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Original Study

Who Is Providing the Predominant Care for Older Adults With Dementia?

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A B S T R A C T

Objectives: To identify which clinical specialties are most central for care of people with dementia in the community and long-term care (LTC) settings.
Design: Cross-sectional analysis.
Participants: Fee-for-service Medicare beneficiaries aged ≥65 years with dementia.
Measurements: Specialty, categorized into primary care (internal or family medicine, geriatrics, or nurse practitioners [NPs]) versus other specialties, of the predominant provider of care (PPC) for each patient, defined by providing the most ambulatory visits.
Results: Among 2,598,719 beneficiaries with dementia, 74% lived in the community and 80% had a PPC in primary care. In LTC, 91% had primary care as their PPC compared with 77% in the community ($P < .001$). Cardiology and neurology were the most frequent specialties. NPs were PPCs for 19% of dementia patients in LTC versus 7% in the community ($P < .001$).
Conclusion: It is unknown whether specialists are aware of their central role for many dementia patients' care needs. In LTC, NPs play the lead role as PPCs.

An estimated 72 million older adults in the United States will be age 65 and older by 2030, representing 20% of the total population (up from 13% in 2010).[1] The risk of dementia increases with age; as people live longer, more people will be at risk for dementia. By 2050, an estimated 13.8% of the US population will have dementia such as Alzheimer disease, with the largest increase in the age group 85+.[1]

Outside of the United States, the IMPACT (Important Perspectives on Alzheimer's Care and Treatment) survey characterized the roles of primary care and specialists who treat Alzheimer disease (AD) from 5 European countries.[2] Although IMPACT provides an international perspective, we do not have a similar understanding of which specialties are providing care for dementia patients in the United States. In the United States, geriatrics, neurology, and geriatric psychiatry are the physician specialties most associated with providing either primary or consultative care for dementia patients.[3] Nurse practitioners (NPs) are also important providers for people with dementia, with changes in their training that consolidate adult care and gerontology to ensure more will be available to the growing elderly population.[3] But the role of these providers has not been described nationally for community-dwelling and long-term care (LTC) residents with dementia.

There is concern, however, about potential shortages of providers trained in the care of dementia, including NPs, geriatricians, geriatric psychiatrists, and neurologists. The Bureau of Labor Statistics for the United States predicts a 34% increase in demand for NPs from 2012 to 2022[3] and a need for 36,000 geriatricians by 2030, which is a 5-fold increase from the current 7147 certified geriatricians in the United States.[3] There are even fewer geriatric psychiatrists, 1554 in the United States in 2012,[3] and the demand for neurologists already exceed the supply of 14,338 in practice in 2012.[3] Because of the projected shortfalls of providers relative to the large population with dementia,

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we need a better understanding of who provides a substantive amount of care to dementia patients in the United States to target educational or other resources that will ensure access to high-quality dementia care in the future.

In this study, we identify the predominant provider of care (PPC) as the provider with the greatest proportion of ambulatory visits for each Medicare beneficiary with a dementia diagnosis. The goals of the study are 3-fold: to determine (1) which specialties are currently the PPC for older adults with dementia, (2) how LTC and community differ in the specialties of PPCs, and (3) how NPs as the PPC differ according to the geography of the United States.

Methods

Design

This study is a cross-sectional analysis of 100% of national fee-for-service Medicare beneficiaries (2012) with a dementia diagnosis. The 2012 Medicare Beneficiary Summary file was used to identify beneficiaries who resided in the 50 States and District of Columbia, were age 65 and older on January 1, not enrolled in a Health Maintenance Organization, and had both Parts A and B coverage during the entire year or until death. We then searched their 2012 inpatient and outpatient claims to determine if they had a dementia diagnosis based on the ICD-9 codes used in RX Hierarchical Condition Categories 54 and 55 (see Appendix A). The Minimum Data Set was used to identify LTC residents by having at least 100 days in a nursing home.

Measures

The main variable of interest is the specialty of the predominant provider of ambulatory care (PPC) who provided the greatest proportion of outpatient visits. Providers were assigned the CMS specialty code under which they billed most. We categorized family practice, internal medicine, general practice, geriatric medicine, and NP as primary care providers and all others as specialists. Patient characteristics included age, sex, race, and severity of illness measured as the number of short-stay acute care hospitalizations, Charlson comorbidity index,[4] and mortality. Age, sex, race, and data of death were obtained from the Medicare Beneficiary Summary File. Medicare Provider Analysis and Review (MEDPAR) and Carrier (Physician/Supplier Part B claims) files were used to obtain diagnoses for the Charlson index, hospitalizations, visit counts, and the number of unique providers seen using the providers' unique national provider identifier numbers.

