

Diagnosed Prevalence of Alzheimer's Disease and Related Dementias in Medicare Advantage Plans

Running Title: Dementia in Medicare Advantage

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ABSTRACT

INTRODUCTION: One-third of Medicare beneficiaries are enrolled in Medicare Advantage (MA). Yet, little is known about MA beneficiaries diagnosed with Alzheimer's disease (AD) and AD-related dementias (AD/ADRD).

METHODS: We calculated the prevalence of AD/ADRD diagnoses in 2014 and 2016 in three MA plans. We determined the demographic characteristics of beneficiaries diagnosed with AD/ADRD, and whether they disenrolled from the MA plan for any reason within 364 days from the index date.

RESULTS: In 2014 and 2016 the overall prevalence of AD/ADRD diagnoses was 5.7% and 6.5%, respectively. In 2016, AD/ADRD beneficiaries were on average 82.4 (SD=7.3) years of age, 61.8% female, and had multiple comorbidity. By 364 days post-index date, 32% of beneficiaries with AD/ADRD had disenrolled from their plan. The demographic characteristics of 2014 beneficiaries with diagnosed AD/ADRD were similar to their 2016 counterparts.

DISCUSSION: The prevalence of AD/ADRD diagnosis in MA is lower than rates reported in Medicare fee-for-service.

Introduction

Over five million Americans currently live with Alzheimer's disease (AD) and AD-related dementias (AD/ADRD) and this number is expected to increase substantially in the coming decades.¹ These high-need, high-cost patients are vulnerable to receiving low quality, poorly coordinated care that leads to adverse health outcomes, poor quality of life, and misuse of resources.²⁻⁴ Maximizing the value of care provided to this growing population is a critical health policy challenge.⁵

Much of our understanding about the characteristics of people with AD/ADRD diagnoses who are receiving health care is based on data from Medicare fee-for-service and nationally

representative surveys. These studies estimate the prevalence of diagnosed AD/ADRD in the United States to be 7%-14%.⁶⁻¹¹ Yet, one-third of Medicare beneficiaries are enrolled in Medicare Advantage (MA) plans.¹² Little is known about AD/ADRD for the population enrolled in MA.

As MA grows in popularity, it is vital to understand the characteristics of plans' most vulnerable beneficiaries including people living with AD/ADRD. MA plans have unique features which may impact the type of beneficiaries who enroll and disenroll from plans and provider documentation of AD/ADRD. Compared to traditional Medicare, MA plans are paid on a risk-adjusted capitated basis (Centers for Medicare and Medicaid Service's Hierarchical Condition Category (CMS-HCC) risk adjustment model), which incentivizes plans to minimize unnecessary utilization by providing care management or other innovative services or care options. Using data from three large MA insurers,¹³ we evaluated the diagnosed prevalence of AD/ADRD in 2014 (ICD-9-CM era) and 2016 (ICD-10-CM era).

Study Data and Methods

We calculated the annual prevalence of AD/ADRD diagnoses in 2014 (ICD-9-CM) and 2016 (ICD-10-CM) in three health insurance MA plan providers (Data Partners) that participate in the NIH Health Care Systems Research Collaboratory Distributed Research Network (DRN). These Data Partners comprise approximately 30% of the MA market. The Data Partners transform their MA enrollment and claims to the DRN Common Data Model, which includes demographic information (age and sex), dates of coverage, type of coverage (medical, pharmacy), diagnosis codes, and procedure codes.

We identified all beneficiaries enrolled in an MA plan in 2014 and 2016 who were ≥ 65 years of age and continuously enrolled in plans with medical and drug coverage for at least 183 days, which allowed for coverage gaps of up to 45 days. Among eligible beneficiaries, we identified

individuals with AD/ADRD using ICD-9 (2014) and ICD-10 (2016) diagnosis codes included in the Medicare Chronic Conditions Warehouse algorithms for AD/ADRD (eTable 1).¹⁴ The first date of an AD/ADRD diagnosis code in any care setting defined cohort entry and served as the index date.

For beneficiaries with AD/ADRD diagnoses, we determined age and sex on index date of cohort entry. To assess comorbidity, we used a window of 183 days before and up to 183 days after cohort entry. We calculated the combined comorbidity score as described by Gagne.¹⁵ We determined cumulative all-cause disenrollment from the enrolled MA plan up to 364 days from the index date. Reasons for disenrollment are unknown in DRN data and may include death, enrollment in a different MA plan, enrollment in Medicare fee-for-service or discontinuation of a plan. Finally, we calculated rates of having a prevalent AD/ADRD diagnosis in 2014 and 2016 overall and stratified by age and sex. We calculated prevalence rates by determining the number of beneficiaries with an AD/ADRD diagnosis divided by the total number of MA beneficiaries enrolled in the plans without an AD/ADRD diagnosis.

