Improving the Use of Hospice Services in Nursing Homes
A Randomized Controlled Trial

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A T LEAST 1 IN 4 AMERICANS DIES in a nursing home,[1] and considerable evidence indicates that nursing home residents do not receive optimal end-of-life care. Approximately 25% of residents with daily cancer pain receive no pain medications,[2] and residents are often transferred to an acute care setting to receive aggressive treatment in the last weeks of life.[3,4] It is not surprising, therefore, that families often express dissatisfaction with the end-of-life care that their loved ones receive in nursing homes.[5]

Hospice care has been associated with improvements in these and other outcomes. For instance, nursing home residents who receive hospice care are more likely to have their pain assessed, receive better pain management, and have lower rates of inappropriate medications and physical restraint use.[6,7] Families perceive that hospice improves nursing home care,[8] and hospice is associated with improved satisfaction in other settings as well.[5]

However, only 1 in 4 residents enrolls in hospice care before death.[9] Although hospice is not the right choice for all nursing home residents, it is likely that more residents and their families could benefit from hospice care.[10] We hypoth-

esized that more residents might enroll in hospice care if physicians, residents, and families were encouraged to discuss hospice as an option for care. Therefore, the goals of this study were to determine whether an intervention that promotes communication about hospice care can increase hospice enrollment and improve the quality of care that residents receive at the end of life.

Context Hospice care may improve the quality of end-of-life care for nursing home residents, but hospice is underutilized by this population, at least in part because physicians are not aware of their patients' preferences.

Objective To determine whether it is possible to increase hospice utilization and improve the quality of end-of-life care by identifying residents whose goals and preferences are consistent with hospice care.

Design, Setting, and Participants Randomized controlled trial (December 2003-December 2004) of nursing home residents and their surrogate decision makers (N=205) in 3 US nursing homes.

Intervention A structured interview identified residents whose goals for care, treatment preferences, and palliative care needs made them appropriate for hospice care. These residents' physicians were notified and asked to authorize a hospice informational visit.

Main Outcome Measures The primary outcome measures were (1) hospice enrollment within 30 days of the intervention and (2) families' ratings of the quality of care for residents who died during the 6-month follow-up period.

Results Of the 205 residents in the study sample, 107 were randomly assigned to receive the intervention, and 98 received usual care. Intervention residents were more likely than usual care residents to enroll in hospice within 30 days (21/107 [20%] vs 1/98 [1%]; $P<.001$ [Fisher exact test]) and to enroll in hospice during the follow-up period (27/207 [25%] vs 6/98 [6%]; $P<.001$). Intervention residents had fewer acute care admissions (mean: 0.28 vs 0.49; $P=.04$ [Wilcoxon rank sum test]) and spent fewer days in an acute care setting (mean: 1.2 vs 3.0; $P=.03$ [Wilcoxon rank sum test]). Families of intervention residents rated the resident's care more highly than did families of usual care residents (mean on a scale of 1-5: 4.1 vs 2.5; $P=.04$ [Wilcoxon rank sum test]).

Conclusion A simple communication intervention can increase rates of hospice referrals and families' ratings of end-of-life care and may also decrease utilization of acute care resources.

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METHODS

Setting and Sample

This study recruited residents and their surrogates from 3 nursing homes selected for the diversity of their resident populations. Site 1 is an urban facility with a high proportion of African American residents; site 2 is a suburban facility with a largely white, affluent population; and site 3 is a Veterans Affairs (VA) nursing home with an ethnically diverse population. Sites 1 and 2 contract with outside hospice organizations to provide end-of-life care, and site 3 uses an in-house hospice program. The intervention was applied throughout all units of sites 1 and 2. In site 3, where virtually all residents are male, 2 units (out of 4) were selected to participate to preserve a representative sex distribution in the sample. This study was approved by the Philadelphia VA institutional review board (site 3), and by the University of Pennsylvania institutional review board on behalf of sites 1 and 2. Participants were enrolled and followed up between December 2003 and December 2004.

