Health Insurance Status and the Care of Nursing Home Residents With Advanced Dementia

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IMPORTANCE Nursing home residents with advanced dementia commonly experience burdensome and costly hospitalizations that may not extend survival or improve the quality of life. Fragmentation in health care has contributed to poor coordination of care for acutely ill nursing home residents.

OBJECTIVE To compare patterns of care and quality outcomes for nursing home residents with advanced dementia covered by managed care with those covered by traditional fee-for-service Medicare.

DESIGN, SETTING, AND PARTICIPANTS Choices, Attitudes, and Strategies for Care of Advanced Dementia at the End-of-Life (CASCADE) was a prospective cohort study including 22 nursing homes in the Boston, Massachusetts, area that monitored 323 nursing home residents for 18 months to better understand the course of advanced dementia at or near the end of life. Data from CASCADE and Medicare were linked to determine the health insurance status of study participants.

EXPOSURES The health insurance status of the resident, either managed care or traditional fee for service.

MAIN OUTCOMES AND MEASURES The outcomes included survival, symptoms related to comfort, treatment of pain and dyspnea, presence of pressure ulcers, presence of a do-not-hospitalize order, treatment of pneumonia, hospital transfer (admission or emergency department visit) for an acute illness, hospice referral, primary care visits, and family satisfaction with care.

RESULTS Residents enrolled in managed care (n = 133) were more likely to have do-not-hospitalize orders compared with those in traditional Medicare fee for service (n = 158) (63.7% vs 50.9%; adjusted odds ratio, 1.9; 95% CI, 1.1-3.4), were less likely to be transferred to the hospital for acute illness (3.8% vs 15.7%; adjusted odds ratio, 0.2; 95% CI, 0.1-0.5), had more primary care visits per 90 days (mean [SD], 4.8 [2.6] vs 4.2 [5.0]; adjusted rate ratio, 1.3; 95% CI, 1.1-1.6), and had more nurse practitioner visits (3.0 [2.1] vs 0.8 [2.6]; adjusted rate ratio, 3.0; 95% CI, 2.2-4.1). Survival, comfort, and other treatment outcomes did not differ significantly across groups.

CONCLUSIONS AND RELEVANCE Medicare managed-care programs may offer a promising approach to ensure that nursing homes are able to provide appropriate, less burdensome, and affordable care, especially at the end of life.

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Dementia is a leading cause of death in the United States\(^6\); however, patients dying with this disease may not receive optimal end-of-life care. With the advent of health care reform in the United States, increasing opportunities exist to improve the quality and cost-effectiveness of care provided to nursing home residents with advanced dementia.\(^7\)

Recent research has led to a growing appreciation of advanced dementia as a terminal illness and the clinical complications that characterize the end stage of the disease, most notably eating problems and infections.\(^8\) More than 90% of proxies for nursing home residents with advanced dementia state that their preferred goal of care is comfort, which should guide how these complications are treated.\(^9\) Nonetheless, many of these residents commonly experience burdensome and costly interventions, such as hospital transfers, tube-feeding, and intravenous antibiotics, that do not promote comfort and, in many instances, do not have any demonstrable clinical benefits in this profoundly debilitated population.\(^3\)\(^-\)\(^6\)

Nursing home reimbursement policies are among the factors that incentivize more aggressive care,\(^7\) including burdensome interventions for residents with advanced dementia. Most of these individuals are long-stay residents dually eligible for Medicare and Medicaid. Medicaid reimburses nursing homes for daily room and board and nursing care. Medicare has historically paid for acute, subacute, and physician services on a fee-for-service basis. Given that nursing homes do not receive higher reimbursement to manage acutely ill long-term-care residents on site, the nursing home has an incentive to transfer them to the hospital, temporarily shifting the cost of their care from Medicaid to Medicare. Even if the resident’s preference is for palliation, this too requires a more focused approach. Nursing homes are not directly reimbursed for providing specialized palliative care services. Finally, although the Medicare hospice benefit is available for nursing home residents with advanced dementia and their families, the details of which are provided elsewhere.\(^3\)\(^-\)\(^3\) Data were collected to characterize the residents’ survival, clinical complications, symptoms, and treatments, as well as the proxies’ perspectives on the quality of care. The CASCADE data set was linked to Medicare claims files from February 1, 2003, until December 31, 2010, using the following identifiers: name, Social Security number, sex, and date of birth. The institutional review board of Hebrew SeniorLife and Harvard Medical School approved the conduct of this study to analyze CASCADE data merged with Medicare claims files.

