

Medical Decision Making

<http://mdm.sagepub.com>

Patient and Surrogate Disagreement in End-of-Life Decisions: Can Surrogates Accurately Predict Patients' Preferences?

Melissa A. Z. Marks and Hal R. Arkes

Med Decis Making 2008; 28; 524 originally published online Jun 19, 2008;

DOI: 10.1177/0272989X08315244

The online version of this article can be found at:

<http://mdm.sagepub.com/cgi/content/abstract/28/4/524>

Published by:

 SAGE Publications

<http://www.sagepublications.com>

On behalf of:



<http://www.smdm.org>
Society for Medical Decision Making

Additional services and information for *Medical Decision Making* can be found at:

Email Alerts: <http://mdm.sagepub.com/cgi/alerts>

Subscriptions: <http://mdm.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Citations (this article cites 14 articles hosted on the SAGE Journals Online and HighWire Press platforms):

<http://mdm.sagepub.com/cgi/content/refs/28/4/524>

Patient and Surrogate Disagreement in End-of-Life Decisions: Can Surrogates Accurately Predict Patients' Preferences?

Melissa A. Z. Marks, MA, Hal R. Arkes, PhD

Background. When a patient is too incapacitated to make important end-of-life decisions, doctors may ask a preappointed surrogate to predict the patient's preferences and make decisions on the patient's behalf. The current study investigates whether surrogates project their own views onto what they predict the patients' preferences are. **Methods.** Using data from seriously ill patients and their surrogates, the authors created a "projection" variable that addresses the following question: When surrogates are asked to predict a patient's end-of-life preferences, do they mistakenly replace this prediction with what they would want the patient to do? The authors examined the 144 patient-surrogate pairs in which surrogates inaccurately predicted patients' CPR (cardiopulmonary resuscitation) v. DNR (do not resuscitate) decisions and the 294 pairs in which surrogates inaccurately predicted patients' extend life v. relieve

pain preferences. Among these patient-surrogate pairs, the authors determined the extent to which surrogates' wishes for the patient matched their incorrect predictions of what the patient wanted. **Results.** Of the patient-surrogate pairs who disagreed on CPR v. DNR and extend life v. relieve pain preferences, 62.5% and 88.4% of surrogates demonstrated projection for CPR v. DNR decisions and extend life v. relieve pain preferences, respectively. Age-related and demographic variables did not predict cases in which projection did and did not occur. **Conclusion.** When surrogates inaccurately predict the CPR v. DNR and extend life v. relieve pain preferences of seriously ill, hospitalized loved ones, surrogates' prediction errors often represent surrogates' own wishes for the patient. **Key words:** decision making; substituted judgment; surrogates. (*Med Decis Making* 2008;28:524-531)

Few decisions are as important and as serious as those involving end-of-life preferences. Questions such as "Do I want CPR or not?" and "Do I prefer a course of treatment that focuses on extending life or relieving pain?" often must be addressed when patients are too incapacitated to make these decisions on their own. When this is the case, doctors can make these decisions by consulting a living will or an advance directive the patient prepared prior to becoming incapacitated or by consulting

with a surrogate who has been preappointed to make decisions on the patient's behalf. The focus of the current study is the latter case, in which a surrogate is called upon to make decisions for a person who no longer has the capability to make important decisions on his or her own behalf.

Predicting the preferences of another person, however, is no small task. Indeed, Seckler and others¹ found that although an overwhelming majority of patients believed physicians and loved ones would be able to predict their end-of-life treatment preferences, neither of these groups was able to predict patients' preferences for cardiopulmonary resuscitation (CPR) accurately. Furthermore, Seckler and others found that few of the chronically ill patients in their study had ever discussed their CPR preferences with their physicians (7%) or with their family members (16%).

Such lack of communication can lead surrogates to resort to inaccurate decision-making practices. Using both hypothetical patient-surrogate pairs and

Received 12 March 2007 from the Department of Psychology (MAZM, HRA); Division of Health Services, Management, and Policy (HRA); and The Center for Health Outcomes, Policy, and Evaluation Studies (HRA), The Ohio State University, Columbus. Paper presented at the annual meeting of the Society for Judgment and Decision Making, Toronto, 2005. Revision accepted for publication 11 December 2007.

Address correspondence to Melissa A. Z. Marks, Department of Psychology, The Ohio State University, 1827 Neil Avenue, Lazenby 326, Columbus, OH 43210-1222; e-mail: marks.99@osu.edu.

DOI: 10.1177/0272989X08315244

actual patients and surrogates, Fagerlin and others² demonstrated that surrogates' predictions of patient preferences more closely resembled the treatment preferences of the surrogate than those of the patient. However, it should be noted that among the patients whose preferences were investigated by Fagerlin and others, 81% considered their overall health to be "good," "very good," or "excellent," health states in which patients and their surrogates are not likely to make imminent end-of-life decisions.

