Disparities in Nursing Home Use and Quality Among African American, Hispanic, and White Medicare Residents With Alzheimer's Disease and Related Dementias

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Abstract

Objective—This article examines differences in nursing home use and quality among Medicare beneficiaries, in both Medicare Advantage and fee-for-service, newly admitted to nursing homes with Alzheimer's disease and related dementias (ADRD).

Method—Retrospective, national, population-based study of Medicare residents newly admitted to nursing homes with ADRD by race and ethnic group. Our analytic sample included 1,302,099 nursing home residents—268,181 with a diagnosis of ADRD—in 13,532 nursing homes from 2014.

Results—We found that a larger share of Hispanic Medicare residents that are admitted to nursing homes have ADRD compared with African American and White beneficiaries. Both Hispanics and African Americans with ADRD received care in segregated nursing homes with fewer resources and lower quality of care compared with White residents.

Discussion—These results have implications for targeted efforts to achieve health care equity and quality improvement efforts among nursing homes that serve minority patients.

Keywords

Alzheimer's disease and dementia; nursing home disparities; Hispanics with dementia; disparities among dementia residents

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Introduction

The proportion of Hispanic and African American older adults using nursing homes has increased dramatically since the late 1990s (Feng, Fennell, Tyler, Clark, & Mor, 2011). In 10 years, the proportion of African American and Hispanic residents grew by 10% and 55%, respectively (Feng et al., 2011). Poor quality of nursing home care received by these groups has been documented, with newer studies continuing to report disparities in the quality of care and quality of life in these settings (Hefele et al., 2017; Shippee, Henning-Smith, Kane, & Lewis, 2015; Smith, Feng, Fennell, Zinn, & Mor, 2007).

Recently, a major concern expressed by the Centers of Medicare and Medicaid has focused on the similarly poor quality of nursing home care for persons with Alzheimer's disease and related dementias (ADRD) and ways to improve the quality of care for these individuals (Centers for Medicare & Medicaid Services [CMS], 2017d). Existing literature suggests that cognitive impairment is a predictor of institutionalization and a large percentage of people with dementia may enter a nursing home before death (Gaugler, Yu, Krichbaum, & Wyman, 2009; Schulz et al., 2004; Yaffe et al., 2002). This may be particularly important among African Americans and Hispanics, who are more likely to have ADRD than Whites (Mayeda et al., 2014; Potter et al., 2009; Samper-Ternent et al., 2012). Despite the increased utilization of nursing homes and the higher rates of ADRD by Hispanics and African Americans, we know little about the quality of nursing home care among African Americans and Hispanics with ADRD and how it compares to Whites, especially in the Medicare program that covers 95% of people with ADRD (Alzheimer's Association, 2016).

One of the goals of *Healthy People 2020* is to improve the quality of life for people with ADRD, which relates to quality of long-term care (Healthy People 2020, 2014; Kane, 2001). However, long-term care is accompanied by critical gaps and challenges regarding care for people with ADRD, and addressing these challenges requires implementing practices that promotes person-centered care and enhances the quality of life for every nursing home resident with ADRD (CMS, 2017d; Shih, Concannon, Liu, & Friedman, 2014). In addition, two goals of the National Alzheimer's Project Act (NAPA) include enhancing care quality and efficiency and improving data to track progress (Khachaturian, Khachaturian, & Thies, 2012). Among the different strategies that NAPA highlighted to achieve these goals are reducing and eliminating disparities in access to quality health care and to increase the availability and quality of data collected and reported on racial/ethnic minority populations (Office of the Assistant Secretary for Planning and Evaluation, 2015). Thus, there is a pressing need to characterize care and outcomes of nursing home residents with ADRD.

Research on ADRD using national samples and diverse populations is limited. In fact, many studies have been published on the difficulty of recruiting minority populations with ADRD to conduct research (Barnes & Bennett, 2014; Grill & Galvin, 2014). The absence of research evidence for this fast-growing group presents significant challenges for formulating appropriate policies and interventions to improve quality of care, health outcomes, and quality of life for minority nursing home residents with ADRD (Alzheimer's Association, 2004; Khachaturian et al., 2012). The contribution of this study is an examination of national rates and health care disparities in nursing home care among residents with ADRD. Because

there are few datasets available to study quality of long-term care for people with ADRD, specifically among Hispanics, using national nursing home assessment and survey data is pivotal in understanding patterns of racial disparities in nursing homes.