### Methods

#### Data Sources

Two data sources were used: CASCADE study data set and Medicare claims files. The CASCADE study was a National Institutes of Health–funded prospective cohort study conducted between February 1, 2003, and March 1, 2009, that described the experience of nursing home residents with advanced dementia and their families, the details of which are provided elsewhere.\(^3\)\(^-\)\(^3\) Data were collected to characterize the residents’ survival, clinical complications, symptoms, and treatments, as well as the proxies’ perspectives on the quality of care. The CASCADE data set was linked to Medicare claims files from February 1, 2003, until December 31, 2010, using the following identifiers: name, Social Security number, sex, and date of birth. The institutional review board of Hebrew SeniorLife and Harvard Medical School approved the conduct of this study to analyze CASCADE data merged with Medicare claims files.

#### Sample

The study sample included nursing home residents with advanced dementia who participated in the CASCADE study. A total of 323 residents with advanced dementia were recruited from 22 Boston-area nursing homes. Eligibility criteria included (1) age older than 60 years, (2) dementia (any type), (3) Global Deterioration Scale score of 7,\(^4\)\(^4\) and (4) available English-speaking health care proxies to provide informed consent for their participation and for the residents’ participation. At Global Deterioration Scale stage 7, residents have profound memory deficits, virtually no verbal communication, incontinence, and inability to walk.

#### Resident Variables

Unless otherwise indicated, resident variables were obtained from the CASCADE data set from assessments conducted at baseline, quarterly for up to 18 months, and within 14 days of death using medical record reviews, direct resident examination, and nurse interviews. Baseline resident characteristics obtained from the medical record included demographics (sex, race [white vs other], and age), whether the resident lived in a special care dementia unit, whether nursing home length of stay at baseline was less than 3 years, comorbidities (congestive heart failure, active cancer, chronic obstructive pulmonary disease), and presence of a percutaneous endoscopic gastrostomy tube. Cognitive status was measured by direct resident examination at the baseline and quarterly assessments using the Test for Severe Impairment score (range, 0-24; higher scores indicate better cognition, categorized as 0 or >0).

Other resident variables collected from the medical record at baseline and quarterly assessments included presence...
of a do-not-hospitalize order (DNH), treatment for pain and dyspnea, occurrence of acute illness, and health services utilization. At each assessment, the frequency of pain and dyspnea that occurred since the prior assessment was ascertained. Pain and dyspnea were quantified based on documentation in the medical record as follows: 0, never; 1, rarely (<5 days/month); 2, sometimes (5-10 days/month); 3, often (11-20 days/month); and 4, almost daily (>20 days/month). For residents who experienced any pain, it was determined whether they received oral or parenteral opioids on a regularly scheduled basis. For residents who experienced any dyspnea, it was determined whether they received any of the following: oxygen, morphine sulfate, scopolamine, or hyoscyamine. Acute illnesses occurring since the prior assessment included infectious episodes (eg, suspected pneumonia and febrile episodes) and other sentinel events (eg, stroke, bone fracture, myocardial infarction, and seizure). A febrile episode was defined as an oral (≥37.8°C), rectal (≥38.3°C), or axillary (≥37.2°C) temperature at least once within a 7-day period (>1 recorded fever during a 7-day period was considered a single episode). If residents had experienced pneumonia, the type of treatment they received was determined and classified as follows: no antibiotics, oral antibiotics only, intramuscular antibiotics, and intravenous antibiotics or hospitalization. All health care utilization data, including dates of service, were determined from primary data collected in CASCADE and included all hospitalizations, emergency department visits, hospice referrals, and the number of primary care visits at the nursing home documented by nurse practitioners (NPs) and physicians in the prior 90 days.

