychotic medications persists at high levels in US nursing homes (NHs) despite extensive data demonstrating marginal clinical benefits and serious adverse effects, including death.^{1,2} However, imprecise and outdated data have limited the understanding of the current state of antipsychotic medication prescribing in NHs.³ We analyzed recent and detailed NH prescription data to address: (1) What is the current level of antipsychotic use? (2) Does antipsychotic use in NHs display geographic variation? and (3) Which antipsychotics are most commonly prescribed?

Methods

We used September 2009 through August 2010 prescription dispensing data from a large, long-term care pharmacy (Omnicare Inc) that serves 48 states and half of all NH residents in the United States. Pharmacy claims data are complete and accurate due to the connection to reimbursement documentation. Data elements include state location, patients' sex, age, and enrollment dates, and national drug codes for all drugs dispensed regardless of payer (eg, Medicare Part D, private insurance, and out of pocket).

Overall and state-level annual prevalence of antipsychotic use was calculated as the percentage of NH residents receiving at least 1 antipsychotic drug. We arrayed the states into distributions of lowest to highest quintiles of antipsychotic use, calculated means and 95% confidence intervals, generated a map to illustrate geographic variation, and tested for

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Study concept and design: Briesacher, Tjia, Gurwitz.

Acquisition of data: Briesacher.

Analysis and interpretation of data: Briesacher, Tjia, Field, Peterson, Gurwitz.

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differences using a robust regression model with quintile indicators. We identified the name and type of antipsychotic (atypical or conventional) and estimated the median and interquartile range (IQR) of the number of prescriptions and duration of use calculated as days receiving therapy during the first 90 days observed. All analyses were calculated using SAS software version 9.2 (SAS Institute Inc) and 2-sided tests; statistical significance was set at $P < .05$. The study was approved by the institutional review board of the University of Massachusetts Medical School.

Results

We identified 1 402 039 unique NH residents and a subset of residents observed continuously for at least 90 days ($n=561\ 681$ residents and $n=5038$ NHs). Approximately 39.4% of study NHs had more than 100 residents, 76.2% were for profit, and 59.7% had multiple owners.

Of the overall sample of 1 402 039 NH residents, 308 449 (22.0%; 95% CI, 21.9%–22.1%) received 1 or more prescriptions of antipsychotics. Prevalence of antipsychotic drug prescribing in NHs varied significantly (quintile 1 vs quintiles 2–5, $P < .001$) with the highest quintile states (28.1%; 95% CI, 27.0%–29.1%) located in the central south and the lowest quintile states (17.2%; 95% CI, 16.3%–18.1%) located mostly in the west (Figure). Of 4 338 723 antipsychotic prescriptions in NHs, the majority (68.6%; 95% CI, 68.5–68.7) were for the atypical agents quetiapine fumarate, risperidone, and olanzapine ($n=2\ 988\ 573$) (Table). Among the 186 076 residents receiving antipsychotics and observed for 90 days, 13 956 (7.5%; 95% CI, 7.3%–7.6%) received only 1 prescription for antipsychotics while the median number was 10 (IQR, 5–14) prescriptions. The median duration of antipsychotic therapy during the 90-day observation period ranged from 30 (IQR, 8–74) days to 77 (IQR, 67–85) days.

Comment

Our finding that 22.0% of NH residents received antipsychotics in 2009–2010 is within the lower range of rates that were documented 25 years earlier before the passage of the Omnibus Budget Reconciliation Act of 1987, which instituted regulations on the appropriate use of antipsychotics in NHs.^{4,5}

The reasons for our findings are unclear. Geographic variation suggests the absence of an evidence-based approach to the use of these medications in NHs. The most common antipsychotics prescribed are often used for off-label indications related to dementia, and the extended durations of use raise concerns about the care of frail elders residing in NHs.

While our study included data from only 1 long-term care pharmacy, a comparison of our sample with data from NHs in the 2010 Online Survey, Certification and Reporting showed substantial overlap (61.9% vs 66.4% female, respectively; 66.4% vs 71.4% aged ≥ 75 ; and 54.5% vs 66.0% eligible for Medicaid). We were unable to assess appropriate vs inappropriate prescribing.

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References

1. Briesacher BA, Limcangco MR, Simoni-Wastila L, et al. The quality of antipsychotic drug prescribing in nursing homes. *Arch Intern Med.* 2005; 165(11):1280–1285. [PubMed: 15956008]
2. Maher AR, Maglione M, Bagley S, et al. Efficacy and comparative effectiveness of atypical antipsychotic medications for off-label uses in adults: a systematic review and meta-analysis. *JAMA.* 2011; 306(12):1359–1369. [PubMed: 21954480]
3. Chen Y, Briesacher BA, Field TS, Tjia J, Lau DT, Gurwitz JH. Unexplained variation across US nursing homes in antipsychotic prescribing rates. *Arch Intern Med.* 2010; 170(1):89–95. [PubMed: 20065204]
4. Shorr RI, Fought RL, Ray WA. Changes in antipsychotic drug use in nursing homes during implementation of the OBRA-87 regulations. *JAMA.* 1994; 271(5):358–362. [PubMed: 8283585]
5. Rovner BW, Edelman BA, Cox MP, Shmueli Y. The impact of antipsychotic drug regulations on psychotropic prescribing practices in nursing homes. *AmJ Psychiatry.* 1992; 149(10):1390–1392. [PubMed: 1530076]