All residents in a unit at the time of the initial chart review were eligible. Residents were excluded if they were admitted for a respite stay, if they were already receiving hospice care, or if the resident was too cognitively impaired to complete the interview and did not have a surrogate. Letters sent to each resident's surrogate described the study and gave them the opportunity to refuse participation by calling a toll-free number. Residents underwent cognitive screening using the orientation items from the Mini-Mental State Examination (MMSE)[11] to determine their ability to participate. When residents could not answer screening questions or could not answer questions to assess their understanding during the consent process, a surrogate was invited to participate instead. Both residents and surrogates provided oral informed consent.

Baseline Data Collection

Clinical and Demographic Characteristics. Two research assistants interviewed the resident in person and the surrogate by telephone. Interviews assessed resident and surrogate demographic characteristics, the resident's deficits in activities of daily living,[12] and cognitive function using the MMSE.[11] To better define the representativeness of the sample, residents and surrogates were asked to define their ethnicity using predefined categories. Medical charts were reviewed for current medications, type of insurance, and existing diagnoses, which were used to calculate the resident's Charlson comorbidity score.[13] Chart review also identified existing orders to limit life-sustaining treatment (eg, do not resuscitate [DNR] orders) and advance directives or chart documentation of preferences to limit such treatment in the future.

Hospice Appropriateness. For all residents and surrogates in the study in both the usual care and intervention groups, scripted interview questions assessed the resident's appropriateness for hospice care. Residents were determined to be appropriate for hospice care if either the resident or surrogate: (1) expressed goals for care that focused on comfort; (2) refused both cardiopulmonary resuscitation and mechanical ventilation; and (3) identified at least 1 need for palliative care. Prognosis was not used to determine study eligibility because in nursing homes, as in other settings, even the best prognostic models are often inaccurate.[14,15]

We defined goals for care using a single question adapted from the SUPPORT (Study to Understand Prognosis and Preferences for Outcomes and Risks of Treatment) study.[16] This question offered a choice between a course of life-prolonging treatment ("A course of treatment that focuses on extending life as much as possible. But with this course of treatment you might have more pain and discomfort.") and palliative care ("A course of treatment that focuses on relieving pain and discomfort as much as possible. But with this course of treatment you might not live as long."). Single items assessed preference regarding cardiopulmonary resuscitation and mechanical ventilation. When a resident or surrogate could not decide on a single answer for these questions, we inferred a preference for life-sustaining treatment, which is the default in most health care settings.

We assessed 10 needs for symptom management using the Global Distress Index (GDI) of the Memorial Symptom Assessment Scale.[17] The GDI assesses the presence and severity of 6 common physical symptoms (pain, constipation, lack of appetite, lack of energy, drowsiness, dry mouth) and 4 common psychological symptoms (feeling sad, worrying, feeling nervous, feeling anxious). We also assessed 8 needs for palliative care services, corresponding to core hospice services[18] that previous research has shown that patients and families value at the time of hospice enrollment[19,20]: (1) additional nursing support; (2) physician care focused on comfort; (3) practical support with personal care needs; (4) help with advance care planning; (5) counseling and emotional support; (6) bereavement support for family members; (7) spiritual support; and (8) visits from a volunteer to provide company for the resident.

Intervention

Intervention assignment was determined by blocked randomization using a random-number list generated by the study statistician (K.M.), stratified by site of care. Research assistants revealed each resident's assignment at the beginning of the interview, assigning each resident and his/her surrogate to the same treatment group. Participants were not informed of their assignment until the end of the interview, when they were asked for permission to share the results of the interview with the physician. Research assistants could not be blinded to the resident's treatment assignment because they were required to assign residents and surrogates to the same treatment group. However, they determined hospice appropriateness by reading a script verbatim and applying a priori criteria (described below), making it unlikely that their knowledge of treatment assignment could influence