Nurse interviews included measures of functional status and resident discomfort. Functional status was quantified at each assessment using the Bedford Alzheimer Nursing Severity Scale (range, 7-28; higher scores signify greater disability). The Symptom Management-End-of-Life in Dementia (SM-EOLD) scale was used to quantify resident comfort during the preceding 90 days at the baseline and quarterly nurse interviews. The SM-EOLD is a validated scale that ranges from 0 to 45, with higher scores representing greater comfort; the Comfort Assessment in Dying With Dementia (CAD-EOLD) scale is a similar scale that quantifies discomfort in the last week of life (scores ranges from 14 to 42, with higher scores indicating greater comfort). Nurses also stated whether the resident had pressure ulcers at stage 2 or higher in the period between interviews.

Survival was measured in days from the date of enrollment in CASCADE until the date of death. For residents who died during CASCADE, death dates were determined from official death certificates, which were obtained for all deceased. The vital status as of December 31, 2010, for residents who survived the full 18-month CASCADE follow-up period was determined by the Medicare Beneficiary Eligibility and Enrollment Files, and for those who died, death dates were taken from that source.

The Medicare Beneficiary Eligibility and Enrollment Files were used to classify each resident’s insurance coverage during the entire CASCADE follow-up period as either managed care or traditional fee-for-service Medicare (nonmanaged care). Insurance status for each resident was consistent throughout CASCADE (ie, did not fluctuate between managed-care and fee-for-service status).

Proxy Variables
All proxy variables were obtained from interviews conducted during CASCADE. Characteristics obtained at baseline included age, sex, and relationship to the resident (child vs other). At each proxy interview, satisfaction with care was measured using the Satisfaction With Care at the End-of-Life in Dementia (SWC-EOLD) scale, a validated instrument with scores that range from 10 to 40; higher scores indicate greater satisfaction.16,17

Statistical Analysis
All resident and proxy characteristics were described using mean (SD) for continuous variables and proportion for categorical variables. The main independent variable was whether the residents’ health insurance status was managed care or fee-for-service during the period of observation.

We were interested in examining the association between managed-care status and palliative care outcomes. Therefore, outcomes were selected that have been endorsed as measures of the quality of end-of-life care for older persons19 and specifically for those with advanced dementia.20 These outcomes included survival, symptoms (SM-EOLD and CAD-EOLD scores) and treatment of pain and dyspnea, presence of a DNH order, presence of stage 2 or higher pressure ulcers, treatment for pneumonia, hospital transfer (admission or emergency department visit) for an acute illness, hospice referral, physician and NP visits, and family satisfaction with care (SWC-EOLD score).

The units of analysis varied depending on the outcome. Measures collected at each assessment (ie, assessment level) framed the analysis for the following outcomes: SM-EOLD score, pain and dyspnea treatment, pressure ulcer, DNH order, primary care visits, and SWC-EOLD score. The CAD-EOLD score was recorded only once for residents who died during the 18-month observation period. Analyses examining the management of pneumonia and acute illnesses were conducted at the episode level. For hospice referral, the resident was the unit of analysis.

Unadjusted and adjusted associations between managed-care status and each outcome were calculated using logistic and linear regression for dichotomous and continuous outcomes, respectively. Multinomial regression was used to analyze the categorical pneumonia treatment outcome. Poisson regression methods were used to analyze the number of primary care visits per 90 days of follow-up. For survival, a log-rank test was performed, and multivariable analyses were conducted using Cox proportional hazards models.

Odds ratios (ORs) were generated from the logistic and multinomial models, parameter estimates from the linear regression models, and hazard ratios from the Cox model. In addition, 95% CIs were provided for all measures of association. All multivariable models were adjusted for the baseline resident and proxy characteristics presented in Table 1. The Cox proportional hazards model was adjusted for a time-dependent variable representing acute illness. For outcomes
analyzed at the assessment and episode levels, generalized estimating equation methods adjusted for clustering at the facility and resident levels. When the resident was the unit of analysis, generalized estimating equation methods were adjusted only for clustering at the facility level. All analyses were conducted using R, version 3.0.1 (R Foundation for Statistical Computing; http://r-project.org/), with the exception of the 2-level generalized estimating equation analyses, for which commercial software (SAS, version 9.1.3; SAS Institute Inc) was used.

