

# Physician Factors That Influence Patient Referrals to End-of-Life Care

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**Objectives:** To identify factors associated with physician referrals to end-of-life (EOL) care.

**Study Design:** Cross-sectional, web-based survey.

**Methods:** Participants were managed care physicians (n = 545) from the Southern California region of a national nonprofit health maintenance organization who treated a patient in their office within 6 months of the patient's death from a chronic condition. Measures included self-reports of referrals to EOL services, comfort level discussing EOL with patients, personal/family experience with hospice, and demographic characteristics.

**Results:** Participants were most commonly US born (69.1%), married (83.8%), and male (66.0%) with a mean age of 47 years (SD = 8.9 years). About half were Caucasian (51.7%). Logistic regression revealed that family/internal medicine physicians were nearly 9 times more likely to make EOL referrals (95% confidence interval [CI] 3.879-19.434), and physicians comfortable discussing EOL care were nearly 7 times more likely to refer (95% CI 3.465-12.750). Younger age was significantly associated with EOL referrals; with every 1-year decrease in age, physicians were 5% more likely to refer (95% CI 0.911-0.985). Family/internal medicine physicians (95% CI 1.259-2.899) and those comfortable discussing EOL care (95% CI 2.964-9.685) were also more likely to make frequent (4 or more) referrals.

**Conclusions:** This study highlights factors associated with EOL referrals that may be enhanced at the organizational level through training and educating physicians. Results suggest that organizations should work toward improving physician ease and comfort with EOL conversations. This study serves as an important step toward understanding and reducing physician-level barriers to EOL referrals.

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see end of text.

Over the last decade, Americans' preference to die at home<sup>1</sup> has increased the use of hospice<sup>2</sup> and palliative care<sup>3,4</sup> for end-of-life (EOL) services. In 2009, hospices provided care for 41.6% of US decedents,<sup>5</sup> up from 28.6% in 2000.<sup>6</sup> Studies indicate that such EOL programs maximize quality of life through palliation of pain and symptoms,<sup>7,8</sup> although initiation and timing of referral may impact the effects of symptom severity caused by disease progression.<sup>9</sup>

Referrals to EOL services are commonly initiated by physicians, who, for hospice care, must certify that the patient has a terminal condition and estimated life expectancy of 6 months or less. With physicians as gatekeepers,<sup>10,11</sup> variation in referral, enrollment, and utilization of EOL services exists, particularly for certain racial groups<sup>12</sup> such as African Americans.<sup>13</sup> Studies have found that many physicians do not discuss EOL with terminally ill patients. For example, in one study only 53% of stage IV lung cancer patients had had a hospice discussion with their provider.<sup>13</sup> Physicians have identified discomfort with death and dying, including the hospice concept, as a barrier to initiating EOL discussions and hospice referrals.<sup>14-16</sup>

Research on EOL referrals has tended to focus on patient-level characteristics rather than physician factors. Among the few studies of physician behavior, results are mixed; some indicate that age,<sup>17,18</sup> sex,<sup>11,17</sup> and practice variations<sup>11,17-19</sup> impact EOL referral rates, whereas others do not.<sup>18,19</sup> These results highlight the need to better understand how physicians' personal characteristics (eg, sex, age, race, area of practice) influence EOL referrals to hospice and palliative care. Additionally, studies have found that hospice enrollment is affected by familiarity with hospice because of having had a close friend or relative under hospice care<sup>20-22</sup>; however, this factor has not been explored among physicians. Although previous studies have analyzed individual physician barriers to EOL referrals, physicians' personal experience and comfort have been largely unexamined. To address this gap, we explored the impact of multiple physician-level variables, adjusting for fixed demographic characteristics, on referrals to hospice among a sample of Southern California-based physicians from a large health maintenance organization (HMO).

## METHODS

### Procedures and Sample

We conducted a cross-sectional study of Southern Cali-

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fornia-based physicians from a large HMO. Potential participants included all HMO physicians practicing in the specified geographical region who had seen a patient in their office within 6 months of the patient's death from a chronic condition. Individuals were contacted via e-mail by the physician co-principal investigator and were given a link to an anonymous web-based survey. All were first contacted in September 2008; nonresponders were sent reminder e-mails in each of the next 2 months. This study was approved by the institutional review boards of the participating institutions.