the participant's responses. The intervention was designed to help physicians identify those residents whose goals, preferences, and palliative care needs would make them appropriate for hospice care. This strategy is suggested by previous studies that have shown that physicians are often not aware of their patients' preferences,[21-25] and that simple interventions can improve communication.[26-31] In the intervention group, the results of resident and/or surrogate interviews were sent by fax to the resident's physician when either the resident or surrogate met all 3 criteria for appropriateness for hospice care. These faxes described the study aims and informed them that an interview had identified one of their patients who might be appropriate for hospice care. We did not require agreement between residents and surrogates because we reasoned that the resident's physician would be best able to reconcile resident's and surrogate's responses when they differed. Physicians were asked to reply by fax, indicating whether the resident had a prognosis of 6 months or less and, if so, whether nursing home staff should arrange a hospice visit.

In the usual care group, hospice appropriateness was assessed in the same way, but interview results were not communicated to the resident's physician. Instead, all residents and families were given a brief description of hospice and hospice services. In addition, hospice-appropriate residents and families were also told that they could learn more about hospice care by speaking with the resident's health care team.

Follow-up Data

Residents were followed up for 6 months or until death. Medical records were reviewed biweekly to identify deaths, hospitalizations, new orders to limit life-sustaining treatment, and hospice enrollment. When residents died during the follow-up period, the surrogate was asked to complete a brief interview approximately 2 months after the resident's death. These

interviews used items adapted from the Toolkit Afterdeath Survey,[32] a widely used instrument to measure families' perceptions of the quality of end-of-life care. The surrogate evaluated the resident's care in the last week of life on a scale from 1 to 5 (poor, fair, good, very good, excellent). Surrogates were also asked whether a member of the health care team discussed the resident's prognosis with them and what to expect during the dying process, whether the resident had pain or shortness of breath that was not managed as well as it could have been, and whether the resident died where he/she would have wanted.

Data Analysis

Baseline differences and final outcomes of the intervention and usual care groups were evaluated using the Wilcoxon rank sum test or χ^2 test. Mortality rates were compared using Kaplan-Meier survival curves and the log-rank test. Sample size was planned to provide at least 80% power to detect a 15% absolute difference in 30-day hospice referral rates (0% vs 15%) and a 0.5-point difference in overall ratings of end-of-life care (1-5 scale; SD=0.5; assuming a 15% mortality at 6 months) (α=.05 for each comparison). Stata software version 8.0 (StataCorp LP, College Station, Tex) was used for all statistical analyses.

RESULTS

Of 400 eligible residents, 14 died and 3 were discharged before an interview could be completed, 14 were already receiving hospice care, and 26 could not complete the interview and had no surrogate (**FIGURE**). Of the remaining 343 residents, 138 residents or their surrogates refused, leaving a total sample size of 205 (60%). Participating residents were similar to all residents at the 3 sites in terms of age, sex, ethnicity, presence of a DNR order, primary insurance, and Charlson comorbidity score. Participating residents were also similar to the national population of nursing home residents with respect to age, sex, and ethnicity, but were less likely

Figure. Flow of Participants Through the Trial
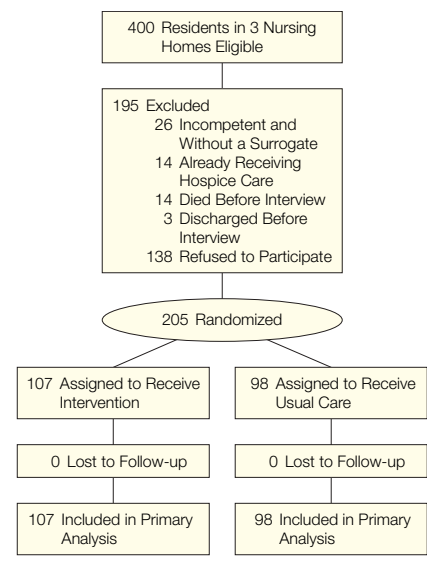
to have Medicaid (24% vs 55%) and less likely to have a DNR order (37% vs 53%) (**TABLE 1**).[33]

Thirty-two interviews (16%) were conducted only with the resident, 45 interviews (22%) were conducted with both the resident and his/her surrogate, and 128 interviews (62%) were conducted only with the resident's surrogate. Residents in the study received care from a total of 33 primary physicians (range: 1-39 residents per physician). Residents in the intervention (n=107) and usual care (n=98) groups were similar with respect to site of care and other clinical and demographic characteristics (Table 1).