The present study uses the Institute of Medicine's conceptual framework applied to mental health (McGuire, Alegria, Cook, Wells, & Zaslavsky, 2006). Under this framework, operation of the health care system and discrimination can contribute to disparities among ADRD populations. Sources of disparities include provider practices, insurance plans, and other health care factors that result in lower quality of care for minority groups. In addition, minority groups may be subject to discrimination, receiving lower quality of care by providers (Smith, 1990). There is evidence that racial and ethnic groups have less access to mental health services and needed care, and receive lower quality of care when treated (Office of the Surgeon General, Center for Mental Health Services, & National Institute of Mental Health, 2001). Using multiple national databases containing information about Medicare beneficiaries and nursing home measures, our study examines individual- and facility-level characteristics to assess differences in nursing home utilization and care among Hispanic, African American, and White Medicare residents with ADRD.

Method

We used multiple sources of national data from 2014. Information on the rate of admission to nursing homes and nursing home residents' characteristics came from the Minimum Data Set (MDS). The MDS resident assessment instrument has nearly 400 data elements, including information on cognitive and physical function, psychosocial well-being, mood, disease diagnoses, health conditions, special treatments, and medication use. The assessments are reported for all residents admitted to Medicare and/or Medicaid-certified nursing homes. Repeated evaluations of the reliability of the MDS provided at least adequate values on most scales (Kosar, Thomas, Inouye, & Mor, 2017; Morris et al., 1990; Phillips et al., 1997; Thomas, Dosa, Wysocki, & Mor, 2017). Admission and discharge assessment dates help determine the time period spent in the nursing home and have been validated against Medicare claims (Rahman, Tyler, Acquah, Lima, & Mor, 2014). We identified people with a diagnosis of ADRD by using MDS Section I for Active Diagnoses. We included any individual who had an active diagnosis of Alzheimer's disease, non-Alzheimer's dementia, or one of the following ICD-9 codes listed: 290.0, 290.10, 290.11, 290.12, 290.13, 290.20, 290.21, 290.3, 290.40, 290.41, 290.42, 290.43, 294.0, 294.10, 294.11, 294.20, 294.21, 331.0, 331.11, 331.19, 331.2, 331.82, 331.7, or 797 (Thomas, Baier, et al., 2017). The Master beneficiary summary file (MBSF) contains demographics, Medicare Advantage enrollment, and dual eligibility (Research Data Assistance Center, 2017). The Certification and Survey Provider Enhanced Reporting (CASPER) system (CMS, 2017e), Long-Term Care: Facts on Care in the US (LTC focus; 2017) and Nursing Home Compare (NHC) Five-Star Ratings databases provide nursing home-level information on ownership, size, staffing, and 30-day rehospitalization rates (CMS, 2017b). These variables are described below. These files were linked to each other using facility-level identifiers that allow us to create historical person-level utilization records matched to facility characteristics.

Variables

Study measures from the Master Beneficiary Summary File (MBSF)—

Demographic characteristics include *age* (less than 65 years, 65–84, and 85 and above), *sex, enrolled in Medicare Advantage, Medicaid and Medicare dual eligibility* (eligibility for Medicaid coverage for at least 1 month). In addition, we used the race/ethnicity variable from this file, which has high sensitivity, positive predictive value, and kappa for Whites, African Americans, and Hispanics (Eicheldinger & Bonito, 2008).

Study measures from the MDS

Delirium—Delirium was identified using the *Confusion Assessment Method Criteria*. This method defines delirium as present if it was indicated that a patient was reported to have shown an acute change in delirium symptoms, inattention, and either disorganized thinking or an altered level of consciousness included in Section C (Inouye et al., 1990; Kosar et al., 2017; Wei, Fearing, Sternberg, & Inouye, 2008; Wong, Holroyd-Leduc, Simel, & Straus, 2010).

