Spouses of Patients With Alzheimer Disease: Health Care Costs and Implications

Dan Gilden, M.S.[1]; Joanna Kubisiak, M.P.H.[1]; Kristin Kahle-Wrobleski, Ph.D.[2]; Dan Ball, Dr.P.H.[2]; Lee Bowman, Ph.D.[2]

[1]JEN Associates, Inc., Cambridge, MA, USA; [2]Lilly Research Laboratories, Indianapolis, IN, USA

ABSTRACT

Background: This study looked at costs to the Medicare system for spouses of patients with Alzheimer's disease (AD) to characterize healthcare costs in households impacted by AD and help identify if additional support services may mitigate the growing healthcare costs of AD.

Methods: Source data was drawn from a random 5% sample of Medicare claims and enrollment in years 2001-2005. AD patient cases were identified among fee-for-service beneficiaries by an initial AD diagnosis (ICD9-CM 331.0) and pattern of subsequent repeated diagnoses. Spouses (AD-spouses) were linked to AD cases using their Medicare Identification codes and portions of the codes linking household members and specifying familial/spousal relationships. Controls were matched to AD-spouse cases based on demographics. Total numbers of Medicare covered services by year were calculated as well as total costs per year by category of expenditure. Costs for years preceding incident AD diagnosis and longitudinal cost trajectories were also computed. Linear regression models were performed to compare Medicare expenditures between the AD-spouses and matched controls. Model covariates included Medicare buy-in status, national region, and index year.

Results: Cross-sectional spousal dyads were compared. Number of spousal dyads by year was as follows: 2001 (n=2,581), 2002 (n=3,234), 2003 (n=3,606), 2004 (n=3,717), 2005 (n=3,184). Profiles of AD-spouses and matched spouse controls confirmed similarities by gender, race/ethnicity, and age. Total Medicare expenditures per month for AD-spouses was significantly ($p<0.0001$) higher at $694 vs. $561 for matched controls. In their index year, total Medicare expenditures for AD-spouses was $7,015 and for controls was $6,349 ($p<0.001$ with a log+1 transformation). Costs for AD-spouses and controls increased from incident year with costs for controls remaining lower than AD spouses.

Conclusions: Compared to matched controls, Medicare expenditures are higher for spouses of patients with AD. Results suggest that the full impact of AD to the healthcare system is not limited to patients with AD. Health management interventions that target patients with AD should also take into account caregiver spouse health care issues and include active strategies for helping spouses of patients with AD manage their own health care problems.

INTRODUCTION

- Family caregivers of patient with Alzheimer's disease (AD) frequently take on a significant portion of informal care[1]. Caregivers of patients with dementia are more likely to suffer from depression and poor health[2], and are at higher risk for developing dementia themselves[3].
- This study hypothesis is that spouse caregivers of AD patients incur higher direct medical costs than their peers who are not caring for a spouse with AD.
- Cost-of-illness estimates that take into account only patient expenses may underestimate the true cost of the disease, particularly when considering reimbursement systems such as Medicare that are responsible for the healthcare costs of all older adults.

Objectives

- Examine direct medical costs to the Medicare system of spouses of AD patients (AD-spouses) and compare them to demographically matched controls (Control-spouses).

Population

- CMS Chronic Condition Data Warehouse (CCW) Medicare 5% Sample of 2 million randomly selected patients with Medicare claims and enrolled in fee-for-service program
- Years 2001-2005 included
- Alzheimer's disease cases identified by an initial AD diagnosis (ICD9-CM 331.0) from physician and/or hospital encounter record and validated by subsequent AD diagnoses from a physician and/or hospital encounter.
- Spouses linked to AD cases with the Beneficiary Identification Code (BIC) value from the CAN portion of the Medicare Identification code (AD-spouses)
- Control-spouses matched to AD-spouses based on marital status, age, gender, ethnicity, and geographical region

Study Design And Measures

- Claims for the following categories of direct medical costs were included:
  - inpatient
  - skilled nursing facility (SNF)
  - hospice
  - home health, outpatient
  - physician/supplier
  - durable medical equipment (DME)

STUDY DESIGN AND METHODS

Cross-sectional Methodology—Annual Snapshots

- Prevalent and Incident Matched Dyads, 2001-2005
- Community dwelling
- Required at least six months of Medicare fee-for-service (FFS) eligibility in year
- Annual and pooled descriptive profiles and linear regression models for annual expenditures (with log+1 transformation)