### Measures

We developed a 43-item survey that included physicians' self-reported number of patient referrals to EOL services (home-based palliative care and hospice), knowledge of EOL services, attitudes toward EOL services, perceived barriers to referring patients to EOL services, personal and family experience with utilizing EOL services, and demographic characteristics. Prior to administration, the survey had been reviewed for face validity, comprehension, and completeness by the research team and then pretested by 2 physicians.

**Referral to EOL Services.** Home-based palliative care is provided by this HMO for seriously ill patients with cancer, congestive heart failure, and chronic obstructive pulmonary disease who are expected to have about 1 year to live. The service is similar to hospice with the exception that patients do not have to forgo curative measures, and life expectancy may exceed 6 months (see Brumley et al<sup>23</sup>). Physicians' EOL referral behaviors (dependent variable) were assessed based on self-reports in response to the following survey item: Estimate the number of patients you refer to hospice or home-based palliative care on an annual basis.

Rate of referral was recoded into 2 separate dichotomous variables to analyze differences between referrers and nonreferrers to EOL care and between those who made frequent (4 or more) referrals as opposed to no referrals. Frequent referrals were defined as 4 or more annual referrals because the original variable was categorical (none, 1-3 referrals, 4-6 referrals, 7-9 referrals, or 10 or more referrals).

**Demographics.** Physicians were asked to record their sex, race, marital status, age, nativity, and length of time practicing medicine (postresidency). Additionally, physicians were asked to select their area of medical practice from a list of common areas of practice or to indicate their specialty in an open-ended field.

### Take-Away Points

This study is the first to examine physician experience and comfort with end-of-life (EOL) discussions in multivariate models and shows the important contribution these characteristics make.

- Family/internal medicine physicians and comfort conducting EOL conversations were associated with making single and frequent referrals to EOL care.
- Younger physician age was associated with making 1 or more EOL referrals; however, age was not a significant determinant of frequent referrals.
- Results support efforts to reduce physician-level barriers to EOL referrals, support strategies to improve comfort with EOL conversations, and suggest areas organizations might consider to influence physician behavior.

**Comfort.** Physicians' comfort level discussing EOL services with terminally ill patients was measured on a 5-point Likert scale in response to the statement: *I feel comfortable discussing hospice and palliative care options with terminally ill patients during outpatient visits.* The response set ranged from "strongly disagree" to "strongly agree," coded with a higher score reflecting stronger agreement.

**Personal Experience With EOL Care.** Physicians were asked to indicate whether they had a family member who had received hospice care.

### Analysis

Descriptive statistics were used to describe key characteristics of the sample, and  $\chi^2$  tests were conducted to analyze differences between physicians' EOL referral behaviors and demographic characteristics. We performed *t* tests to examine variations in mean age between referrers and nonreferrers to EOL care and between those who made frequent referrals versus those who made no referrals. Logistic regressions were conducted to identify predictors of any EOL referral and frequent referrals. In each condition, 3 models were entered: model 1 (a and b) fit demographic variables, model 2 (a and b) included all variables in model 1 and physicians' comfort with conducting EOL discussions with patients, and model 3 (a and b) included all variables in models 1 and 2 along with physicians' personal/family experience with hospice. Based on comparisons in the  $\chi^2$  change statistic, the most parsimonious model was selected. SPSS statistical software for Windows version 18.0 (SPSS Inc, Chicago, Illinois; released 2009) was used in all analyses.

## RESULTS

Between September and November 2009, 2084 physicians were contacted; of these, 554 completed the survey (response rate = 26.65%); 1525 were unresponsive to the e-mails; and 5 opted out of the study. Most respondents were US born (69.1%), married (83.8%), and male (66.0%),

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■ **Table 1.** Physician Demographics, Comfort, and Experience by Referral Behavior (n = 554)