Results

Sample Characteristics

Of the 323 residents recruited into the CASCADE study, 291 were included in these analyses. Reasons for lack of inclusion for the remaining 32 residents were incorrect or no available Social Security number (n = 14), definite match could not be made with Medicare (n = 8), and managed-care status could not be determined from Medicare Enrollment Files (n = 10). No statistically significant differences were observed in the baseline characteristics reported in Table 1 between residents who were and were not included in the analyses.

Among the 291 residents included in this study, 133 individuals (45.7%) were enrolled in a managed-care plan and 158 residents (54.3%) were covered by the traditional Medicare fee-for-service plan for the entire CASCADE follow-up period. The mean age of the entire sample was 85.5 years, 85.6% were female, 89.7% were white, and 43.6% lived in a special care unit for advanced dementia (Table 1). Baseline characteristics between the managed-care and fee-for-service residents were similar except that the managed-care residents were more likely to be female (91.0% vs 81.0%; P < .002) and less likely to have congestive heart failure (10.5% vs 22.2%; P = .01).

Outcomes

During CASCADE, 158 of the 291 residents (54.3%) died, and an additional 118 residents (40.5%) died prior to the end of the Medicare data observation period, for a total of 276 decedents (94.8%): 126 individuals (94.7%) in the managed-care group and 150 individuals (94.9%) in the fee-for-service group. Survival did not differ significantly between the 2 groups in the unadjusted analyses (log-rank test, P = .88) and the adjusted Cox proportional hazards model (adjusted hazards ratio, 0.93; 95% CI, 0.77-1.10).

Table 2 presents the analyses comparing the remaining outcomes between the managed-care and fee-for-service groups. In the adjusted analysis, residents with advanced dementia enrolled in managed care were significantly more likely to have DNH orders compared with those in the traditional Medicare fee-for-service program (63.7% vs 50.9%; adjusted OR [AOR], 1.9; 95% CI, 1.1-3.4). Managed-care residents were also less likely to be transferred to the hospital for any acute illness (3.8% vs 15.7%; AOR, 0.2; 95% CI, 0.1-0.5). Managed-care residents had more primary care visits per 90 days than fee-for-service residents (mean [SD], 4.8 [2.6] vs 4.2 [5.0]; adjusted rate ratio [ARR], 1.3; 95% CI, 1.1-1.6) and managed-care residents had relatively more NP visits (mean [SD], 3.0 [2.1] vs 0.8 [2.6]; ARR, 3.0; 95% CI, 2.2-4.1).

A larger proportion of managed-care (23.3%) compared with fee-for-service residents (18.4%) were referred to hospice, although this difference was not statistically significant. Additionally, family satisfaction with care (SWC-EOLD) was slightly higher for the managed-care group (difference, 0.9; 95% CI, 0.0-1.8), although the difference was also not statistically significant.

Discussion

This study linked unique prospective clinical data with Medicare claims to describe and compare patterns of care between

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Table 1. Baseline Characteristics of Nursing Home Residents With Advanced Dementia and Their Health Care Proxies, by Health Insurance Status

