

Patients' Perceptions of Physicians' Recommendations for Comfort Care Differ by Patient Age and Gender

Marie F. Johnson, MD, Michael Lin, MSPH, Saurabh Mangalik, MD, Donald J. Murphy, MD, Andrew M. Kramer, MD

OBJECTIVE: To determine patient characteristics associated with patient and proxy perceptions of physicians' recommendations for life-prolonging care versus comfort care, and with acceptance of such recommendations.

DESIGN: Cross-sectional.

SETTING: Five teaching hospitals in Denver, Colo.

PATIENTS: We studied 239 hospitalized adults believed by physicians to have a high likelihood of dying within 6 months.

MEASUREMENTS AND MAIN RESULTS: Interviews with patients or proxies were conducted to determine perceptions of physicians' recommended goal of care and roles in decision making.

RESULTS: Patients' mean age was 66.6 years; 44% were women. In adjusted analysis, age greater than 70 years and female gender were associated with a higher likelihood of believing that comfort care had been recommended by the physician (odds ratio [OR], 3.70; 95% confidence interval [CI], 1.89 to 7.24; OR, 1.99; 95% CI, 1.04 to 3.84, respectively). Patients and proxies gave substantial decision-making authority to physicians: 29% responded that physicians dominate decision making, 55% that decision making is equally shared by physicians and patients, and only 16% that patients make decisions. Increasing age was associated with an increased likelihood of believing that physicians should dominate decision making ($P < .005$).

CONCLUSIONS: Among patients with advanced illness, perceived comfort care recommendations were related to patient age and gender, raising concern about possible gender and age bias in physicians' recommendations. Although all patients and proxies gave significant decision-making authority to physicians, older individuals were more likely to give physicians decision-making authority, making them more vulnerable to possible physician bias.

KEY WORDS: decision making; ethics; terminal care; physician-patient relationship.

J GEN INTERN MED 2000;15:248-255.

Age and gender are known to affect the delivery of medical services. Older patients are less likely to receive interventional medical procedures, life-sustaining treatments, and expensive hospital care than younger patients after controlling for severity of illness.¹⁻⁵ While older patients are less likely to want cardiopulmonary resuscitation (CPR) efforts than younger patients, physicians underestimate older patients' desires for life-extending care,³ and tend to project their own wishes for less-aggressive care in similar circumstances.^{3,6} Similarly, women are less likely to undergo some diagnostic and therapeutic procedures than are men.⁷⁻¹³

Why do older patients and female patients receive less-aggressive medical care? Medical decision making is complex, and many factors may contribute to these observed differences. Physicians' counseling behaviors and patients' preferences, however, are at the center of all medical decisions. Whether patient preferences or physician behaviors dominate differences in the aggressiveness of care is unknown. The SUPPORT investigators indirectly implicated physicians' behaviors, with respect to age differences, by showing that older patients received fewer life-sustaining interventions even after controlling for patients' CPR preferences.³ However, as the authors acknowledged, CPR preferences are a limited proxy for patients' preferences for other forms of aggressive medical care. The SUPPORT investigators did not measure patients' preferences for the specific interventions studied, nor did they measure physicians' recommendations for such interventions.

To determine whether physicians' behaviors influence observed gender and age differences in the delivery of medical care, physicians' recommendations to patients should be measured. Measuring physicians' recommendations is challenging because they are couched in complex discussions about goals and potential outcomes of care. However, a patient's or proxy's perception of what has been recommended to them is a crucial outcome of these complex discussions because the perception of what has been recommended is likely to strongly influence preferences and choices for care. Physicians bring knowledge and authority to interactions with patients and hold a position of respect in society. Though patients differ in the degree of autonomy they wish to exercise in decision making, a majority of patients desire only intermediate involvement in medical decision making.¹⁴ Older and sicker patients have been shown to desire less autonomy in decision making.¹⁵ Physicians' authority in decision making and patients' deference to that authority may be substantial. Patients' and proxies' perceptions of physicians' recommendations, whether accurate or not, may

Received from the Center on Aging Research Section, University of Colorado Health Sciences Center, Denver, Colo (MFJ, ML, AMK); Rose Medical Center, Denver, Colo (SM); and Colorado Collective for Medical Decisions, Denver, Colo (DJM).

Presented at the annual meeting of the American Geriatrics Society, May 19, 1999.