Cognitive function—This measure was identified using the *Cognitive Function Scale*, comprised of the *Brief Interview for Mental Status* (BIMS) and the Cognitive Performance Scare (CPS) in Section C. The scores identified residents who are cognitively intact (those who completed the BIMS and scoring between 13 and 15 points) or with severe (those who did not complete the BIMS and have a CPS score of 5 or 6), moderate (those scoring 0–7 on the BIMS or a 3–4 on the CPS), and mild impairment (those with a BIMS score of 8–12 or a CPS score of 0–2; Thomas, Dosa, et al., 2017).

Aggressive behavior—This measure was obtained using the *Aggressive Behavior Scale* (ABS), which is calculated using items from Section E, including verbal abusive, physical abusive, disruptive, and resisting care. Each item receives a score of 0 to 3 indicating that the behavior was not exhibited in the last week (score of 0), or that it occurred 1 to 3 days (score of 1), 4 to 6 days (score of 2), or daily (score of 3). The items were calculated with scores ranging from 0 to 12. Then aggressive behavior scores were divided into four categories, including none (residents with score of 0), moderate (those with scores of 1 to 2), severe (those with scores of 3 to 5), and very severe (residents with scores of 6 to 12; Perlman & Hirdes, 2008).

Severe functional impairment—This was indicated when the score of the *Activities of Daily Living* (*ADL*) Scale is greater than 23. The 28-point ADL scale includes items for bed mobility, transfer, locomotion on unit, dressing, eating, toilet use, and personal hygiene. Residents were rated from 0 to 4 as being able to do the activity independently, with supervision, with limited assistance, with extensive assistance, or being totally dependent. Scores were summarized to create a composite score, ranging from 0 to 28, to characterize physical function (Wysocki, Thomas, & Mor, 2015).

Admission source—We characterized residents' sources of admission using Item A1800 from the MDS, which captures whether admissions came from the community, another

nursing home, acute hospital, psychiatric hospital, inpatient rehabilitation facility, hospice, or other.

Long-stay resident—We defined residents as long-stay if they remained in a nursing home for more than 100 days (American Health Care Association, 2017a).

Study measures from LTC focus

Rehospitalization rate (adjusted)—This measure was calculated at the facility level using the *observed rate* of rehospitalization within 30 days, divided by the *expected rate* of rehospitalizations within 30 days and then multiplied by the *national rate*. Expected rate for the facility is calculated using a predictive model that adjusts from 33 demographic and clinical variables from the MDS. These variables included functional status, prognosis, clinical conditions, diagnosis, services, and treatment (American Health Care Association, 2017b).

Other variables at the facility level included *percentage of Hispanic residents and percentage of African American residents admitted to the facility during 2014, percentage of residents whose primary support is Medicaid, whether the facility is for profit, whether the facility is part of a chain, and whether the facility has Alzheimer's Special Care Unit* (also drawn from OSCAR or CASPER data [CMS, 2017e]).

Study measures from CMS' NHC

Nursing home five-star quality rating—This is a composite measure of three domains: *health inspections, staffing levels, and quality measure*. Nursing homes receive a score between 1 (lower quality than average) and 5 (higher quality than average; CMS, 2017b).

Analysis

We examined rates of Medicare beneficiaries newly admitted residents to nursing homes with ADRD, by race and ethnic group. We also explored different quality indicators for nursing homes and compared facility characteristics for residents with ADRD stratified by race and ethnic group. Our analysis included new admissions defined as the beginning of a nursing home stay where the person had not had a nursing home stay within the past 2 years. We identified 1,370,123 new admissions among Medicare beneficiaries in 2014. These were 1,164,714 (85.0%) admissions among White beneficiaries, 139,068 (10.2%) among African American beneficiaries, and 66,341 (4.8%) among Hispanic beneficiaries. After merging with the datasets and dropping cases with missing data, our analytic sample included 1,302,099 (880,040 admissions from Whites vs. 106,002 from African Americans vs. 47,876 from Hispanics). There were 268,181 admissions with ADRD diagnosis (85.1% Whites vs. 10.3 African Americans vs. 4.6% Hispanics) from 13,532 nursing homes in 2014. One-way analysis of variance and chi-square were used to assess differences among groups.