Characteristic	Frequency, %			$\chi^2$	P
	Referral (n = 434)	Nonreferral (n = 85)	Total (n = 554)		
<b>Age, y, mean (SD)</b>	46.39 (8.75)	49.79 (8.76)	47.02 (8.86)	t = 114.078	<.001 <sup>a</sup>
<b>Sex</b>					
Male	252 (64.8)	51 (70.8)	303 (65.7)	0.988	.320
Female	137 (32.2)	21 (29.2)	158 (34.3)		
<b>Race</b>					
African American	11 (2.8)	3 (4.2)	14 (3.1)	1.262	.939
Asian/Pacific Islander	121 (31.3)	22 (30.6)	143 (31.2)		
Caucasian	201 (51.9)	38 (52.8)	239 (52.1)		
Latino	35 (9.0)	5 (6.9)	40 (8.7)		
Multiethnic	13 (3.4)	2 (2.8)	15 (3.3)		
Native American	0 (0)	0 (0)	0 (0)		
Other	6 (1.6)	2 (2.8)	8 (1.7)		
<b>Marital status</b>					
Married	325 (84.2)	57 (79.2)	382 (83.4)	4.269	.234
Unmarried	40 (10.4)	13 (18.1)	53 (11.6)		
Divorced	19 (4.9)	2 (2.8)	21 (4.6)		
Widowed	2 (0.5)	0 (0)	2 (0.4)		
<b>US born</b>					
Yes	267 (69.7)	48 (67.6)	315 (69.4)	0.125	.723
No	116 (30.3)	23 (32.4)	139 (30.6)		
<b>Medical specialty</b>					
Family/internal medicine	226 (52.1)	10 (12.1)	236 (45.6)	45.748	<.001 <sup>a</sup>
Specialty medicine	175 (40.3)	64 (77.1)	239 (46.2)		
Emergency-type medicine	33 (7.6)	9 (10.8)	42 (8.1)		
<b>Years practiced</b>					
<1	0 (0)	0 (0)	0 (0)	13.974	.007 <sup>b</sup>
1-5	52 (12.0)	6 (7.1)	58 (11.2)		
6-10	101 (23.3)	11 (12.9)	112 (21.6)		
11-15	76 (17.6)	16 (18.8)	92 (17.8)		
16-20	77 (17.8)	11 (12.9)	88 (17.0)		
>20	127 (29.3)	41 (48.2)	168 (32.4)		
<b>Comfort conducting EOL discussions</b>					
Yes	370 (85.6)	45 (53.6)	415 (80.4)	45.965	<.001 <sup>a</sup>
No	62 (14.4)	39 (46.4)	101 (19.6)		
<b>Had a family member receive hospice</b>					
Yes	170 (44.2)	26 (36.6)	196 (43.0)	1.389	.239
No	215 (55.8)	45 (63.4)	260 (57.0)		

EOL indicates end of life; SD, standard deviation.

<sup>a</sup>P < .001.

<sup>b</sup>P < .01.

## Factors Influencing End-of-Life Care Referrals

**■ Table 2A.** Logistic Regression for Predictors of EOL Referral Behavior Among Physicians: Models 1a, 2a, and 3a (n = 554)

Variable	One or More EOL Referrals								
	Model 1a			Model 2a			Model 3a		
	β	SE	OR	β	SE	OR	β	SE	OR
Constant	2.739	0.941	15.472	2.068	1.016	7.907	2.026	1.019	7.585
Male	0.006	0.313	0.545	0.038	0.336	1.039	0.103	0.342	1.108
Age	-0.04 <sup>a</sup>	0.018	0.96	-0.054 <sup>b</sup>	0.02	0.947	-0.055 <sup>b</sup>	0.02	0.946
US born	-0.14	0.337	0.869	0.009	0.362	1.009	-0.067	0.367	0.935
White	0.694	0.437	2.001	0.404	0.478	1.498	0.326	0.481	1.386
Asian	0.011	0.445	0.423	-0.03	0.488	0.97	-0.1	0.492	0.905
Family/internal medicine	2.144 <sup>c</sup>	0.399	8.535	2.161 <sup>c</sup>	0.411	8.682	2.184 <sup>c</sup>	0.413	8.882
Comfortable conducting EOL discussions				1.894 <sup>c</sup>	0.332	6.647	1.886 <sup>c</sup>	0.333	6.596
Had a family member receive hospice							0.413	0.318	1.511
$\chi^2$	50.743 <sup>c</sup>			83.924 <sup>c</sup>			85.632		
$\Delta \chi^2$				33.181 <sup>c</sup>			1.708		
df	6			7			8		
$\Delta df$				1			1		
-2 Log likelihood	326.759			293.578			291.870		
Hosmer and Lemeshow $\chi^2$	4.978			7.217			14.10		