Address correspondence and reprint requests to Dr. Johnson: Center on Aging Research Section, University of Colorado Health Sciences Center, 4200 E. 9th Ave., P.O. Box B179, Denver, CO 80262 (e-mail: marie.johnson@uchsc.edu).

therefore provide an important measure of the effect of physicians' counseling behaviors. If physicians' recommendations are perceived to be different for women or older individuals, perceived differences in physicians' recommendations may be at the heart of observed age and gender differences in the delivery of care.

To determine whether perceived differences in physicians' counseling behaviors contribute to age and gender differences in the aggressiveness of medical care, we examined patients' and proxies' perceptions of physicians' recommendations for comfort care versus life-extending care among patients with advanced illness. We compared the characteristics of patients who believed or whose proxy believed that their physicians had recommended comfort care with those who believed that physicians had recommended care to prolong life. We also compared patient and proxy characteristics associated with the deferral of medical decision making to physicians.

METHODS

Design

We used a cross-sectional study design.

Study Participants

From January 1998 to February 1999, internal medicine residents in 5 Denver hospitals identified consecutive medical patients within 24 hours of hospital admission who, in the resident's opinion, had a 50% or greater likelihood of dying within 6 months. This selection criterion was intended to identify patients with whom physicians may be more likely to have end-of-life planning discussions so that the content of these discussions could be measured. Previous studies have shown that such discussions occur in only a minority of seriously ill patients.¹⁶ Physicians' failure to recognize that patients are dying may present a barrier to such discussions. Hence, this selection method was chosen to maximize the likelihood of discussions occurring by selecting patients whom residents identified to be seriously ill. Residents were not trained to identify eligible subjects because we considered the accuracy of eligibility assessments to be less important than whether physicians believed patients had a high likelihood of dying, and we wanted to avoid altering physician behavior so that we could observe discussions as they occurred in practice.

The 5 participating hospitals were a university hospital, a city/county hospital serving a largely indigent population, a Veterans Affairs hospital, and two private university affiliates. The institutional review board of each hospital approved the study, and informed consent was obtained from all patients or their proxies. Patients were excluded if they were less than 18 years old; could not communicate, could not speak English, or were significantly confused and had no proxy; or were discharged

within 24 hours of admission. To determine if patients were confused, the Folstein mini-mental status examination was abbreviated to 19 points with a score of 10 or less indicating confusion.¹⁷ The abbreviated examination was used to decrease the interview burden to a very ill patient cohort, while also allowing identification of patients with gross abnormalities in cognition whose consent was invalid or whose memory of discussions with physicians might be severely limited.

Data Sources

A trained research assistant interviewed subjects or their proxies in the hospital within 72 hours of admission. Proxies were defined as the medical durable power of attorney or medical decision maker. Sociodemographic information was collected from the interview. Using scripted questions, the interviewer asked each of the subjects or their proxy whether or not any physician had discussed the seriousness and prognosis of their illness with them. Respondents who answered yes were asked to identify the physician who had spoken with them the most, and how long they had known this physician. Respondents were then asked, "Sometimes there are trade-offs between aggressive medical care to prolong life or cure disease and making sure that you are comfortable. Has your doctor discussed these trade-offs?" Having framed the issues of trade-offs in this manner, they were then asked what they believed to be their physician's recommended goal of care: comfort or the prolongation of life. Specifically, patients or their surrogate were asked, "What is the most important goal of the care your doctor has recommended—extending your life or making you comfortable?"

These questions were pilot tested prior to the study to ensure that patients or proxies were able to answer them. While comfort and life-prolonging care may not be explicitly discussed with patients and proxies, distinct transitions to comfort care or hospice care are commonly made, and patients and proxies appeared able to recognize these distinctions and answer the questions without difficulty.

Subjects or their proxies also rated the relative role that they and their physician played in major decision making. They were asked, "In making major decisions about your medical care, who do you believe makes the decisions?" and "In making major decisions about your medical care, who do you think *should* make the decisions?" They were asked to respond to both questions on a 5-point scale of decisions made wholly by the patient, made mostly by the patient, equally shared with physicians, made mostly by physicians, and made wholly by physicians. Finally, subjects or proxies were asked to describe the strength of their physician's recommendations: "The scale shows different ways a doctor might discuss options with you and advise you. Where on this scale would you place your doctor: 1 indicates doctor discussed different options neutrally; 2, doctor discussed different

options and offered his/her advice, or 3, doctor discussed options and gave strong advice?"