Brown's Center for Gerontology and Healthcare Research has access to these data under a CMS data use agreement. The Brown Institutional Review Board approved our use of these data.

Results

The results showed that 20.6% of all Medicare beneficiaries newly admitted to a nursing home in 2014 had an ADRD diagnosis. Overall, a slightly higher percentage of Hispanic residents were diagnosed with ADRD compared with African Americans or White residents. Approximately, 22.2% of Hispanic residents had an ADRD diagnosis compared with approximately 20.2% of African Americans and 20.6% of Whites had ($p < .001$).

Descriptive statistics for newly admitted Medicare beneficiaries with ADRD stratified by race and ethnic group are displayed in Table 1. A higher percentage of White residents with ADRD were older than their African American or Hispanic counterparts. Approximately, 50.1% Whites, 36.9% African Americans, and 39.8% Hispanics were 85 years or older. However, a larger proportion of African Americans and Hispanics had severe functional impairment (i.e., an ADL scale score greater than 23) compared with Whites (18.3% vs. 18.4% vs. 9.6%; $p < .001$, respectively). In addition, minorities had greater rates of cognitive impairment but were less likely to have severe behavioral disturbances or to have a delirium diagnosis than their White counterparts. For instance, 12.2% of African American and 12.9% of Hispanic were severely cognitively impaired, whereas 9.5% of White residents were in this category. By contrast, African Americans and Hispanics were 1.9 percentage points (95% confidence interval [CI] = [−2.5, −1.5] percentage points) and 3.9 percentage points (95% CI = [−4.7, −3.3] percentage points) less likely to have delirium.

Hispanics were more likely to become long-stay residents compared with African Americans and Whites (33.9% vs.32.0% vs. 32.2%). In addition, minorities were more likely to be enrolled in Medicare Advantage and to be dually eligible for Medicare and Medicaid. About 20.9% and 22.7% of African American and Hispanic residents were enrolled in Medicare Advantage compared with 17.4% Whites. Finally, the large majority of minorities were dually eligible; African Americans and Hispanics were 27.1 and 41.6 percentage points more likely to be dual-enrolled as compared with Whites (95% CI = [26.4, 27.7] and [40.6, 42.5], respectively).

The characteristics of nursing homes to which these residents were admitted are displayed in Table 2. Segregation in nursing homes was high among minorities. African Americans with ADRD were admitted to facilities where 35.3% of residents were also African Americans. Similarly, there was a high concentration of Hispanics (29.2%) in facilities where Hispanics with ADRD were admitted residents. In addition, Whites were more likely to be admitted to facilities with Alzheimer's special care units (21.5%) compared with either African Americans (16.3%) or Hispanics (12.7%). Finally, White residents were admitted to nursing homes with slightly better quality in several measures than their counterparts. The average nursing home 30-day rehospitalization rate was 17.1% for facilities where Whites were admitted compared with 19.1% and 18.1% for facilities where African Americans and Hispanics were admitted, respectively. (All differences across groups are significant at $p < .001$). Similarly, facilities where White residents received care were less likely to be for profit compared with facilities where African American or Hispanic residents received care (69.4% vs. 79.7% vs.81.6%; $p < .001$). Finally, CMS nursing home star ratings on average were 3.5 for nursing homes where Whites were admitted, 3.5 for nursing homes where

Hispanics with ADRD were admitted, and 3.3 for nursing homes where African Americans were admitted.

