



Geographic Variation of Antidementia Medication Use Among U.S. Nursing Home Residents with Dementia

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MEDICAL SCHOOL

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BACKGROUND

Cholinesterase inhibitors (CHEI), memantine, and antipsychotics are routinely used to manage symptoms of dementia but there is limited research studying variation in their usage among older adults.

AIM

This study examined geographic variation and factors associated with antidementia medication and antipsychotic use among nursing home residents with dementia.

METHODS

Data. Medicare files (beneficiary summary, Parts A and D), Minimum Data Set, Long-Term Care Focus, Nursing Home Compare, Provider of Service, and Dartmouth Atlas End-of-life Chronically Ill Care.

Design. Cross sectional with index date of 11/01/2018 and a 3-month lookback period.

Population. Long-stay nursing home residents with dementia. $N=273,004$ residents in 9, 735 nursing homes (NHs) in 289 hospital referral regions (HRRs).

Statistical Analysis. First, multilevel logistic modeling provided estimates of adjusted odds ratios and 95% confidence intervals. Then we fit a series of cross-classified multilevel logistic models with random intercepts for HRR and state. Using these models, the proportional change in cluster variance (PCV; amount of HRR variation explained for resident, facility, and HRR variables) was estimated.

RESULTS

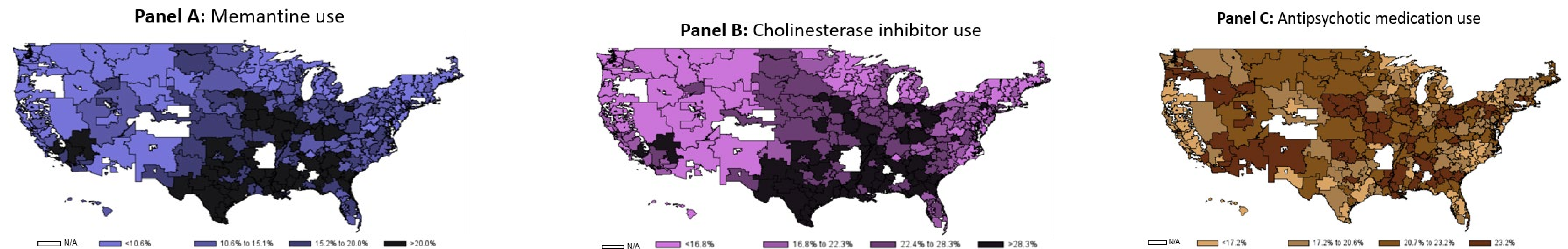
Proportional change in cluster variance (PCV) estimates for between-HRR and between-state variation, explained by resident-, facility-, and regional-level characteristics

Model Classification:	Null	Resident	Facility	HRR	Resident + Facility	Resident + Facility + HRR
Memantine						
PCV _{HRR}	-	-1.82%	-2.45%	5.48%	-3.44%	5.56%
PCV _{STATE}	-	1.12%	-0.57%	39.02%	2.62%	42.29%
Cholinesterase inhibitors						
PCV _{HRR}	-	1.43%	0.48%	3.76%	0.69%	7.91%
PCV _{STATE}	-	0.89%	-2.68%	37.44%	1.84%	41.01%
Antipsychotics						
PCV _{HRR}	-	32.49%	29.24%	-2.64%	39.54%	44.64%
PCV _{STATE}	-	3.37%	-8.12%	-9.68%	27.80%	24.66%

Association of HRR Variables with Medication Use

	Memantine aOR (95% CI)	CHEI aOR (95% CI)	Antipsychotics aOR (95% CI)
<i>Hospital referral region variables (top quartile versus lowest quartile)</i>			
Healthcare index	1.68 (1.44-1.96)	1.42 (1.26-1.60)	0.90 (0.82-0.98)
SNF spending	1.57 (1.34-1.83)	1.40 (1.25-1.58)	0.88 (0.80-0.97)
Part B spending	1.63 (1.41-1.89)	1.33 (1.18-1.49)	0.94 (0.85-1.02)
Medical/surgical beds	0.96 (0.82-1.11)	0.97 (0.87-1.09)	1.00 (0.92-1.09)
ICU beds	1.53 (1.31-1.78)	1.35 (1.20-1.52)	0.96 (0.88-1.05)
Primary care providers	1.55 (1.33-1.80)	1.39 (1.24-1.55)	0.90 (0.82-0.99)
Specialist physicians	1.67 (1.43-1.94)	1.41 (1.25-1.59)	0.90 (0.83-0.99)
> 10 physicians	1.41 (1.20-1.66)	1.30 (1.15-1.48)	0.90 (0.82-0.99)
Hospital deaths	1.08 (0.92-1.26)	1.04 (0.92-1.17)	1.03 (0.93-1.13)
Hospice days	1.13 (0.97-1.33)	1.05 (0.93-1.19)	1.04 (0.95-1.14)

Geographic Variation in Medication Use Among Nursing Home Residents with Dementia



FINDINGS

- 1 Antidementia and antipsychotic medication use is more prevalent in the South and Midwest.
- 2 Geographic variation of antidementia medication use can be explained through HRR-level healthcare utilization factors.
- 3 Geographic variation of antipsychotics can be explained through resident and facility factors.

CONCLUSIONS

- 1 Case-mix appears to drive differences in antipsychotic use more so than facility factors.
- 2 Geographic variation in antidementia medication use not explained by resident and nursing home characteristics suggests uncertainty regarding their appropriate use.
- 3 Additional evidence and clear clinical guidelines about the use of antidementia medications in the nursing home appear needed.