Primary diagnosis and medical comorbidities were determined from the hospital chart. The primary diagnosis and comorbidities were used to calculate the Charlson comorbidity index, a validated index used to predict 1-year mortality.¹⁸

Statistical Analysis

Logistic regression was used to estimate the association between patient characteristics and patients' or proxies' perceptions of physicians' recommended goal of care: comfort care or care to prolong life. Linear regression was used to estimate the association between patient and proxy characteristics and their perception of the decision-making roles of physicians and themselves, using the 5-point Likert scales to which patients and proxies responded as the outcome variables. We selected variables for the regression models based on the published literature, clinical considerations, and univariate analyses using χ^2 for categorical variables and t tests for continuous variables. Because proxy respondents were younger, more educated, and more likely to be female than patient respondents, all regression analyses were conducted with and without proxy responses, but no significant differences were found in the magnitude or direction of the results. All reported models therefore include both patient and proxy responses to questions. In the comfort care model, we adjusted for ethnicity, education, hospital setting, insurance, the presence of dementia or the need for a surrogate decision maker, cancer diagnosis and other specific diagnoses used to calculate the Charlson index (congestive heart failure [CHF], chronic pulmonary disease, renal failure, end-stage liver disease, diabetes, metastatic cancer, and cerebrovascular disease) and the weighted Charlson comorbidity score. The Charlson comorbidity index was tested both as a continuous variable using the weighted index score, and as a categorical variable using the cutoff score of greater than or equal to 5, associated with at least a 60% mortality at 1 year.¹⁸ Non-significant variables other than comorbidities, cancer, and dementia were removed from the model. In the decision-making models, adjustments were made for sociodemographic factors that may influence patients' or proxies' perception of decision-making autonomy (patient or proxy race, gender, age, and education).

RESULTS

Of 462 patients identified as eligible for the study, 239 patients or their surrogates agreed to participate, 52 refused, 76 were discharged within 24 hours of admission, 15 did not speak English, and 77 were confused or could not communicate and no surrogate could be located. No patients identified as eligible for the study died before they or their proxy could be interviewed. For 89 pa-

tients, a proxy was required for the interview. Proxy respondents were younger (mean age, 49.3 years, $P = .000$), more likely to have completed high school ($P = .001$), and more likely to be female ($P = .014$) than patient respondents.

Characteristics of the 239 patients are shown in Table 1 according to their doctor's recommended goal of care. Medical residents accurately identified a seriously ill patient population with a mean Charlson comorbidity index score of 4.38. A Charlson score of 4 is associated with 43% mortality in 1 year, while a score of 5 or greater is associated with 78% mortality in 1 year among patients surviving hospitalization.¹⁸ Among this seriously ill population, 21% ($n = 50$) of respondents said that no physician had discussed the seriousness of their illness and 36% ($n = 61$) said that no physician had discussed their prognosis with them. Patients or proxies who responded that no discussion had occurred about either the seriousness of their illness or their prognosis were not asked to identify their physicians' recommended goal of care.

Of 178 patients and proxies who could identify the physician's recommended goal of care, univariate analysis revealed that patients who believed or whose proxy believed the physician to have recommended comfort care were more likely to be older ($P = .001$), to be female ($P = .06$), and to require a surrogate for decision making either because of confusion or because of inability to communicate ($P = .04$) than those who believed the physician to have recommended life-extending care. After adjusting for Charlson comorbidities, need for a surrogate decision maker, and cancer diagnosis, female gender ($P < .04$) and age greater than 70 years ($P < .0001$) were significantly associated with an increased likelihood of a perceived comfort care recommendation (Table 2). Because physician recommendations as measured reflect perceived recommendations, models were also examined independently for patient respondents and for proxy respondents. In these models, the odds ratios for female gender and age greater than 70 years were of the same magnitude and direction for a perceived comfort care recommendation.

Patients' or proxies' perceived autonomy in medical decision making was also measured. When asked who *should make* major medical decisions, 16% of patients or proxies responded that the physician should be the dominant decision maker, 66% reported that the physician and patient should share decision making equally, and 18% reported that the patient should dominate decision making. However, when asked who in actual practice *makes* major medical decisions, 29% reported that the physician was the primary decision maker, 55% that decision making was equally shared between the physician and the patient, and only 16% believed that patients were the primary decision makers. After adjusting for socioeconomic factors that may affect autonomy in decision making (race, education, and gender), increasing age of both patient and proxy respondents was significantly associated with the belief that physicians *should make* ($P < .005$) and in prac-

Table 1. Patient Characteristics Associated with Physicians' Recommended Goal of Care (N = 239)