Smucker and others³ compared the accuracy of an actuarial model of decision making, formulated from 401 patients' modal responses regarding preferences for a number of end-of-life treatment options, with the accuracy of surrogate decision makers. Smucker and others found that self-designated surrogates, who knew the patients for an average of 46 years, did not do better than the actuarial model in predicting patients' preferences accurately. Similarly, a meta-analysis conducted by Shalowitz and others⁴ revealed that patient-designated surrogates and legally assigned surrogates accurately predicted patients' preferences with virtually the same frequency (68% in the former group and 69% in the latter).

In another type of prediction task, Raymark⁵ asked participants not only what they would want for themselves and what a significant other would want for himself or herself but also what treatments they would want *for* the significant other in particular end-of-life situations. With this information, Raymark was able to determine whether hypothetical surrogates could distinguish between what the significant other would want for himself or herself and what the surrogate would want for the significant other. Results suggested that undergraduates were able to differentiate their own desires for the significant other from the significant other's preferences for himself or herself. Raymark's study, although interesting, was conducted using undergraduate participants asked to evaluate hypothetical situations and thus may not accurately portray the decisions that would be made by patient-surrogate pairs facing real emotion-laden end-of-life situations.

The phenomenon of projection within the context of surrogate decision making can be described as a form of substituted judgment in which the person asked to render a judgment on behalf of another person substitutes his or her own preferences for the preferences of the other person. What sets the current study apart from previous end-of-life decision-making studies in general, as well as from end-of-life projection

studies in particular, is the combination of 1) the realistic sample we used and 2) the specific type of projection studied within this sample. With regard to the first of these 2 factors, the analyses we discuss below were conducted on data collected from seriously ill, hospitalized patients, a group of people for whom end-of-life decision scenarios were real and, in many cases, imminent. Although the aforementioned study conducted by Fagerlin and others² suggested that surrogates use their own preferences for end-of-life treatments when predicting patients' preferences, that research either used undergraduates as "surrogates" and their parents as "patients" or real patients who were in relatively good health. Similarly, the hypothetical nature of Raymark's study⁵ may have led to results that might differ from what would be found in a highly realistic end-of-life situation. Indeed, we demonstrate below that the results of the current study contradict Raymark's findings, and we believe this discrepancy may be due to critical differences between the populations used in each study. With regard to the second factor, the specific type of projection studied, Fagerlin and others² examined the relation between what surrogates might want *for themselves* if they were in the patient's situation and their prediction concerning what they thought the patient wanted. We examined the relation between what the surrogates might want *for the patient* and their prediction concerning what they thought the patient wanted. Because the type of projection examined in the current study has not been studied previously using real patients, we suggest that the current study adds an important dimension to the literature on surrogate decision making.

METHODS

For the current analysis, we used data obtained during the Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatments (SUPPORT), a large study dealing with decision making in seriously ill hospitalized patients.⁶ Phase 1 of the SUPPORT study included 4301 patients and their appointed surrogates, interviewed between 1988 and 1991 at 5 different hospitals. The data used in these analyses were from a public use source and contained no patient identifiers. The Ohio State University Institutional Review Board (IRB) was consulted and confirmed that the study was exempt from IRB review.

Participants

Patients in the SUPPORT study had 1 of 9 illnesses (nontraumatic coma, multiple organ system failure and malignancy, acute respiratory failure, multiple organ system failure and sepsis, acute exacerbation of severe chronic obstructive pulmonary disease, acute exacerbation of severe congestive heart failure, chronic liver disease, colon cancer with liver metastasis, non-small-cell carcinoma of the lung). Approximately 48% of these patients died within 6 months of study entry.

The SUPPORT Interview

All data were taken from interviews that occurred between the second and sixth day after hospitalization. We analyzed data specifically pertaining to CPR preferences and preferences regarding the choice to extend life or relieve pain. The questions about CPR and extend life v. relieve pain preferences presented to patient and surrogate interviewees in the SUPPORT study allowed us to compare surrogate predictions of patient preferences with a true “gold standard”: what the patient said that he or she wanted in these situations was the “correct” answer. Questions regarding CPR and extend life v. relieve pain preferences were asked to both patients and surrogates during face-to-face, scripted interviews.

Creating the “Projection” Variable

To determine whether surrogates in our study were projecting their own desires for their loved ones onto their expressed predictions of the patients’ preferences, we examined 3 questions in the SUPPORT data (see Figure 1).

First we looked at questions asked to the *patients* regarding what they would prefer in specific end-of-life situations (question 1):

As you probably know, there are a number of things doctors can do to try to revive someone whose heart has stopped beating, which usually includes a machine to help breathing. Thinking of your current condition, what would you want your doctors to do if you ever stopped breathing? Would you want your doctors to try to revive you, or would you want your doctors not to try to revive you?