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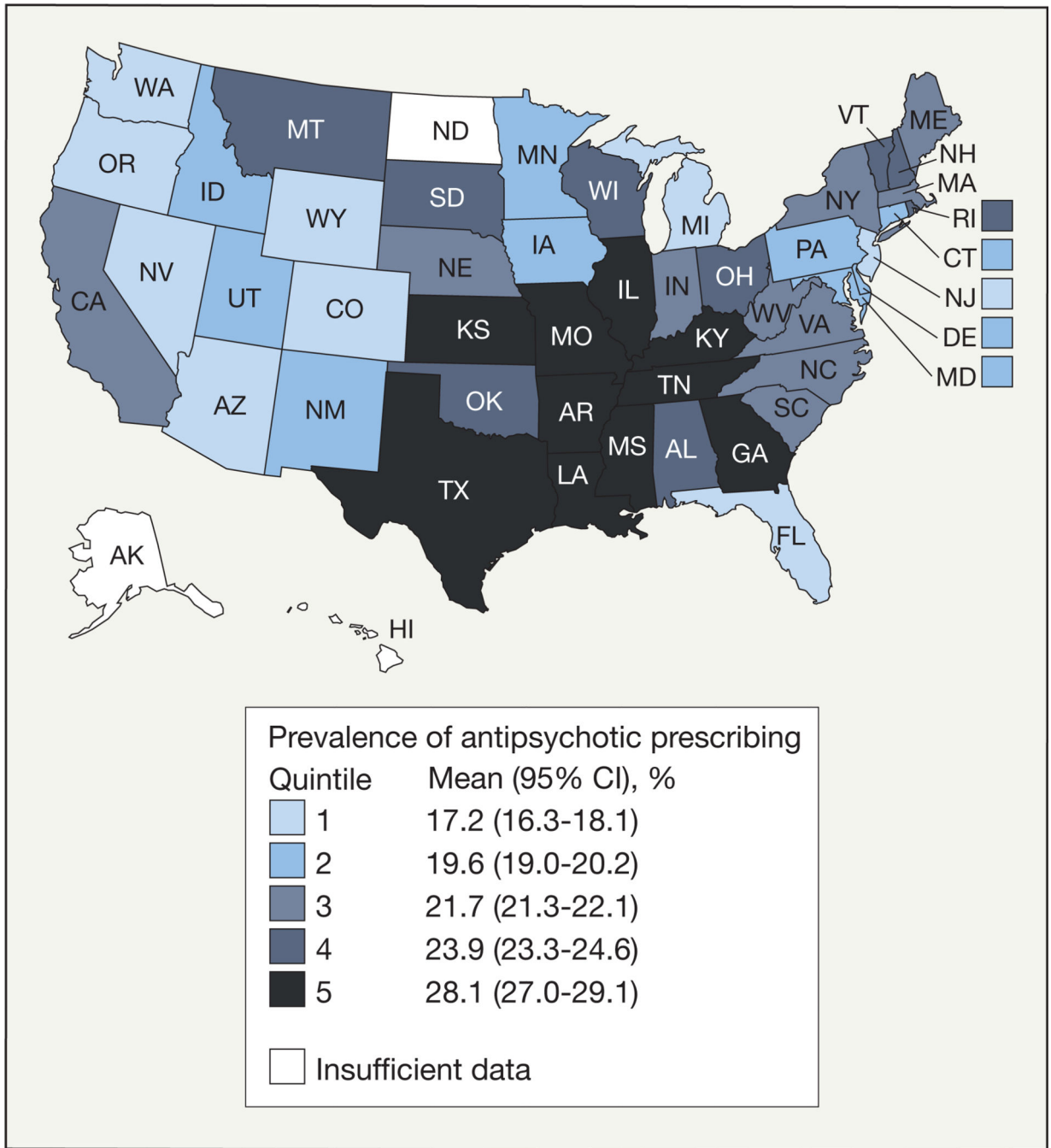


Figure.
 State-Level Prevalence of Antipsychotic Prescribing in Nursing Homes
 State-level samples ranged from 767 to 104 460 residents.

Table

Most Commonly Prescribed Antipsychotic Medications in Nursing Homes (NHs)

Generic Drug Name	No. of Residents Prescribed Drug	% of Total Prescriptions	Type of Antipsychotic	Duration of Use During 90-Day Stay in NH, Median (IQR), d ^a
Quetiapine fumarate	1 356 223	31.1	Atypical	72 (67–85)
Risperidone	1 061 897	24.4	Atypical	70 (50–83)
Olanzapine	570 453	13.1	Atypical	70 (48–83)
Haloperidol	402 077	9.2	Conventional	30 (7–70)
Aripiprazole	347 900	8.0	Atypical	69 (50–82)
Clozapine	232 125	5.3	Atypical	77 (67–85)
Ziprasidone	138 881	3.2	Atypical	66 (30–82)
Chlorpromazine	65 159	1.5	Conventional	30 (8–74)
Fluphenazine	54 867	1.3	Conventional	54 (26–76)
All others ^b	109 141	2.9	Atypical and conventional	70 (52–83)

Abbreviation: IQR, interquartile range.

^aCalculated among 1 860 766 residents of NHs receiving at least 1 antipsychotic and observed for at least 90 days.

^bIncludes paliperidone, perphenazine, thiothixene, loxapine, trifluoperazine, combination of olanzapine and fluoxetine, asenapine, loperidone, molindone, pimozine, trilafon, loxitane, and mesoridazine.