Health Care Delivery

Understanding of Elderly Patients' Resuscitation Preferences by Physicians and Nurses

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We compared the understanding by family physicians and nurses of their elderly outpatients' preferences for cardiopulmonary resuscitation and mechanical ventilation under 3 scenarios reflecting varying qualities of life. Physicians and nurses correctly predicted patients' treatment preferences in from 59% to 84% and 53% to 78% of cases, respectively, for the various decisions. For most decisions, neither physicians nor nurses were significantly more accurate in their predictions than expected by chance alone. Moreover, nurses and physicians did not significantly agree with one another in their predictions of patients' preferences for any of these decisions. These results suggest that while nurses' and physicians' perceptions of patients' preferences for life-sustaining treatment are not necessarily similar, neither nurses nor physicians systematically understand their elderly patients' resuscitation preferences.

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Making medical decisions for patients who become incapable of decision making is among the most challenging aspects of medical practice. As with other adult patients, decisions for such patients ideally should be based on their values, as well as their prognoses. By definition, however, the medical management "preferences" of such patients must be inferred. This process, which has been termed "substituted judgment," has been endorsed as the preferred method for surrogate decision making.[1]

Studies to date suggest that physicians generally lack the systematic understanding of their patients' resuscitation preferences necessary to make valid substituted judgments.[2-4] Nevertheless, such decisions are often made independently by physicians without the involvement of others who may be knowledgeable of, or provide care for, the patient.[5-7] Nurses, in particular, often have close physical and emotional ties to patients.[7] In addition, nurses, by virtue of their clinical responsibilities in implementing physicians' orders, should be involved in medical decisions, particularly those with "ethical" connotations.[8] Thus, the understanding of patients' preferences by nurses merits exploration. Previous studies have consistently shown that nurses and physicians differ in their personal preferences regarding various patient treatment decisions.[6,7,9,10] These studies, however, have not investigated the relative capacities of physicians and nurses for substituted judgment. We compared the ability of family physicians and nurses to predict life-sustaining treatment preferences of elderly, chronically ill patients, a population at risk for both acute and chronic mental incapacity.

Methods

Subjects

The study was done at Group Health Cooperative of Puget Sound, the largest health care cooperative and health maintenance organization in the state of Washington. Physicians were randomly selected from among all primary care physicians (all of whom were family practitioners) at the six permanently staffed Group Health Cooperative primary care outpatient clinics in Seattle. Physicians selected by this process were sent an approach letter and then telephoned by study personnel. Of 26 physicians approached, 19 (73%) agreed to participate. Nurses and physicians in the Group Health Cooperative's clinics are paired in teams so that the same nurse and physician follow each patient longitudinally. In addition, the primary care physicians retain primary responsibility for their clinic patients when they are admitted to hospital. All 19 nurses paired with participating physicians agreed to participate in this study.

The appointment logs of participating physicians were reviewed to identify the ten most recently seen patients fulfilling entry criteria. These criteria were age 65 years or older, the presence of at least one chronic disease, at least one visit to the index physician in the past six months and two visits in the past year, not demented, and not terminally ill. Patients were considered demented if they carried the diagnosis of dementia or had a legal guardian. Patients were deemed "terminally ill" if a physician estimated the patient's life expectancy to be less than six months.

Of 190 patients who fulfilled entry criteria, 69 (36%)

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responded to an approach letter. From among these, a maximum of four patients from each practice was randomly selected and asked to participate in the study. (In some practices, fewer than four patients returned postcards.) Of 55 patients asked to participate, 52 (94%) consented to do so.

Determining Resuscitation Preferences

Patients' preferences for cardiopulmonary resuscitation (CPR) and CPR plus a ventilator in the event of cardiac arrest—described as a "sudden heart stoppage"—were elicited with a reliable self-administered questionnaire.[4] For several patients who were visually impaired, the questionnaires were administered by an interview. Resuscitation preferences were scored on a five-point Likert scale with responses ranging from "definitely yes" to "definitely no." For the CPR-plus-ventilator decisions, the ventilator was described as being required for an "indefinite period of time" to "help you breathe" and "remain conscious." Physicians and nurses were instructed to predict patients' preferences and did so blinded to one another's and the patients' responses. Aside from contextual modifications, the questions were identical in all versions of the questionnaires.