Characteristic	No Discussion (n = 61)	Discussed Prognosis and Goal of Care		P Value*
		Comfort Care (n = 84)	Prolong Life (n = 94)	
Mean age, y	67.3	72.1	61.2	.001
Age, %				
<50 y	5.0	3.7	11.6	.002
50–59 y	3.3	3.7	6.6	NS
60–69 y	5.8	3.7	7.0	NS
≥70 y	12.0	23.7	13.7	.001
Female, %	41.0	52.4	38.3	.06
Race, %				
White	71.7	65.0	62.6	NS
Black	13.3	12.5	20.9	NS
Hispanic	10.0	16.3	12.1	NS
Other	5.0	4.3	6.0	NS
High school education or more, %	73.0	69.5	66.0	NS
Religious affiliation, %				
None	32.2	30.8	37.7	NS
Christian	60.7	59.8	56.5	NS
Jewish	5.1	7.7	4.7	NS
Other	3.3	3.7	3.3	NS
Insurance, %				
Commercial fee-for-service	12.7	7.3	8.5	NS
Commercial HMO	3.2	4.9	8.5	NS
Medicare fee-for-service	44.4	47.6	35.1	NS
Medicare HMO	15.9	13.4	7.5	NS
Medicaid	6.4	14.6	22.3	NS
Uninsured	11.1	8.5	9.6	NS
Mean Charlson comorbidity score	4.90	4.29	4.14	NS
Charlson score ≥5, %	45.0	44.4	33.3	NS
Any cancer, %	49.2	41.5	42.6	NS
Metastatic cancer, %	8.5	6.8	9.8	NS
Congestive heart failure, %	9.4	11.1	10.6	NS
Cerebrovascular disease, %	4.7	4.3	3.4	NS
Prior myocardial infarction, %	4.3	6.8	5.5	NS
Chronic pulmonary disease, %	4.3	8.5	8.5	NS
Diabetes with end-organ damage, %	1.0	3.0	4.0	NS
End-stage liver disease, %	3.0	3.6	6.0	NS
Renal failure (creatinine >3.0), %	6.4	8.5	10.2	NS
Documented confusion or proxy required to complete interview, %	31.8	53.6	36.2	.04
Duration of patient-physician relationship, %				
Hospitalization only	61.1	50.6	61.3	NS
> Hospitalization but ≤1 y	33.3	15.7	16.1	NS
≥1 y	5.6	33.7	22.6	NS

*P value compares the difference between comfort care and prolong life recommendations. NS indicates not significant.

tice do make ($P < .03$) major medical decisions. Despite age and gender differences between patients and proxies, the magnitude and direction of the results were not affected by inclusion or exclusion of proxy decision makers.

Finally, patients or proxies described, on a defined scale, the strength of the recommendations they had received from physicians. Of the respondents 22.1% answered that their physician had discussed different options neutrally; 60.2%, that the physician had offered advice; and 17.7%, that the physician had offered strong advice.

DISCUSSION

Why were women or their proxies twice as likely as men or their proxies to believe that comfort care had been recommended? Why were patients over the age of 70 years (or their proxies) almost 4 times more likely than younger patients to believe that comfort care had been recommended?

There are many potential explanations for our findings. The perceptions of patients and proxies with respect to the goals of care recommended to them by physicians

Table 2. Gender and Age Affect the Likelihood of Receiving a Comfort Care Recommendation*

Variable	Odds Ratio	95% Confidence Interval	P Value
Age \geq 70 y	3.70	1.89 to 7.24	.0001
Female	1.99	1.04 to 3.84	.04
Charlson score \geq 5	2.44	1.08 to 5.51	.03
Cancer	0.53	0.24 to 1.17	NS
Confusion, surrogate required	2.03	0.58 to 7.08	NS

*C-Index for logistic regression model = 0.73. NS indicates not significant.

may be the result of many forces. Personal preferences, cultural practices and beliefs, and the synthesis of input from several physicians, friends, and family members may all contribute to perceptions of a recommended goal of care. The degree to which physicians' actual counseling behaviors and recommendations are reflected by a perceived recommendation is uncertain. However, patients and proxies did report these to be physicians' recommendations, and a possible explanation for our findings is that physicians' recommendations for care vary by patient age and gender. Our findings may therefore suggest a form of age and gender bias in physicians' counseling behaviors.