Discussion

In this national study of rates of ADRD among Hispanic, African American, and White Medicare beneficiaries who were newly admitted to nursing homes, we found that a higher share of Hispanic residents had a diagnosis of ADRD compared with African Americans and Whites in 2014; Hispanics were about two percentage points more likely to be admitted with an ADRD diagnosis than Whites or African Americans. In addition, we found disparities in the facility characteristics and quality of nursing homes to which Hispanics and African Americans were admitted compared with Whites. Nursing homes where Whites were admitted had on average one to two percentage points lower 30-day rehospitalization rates than facilities to which Hispanics and African Americans were admitted. Hispanic residents were up to nine percentage points less likely to go to facilities with Alzheimer's units compared with White residents. Another important finding in this study is the large concentration of racial and ethnic groups to which residents were admitted. A large fraction of Hispanic residents with ADRD went to nursing homes with a high percentage of Hispanic residents. Similarly, African American residents with ADRD were admitted to facilities with a greater proportion of African Americans.

In the present study, we found that Hispanics and African American residents were more likely to be cognitively and physically impaired as compared with Whites. Our findings may be explained by disease severity and caregiver characteristics (Gaugler et al., 2009; Yaffe et al., 2002). This suggests that minorities may be admitted to a nursing home at a stage further in their ADRD disease progression. Previous studies have mentioned that African Americans and Hispanics have higher incidence of ADRD than Whites (Mayeda et al., 2014), and at the same time, a higher proportion of them may not receive an immediate diagnosis (Fitten, Ortiz, & Pontón, 2001; Schrauf & Iris, 2012; Wilkins et al., 2007). A delayed diagnosis may influence patient access to support and services, as well as family and caregiver planning (Shih et al., 2014). Others have found that being older and White increases the risk of nursing home placement among people with ADRD (Andel, Hyer, & Slack, 2007), and that up to 70% of African American Medicare beneficiaries may delay institutionalization (Gaugler, Leach, Clay, & Newcomer, 2004). Similarly, Hispanic families are less likely than Whites to use nursing home and other formal care services; yet, institutionalized care is now becoming more common than before among these families (Feng et al., 2011). Additional work among nursing home placement for minorities with ADRD is needed to understand the mechanisms behind these differences and whether these differences can be attributable to variability in the availability of informal caregivers, cultural, patient, and family preferences or access to services.

These findings also highlight the need to expand the literature regarding delirium prevalence in nursing home settings among ADRD patients. A prior study done of older patients in post acute care settings did not find significant differences in the rates of delirium among race and ethnic groups (Marcantonio et al., 2005). Yet, our results show that African Americans and Hispanics with ADRD have lower rates of delirium by two to four percentage points,

respectively, despite having higher rates of severe cognitive impairment. Although dementia and delirium are associated, causation is still unclear (Richardson et al., 2017). Delirium may occur due to a complex interrelationship among different factors, including higher rates of cognitive decline (Inouye, Westendorp, & Saczynski, 2014), which needs to be further examined in this group. Other studies have also found that delirium increases the risk of institutionalization, poor health outcomes, and mortality (Kosar et al., 2017; Witlox et al., 2010); yet, we found that Hispanics with ADRD were two percentage points more likely to become long-stay residents than African Americans or Whites with ADRD.

The present study results are consistent with previous work regarding racial disparities in quality among nursing home residents (Fennell, Feng, Clark, & Mor, 2010; Gaugler et al., 2004; Mor, Zinn, Angelelli, Teno, & Miller, 2004; Shippee et al., 2015). These two groups are also less likely to go to nursing homes where residents with ADRD receive special dementia care (i.e., being in a nursing home with a dementia special care unit), which has been documented to provide better quality of life for people with ADRD in different domains (Cadigan, Grabowski, Givens, & Mitchell, 2012; Luo, Fang, Liao, Elliott, & Zhang, 2010). Existing literature on this topic suggests that Whites with ADRD are more likely to receive such specialized treatment. This is partially because Whites are more likely to go to facilities with a better payer mix and that are not-for-profit (Sengupta, Decker, Harris-Kojetin, & Jones, 2012). These facilities tend to be linked primarily to special care unit nursing homes (Buchanan, Choi, Wang, Ju, & Graber, 2005; Congress of the United States, Office of Technology Assessment, 1992). This is consistent with our results as we observe that African Americans and Hispanics with ADRD are more likely to go to facilities that are for-profit and highly dependent on Medicaid.