Intervention and Outcomes: Referral to Hospice

The section of the interview that determined hospice appropriateness typically required between 5 and 10 minutes to administer to residents, and somewhat less for surrogates. There were fewer hospice-appropriate residents in the intervention group than in the usual care group (35/107 [33%] vs 49/98 [50%]; P=.01 [χ^2]) (**TABLE 2**). Surrogates in the usual care group were more likely to express goals of comfort care, and residents in the usual care

group were more likely to refuse life-sustaining treatment.

Faxes were sent to 26 physicians responsible for the 35 residents in the intervention group who were hospice appropriate. Physicians did not respond to repeated faxes for 6 patients (17%). Others declined to authorize a referral because they believed the resident did not have a prognosis of 6 months or less (n=2 residents [6%]) or would not benefit from hospice care (n=2 residents [6%]). Of the remaining physicians who authorized a hospice visit for a resident (25/35 [71%]), 4 residents did not enroll because the hospice team believed they did not have a prognosis of 6 months or less. The remaining 21 residents enrolled in hospice. In the intervention group, all referrals in the first 30 days were for residents whose physician agreed to a hospice visit.

Hospice referral rates at 30 days were significantly higher in the intervention group (21/107 [20%] vs 1/98 [1%]; $P<.001$ [Fisher exact test])(coefficient, 3.16; 95% confidence interval [CI], 1.34-5.19)(number needed to treat [NNT]=5). The single resident referred from the control group had been found to be hospice appropriate during the interview, and the referral was made after the family contacted the physician directly. A similar effect was observed in all 3 interview categories, although the smallest subgroup (resident only) did not reach statistical significance (all results using Fisher exact test: resident only, 6/19 [32%] vs 0/13 [0%], $P=.06$; surrogate only, 9/69 [13%] vs 1/59 [2%], $P=.02$; resident and surrogate, 6/19 [32%] vs 0/26 [0%], $P=.003$). Similar proportions of hospice-appropriate residents in the intervention group were referred to hospice across the 3 sites (site 1: 5/26 [19%]; site 2: 10/65 [15%] ; site 3: 6/16 [38%]; $P=.16$ [Fisher exact test]).

Follow-up Outcomes and Hospitalization

By the end of the 6-month follow-up period, 33 residents (16%) had enrolled in hospice care. Intervention residents were more likely to enroll in hospice than were usual care residents (27/107 [25%] vs 6/98 [6%]; $P<.001$ [χ^2]). Intervention residents also had fewer acute care admissions (mean [SD]: 0.28 [0.70] vs 0.49 [0.89]; $P=.04$ [Wilcoxon rank sum test]) and spent fewer days in an acute care setting (mean [SD]: 1.17 [3.32] vs 2.99 [6.07]; $P=.03$ [Wilcoxon rank sum test]) during the follow-up period (TABLE 3). Almost all of the admissions in the intervention group occurred when the resident was not enrolled in hospice (70/78 [90%]). Residents with longer lengths of stay in hospice had fewer admissions (Spearman $\rho=-0.38$; $P=.04$) and spent fewer