No substantial evidence exists that women are, in general, less likely to benefit from aggressive medical care than men, yet studies have demonstrated that women are less likely than men to receive aggressive treatment for peripheral vascular disease,⁵ cardiovascular disease,^{11-13,19-21} abdominal aortic aneurysms,²² asthma,²³ cerebrovascular disease²⁴ and degenerative joint disease.²⁵ While it remains unclear whether men receive too much medical care or women too little, these gender differences in the delivery of services are well described and cross multiple disease categories and medical specialties. Our finding that women or their proxies were 2 times more likely to believe that comfort care, rather than life-prolonging care, was recommended to them by their physician is in concert with these previous studies. Our study may also add an important piece of information to this previous work. Previous studies have shown that women receive less-aggressive care. Our study shows that women, and proxies representing female patients, believe that physicians recommend less-aggressive care for them with respect to comfort care versus life-extending care. Physicians' recommendations, or the perception of them, may be a mechanism by which women receive less-aggressive medical care, particularly if recommendations for comfort care versus life-prolonging care can be generalized to the larger context of aggressive and nonaggressive medical care. If patient and proxy perceptions of physicians' goals of care reflect actual physician recommendations, gender bias in physicians' recommendations may be at the heart of observed gender differences in the delivery of medical services.

In our study, patients over the age of 70 years or their proxies were also almost 4 times more likely to believe that comfort care had been recommended than younger patients after controlling for comorbidity (OR, 3.70; 95% CI, 1.89 to 7.24). Assuming that perceived recommendations may reflect physicians' actual recommendations, age-related differences in the recommended goals of care are more complex because of the confusing role that patient age plays as an independent predictor of outcomes. For example, physicians may recommend less-aggressive care to elderly patients because they believe that older patients are more likely to experience poorer outcomes. Although the elderly do have diminished cardiovascular, pulmonary, and renal reserves, greater functional impairment, and a greater burden of comorbid illness than younger individuals as a whole, age alone is not a consistent independent predictor of poor outcome. The developers of the APACHE III score, an accurate predictor of hospital mortality, have shown that the vast majority of the explanatory power of the score is captured in the acute physiology score, while age contributes only 3% to the score's explanatory capacity.²⁶ Other investigators who have examined outcomes of elderly patients receiving care in intensive care units have also demonstrated that severity of illness is a much stronger predictor of mortality than age.²⁷⁻³⁰ In developing the Charlson comorbidity index, age was not found to be an independent predictor of 1-year mortality, but was predictive of 5-year survival.¹⁸ With respect to other outcomes, after adjustment for comorbidity, elderly patients have been shown to have the same degree and rate of functional recovery and mortality as younger patients following intensive care admission.³¹ The SUPPORT investigators demonstrated that a 70-year-old patient was 1.3 times more likely to suffer severe functional decline following hospitalization than a 60-year-old. However, poor prior functional status and poor baseline quality of life were stronger predictors (OR, 1.95 and 2.99, respectively) of functional decline after hospitalization than age.²⁷ Thus, even if older age contributes to poorer outcomes, the magnitude of the effect is dwarfed by the contribution of other important patient characteristics, particularly burden of comorbid illness and severity of disease.

Physicians may further believe that older patients are less likely to benefit from aggressive medical interventions than their younger counterparts. In some instances in which increasing age is associated with increased mortality, however, the increased risk of poor outcome may increase the relative benefit of an intervention by altering the risk-benefit ratio. For example, elderly patients are more likely than younger patients to die from an acute myocardial infarction.³² The increased risk of death from myocardial infarction actually increases the potential benefit of thrombolytic agents when weighed against the increased risk of bleeding in the elderly. Even so, increasing age has been reported as an independent predictor of not receiving thrombolytic agents or having therapy de-

layed such that the benefit is diminished,^{33,34} despite studies demonstrating the safety and cost-effectiveness of thrombolytic agents in elderly patients.³⁵

If physicians are recommending less-aggressive treatment to older patients in the belief that older patients will suffer poorer outcomes or will be less likely to benefit from aggressive intervention, irrespective of comorbidity, the literature suggests they may be in error. Alternatively, if physicians are recommending less-aggressive care to older individuals as a covert, and perhaps unintentional, form of health care rationing, they may also be in error. While some ethicists have argued that rationing medical resources based on age is fair,³⁶⁻³⁸ others have argued that age alone is not adequate justification for determining the appropriateness of medical services.³⁹⁻⁴² At best, the debate is unresolved, and the lack of community consensus renders decision making based on age problematic, and potentially unethical.