In addition, we found that African Americans and Hispanics are still more likely to go to facilities serving a higher proportion of non-White residents. This is relevant as racial segregation has long been associated with quality outcomes in long-term care settings (Davis, Weech-Maldonado, Lapane, & Laberge, 2014; Li et al., 2015; Mor et al., 2004). Although, these patients may be exhibiting race- or distance-based preferences (Rahman & Foster, 2015), and may be actively choosing nursing homes that have patients with similar background or homes that are also located near their communities or family, it could potentially mean that these lower quality nursing homes are located within more segregated neighborhoods (Shippee, Henning-Smith, Rhee, Held, & Kane, 2016). Future research should investigate consumer choice of nursing homes among minority groups with ADRD and the extent to which sociodemographic and geographic characteristics influence access, quality of care, and patient outcomes.

Our results also show that a higher percentage of minorities with ADRD in nursing home are enrolled in Medicare Advantage, at least among those who are newly admitted. Yet, there are no national studies of beneficiaries with ADRD in the Medicare advantage program, despite the evidence that shows that racial and ethnic minority groups are more likely to enroll in managed care (Weinick, Haviland, Hambarsoomian, & Elliott, 2014). However, Medicare Advantage may promote disenrollment among patients with ADRD when complex health care needs and high costs are encountered (Rahman, Keohane, Trivedi, & Mor, 2015). Another consideration is that Medicare Advantage Special Needs Plans (SNPs) tailor

benefits to patients with complex needs. Although Centers for Medicare and Medicaid Services would expect that these specialized plans would achieve better outcomes, little research has been conducted in this area (CMS, 2017c). More work is needed regarding the relationship between Medicare Advantage enrollment and outcomes among the ADRD population. Particularly, whether enrollment into Medicare Advantage reduces utilization of nursing home care and improves quality of care, specifically among Hispanics and African Americans, and SNPs that focus on dually eligible enrollees.

Our study has limitations. First, diagnosis of ADRD is not necessarily based on clinical testing, and racial minorities may be less likely to be diagnosed (Espino & Lewis, 1998). Yet, despite these potentially lower documented rates of ADRD, Hispanics are admitted with higher rates of ADRD. In addition, the number of people with ADRD in nursing homes is declining as residents with these conditions are more likely to remain in the community for longer (Callahan et al., 2012). We are unable to test which factors are responsible for observed rates. Due to the nature of the data, it is not possible to assess pathways- or time-to-diagnosis because ADRD diagnosis is captured at the time of MDS assessment. In addition, MDS-based Confusion Assessment Method (CAM) diagnosis has low sensitivity and delirium diagnosis may be missed by the MDS (as discussed by Kosar et al., 2017). However, our study has a number of strengths. First, it provides a better understanding about long-term care utilization and quality of care among minority groups, specifically Hispanics, compared with Whites. We also used a number of process and outcome measures to characterize quality of care among facilities. Second, the majority of Medicare-related studies only includes traditional Medicare beneficiaries and often excludes Medicare Advantage enrollees, which represents one third of Medicare beneficiaries (Jacobson, Damico, Newman, & Gold, 2017). Our study included both Medicare Advantage and traditional Medicare enrollees. Finally, this is the first study to examine these disparities in nursing home utilization and care, which is important given the dramatic differences in the incidence and prevalence of ADRD among Hispanics and African Americans.

There are some policy implications from our study. Beneficiaries in the Medicare program are encouraged to use *NHC* when selecting a nursing home. This is a publicly available tool that the Centers for Medicare and Medicaid Services provides to enrollees to make informed nursing home choices, and also encourages providers to improve quality of care (CMS, 2017a). At the moment, consumers could select nursing homes based on overall rating, health inspections, staffing, quality measures, and distance (CMS, 2017b). It may be useful if the consumers could filter nursing home quality based on facility use of antipsychotics and/or other quality measures that pertain to the quality of care for residents with ADRD (CMS, 2016). In addition, to enhance the quality of life among residents with ADRD, Medicare recently announced a partnership with different agencies and nursing home providers to improve person-centered care for every nursing home resident (CMS, 2017d). Hence, another policy implication that arises from these results is that efforts to enhance quality of care among people with ADRD should have a special focus on facilities that disproportionally serve African Americans and Hispanics.