Table 1. Characteristics of Study Residents and Surrogates*

Characteristic	No. (%)			
	All (N = 205)	Usual Care (n = 98)	Intervention (n = 107)	P Value
Interview type				
Resident only	32 (16)	13 (13)	19 (18)	
Surrogate	128 (62)	59 (60)	69 (64)	.27
Both	45 (22)	26 (26)	19 (18)	
Site				
1	47 (23)	21 (21)	26 (24)	
2	130 (63)	65 (66)	65 (61)	.70
3	28 (14)	12 (12)	16 (15)	
Resident characteristics				
Age, mean (range), y	84 (54-102)	83 (54-101)	84 (66-102)	.46
Male	52 (25)	25 (26)	27 (25)	.96
White	152 (74)	74 (76)	78 (73)	.67
Diagnoses†				
Cancer	9 (4)	4 (4)	5 (5)	.84
Dementia	128 (62)	56 (57)	73 (67)	.13
Congestive heart failure	46 (22)	26 (26)	20 (19)	.18
Chronic lung disease	34 (17)	17 (17)	17 (16)	.78
Do not resuscitate order	76 (37)	38 (39)	38 (36)	.63
Surrogate characteristics				
Age, mean (range), y	58 (23-91)	57 (23-91)	59 (29-88)	.23
Male	47 (27)	25 (29)	22 (25)	.51
White	123 (71)	59 (69)	64 (73)	.63
Relationship to resident				
Child/grandchild/son-in-law or daughter-in-law	116 (67)	57 (67)	59 (67)	
Sibling	17 (10)	7 (8)	10 (11)	
Niece/nephew	16 (9)	8 (9)	8 (9)	.79
Spouse	13 (8)	6 (7)	7 (8)	
Friend	6 (3)	3 (4)	3 (3)	
Other	5 (3)	4 (5)	1 (1)	
MMSE score				
0-9	133 (65)	63 (65)	70 (65)	
10-19	18 (9)	9 (9)	9 (8)	>.99
20-30	54 (26)	26 (26)	28 (26)	
Charlson score, mean (range)	2.6 (0-7)	2.6 (0-7)	2.5 (0-6)	.52
Activities of daily living dependencies	4.4 (1-5)	4.5 (1-5)	4.4 (1-5)	.06
Primary insurance‡				
Medicaid	42 (24)	20 (23)	22 (24)	
Medicare	102 (58)	50 (58)	52 (57)	.95
Private insurance	28 (16)	13 (15)	15 (16)	
None/pending	5 (3)	3 (3)	2 (2)	

Abbreviation: MMSE, Mini-Mental State Examination.
*Variables do not always sum to the total due to missing data.
†Multiple diagnoses are listed for each resident.
‡Insurance data for non–Veterans Affairs (VA) residents only; VA was primary payer for all VA residents.

days in an acute care setting (Spearman $\rho = -0.38$; $P = .03$).

Outcomes in the Last Week of Life

Twenty-three residents (11%) died during the 6-month follow-up period. Mortality rates were similar in the intervention and control groups (15/107 [14%] vs 8/98 [8%]; $P = .18$ [χ^2]). Kaplan-Meier survival curves were also similar in the 2 groups ($P = .20$ [log rank test]). Six-month survival was similar for those residents who were determined to be hospice appropriate and those who were not (8/84 vs 15/121; 9% vs 12%; $P = .52$ [χ^2]).

Intervention residents received more days of hospice care than usual care residents (mean: 64 vs 14 days; $P = .01$ [rank sum test]). However, intervention residents were not more likely to be enrolled in hospice at the time of death (5/14 [36%] vs 3/8 [38%]; $P = .93$ [χ^2]) nor were they more likely to die in the nursing home rather than in an acute care setting (9/15 [60%] vs 5/8 [62%]; $P > .99$ [Fisher exact test]). Residents in both groups who were enrolled in hospice care at the time of death were more likely to die in the nursing home rather than in an acute care setting (8/9 [89%] vs 6/14 [43%]; $P = .04$ [Fisher exact test]).

Of the 23 residents who died during the follow-up period, 3 surrogates could not be reached for a second interview, 2 refused, and 1 had died. A retrospective interview was completed with 17 surrogates (74%) approximately 2 months after the resident's death. Of these, 4 of the 11 intervention residents and 3 of the 6 control residents died in hospice ($P = .64$ [Fisher exact test]). Surrogates' ratings of the care that residents received in the last week of life were significantly higher in the intervention group (mean [SD]: 4.3 [1.01] vs 2.2 [1.47]; $P = .01$ [Wilcoxon rank sum test]) (coefficient, 3.33; 95% CI, 0.69-5.97) (Table 3). Surrogates of residents with a longer length of stay in hospice rated the resident's end-of-life care more highly (Spearman correlation coefficient, 0.75; $P = .05$).