If age and gender bias exists in physicians' recommendations, physicians may be unaware of it. Importantly, they may underestimate the potential power of bias in their recommendations by failing to recognize the decision-making authority given to them by their patients. In our study the majority of respondents believed that decision making is at least equally shared between physician and patient, if not dominated by the physician. Only a minority of respondents believed that the patient or proxy dominates major decision making. Even equal sharing of major medical decisions confers substantial authority to physicians. While older patients were more likely to give physicians decision-making authority, the finding that most patients gave at least equal decision-making authority to physicians is striking. In addition, only a minority of respondents believed that different options had been neutrally presented to them by their physician, while the majority believed that advice had been offered.

A significant limitation of our study is that we did not measure patients' or proxies' preferences for life-prolonging care versus comfort care and thus could not control for these preferences. We did not measure patients' preferences because we believed that patients were unlikely to report disagreement with their physicians' recommendations, and we did not want to create a feeling of discord between patients and their physicians. Previous studies have demonstrated that patients desire only intermediate autonomy in decision making,^{14,43} that their desire for autonomy declines with advancing age and illness,¹⁵ and that physicians' desires for themselves correlate with their patients' preferences for care.⁴⁴ Given the advanced illness of the patients in our study, we believed that their autonomy in decision making would be limited and therefore their preferences would be highly correlated with physicians' recommendations.

Because we cannot provide an independent measure of patients' and proxies' preferences, an alternative explanation for our findings is that women and older patients

are more likely to prefer comfort care to life-extending care and to label their preferences as physicians' recommendations. Although this is a possibility, subgroup analysis of proxy respondents demonstrated that the proxies of women and older patients were also more likely to believe that the physician had recommended comfort care for the patient. Because proxies are independent observers, their perceptions of physician recommendations are more likely to reflect what the physician has actually recommended than to reflect the personal preferences of the patient. If our measure of physicians' recommendations were simply a measure of patient preferences, subgroup analysis of the proxy respondents would not be expected to show variation in perceived comfort care recommendations based on the age or gender of the patient. Because subgroup analyses of patients and proxies did not differ, patient preferences alone are unlikely to account for the observed age and gender differences in perceived recommendations.

How then should known age and gender differences in the delivery of medical care be addressed? Further research should be performed to confirm the age and gender differences in physicians' recommendations suggested by this study, using alternative approaches to measuring physicians' recommendations and more diverse patient and physician populations. Our study included multiple practice settings including university, public, veterans, and private hospitals, and no differences were found between sites, but the study was limited to internists and medical patients in the Denver area.

If such gender and age differences in physicians' recommendations for comfort care can be generalized to other settings and recommendations for other forms of care, physicians' counseling behaviors should be a target of future efforts to improve gender and age inequalities in the delivery of medical care. Physicians must understand the tremendous authority given to them by their patients. Without acknowledging their authority, physicians will fail to realize how easily they can lead patients to decisions reflecting their own preferences and beliefs rather than those of the patient. Though the ethics of patient autonomy taught in medical school classrooms may represent an idealized model for decision making, patient autonomy, particularly in end-of-life decision making, may be an illusion.⁴⁵

Some authors have noted the discouraging results of interventions to improve end-of-life care and proposed that the problems may be intractable because of irresolvable ambivalence about dying.⁴⁶ Despite described deficits in communication about dying between physicians and patients,^{16,47,48} the discouraging results of the SUPPORT study have diminished enthusiasm for interventions aimed at improving physician-patient communication to improve end-of-life care.¹⁶ However, our study suggests that communication between physicians and patients remains crucial in end-of-life care and demands our ongoing attention and efforts. Efforts must still be made to increase the number of seriously ill patients with whom

physicians have end-of-life planning discussions. Gender and age inequality in physicians' recommendations, if it exists, must be addressed. If age and gender bias influences physicians' recommendations, other physician beliefs and biases may also be more likely to influence end-of-life care. Physicians must be taught to be wary of their own biases and preferences and alert to how patients perceive their recommendations regarding comfort care.

The authors thank Karen Ameen for her help with data collection and project organization, Danielle Holthaus for her help preparing the manuscript, and the 239 patients and family members who allowed us to interview them.

Financial support for this work was received from the Hartford/Jahnigen Center of Excellence in Geriatrics at the University of Colorado and the Colorado Collective for Medical Decisions, a nonprofit organization to improve care of the dying in the state of Colorado.