To more fully characterize physicians' and nurses' potential surrogate decision-making abilities, we elicited preferences for CPR and CPR plus ventilator under three scenarios representing health states with varying prognoses and qualities of life.[3,11] In the "current health" scenario, cardiac arrest occurs with a patient in his or her "own current health and life situation." In the other scenarios, cardiac arrest occurs during a hospital stay for the treatment of one of two incapacitating illnesses, stroke and chronic lung disease, which were described as being superimposed on the patient's current health status. In the stroke scenario, the patient is described as being immobile, aphasic, and functionally dependent: "You are paralyzed so that you cannot walk and have difficulty speaking and feeding yourself. You would need constant attention and assistance for basically everything you do." In the chronic lung disease scenario, the patient has incapacitating, irreversible dyspnea: "You would not be able to climb stairs or walk more than a few feet; the condition would not be expected to improve."

Statistical Analysis

To make the analyses of agreement between patients, nurses, and physicians more reflective of the dichotomous nature of clinical decision making, the five-point resuscitation scales were collapsed into two categories, "yes" (consisting of "definitely yes," "probably yes," and "uncertain") and "no" (consisting of "probably no" and "definitely no"). An "uncertain" response was counted as a "yes" because, under conditions of uncertainty, the recommended presumption is to treat.[1] Responses were also analyzed in their original uncollapsed, five-point format to confirm that the dichotomous scale would not alter conclusions regarding the statistical significance.[4] Agreement was expressed in terms of proportionate (%) agreement. Because proportionate agreement is biased by the underlying distribution of responses, agreement independent of chance was also expressed with κ for agreement[12]—κ having a maximum value of 1, indicating perfect agreement. Values not statistically significantly greater than 0 imply no greater agreement than expected by chance alone. Statistical significance levels are two-tailed.

Results

The patients were elderly, predominantly women, and reported minor, if any, functional limitations (Table 1). They generally had received care from their physicians and nurses for several years or more and had made frequent clinic visits in the past year. On an average, physicians globally rated their patients' health as between "good" and "fair, not too good," and as "about . . . average" for others their age and sex.

Patients' treatment preferences varied considerably among the scenarios (Table 2). Nurses tended to overestimate patients' preferences in favor of resuscitation; none of these differences were statistically significant, however. Physicians appeared neither more likely to overresuscitate nor to underresuscitate in regard to patients' preferences. Agreement with patients ranged between 59% and 84% for physicians and 53% and 78% for nurses. (Thus, disagreement ranged from 16% to 41% for physicians and 22% to 47% for nurses). The κ values indicated that the predictions of patients' preferences were significantly more accurate than expected because of chance alone for only one decision each for physicians (chronic lung disease: CPR plus ventilator) and nurses (stroke: CPR plus ventilator). The κ values, however, were modest-sized.[13]

Neither physicians nor nurses accurately predicted patients' preferences, and we wondered whether this was due to a common bias among them. Consequently, we next compared agreement between physicians and nurses. For five of six decisions, nurses were more likely than physicians to think patients preferred resuscitation (Table 2). These differences were statistically significant for the chronic lung disease-CPR and stroke-CPR decisions. Agreement between physicians and nurses ranged from 48% to 80% across the scenarios (Table 3). As indicated by the κ values, however, in no instance was the level of agreement between physicians and nurses greater than that expected by chance alone.

TABLE 1.—*Patient Characteristics*

Patient Characteristics	*Patients, n=52*
Mean age, yr	74.0
Female, %	76.9
Married, %	48.1
Median duration of physician-patient relationship, yr	4.8
Median duration of nurse-patient relationship, yr	2.8
Admitted to hospital in past 12 mo, %	29.8
Median No. office visits with index physician in past 12 mo	5.5
Mean global health, physician-rated*	3.3
Mean relative health, physician-rated†	2.9
Mean functional impairment, patient-rated‡	2.7
Leading diagnoses, %	
Arthritis	32.7
Hypertension	23.1
Ischemic heart disease	17.3
Cancer	13.5
Depression	11.5
Chronic lung disease	7.6

*"With regard to your patient's health during the past year, would you rate it as: 1=perfect, couldn't be better; 2=very good; 3=good; 4=fair, not too good; or 5=not good at all?"