Longitudinal Methodology—Index-Relative

- Incident Matched Dyads, 2002-2005
- Community dwelling
- AD-spouse and Control-spouse assigned index date of AD case
- Required 12 months of pre-index Medicare FFS eligibility
- Pre and Post-index descriptive profiles and expenditure trajectories
- Linear regression models (with log+1 transformation) for follow-up expenditures

RESULTS

Table 1. Pooled Annual Cross-sectional Profiles of Matched Study Subjects 2001-2005

Pooled Annual Profiles	Matched Cohorts		
	AD Cases	AD-spouses	Control-spouse
Variable Label	Number (%)	Number (%)	Number (%)
Gender			
Male	8,068 (49.4)	8,041 (49.3)	8,041 (49.3)
Female	8,254 (50.6)	8,281 (50.7)	8,281 (50.7)
Race/Ethnicity			
White	14,724 (90.2)	14,682 (90.0)	14,682 (90.0)
Black	888 (5.4)	902 (5.5)	902 (5.5)
Hispanic	454 (2.8)	488 (3.0)	488 (3.0)
Other	256 (1.6)	250 (1.5)	250 (1.5)
Ages			
60-64	31 (0.2)	18 (0.1)	18 (0.1)
65-69	486 (3.0)	860 (5.3)	860 (5.3)
70-74	1,883 (11.5)	2,402 (14.7)	2,402 (14.7)
75-79	4,052 (24.8)	4,203 (25.8)	4,203 (25.8)
80-84	4,104 (31.3)	4,795 (29.4)	4,795 (29.4)
85+	4,641 (28.4)	4,040 (24.8)	4,040 (24.8)
Avg. Monthly Expenditures	$1,016	$694	$561

Figure 1. Medicare Expenditures by Months Prior to Index in AD-spouses and Control-spouses

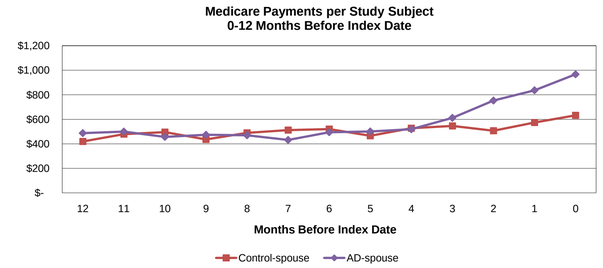
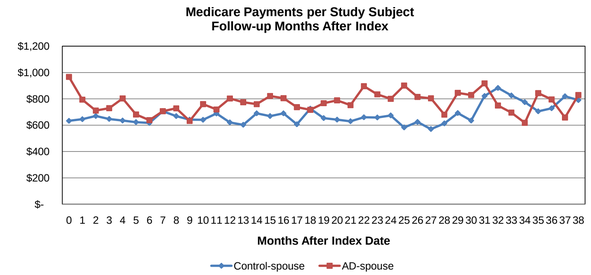


Figure 2. Medicare Expenditures by Months Following Index in Incident AD-spouses and Control-spouses



Cross-sectional Logistic Regression

- Total Medicare expenditures per month for AD-spouses was significantly higher for Control-spouses ($t=12.46$, $p<0.0001$)

Longitudinal Logistic Regression

- Costs for AD-spouses and Control-spouses increased from incident year with costs for Control-spouses remaining lower than AD spouses ($t=5.35$, $p<0.0001$)

Limitations

- Study assumes that identified spouse of AD patients are caregivers. Data on cohabitating caregivers or other types of caregivers (e.g., adult children) could not be identified.
- Structure of Medicare enrollment database is such that not all spouse dyads are identifiable, introducing possible sampling biases.
- The source data consisted of a 5% sample of all beneficiaries, not a random sample of AD patients and/or their spouses.
- Out-of-pocket expenses are not captured, which likely results in an underestimation of cost of illness.

CONCLUSIONS

- Medicare expenditures are higher for AD-spouses as compared to Control-spouses.
- Differences in costs appeared 3 months prior to AD diagnosis, suggesting that quantifiable spousal caregiver burden begins before patients with AD are diagnosed.
- AD-spouses had higher prevalence rates of chronic diseases that may account for some additional costs. Higher costs may reflect an exacerbation of health problems occurring before and after the incident diagnosis of AD.
- Results suggest that the full impact of AD to the healthcare system is not limited to patients with AD. If increased direct medical costs are also due to health declines of AD-spouses, health management interventions that target patients with AD should target health issues of caregiver spouses as well. Such interventions would likely improve caregiver health and may decrease associated direct medical costs of the caregiver.

References

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