COMMENT

The results of this study have 5 implications for efforts to improve the care of the growing numbers of older adults who die in nursing homes. First, we found that by increasing access to hospice care we were able to improve families' ratings of the care that residents received at the end of life. This finding is consistent with those of an early controlled trial[34] and a more recent case-control study[5]; however, the early trial was conducted in a single health care setting, and the interpretation of case-control studies of hospice care is limited by selection bias because enrollment in hospice is influenced by a variety of patient characteristics that may affect satisfaction. In contrast, the results reported herein provide novel evidence that increased use of hospice can improve families' ratings of end-of-life care.

Table 2. Hospice Appropriateness of Intervention and Usual Care Residents*

	No. (%)			
	All Residents (N = 205)	Usual Care (n = 98)	Intervention (n = 107)	P Value
Hospice appropriate*	84 (41)	49 (50)	35 (33)	.01
Goals focus on comfort care				
Resident	47 (61)	24 (63)	23 (59)	.70
Surrogate	137 (80)	72 (86)	65 (74)	.05
Refuse life-sustaining treatment				
Resident	27 (35)	19 (49)	8 (21)	.01
Surrogate	91 (53)	50 (59)	41 (47)	.11
Palliative care needs, mean (range)				
Resident	1.9 (0-17)	2.0 (0-13)	1.9 (0-17)	.56
Surrogate	5.0 (0-15)	5.1 (0-15)	4.9 (0-15)	.61
Any palliative care need	194 (95)	92 (94)	102 (95)	.65

*Residents were defined as being hospice appropriate if either the resident or surrogate: (1) had goals consistent with comfort care; (2) refused cardiopulmonary resuscitation and mechanical ventilation; and (3) had at least 1 need for palliative care.

Table 3. Outcomes in Intervention and Usual Care Groups

	No. (%)			
Outcome	All Residents (N = 205)	Usual Care (n = 98)	Intervention (n = 107)	P Value
Referral to hospice within 30 d (n = 205)	22 (11)	1 (1)	21 (20)	<.001
Resident only (n = 32)*	6 (19)	0 (0)	6 (32)	.06
Surrogate (n = 128)*	10 (8)	1 (2)	9 (13)	.02
Resident and surrogate (n = 45)*	6 (13)	0 (0)	6 (32)	.003
Acute care admissions, mean (range)	0.38 (0-4)	0.49 (0-4)	0.28 (0-4)	.04
Days in hospital, mean (range)	2.0 (0-29)	3.0 (0-29)	1.2 (0-18)	.03
6-mo mortality	23 (11)	8 (8)	15 (14)	.18
Enrolled in hospice at time of death	9 (39)	3 (38)	5 (36)	.93
Death in nursing home	14 (61)	5 (62)	9 (60)	>.99
Surrogate after death interviews (n = 17)				
Overall assessment of quality of care in last month of life (Possible range: 1-5)	3.53 (1-5)	2.2 (1-5)	4.3 (2-5)	.01
Told that the resident had a fatal illness*	10 (59)	2 (33)	8 (73)	.16
Told what to expect during the dying process*	5 (29)	0 (0)	5 (45)	.10
Had pain that was inadequately treated*	0 (0)	0 (0)	0 (0)	0 (0)
Had shortness of breath that was inadequately treated*	2 (12)	1 (17)	1 (9)	>.99
The resident died where he/she would have wanted*	8 (47)	2 (33)	6 (54)	.62

*Fisher exact test.