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>All Residents  (n = 291)</th>
<th>Fee for Service (n = 158)</th>
<th>Managed Care (n = 133)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean (SD), y</td>
<td>60.2 (7.5)</td>
<td>60.2 (7.5)</td>
<td>60.7 (7.5)</td>
</tr>
<tr>
<td>Female sex</td>
<td>188 (64.6)</td>
<td>99 (62.7)</td>
<td>89 (66.9)</td>
</tr>
<tr>
<td>White race</td>
<td>261 (89.7)</td>
<td>145 (91.8)</td>
<td>116 (87.2)</td>
</tr>
<tr>
<td>Did not live in a special care unit</td>
<td>164 (56.4)</td>
<td>92 (58.2)</td>
<td>72 (54.1)</td>
</tr>
<tr>
<td>Nursing home length of stay &lt;3 y</td>
<td>132 (45.3)</td>
<td>77 (48.7)</td>
<td>55 (41.3)</td>
</tr>
<tr>
<td>Score 0 on Test for Severe Impairment</td>
<td>213 (73.2)</td>
<td>110 (69.6)</td>
<td>103 (77.4)</td>
</tr>
<tr>
<td>Score on Bedford Alzheimer Nursing Severity Scale, mean (SD)</td>
<td>21.0 (2.2)</td>
<td>21.0 (2.2)</td>
<td>21.0 (2.3)</td>
</tr>
<tr>
<td>Comorbid baseline conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congestive heart failure</td>
<td>49 (16.8)</td>
<td>35 (22.2)</td>
<td>14 (10.5)</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>30 (10.3)</td>
<td>18 (11.4)</td>
<td>12 (9.0)</td>
</tr>
<tr>
<td>Active cancer</td>
<td>3 (1.0)</td>
<td>2 (1.3)</td>
<td>1 (0.8)</td>
</tr>
<tr>
<td>Percutaneous endoscopic gastrostomy tube</td>
<td>19 (6.5)</td>
<td>12 (7.6)</td>
<td>7 (5.3)</td>
</tr>
<tr>
<td>Proxy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child of resident</td>
<td>199 (68.4)</td>
<td>111 (70.3)</td>
<td>88 (66.2)</td>
</tr>
<tr>
<td>Female sex</td>
<td>188 (64.6)</td>
<td>99 (62.7)</td>
<td>89 (66.9)</td>
</tr>
<tr>
<td>Age, mean (SD), y</td>
<td>60.2 (11.6)</td>
<td>60.6 (11.4)</td>
<td>59.8 (12.0)</td>
</tr>
</tbody>
</table>

All values other than age and Bed ford Alzheimer Nursing Severity Scale score are expressed as number (percentage).

b Managed-care group is significantly different, P < .05.

c Scores on the Test for Severe Impairment range from 0 to 24; lower scores indicate greater cognitive impairment. This outcome was dichotomized as 0 or higher than 0.

d Scores on the Bedford Alzheimer Nursing Severity Scale range from 7 to 28; higher scores indicate greater functional disability.
nursing home residents with advanced dementia enrolled in a Medicare managed-care insurance plan and those with fee-for-service Medicare. Residents enrolled in Medicare managed care received more primary care visits (principally from NPs), were more likely to have a DNH order, and had fewer hospital transfers for acute illness compared with those who had traditional Medicare coverage. Our findings also suggest that managed-care residents may have been more likely to enter hospice and that family members may have been more satisfied with the level of care. For all other outcomes, including survival, residents with managed care fared as well as those with traditional Medicare.

In the era of health care reform, tremendous focus has been placed on reducing unnecessary and costly care, in particular reducing avoidable hospitalizations of nursing home residents. Residents with advanced dementia who are profoundly disabled, near the end of life, and most often have comfort as a primary goal of care are obvious targets for such initiatives. Hospital transfers can be traumatic for these residents and their families and most often do not improve their clinical outcomes (eg, survival) or comfort, albeit with possible exceptions, such as hip fracture. The challenge is to understand the mechanisms that will encourage nursing homes to provide goal-directed care for acutely ill residents on-site, either by providing high-quality palliative care or potentially curative conservative treatments (ie, antibiotics).

Researchers have argued that fragmentation at both the payment and delivery levels has contributed to poor coordination of care for nursing home residents who are acutely ill. At the payment level, nursing homes and other providers have historically been reimbursed on a fee-for-service basis separately for each service. As such, Medicaid has not incentivized nursing homes to prevent unnecessary hospital transfers. Because Medicare managed-care plans are at risk for hospitalization costs, they have an incentive to invest in the infrastructure and resources necessary to prevent unnecessary hospital transfers. Indeed, one review estimated that managed care might reduce hospitalizations by 30% to 80%, which is consistent with our findings.

At the delivery level, our findings support the notion that a possible mechanism for the managed-care plans to reduce hospital transfers is by increasing the intensity of primary care services provided in the nursing home, mainly by employing on-site NPs. Studies have shown that greater NP presence in nursing homes is associated with reduced hospitalizations independent of insurance status. In advanced dementia, having an NP on-site has been associated with higher DNH order rates and lower use of feeding tubes. Higher DNH or...