REFERENCES

1. Yarzebski J, Goldberg RJ, Gore JM, Alpert JS. Temporal trends and factors associated with pulmonary artery catheterization in patients with acute myocardial infarction. *Chest*. 1994;105:1003-8.
2. Gurwitz JH, Osganian V, Goldberg RJ, Chen ZC, Gore JM, Alpert JS. Diagnostic testing in acute myocardial infarction: does patient age influence utilization patterns? The Worcester heart attack study. *Am J Epidemiol*. 1991;134:948-57.
3. Hamel MB, Teno JM, Goldman L, et al. Patient age and decisions to withhold life-sustaining treatments from seriously ill, hospitalized adults. *Ann Intern Med*. 1999;130:116-25.
4. Hamel MB, Phillips RS, Teno JM, et al. Seriously ill hospitalized adults: do we spend less on older patients? *J Am Geriatr Soc*. 1996;44:1043-8.
5. Tunis SR, Bass EB, Klag MJ, Steinberg EP. Variation in utilization of procedures for treatment of peripheral arterial disease. *Arch Intern Med*. 1993;153:991-8.
6. Schneiderman LJ, Kaplan RM, Rosenberg E, Teetzel H. Do physicians' own preferences for life-sustaining treatment influence their perceptions of patients' preferences? A second look. *Cambridge Q Healthcare Ethics*. 1997;6:131-7.
7. Iezzoni LI, Ash AS, Shwartz M, Mackiernan YD. Differences in procedure use, in-hospital mortality, and illness severity by gender for acute myocardial infarction patients: are answers affected by data source and severity measure? *Med Care*. 1997;35(2):158-71.
8. Bergelson BA, Tommaso CL. Gender differences in clinical evaluation and triage in coronary artery disease. *Chest*. 1995;108(6):1510-13.
9. Herold AH, Riker AI, Warner EA, et al. Evidence of gender bias in patients undergoing flexible sigmoidoscopy. *Cancer Detect Prev*. 1997;21(2):141-7.
10. Kjellstrand CM. Age, sex, and race inequality in renal transplantation. *Arch Intern Med*. 1988;148(6):1305-9.
11. Shaw LJ, Miller D, Romeis JC, Kargl D, Younis LT, Chaitman BR. Gender differences in the noninvasive evaluation and management of patients with suspected coronary artery disease. *Ann Intern Med*. 1994;120:559-66.
12. Ayanian JZ, Epstein AM. Differences in the use of procedures between women and men hospitalized for coronary heart disease. *N Engl J Med*. 1991;325(4):221-5.
13. Steingart RM, Packer M, Hamm P, et al. Sex differences in the management of coronary artery disease. *N Engl J Med*. 1991;325:226-30.
14. Nease RF, Brooks WB. Patient desire for information and decision-making in health care decisions: the Autonomy Preference Index and the Health Opinion Survey. *J Gen Intern Med*. 1995;10:593-600.
15. Ende J, Kazis L, Ash A, Moskowitz MA. Measuring patients' desire for autonomy: decision-making and information-seeking preferences among medical patients. *J Gen Intern Med*. 1989;4:23-30.
16. The Support Principle Investigators. A Controlled Trial to Improve Care for Seriously Ill Hospitalized Patients: The Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatments. *JAMA*. 1995;274(20):1591-8.
17. Folstein MR, Robins LN, Helzer JE. The Mini-Mental State Examination. *Arch Gen Psychiatry*. 1983;40:812.
18. Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chronic Dis*. 1987;40(5):373-83.
19. Bickell NA, Pieper KS, Lee KL, et al. Referral patterns for coronary artery disease treatment: gender bias or good clinical judgement? *Ann Intern Med*. 1992;116:791-7.
20. Chiriboga DE, Yarzebski J, Goldberg RJ, et al. A community-wide perspective of gender differences and temporal trends in the use of diagnostic and revascularization procedures for acute myocardial infarction. *Am J Cardiol*. 1993;71:268-73.
21. Bearden D, Allman R, McDonald R, Miller S, Pressel S, Petrovitch H. Age, race, and gender variation in the utilization of coronary artery bypass surgery and angioplasty in systolic hypertension in the elderly program. *J Am Geriatr Soc*. 1994;42:1143-9.
22. Johnston KW. Influence of sex on the results of abdominal aortic aneurysm repair. *J Vasc Surg*. 1994;20:914-23.
23. Roberts SJ, Bateman DN. Which patients are prescribed inhaled anti-asthma drugs? *Thorax*. 1994;49:1090-5.
24. Cassidy TP, Lewis S, Gray CS. Computerised tomography and stroke. *Scott Med J*. 1993;38:136-8.
25. Katz J, Wright E, Guadagnoli E, Liang M, Karlson E. Difference between major orthopaedic surgery for degenerative arthritis. *Arthritis Rheum*. 1994;37:687-94.
26. Knaus WA, Wagner DP, Draper EA, et al. The APACHE III prognostic system: risk prediction of hospital mortality for critically ill hospitalized adults. *Chest*. 1991;100:1619-36.
27. Wu AW, Damiano A, Lynn J, et al. Predicting future functional status for seriously ill hospitalized adults: the SUPPORT Diagnostic Model. *Ann Intern Med*. 1995;122(5):342-50.
28. Champion EW, Mulley AG, Goldstein RL, Barnett GO, Thibault GE. Medical intensive care for the elderly: a study of current use, costs, and outcomes. *JAMA*. 1981;246(18):2052-6.
29. Chelluri L, Grevnik A, Silverman M. Intensive care for critically ill elderly: mortality, costs, and quality of life. *Arch Intern Med*. 1995;155:1013-22.
30. Chelluri L, Pinsky MR, Donahoe MP, Grevnik A. Long-term outcome of critically ill elderly patients requiring intensive care. *JAMA*. 1993;269:3119-23.
31. Roche VML, Kramer A, Hester E, Welsh CH. Long-term functional outcome after intensive care. *J Am Geriatr Soc*. 1999;47:18-24.
32. Arnold AER, Simons ML. Thrombolytic therapy for evolving myocardial infarction needs: an approach that integrates benefit and risk. *Eur Heart J*. 1995;16:1502-9.
33. Krumholz HM, Murillo JE, Chen J, et al. Thrombolytic therapy for eligible elderly patients with acute myocardial infarction. *JAMA*. 1997;277(21):1683-8.
34. Brophy JM, Diodati JG, Bogaty P, Theroux P. The delay to thrombolysis: an analysis of hospital and patient characteristics. *CMAJ*. 1998;158:475-80.
35. Krumholz HM, Pasternak RC, Weinstein MC, et al. Cost effectiveness of thrombolytic therapy with streptokinase in elderly patients with suspected acute myocardial infarction. *N Engl J Med*. 1992;327:7-19.
36. Callahan D. *Setting Limits: Medical Goals in an Aging Society*. New York, NY: Simon & Schuster; 1987.
37. Callahan D. Must the old and young compete for health care resources? *Neurosurgery*. 1990;27(1):160-4.
38. Daniels N. Is rationing by age ever morally acceptable? *Business Health*. 1984;1:29-32.