Next we looked at questions in which the *surrogates* of these patients were asked to predict what the patients would prefer in these same situations (question 2):

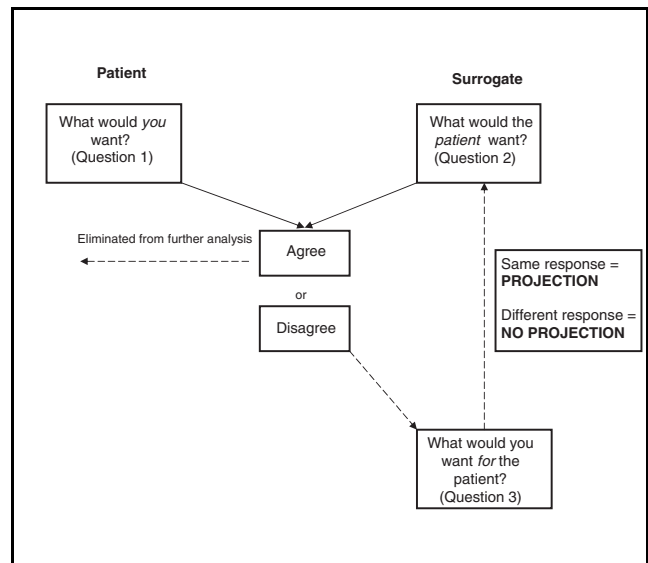


Figure 1 Flowchart depicting the process for identifying projection.

As you probably know, there are a number of things doctors can do to try to revive someone whose heart has stopped beating, which usually includes a machine to help breathing. Thinking of [patient’s] current condition, what do you think [patient] would want his/her doctors to do if his/her heart ever stops beating? Would [patient] want his/her doctors to try to revive him/her, or would he/she want doctors not to try to revive him/her?

Based on the responses to these questions, we eliminated from future analyses patient-surrogate pairs that agreed on their responses to these questions; because the projection variable created for this analysis deals with prediction errors on the part of the surrogate, only surrogates who were unable to predict patients’ preferences were of interest. Once we identified patient-surrogate pairs in which the surrogates were unable to accurately predict the patients’ preferences, we examined responses to another question asked *only to surrogates* (question 3):

What would you want the doctors to do if the patient’s heart ever stops beating? Would you want them to try to revive him/her, or would you not want them to try to revive him/her?

Surrogates’ responses to this last question (question 3) were compared with their responses regarding their predictions of patients’ preferences (question 2). This final comparison allowed us to determine if surrogates were “projecting.” If the surrogate’s response to this

final question (question 3) matched his or her response to the question asking for a prediction of the patient's preference (question 2), then the surrogate was "projecting." Conversely, if the surrogate's response to this final question differed from his or her response to the prediction question, then the surrogate was not "projecting."

We applied the same procedure to questions regarding extending life v. relieving pain. The questions to the patients and surrogates were of the same structure as the CPR questions above, and thus we have included only the single question asked of the patient to illustrate the terminology used in the extend life v. relieve pain questions:

If you had to make a choice at this time, would you prefer a course of treatment that focuses on extending life as much as possible, even if it means having more pain and discomfort, or would you want a plan of care that focuses on relieving pain and discomfort as much as possible, even if that means not living as long?

Participant Selection Process

We excluded from the relevant analysis any of the 4301 patient-surrogate pairs for which either the patient's response or the surrogate's response regarding the *patient's* end-of-life preference was unavailable. That is, when the patient did not respond (or responded with "I don't know") to the question eliciting his or her own preference, or when the surrogate did not respond (or responded with "I don't know") to the question regarding his or her prediction of the patient's preference, the pair was excluded from future analysis. As a result of this exclusion process, we were able to analyze data from 879 patient-surrogate pairs who provided usable answers concerning their CPR preferences and 909 patient-surrogate pairs who provided usable answers about extend life v. relieve pain preferences. Once we determined the pairs for which the surrogate incorrectly predicted the patient's preferences, we excluded the patient-surrogate pairs for which the surrogate did not respond (or responded with "I don't know") to the question regarding what he or she would want for the patient. After this final exclusion, there remained 144 patient-surrogate pairs for which CPR projection could be assessed and 294 patient-surrogate pairs for which projection could be assessed in extend life v. relieve pain preferences.