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Fee for Service</th>
<th>Managed Care</th>
<th>Managed-Care Estimate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. Mean (SD) or %</td>
<td>No. Mean (SD) or %</td>
<td>Unadjusted</td>
</tr>
<tr>
<td>Do-not-hospitize orders</td>
<td>852 50.9</td>
<td>703 63.7</td>
<td>1.9 (1.0 to 3.7)</td>
</tr>
<tr>
<td>Hospital transfers for acute illness</td>
<td>331 15.7</td>
<td>229 3.8</td>
<td>0.3 (0.1 to 0.7)</td>
</tr>
<tr>
<td>Primary care visits in the nursing home in 90 d</td>
<td>158 4.2 (5.0)</td>
<td>133 4.8 (2.6)</td>
<td>1.3 (1.1 to 1.6)</td>
</tr>
<tr>
<td>Physician visits</td>
<td>158 3.4 (4.7)</td>
<td>133 1.8 (1.5)</td>
<td>0.76 (0.6 to 0.9)</td>
</tr>
<tr>
<td>Nurse practitioner visits</td>
<td>158 0.8 (2.6)</td>
<td>133 3.0 (2.1)</td>
<td>3.0 (2.1 to 4.2)</td>
</tr>
<tr>
<td>Hospice treatment</td>
<td>158 18.4</td>
<td>133 23.3</td>
<td>0.9 (0.5 to 1.5)</td>
</tr>
<tr>
<td>Family satisfaction with care (SWC-EOLD)</td>
<td>638 31.6 (4.6)</td>
<td>538 32.4 (4.5)</td>
<td>1.0 (0.0 to 2.1)</td>
</tr>
<tr>
<td>Comfort in preceding 90 d (SM-EOLD)</td>
<td>762 37.5 (7.6)</td>
<td>634 37.8 (7.5)</td>
<td>0.9 (~2.9 to 2.7)</td>
</tr>
<tr>
<td>Comfort during last week of life (CAD-EOLD)</td>
<td>81 34.9 (4.6)</td>
<td>66 34.0 (4.2)</td>
<td>~0.8 (~2.3 to 0.7)</td>
</tr>
<tr>
<td>Pain treatment</td>
<td>147 10.2</td>
<td>114 16.7</td>
<td>1.8 (0.0 to 3.5)</td>
</tr>
<tr>
<td>Dyspnea treatment</td>
<td>124 61.3</td>
<td>94 55.3</td>
<td>0.9 (0.5 to 1.8)</td>
</tr>
<tr>
<td>Pneumonia treatment</td>
<td>127 100.0</td>
<td>79 100.0</td>
<td>...</td>
</tr>
</tbody>
</table>

Abbreviations: CAD-EOLD, Comfort Assessment in Dying With Dementia; SM-EOLD, Symptom Management—End-of-Life in Dementia; SWC-EOLD, Satisfaction With Care at the End-of-Life in Dementia.

* The effect estimate is an odds ratio for all outcomes except for EOLD measures, which are differences, and physician and nurse practitioner visits, which are rate ratios.
* The association of managed-care status with each outcome after adjusting for all baseline characteristics described in Table 1.
* Analysis conducted at the 90-day assessment level.

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nder rates suggest that NPs may be more engaged in advance care planning, which is the most consistent modifiable factor associated with better palliative care outcomes for residents with advanced dementia.\textsuperscript{3,4,29,30} The presence of a DNH order among these patients has been associated with fewer hospital transfers, greater family satisfaction,\textsuperscript{29} and more cost-effective care.\textsuperscript{31} Thus, the presence of advance directives, especially DNH orders, is generally considered a marker of higher quality advanced dementia care. Although the prevalence of DNH orders in the CASCADE cohort was considerably higher compared with national averages,\textsuperscript{28} the fact that it was 63.7\% and 50.9\% in the health management organization and non–health management organization groups, respectively, suggests an opportunity to improve advance care planning in these residents regardless of insurance status.