Second, this intervention could feasibly be implemented in most long-term care settings. Unlike several previous studies that have evaluated intensive or multistep communication interventions,[35,36] this intervention can be administered in several minutes by any member of the health care team. The brief scripted interview and simple criteria to determine hospice appropriateness ensure that this intervention can be used for an unselected resident population in virtually any long-term care setting, with minimal staff training. These results add to growing evidence that simple interventions may offer some of the most promising opportunities to improve communication about goals and preferences.[27,28,37]

Third, this intervention was efficient, resulting in hospice referral for approximately 20% of residents within 30 days. The effect size of this intervention, and its NNT, compare favorably with other patient- and family-focused interventions.[26,37] In fact, it is possible that the intervention's true effects are underestimated by the results reported herein because residents in the intervention group were less likely to be hospice appropriate. In addition, some physicians cared for residents in both groups, creating contamination that could have increased rates of hospice enrollment in the usual care group. Together, these factors suggest that the true effect of the intervention may have been even larger than that observed.

Fourth, this study suggests that the benefits of hospice care may be greater for those patients who are referred earlier. Indeed, the principal effect of this intervention may be earlier referral rather than greater rates of hospice use. In this study, families of residents in the intervention group were more satisfied with care in the last week of life, even though intervention residents were not more likely to receive hospice care at the time of death. This suggests that the improvements in families' perceptions of care observed in the intervention group were due to earlier hospice enrollment and longer lengths of hos-

pice service. This interpretation is consistent with the finding that intervention residents received more days of hospice care and that a longer period of hospice care prior to death was associated with higher family ratings of the quality of care in the resident's last week of life. These results are consistent with those of several descriptive studies that have found associations between length of stay in hospice and provision of services[38] and families' perceptions of the value that hospice offers.[39] These findings also provide data to support the recommendations of experts in the field,[40-43] referring clinicians,[44] and government agencies,[45,46] that some patients should be enrolling in hospice care sooner.

Finally, this study found that intervention residents were admitted to the hospital less frequently and spent fewer days in an acute care setting. Previous research has also found that residents receiving hospice care spend less time in an acute care setting.[4] This finding has important implications for efforts to improve the quality of end-of-life care in nursing homes. Because of the discontinuity of care that transfers produce,[47] there is general agreement that residents should be able to die in the nursing home without transfers, hospitalizations, and aggressive interventions, if that is consistent with their goals and preferences.[10,48-51] In addition, a reduction in hospitalizations could have important policy implications because care in the last year of life constitutes approximately 30% of total Medicare expenditures.[52] Further research is needed to determine whether efforts to increase rates of hospice referral in nursing homes can offer cost savings as well as improved care.

This study has 3 main limitations. First, all 3 nursing homes had their own hospice programs or relationships with community hospice programs. Nursing homes face numerous barriers in forming relationships with community hospices,[10] and few have developed their own hospice programs. This intervention would likely prove to be less effective in a nursing home with-

out these resources. Second, diagnostic data resident characteristics were extracted from the medical record and therefore may be inexact. For instance, MMSE testing revealed that not all residents with cognitive impairment carried a diagnosis of dementia. Third, this study did not examine processes of care during the follow-up period. Therefore, it was not possible to determine how the intervention changed care, and how hospice enrollment changed the care that residents received. Although it is clear that this intervention was successful in improving families' perceptions of the quality of care that residents received, it cannot shed light on the mechanisms of this effect. Nor is it clear whether the intervention alone was entirely responsible for the observed reduction in hospitalizations. It is highly plausible that this effect was due primarily to increased rates of hospice enrollment in the intervention group, particularly since almost all admissions occurred when residents were not enrolled in hospice. However, it is also possible that subtle differences in baseline characteristics may also have contributed to the observed difference.

The results reported herein show that a simple communication intervention can improve the quality of end-of-life care and decrease resource utilization by promoting earlier access to hospice care in nursing homes. If there is a surprise in these findings, it is that such a simple, inexpensive, and easily exportable intervention can contribute so much to improving care. As Americans spend more time in nursing homes near the end of life, it will become increasingly important to emphasize simple, low-cost interventions like this one that can help to ensure that residents and their families have access to the best possible quality of care.

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