Results

In 2016, among 3,115,590 total eligible members, 203,695 (6.5%) beneficiaries had an AD/ADRD diagnosis. On average, AD/ADRD beneficiaries were 82.4 (SD=7.3) years of age, 61.8% female, and had a mean combined comorbidity score of 5.8 (SD=3.4) (**Table 1**). Overall, 11.4% of beneficiaries with prevalent AD/ADRD disenrolled from their plan within 90 days of their index date. By 364 days post-index date, 32% of beneficiaries with prevalent AD/ADRD had disenrolled from their plan. In 2014, among 2,862,673 total eligible members, 163,499 (5.7%) beneficiaries had an AD/ADRD diagnosis code. The demographic characteristics of 2014 beneficiaries with AD/ADRD were similar to their 2016 counterparts.

As expected, the prevalence of AD/ADR diagnoses increased with age and was generally greater for females compare to males (**Table 2**). For example, in 2016 for both 65-69 year old females and males the prevalence of AD/ADR was ~1.4%. However, among those 85+ the prevalence of AD/ADR for females and males was 23.6% and 18.8%, respectively. The 2014 overall and age- and sex- stratified diagnosed prevalence rates of AD/ADR were similar to 2016.

Discussion

Our study is the first to report the prevalence of having an AD/ADR diagnosis among MA beneficiaries immediately prior to and following the transition from ICD-9 (2014) to ICD-10 (2016). Congruent with studies using Medicare fee-for-service data and nationally representative surveys, the prevalence of diagnosed AD/ADR increased with age and those with AD/ADR were more likely to be female, and had high rates of congestive heart failure and multimorbidity.^{7,16} However, age and sex stratified prevalence of AD/ADR among MA beneficiaries were lower than rates reported in Medicare fee-for-service data and nationally representative surveys.^{7,8,11} For example, in 2016 the Medicare CMS Chronic Condition Data Warehouse, which uses a 3-year look over period, reported the overall diagnosed prevalence of AD/ADR in Medicare fee-for-service was 9.9% for males and 13.6% for females.¹¹ In contrast, in our study, which uses a 1-year look over period, the prevalence of diagnosed AD/ADR in MA among males and females was 5.5% and 7.3%, respectively. We used a 1-year look over period which may be more useful/pragmatic for identifying people living with AD/ADR in health care systems due to the high mortality rate of the disease.

We observed a modest increase in the prevalence of AD/ADR diagnoses in 2016 compared to 2014. However, comparisons across years should be made with caution. First, differences in rates may be due to differences in ICD-9 (2014) and ICD-10 (2016). Second, from 2014 to 2016 providers may have become more adapt at diagnosing patients with AD/ADR and documenting such

diagnoses. Third, from year to year health insurance companies offer different benefits (e.g. free gym membership) in their MA plans, or change their marketing, so the markets they operate in may have a different prevalence of AD/ADRD and the characteristics (e.g., level of impairment) of dementia patients they enroll may not be comparable.

The all-cause disenrollment rates observed in our study are higher than ~17% disenrollment rates (excluding mortality) observed in studies of other high-need, high-cost MA beneficiaries.^{17,18} This is an important methodologic consideration for AD/ADRD research among MA beneficiaries. Multiple factors may contribute to disenrollment and we cannot disentangle those who died. Previous research suggests that aspects of MA plan's feature may be particularly challenging for beneficiaries with AD/ADRD and their caregivers (e.g., need for prior authorizations or narrow provider networks).¹⁹ Providers may also end their contracts with MA plans resulting in higher patient costs or requiring patients to find a different provider or a plan that includes the patient's preferred provider.

There have been several important policy changes in MA which may impact AD/ADRD diagnostic rates in the coming years. Starting in 2019, MA plans were permitted to offer long-term care services and supports. This may positively impact MA beneficiaries with cognitive impairment, increase MA plan retention, and subsequently increase the prevalence of AD/ADRD diagnoses in MA. Prior to 2020, the CMS-HCC risk adjustment model, an algorithm which is used to determine payments to MA, did not include AD/ADRD. With the inclusion of AD/ADRD in the CMS-HCC risk adjustment model it will be important to evaluate trends in the use of AD/ADRD diagnostic codes among MA providers.