Findings from evaluations of the 2 prominent Medicare risk models, PACE\textsuperscript{32} and Evercare,\textsuperscript{21} stressed the importance of NPs in helping to reduce hospital transfers under managed care. Some of the increase in NP visits was offset by fewer physician visits in our data, but residents receiving managed care ultimately received more primary care visits. In addition, survival and other end-of-life outcomes were similar in residents who were and were not covered by managed-care programs. In fact, a trend was found toward higher satisfaction with care in the managed-care group.

One important development under the Affordable Care Act that is directed toward improving care coordination for dually eligible beneficiaries is the Integrated Care Demonstration.\textsuperscript{2} This 26-state program blends payment and delivery reforms to improve care coordination for dually eligible beneficiaries, including nursing home residents with advanced dementia.\textsuperscript{33} Currently, 21 of these states have proposed some capitated managed-care models under this demonstration to combine Medicare and Medicaid financing and offer enhanced primary care for beneficiaries. It will be important to monitor whether the favorable managed-care results observed in the present study generalize to nursing home residents with advanced dementia who participate in these demonstrations.

The present study has several limitations. Because CASCADE was an observational study, we are unable to make causal inferences regarding the observed associations between patient insurance status and outcomes. The possibility of unmeasured confounding remains despite the fact that the managed-care and traditional Medicare groups were balanced on measured factors and the robustness of the adjusted analyses. Moreover, CASCADE was not designed to examine facility factors associated with patient-level outcomes, and the relatively few residents per facility did not provide adequate power to do so. Thus, unmeasured nursing home characteristics are another possible source of confounding, although our analyses adjusted for clustering at the facility level. Inaccuracies also may have occurred in the ascertainment of CASCADE data from the residents’ medical records (eg, pain, dyspnea, utilization of primary care services); however, such errors are likely to be nondifferential between the 2 groups. We also were unable to identify the exact managed-care plan in which individuals were enrolled. Given the heterogeneity of managed-care programs, we cannot contend that all such programs will be associated with the same findings as those observed in this study. Specifically, we do not know whether individuals were in a standard Medicare Advantage plan or a plan that also included coverage of Medicaid services and hospice.

However, it is notable that the managed-care residents in our sample did not have Medicare hospice claims even though hospice care was part of the capitated services provided by their managed-care plan. In Massachusetts, the Evercare Senior Care Options plan covers all Medicare (including hospice) and Medicaid services. Finally, because our entire sample was drawn from the Boston area, generalizability to other areas is uncertain.

Despite these limitations, this study provides novel data suggesting that the model of health care delivery in a nursing home has important effects on the type of care received by individual residents. Intensive primary care services may be a promising approach to ensure that nursing homes are able to provide appropriate, less burdensome, and affordable care, especially at the end of life. Ultimately, it may require a change in the underlying financial structure to institute those changes.

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**REFERENCES**


Invited Commentary

The Right Care in the Right Place

William J. Hall, MD, MACP

You are cross-covering patients for a colleague over a weekend night and a call is routed to you from a long-term care facility. The nurse informs you that a resident is indicating nonspecific discomfort and the nursing home administrator wants permission to send the patient to the local emergency department to be evaluated for admission to the hospital. The patient is an 88-year-old woman who has been in the nursing home for the past 6 months with a primary diagnosis of long-standing dementia and failure to thrive. She had been hospitalized twice previously with similar signs of discomfort and no source had been established. The patient has profound memory deficits. She is incapable of verbal communication and is incontinent and nonambulatory. You cannot verify a record of a do-not-hospitalize directive. What criteria do you use to decide on the need for hospital transfer for acute care vs care in the nursing home facility?

Ideally, the decision to admit patients with this terminal form of dementia will be made with regard for patient autonomy, best practices, and family consideration. Thanks to the increasing recognition of the natural history of advanced Alzheimer disease and the parallel development of more sophisticated strategies regarding palliative care, advanced dementia is increasingly regarded as what it is: a major primary cause of death, irrespective of the presence or absence of confounding chronic diseases. Yet, despite this understanding, there is wide variation in care strategies, especially involving the decision to hospitalize such patients residing in a nursing home. Often the decision to admit leads to a cascade of burdensome interventions, such as tube feeding and intravenous antibiotics, unlikely to benefit the patient. Pain and comfort care are less commonly prioritized, and both the patient and family members suffer.

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