Policy makers and health care providers should be informed about disparities in quality of care of Hispanics and African Americans with ADRD. Special attention should be given to

the rapid demographic changes and long-term care needs of this population and helping minority residents and supporting patient-informed decision-making regarding ADRD diagnosis and care. Given the segregation of care we found in this study, future research and policy efforts are needed to reduce disparities within communities and surrounding nursing homes with a high concentration of Hispanics and other minority elders.

Acknowledgments

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Table 1

Descriptive Characteristics of Medicare Beneficiaries Newly Admitted to a Nursing Home With a Dementia and/or Alzheimer's Disease Diagnosis in 2014, by Race and Ethnicity ($n = 268,181$).

	Whites ~84.9%	African Americans ~10.0%	Hispanics ~5.1%
Age, %			
<65	2.06	5.06	3.47
65–84	47.87	58.06	56.70
85+	50.06	36.88	39.83
Female, %	63.60	61.72	59.66
Severe functional impairment, %	9.56	18.28	18.40
ADL Scale Score, M (SD)	17.85 (4.90)	18.63 (5.39)	18.96 (5.20)
Cognitive function, % [a]			
Intact	17.90	14.91	14.30
Mildly impaired	26.51	24.63	22.89
Moderately impaired	46.05	48.28	49.87
Severely impaired	9.54	12.18	12.95
Delirium, % [a]	12.39	10.42	8.42
Aggressive behaviors, % [a]			
None	79.59	81.39	84.00
Moderate	13.38	12.62	10.82
Severe	5.64	4.83	4.15
Very severe	1.38	1.16	1.03
Admitted from, %			
Community	10.77	6.92	9.60
Nursing home	2.02	1.49	1.81
Hospital	83.94	88.62	85.93
Other	3.27	2.97	2.65
Became a long-stay resident, %	32.23	32.01	33.87
Medicare Advantage enrollment, %	17.41	20.94	22.70
Dually eligible for Medicare and Medicaid, %	27.16	54.25	68.73

Note. Authors' analysis of data from the 2014 Medicare Master Beneficiary Summary File, the Minimum Data Set, the Master Beneficiary Summary File, the Certification and Survey Provider Enhanced Reporting system, and Long-Term care: Facts on Care in the US. Differences across groups are significant at the p .05 level. ADL Score (Scale 0–28 with 0 = *complete independence*, 28 = *complete dependence*); ADL = activities of daily living; ABS = Aggressive Behavior Scale; CFS = Cognitive Function Scale.

[a] Delirium, ABS, and CFS contain missing values (84,690 cases, 15,357 cases, and 32,501 cases, respectively).

Table 2

Characteristics of Nursing Homes Where Medicare Beneficiaries With a Dementia and/or Alzheimer's Disease Diagnosis Were Admitted, by Race and Ethnic Group ($n = 268,181$).

	Whites	African Americans	Hispanics
% Hispanic residents	2.57 (6.39)	4.30 (8.57)	28.71 (29.22)
% African American residents	7.37 (11.08)	35.36 (25.80)	11.17 (14.48)
Alzheimer's special care unit	21.47 (41.06)	16.29 (36.93)	12.72 (33.33)
For profit	69.44 (46.06)	79.67 (40.25)	81.64 (38.71)
Part of a chain	58.24 (49.32)	60.02 (48.98)	49.74 (50.00)
% Medicaid primary payer	53.19 (22.78)	62.38 (21.79)	60.07 (21.53)
Rehospitalization rate	17.07 (4.66)	19.07 (4.51)	18.11 (4.40)
CMS nursing home star rating	3.54 (1.30)	3.26 (1.33)	3.52 (1.32)

Note. Authors' analysis 2014 of the Minimum Data Set, the Master Beneficiary Summary File, the Certification and Survey Provider Enhanced Reporting system, and Long-Term Care: Facts on Care in the US. Differences across groups are jointly significant at the $p < .001$ level. CMS = Centers for Medicare & Medicaid Services.