EOL indicates end of life; OR, odds ratio; SE, standard error.  
<sup>a</sup> $P < .05$ .  
<sup>b</sup> $P < .01$ .  
<sup>c</sup> $P < .001$ .

with a mean age of 47 years (standard deviation = 8.9 years). About half (51.7%) were Caucasian, 31.2% Asian, 8.7% Latino, 3.3% multiethnic, 3.1% African American, and 1.1% were other races. Of those born outside the United States, more than half were from Asia (57.1%) followed by North America (Canada and Mexico) (11.4%), the Middle East (9.3%), Africa (8.6%), Europe (7.9%), and South America (5.7%). Area of practice was most commonly a specialty (46.2%) or family/internal medicine (45.6%). Specialty areas included surgery (24.3%), oncology (11.7%), and psychiatry (11.3%) among 26 reported specialties. Fewer than half (43%) reported that a family member received hospice care, and most (83.2%) reported making at least 1 EOL referral in the last year and feeling comfortable (80.4%) conducting EOL discussions with terminally ill patients (Table 1). Half (50.5%) reported making 4 or more referrals in the last year.

### Bivariate Analysis

Area of practice ( $\chi^2 = 45.748$ ,  $P < .001$ ) and comfort conducting EOL conversations ( $\chi^2 = 45.965$ ,  $P < .001$ ) varied significantly between physicians who made an EOL referral and

those who did not. The number of years practicing medicine was also significantly different between EOL referring and nonreferring physicians ( $\chi^2 = 13.974$ ,  $P = .007$ ). Differences in physician mean age revealed a significant inverse relationship, such that younger physicians were more likely to report referring (mean age of referring physicians = 46.39 years, SD = 8.75 years; mean age of nonreferring physicians = 49.79 years, SD = 8.76 years;  $t = 114.078$ ,  $P < .001$ ; Table 1). There were no differences in sex, ethnicity, marital status, nativity, or personal experience in referral to EOL care.

### Multivariate Analysis

Logistic regression showed that family/internal medicine physicians and comfort with conducting EOL conversations with patients were significantly associated with making a referral. Family/internal medicine physicians were nearly 9 times more likely to make EOL referrals (95% confidence interval [CI] 3.879-19.434) compared with specialists and emergency medicine physicians. Physicians reporting comfort with discussing EOL care were nearly 7 times more likely to refer patients compared with physicians who were uncomfortable conducting these discussions (95% CI 3.465-12.750)

■ TRENDS FROM THE FIELD ■

■ **Table 2B.** Logistic Regression for Predictors of EOL Referral Behavior Among Physicians: Models 1b, 2b, and 3b (n = 554)

Variable	Four or More EOL Referrals								
	Model 1a			Model 2a			Model 3a		
	β	SE	OR	β	SE	OR	β	SE	OR
Male	0.156	0.212	1.168	0.242	0.222	1.274	0.262	0.224	1.3
Age	-0.011	0.013	0.989	-0.014	0.013	0.986	-0.015	0.013	0.986
US born	-0.15	0.237	0.86	-0.08	0.248	0.923	-0.099	0.251	0.906
White	0.408	0.293	1.504	0.294	0.311	1.342	0.278	0.312	1.321
Asian	0.303	0.306	1.353	0.377	0.324	1.458	0.369	0.325	1.446
Family/internal medicine	0.694 <sup>a</sup>	0.203	2.001	0.647 <sup>b</sup>	0.213	1.911	0.651 <sup>b</sup>	0.213	1.918
Comfortable conducting EOL discussions				1.679 <sup>a</sup>	0.302	5.358	1.674 <sup>a</sup>	0.302	5.331
Had a family member receive hospice							0.12	0.213	1.128
χ <sup>2</sup>	15.087 <sup>c</sup>			51.881 <sup>a</sup>			52.2		
Δ χ <sup>2</sup>				36.794 <sup>a</sup>			0.319		
df	6			7			8		
Δ df				1			1		
-2 Log likelihood	589.007			552.213			551.894		
Hosmer and Lemeshow χ <sup>2</sup>	8.025			4.959			3.908		

EOL indicates end of life; OR, odds ratio; SE, standard error.

<sup>a</sup>P < .001.