Statistical Analysis

We examined patient characteristics by specialty of the PPC and by community versus LTC settings using *t* test or chi-squared tests, as appropriate. We present maps to show geographic variation at the state level for NPs as the PPC of care. This study was approved by the Dartmouth College Institutional Review Board.

Results

Cohort Description

There were more than 2.5 million Medicare beneficiaries with a dementia diagnosis in 2012 (Table 1). Three-quarters of the cohort lived in the community, and most were women and Caucasian. The mean age for these beneficiaries with dementia was 82.4 (standard deviation = 7.8). On average, each beneficiary with dementia had 1 hospitalization, 13.1 ambulatory visits, and saw on average 4 unique providers per year. Seventy-seven percent of LTC beneficiaries are dually eligible for Medicare and Medicaid, compared with only 21% in the community. LTC beneficiaries are sicker, with higher mean Charlson count (2.8 vs 2.2) and higher annual mortality for all causes (25.6% vs 15.4%) than those in the community. The average number of visits per beneficiary to the assigned PPC was 9.8 (57% of total visits) for LTC residents and 5.6 (48% of total visits) in the community ($P < .001$). There were fewer visits to any specialists in LTC than in the community (mean 3.1 vs 4.6, $P < .0001$).

Table 1
Patient Characteristics and Patterns of Service Use for Fee-for-Service Older Medicare Beneficiaries With a Dementia Diagnosis (2012)*

	Total	Long-Term Care	Community
Number of beneficiaries, n (%)	2,598,719 (100)	677,048 (26)	1,921,671 (74)
Female, n (%)	1,701,995 (65.5)	489,515 (72.3)	1,212,480 (63.1)
Age in years, mean (SD)	82.4 (7.8)	84.24 (8.0)	81.71 (7.7)
65-75, n (%)	534,280 (20.6)	104,061 (15.4)	430,219 (22.4)
76-84, n (%)	959,722 (36.9)	214,741 (31.7)	744,981 (38.8)
≥85, n (%)	1,104,717 (42.5)	358,246 (52.9)	746,471 (38.8)
Race, n (%)			
White	2,144,316 (82.5)	550,486 (81.3)	1,593,830 (82.9)
Black	246,130 (9.5)	79,357 (11.7)	166,773 (8.7)
Hispanic	133,800 (5.2)	32,017 (4.7)	101,783 (5.3)
Other	74,473 (2.9)	15,188 (2.2)	59,285 (3.1)
Dual eligible,† n (%)	924,035 (35.6)	524,089 (77.4)	399,946 (20.8)
Charlson count,‡ mean (SD)	2.38 (1.9)	2.8 (1.9)	2.24 (1.9)
Annual mortality, n (%)	469,516 (18.1)	173,348 (25.6)	296,168 (15.4)
Hospitalizations, mean per person (SD)	0.9 (1.3)	0.89 (1.4)	0.91 (1.3)
Unique providers of visits, mean per person (SD)	4.08 (2.8)	3.67 (2.5)	4.23 (2.9)
Ambulatory visits, mean (SD)			
To any provider	13.1 (11.0)	17.06 (14)	11.71 (9.3)
To predominant provider	6.7 (6.0)	9.8 (8.2)	5.6 (4.5)
To any primary care provider	8.39 (8.2)	13.17 (11.2)	6.7 (6.0)
To any specialist	4.18 (5.8)	3.1 (5.7)	4.56 (5.8)

SD, standard deviation.
*All comparisons among columns have *P* values < .001.
†Eligible for both Medicare & Medicaid.
‡Charlson Comorbidity Index score.

Specialties Serving as PPC

Overall, 80% of beneficiaries had a primary care provider as their PPC. More than 90% of beneficiaries had primary care providers as their PPC in LTC compared with 77.3% of beneficiaries in the community ($P < .001$). Among primary care providers, internists were the most frequent PPC at 36.3%, followed by family practitioners (29.8%) and NPs (10.1%) ($P < .001$). Among the primary care providers, NPs as PPCs had the greatest difference between community (6.9%) and LTC (19.2%) ($P < .001$).

Table 2 lists the most common 15 specialties as PPC for beneficiaries with dementia. The specialists were not specific to treatment of dementia, simply those who were seeing beneficiaries with dementia the most. The top specialists collectively were the PPCs for 8.4% of beneficiaries overall: cardiology, neurology, hematology/oncology, and urology. All 4 specialties were more likely to be the PPC in the community than in LTC (11.1% vs 1.3%). Although it was not among the top 4 specialties, psychiatry served as the PPC in greater proportion in LTC compared to community (2.0% vs 0.6%, $P < .001$).