39. Jecker NS, Pearlman RA. Ethical constraints on rationing medical care by age. *J Am Geriatr Soc.* 1989;37:1067-75.
40. Cassel CK, Neugarten B. The goals of medicine in an aging society. In: Binstock RH, Post SG, eds. *Too Old for Health Care? Controversies in Medicine, Law, Economics, and Ethics.* Baltimore, Md: Johns Hopkins University Press;1991.
41. Evans JG. Aging and rationing: physiology should not determine health care. *BMJ.* 1991;303:869-70.
42. Wetle T. Age as a risk factor for inadequate treatment. *JAMA.* 1987;258:516.
43. Brody DS, Miller SM, Lerman CE, Smith DG, Caputo GC. Patient perception of involvement in medical care. *J Gen Intern Med.* 1989;4:506-11.
44. Gramelspacher GP, Zhou X, Hanna MP, Tierney WM. Preferences of physicians and their patients for end-of-life care. *J Gen Intern Med.* 1997;12:346-51.
45. Orentlicher D. The illusion of patient choice in end-of-life decisions. *JAMA.* 1992;267(15):2101-4.
46. Aronowitz RA, Asch DA. Cursing the darkness: are there limits to end-of-life research? *J Gen Intern Med.* 1998;13(7):495-6.
47. Tulsky JA, Fischer GS, Rose MR, Arnold RM. Opening the black box: how do physicians communicate about their advance directives? *Ann Intern Med.* 1998;129:441-9.
48. Tulsky JA, Chesney MA, Lo B. How do medical residents discuss resuscitation with patients? *J Gen Intern Med.* 1995;10:436-42.



JOURNAL OF GENERAL INTERNAL MEDICINE SUBSCRIBERS

Do we have your new address?

Send us your new address three months before it becomes effective, so we will have time to get it into our computer system and ensure that your copies of JGIM continue to arrive uninterrupted. Send your old mailing label, your new address with zip code, the effective date of your new address, and your current telephone number.

Nonmember subscribers notify:

Tina Lynch
Blackwell Science, Inc.
Commerce Place, 350 Main St.
Malden, MA 02148

SGIM members notify:

Janice L. Clements
Society of General Internal Medicine
2501 M Street, NW, Suite 575
Washington, DC 20037