<sup>b</sup>P < .01.

<sup>c</sup>P < .05.

(Table 2A, model 1a). Age was a significant negative predictor of EOL referrals; with every 1-year decrease in age, physicians were .05 times more likely to make an EOL referral (95% CI 0.911-0.985). Other demographic variables and having had a family member receive hospice care were not significant predictors.

The second regression examined factors associated with frequent EOL referrals (also adjusted for demographic and practice variables) and identified family/internal medicine physicians and comfort in conducting EOL as significantly associated with frequent referrals to hospice. Family/internal medicine physicians were nearly 2 times more likely to make frequent EOL referrals (95% CI 1.259-2.899) compared with specialists and emergency care physicians, and those comfortable discussing EOL care were 5 times more likely to frequently refer compared with participants who reported a lack of comfort conducting these discussions (95% CI 2.964-9.685) (Table 2B, model 2b). Demographic variables including age and having a family member who received hospice care were not significant predictors of frequent EOL referrals.

## DISCUSSION

This study identified physician characteristics associated

with referrals to hospice or palliative care. Respondents had a high rate of referral (83%) and expressed comfort conducting EOL conversations (80%). Comfort was positively associated with making single and frequent referrals. Previous studies on physician factors and EOL care comparing population-based hospitals, HMOs, and Veterans Health Administration (VHA) sites found that physicians from HMOs and VHA managed care models reported conducting EOL conversations earlier in the disease process than physicians in population-based settings,<sup>18</sup> and that HMO patients enrolled in hospice at higher rates than patients in fee-for-service plans (17% vs 11%, respectively).<sup>24</sup> Thus, the institutional environment may positively influence referral practices.

Practicing in the area of family/internal medicine was associated with making single and frequent referrals after adjusting for other factors. This finding reflects practice variations between family/internal and specialty physicians, which was found in previous studies,<sup>17,19</sup> or a closer relationship between family/internal physicians and their patients, fostering greater comfort with sensitive discussions. Physician age was negatively associated with any EOL referral (but not frequent referrals), supporting previous studies, which found younger age<sup>11</sup> or fewer years in practice (less than 10 years)<sup>17</sup> to be associated with EOL referral. This may reflect an age-related cohort effect

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from the mandated inclusion of EOL care training and education in accredited US medical schools in the past 13 years.<sup>25,26</sup>

### Limitations

Several limitations should be considered. First, physician referral behavior was based on self-report. Supporting administrative data would strengthen this study. However, administrative data on the characteristics of nonresponders were not available. Although all possible respondents were identified for the survey, because the response rate was 26.6% nonresponse bias was a potential problem, with those most likely to make such referrals probably also more likely to complete the survey. In areas where previous research had been conducted, similarly low response rates have also been observed.<sup>17,19,27,28</sup> This cross-sectional study focuses on a single HMO, though it surveyed a large number of physicians who were diverse in terms of race/ethnicity and practice specialization.

### IMPLICATIONS AND CONCLUSIONS

We identified physician comfort as a factor associated with physician referral of EOL patients to hospice and home-based palliative care. Results support efforts to reduce physician-level barriers to EOL referrals by implementing strategies to improve physician comfort with EOL conversations, such as web-based learning modules and mentoring,<sup>28</sup> group discussions of case studies and role-playing with colleagues,<sup>29</sup> and shadowing physicians to model behavior.<sup>29</sup> Increased focus on training specialists who work with EOL patients is also needed to help them see EOL referrals as part of their practice and not solely a task for primary care. At the organizational level, creating improved awareness of EOL care and shared responsibility around referrals may be beneficial. Recently, researchers have charged the professional societies of medical specialties with recognizing EOL communication skills and knowledge as equally important as learning about novel surgical techniques or pharmacologic interventions<sup>30</sup> to establish a clear stance on EOL care delivery, normalize the behavior endorsed by the specialty, and keep physicians apprised of EOL care options, knowledge, and referral protocol. Promoting communication between physicians at EOL may lead to collaboration. Moreover, the availability of EOL resources such as inpatient and outpatient palliative care consult teams may support physicians through EOL discussions with patients or serve as a source for physicians to refer their patients for comfort care. This study points the way for improving EOL care and suggests that more research is needed to build a strong knowledge base in this area.

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