†"Compared with most persons your patient's age and sex, how would you rate your patient's health? 1=much better than most persons; 2=somewhat better than most persons; 3=about the same, average for most persons; 4=somewhat worse than most persons; 5=much worse than most persons."

‡"Do you have chronic illness or a medical or physical condition that limits your activity? 1=no, none; 2=yes, but virtually no limitations on my activity; 3=yes, but only a small limitation on my activity; 4=yes, with some real limitations on my activity; 5=yes, with serious limitations on my activity."

TABLE 2.—*Accuracy of Physicians' and Nurses' Predictions of Patients' Resuscitation Preferences*

Contingent Scenarios and Treatment	Prefer Resuscitation for the Patient, %			Agreement With Patients, %		Agreement With Patients, $\kappa \pm SD$*	
	Patients	MDs	RNs	MDs	RNs	MDs	RNs
Chronic lung disease							
CPR	73	67	84†	63	67	.12±.14	−.01±.13
CPR plus ventilator	24	33	35	71	67	.29±.14‡	.22±.14
Stroke							
CPR	29	24	45†	59	53	−.05±.14	.02±.13
CPR plus ventilator	14	16	24	75	78	−.02±.14	.30±.13‡
Current health							
CPR	86	94	86	84	77	.13±.13	.01±.14
CPR plus ventilator	28	37	41	67	65	.25±.14	.24±.14

CPR=cardiopulmonary resuscitation

*κ for agreement ± standard deviation (SD): 1=perfect agreement, 0=random agreement, <0=disagreement.
†$P<.05$ for physician-nurse difference by McNemar's test.
‡95% confidence interval for $\kappa > 0$.

TABLE 3.—*Concordance of Nurses and Physicians in Predicting Patients' Resuscitation Preferences*

Contingent Scenarios and Treatment	MD-RN Agreement	
	%	$\kappa \pm SD$*
Chronic lung disease		
CPR	66	.13±.13
CPR plus ventilator	50	−.10±.14
Stroke		
CPR	60	.15±.13
CPR plus ventilator	60	−.24±.14
Current health		
CPR	80	−.09±.13
CPR plus ventilator	48	−.08±.14

CPR=cardiopulmonary resuscitation

*κ for agreement ± standard deviation (SD): 1=perfect agreement, 0=random agreement, <0=disagreement.

Discussion

Nurses, by virtue of their training and clinical responsibilities, are logical participants in decisions regarding life-sustaining treatment.[8] Moreover, nurses frequently think they can offer unique contributions to ethically problematic clinical decisions.[14] Such contributions are potentially valuable given the lack of evidence that physicians understand their patients' preferences for life-sustaining treatment.[2-4]

As in other populations,[2,3] physicians in this study did not show a systematic understanding of their patients' preferences for various life-sustaining treatments.[4] The results of this study, however, do not support the hypothesis that nurses understand patients' preferences for such treatment; nurses were not systematically accurate in predicting patients' preferences. Indeed, these results suggest that nurses may tend to be more aggressive in resuscitation than patients prefer. These differences were not statistically significant, however, and as such require confirmation in a larger sample.

These results do not provide evidence that physicians and nurses share a common bias in their perceptions of patients' preferences for life-sustaining treatment. For instance, for some decisions, nurses' and physicians' predictions of patients' preferences differed significantly. In addition, under none of the scenarios studied did κ values show large or statistically significant levels of agreement between nurses and physicians.

Physicians and nurses in this study predicted patients' preferences blind to one another's responses. Thus, the contribution of nurses to such decision making in actual clinical practice, in which an unblinded, negotiated process is more likely, may differ. It seems unlikely, however, that such a conjoint process would result in an enhanced understanding of patients' preferences if neither physicians nor nurses independently understand their patients' preferences.

Additional information is needed before general conclusions can be drawn regarding the relative accuracy of physicians' and nurses' substituted judgments. Notably, our sample was relatively small and, by virtue of its being derived from a single health maintenance organization, may be atypical. In addition, the representativeness within this setting of the modest proportion of patients who agreed to participate in the study is unknown. Although the ethical foundation for substituted judgment is firmly rooted in cultural perceptions of personal autonomy,[15] further work is needed to identify the conditions under which "substituted judgments" are, indeed, accurate.

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