Our study has important limitations. First, we measure only AD/ADRD that has been submitted on a medical claim by a clinician, not true disease prevalence. Second, we obtained data from three MA plans and these plans may not be representative of the broader MA market. Third, we observed only all-cause disenrollment and cannot distinguish reasons for disenrollment including

death, enrollment in a different MA plan, or enrollment in Medicare fee-for-service. We also do not know whether these disenrollment rates are comparable to the general population of MA beneficiaries enrolled in these plans.

In conclusion, the overall (5.7% in 2014 and 6.5% in 2016) and age and sex stratified prevalence of AD/ADRD diagnosis are lower than prevalence rates reported in Medicare fee-for-service and nationally representative surveys. MA beneficiaries with AD/ADRD are predominately female, have multimorbidity, and at one year 30% are no longer enrolled in their MA plan.

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Table 1. Characteristics of Medicare Advantage Beneficiaries with Alzheimer’s disease and Related Dementias in 2014 and 2016.^a

	2014	2016
Eligible MA population	2,862,673 ^b	3,115,590 ^c
	2014 (ICD-9-CM)	2016 (ICD-10-CM)
	Alzheimer’s Disease and Related Dementias	Alzheimer’s Disease and Related Dementias
	n=163,449	n=203,695
Diagnosed Prevalence, (Raw)	5.7%	6.5%
Mean Age, (SD)	82.6 (7.2)	82.4 (7.3)
Female Sex, n (%)	102,295 (62.6)	125,787 (61.8)
Mean Gagne Comorbidity Score, (SD)	4.4 (3.3)	5.8 (3.4)
Congestive Heart Failure, n (%)	21,607 (13.2)	70,111 (34.4)
Depression, n (%)	48,254 (29.5)	71,750 (35.2)
Diabetes, n (%)	58,914 (36.0)	76,329 (37.5)
Hypertension, n (%)	138,136 (84.5)	177,406 (87.1)
Renal Failure, n (%)	9,262 (5.7)	66,311 (32.6)
Cumulative all-cause disenrollment^d, n (%)		
90 days	18,739 (11.5)	23,279 (11.4)
180 days	33,679 (20.6)	38,504 (18.9)
270 days	43,977 (26.9)	51,216 (25.1)
364 days	56,452 (34.5)	65,448 (32.1)

^aComorbidity history was assessed in the 183 days before through 183 days after the index code/cohort entry date; one diagnosis code of interest was required to be counted as having the comorbidity.

^b 7 eligible beneficiaries without ADRD were excluded due to missing sex data.

^c 6 eligible beneficiaries without ADRD were excluded due to missing sex data.

^dIncludes disenrollment due to death, enrollment in a new MA plan, enrollment in Medicare fee-for-service, or discontinuation of a plan.

Table 2. Prevalence of Alzheimer’s Disease and Related Dementias in Medicare Advantage in 2014 and 2016.

	Female		Male	
	Total Number of Members	Number and Prevalence (%) of Members with Alzheimer’s Disease and Related Dementias	Total Number of Members	Number and Prevalence (%) of Members with Alzheimer’s Disease and Related Dementias
2014 ^a				
Overall	1,586,616	102,295 (6.4)	1,276,057	61,154 (4.8)
65-69 years	364,082	3,723 (1.0)	309,089	2,938 (1.0)
70-74 years	454,081	11,688 (2.6)	391,654	9,275 (2.4)
75-79 years	334,217	18,708 (5.6)	280,596	13,481 (4.8)
80-84 years	232,044	24,720 (10.7)	175,505	15,466 (8.8)
85+ years	202,192	43,456 (21.5)	119,213	19,994 (16.8)
2016 ^b				
Overall	1,711,702	125,787 (7.3)	1,403,888	77,908 (5.5)
65-69 years	382,997	5,448 (1.4)	334,495	4,367 (1.3)
70-74 years	477,020	14,562 (3.1)	416,124	11,538 (2.8)
75-79 years	379,430	23,671 (6.2)	322,636	17,411 (5.4)
80-84	250,527	29,812 (11.9)	195,137	19,138 (9.8)

years				
85+ years	221,728	52,294 (23.6)	135,496	25,454 (18.8)

^a 7 eligible beneficiaries without ADRD were excluded due to missing sex data.

^b 6 eligible beneficiaries without ADRD were excluded due to missing sex data.

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