Other Measures

In addition to revealing the occurrence of projection, we were interested in the possible determinants of projection; what sets apart surrogates who "project" from those who do not "project"? Pruchno and others⁷ suggested some factors that lead to discrepancies between patients' preferences and surrogates' predictions of patients' preferences, such as religious participation, race, education, and subjective or perceived quality of life. We analyzed the effects of these demographic variables on projection. As the study by Pruchno and others⁷ examined substituted judgments by patients' spouses, we also looked at the patient's age, relationship of surrogate to patient (e.g., spouse, child, sibling), and the generational gap between the patient and surrogate (i.e., we grouped spouses and siblings of patients as same-generation surrogates and children and parents of patients as different-generation surrogates). We hypothesized that the generational variable in particular might be an important predictor of projection because we thought that surrogates who belong to the same generation as patients may be able to empathize better with the patients based on their similar life experiences. We also ascertained whether there might be a relation between the presence of projection and either the disease class or disease severity of the patient.

Analysis

The data used for the current analysis were converted from their original SAS format (SAS Institute, Cary, NC) into SPSS (SPSS, Inc., Chicago, IL). Regression analyses were conducted with the demographic variables. A test for differences in proportions was conducted for both projection variables to determine the statistical significance of the results. In examining the relation between projection and disease classes and severity of disease, we used chi-square tests.

RESULTS

We present in Table 1 the demographic and clinical characteristics of the 144 patients included in our analysis of projection for CPR/do not resuscitate (DNR) preferences and the 294 patients included in our analysis of projection for extend life v. relieve pain preferences.

Table 1 Demographic and Clinical Characteristics of Patients Included in the CPR/DNR and Extend Life v. Relieve Pain (EL/RP) Projection Analyses

	Patients in CPR/DNR Analysis	Patients in EL/RP Analysis
<i>Demographics</i>		
% Male	54.2	58.8
Mean age (SD)	62.7 (13.7)	59.2 (14.5)
% White	85.4	75.2
% Black	13.9	19.7
% Asian	0.7	0.7
Mean years of education (SD)	11.2 (3.2)	11.6 (3.5)
% Income < \$11,000	54.9	48.0
% Income > \$50,000	6.3	11.2
% Married	55.6	49.3
% Widowed	22.2	19.7
<i>Clinical characteristics: disease class</i>		
Number with ARF/MOSF	39	60
Number with COPD/CHF/cirrhosis	75	173
Number in coma	0	2
Number with cancer	30	59

CPR, cardiopulmonary resuscitation; DNR, do not resuscitate; ARF, acute respiratory failure; MOSF, multiple organ system failure; COPD, chronic obstructive pulmonary disease; CHF, congestive heart failure.

CPR Preferences

Surrogates incorrectly predicted patients' CPR preferences in 26% of cases. In these cases where there was patient-surrogate disagreement, 62.5% of surrogates did project their wishes for the patients onto their predictions of patients' CPR preferences. A test for differences in proportions between the number of surrogates who predicted the patient would prefer CPR when the surrogate preferred CPR for the patient and the number of surrogates who predicted the patient would prefer CPR when the surrogate preferred that the patient not be resuscitated (DNR) was significant, $z = 3.10$, $P < 0.01$. That is, when the surrogate wanted CPR for the patient, the surrogate was significantly more likely to predict that the patient would want CPR than when the surrogate wanted DNR for the patient (see Table 2).

Extend Life v. Relieve Pain Preferences

Surrogates incorrectly predicted patients' extend life v. relieve pain preferences in 35% of cases. In

Table 2 Frequencies for Surrogates Incorrectly Predicting Patients' CPR Preferences

What Surrogate Wants for the Patient	What Surrogate Thinks the Patient Wants Although the Patient Wants the Opposite	
	CPR	DNR
CPR	49 ^a	30
DNR	24	41 ^a

CPR, cardiopulmonary resuscitation; DNR, do not resuscitate.

a. Cases in which projection occurred.

these cases where there was patient-surrogate disagreement, 88.4% of surrogates did project their wishes for the patients onto their predictions of patients' extend life v. relieve pain preferences. A test for differences in proportions between the number of surrogates who predicted the patient would want to extend life when the surrogate preferred that the patient extend life and the number of surrogates who predicted the patient would prefer to extend life when the surrogate preferred that the patient's pain be relieved was significant, $z = 19.77$, $P < 0.01$. That is, when the surrogate wanted to extend the patient's life, the surrogate was significantly more likely to predict that the patient would want to extend his or her own life than when the surrogate wanted the patient's pain to be relieved (see Table 3).

Possible Predictors of Projection

We examined the predictability of race, education, and religion on projection and found that none of these factors were significant predictors, all $P > 0.05$. Similarly, we found that projection did not vary with disease class or with severity of disease, as measured by the APACHE III acute physiology score,⁸ all $P > 0.05$. Neither the patients' ages, relationship of surrogates to patients (e.g., spouse, child, sibling), nor the generational gap between the patients and surrogates significantly predicted projection, all $P > 0.05$.

DISCUSSION

When making end-of-life decisions for a loved one, surrogates may find it difficult to separate the patient's wishes from their own wishes for the patient. Although surrogates likely have good intentions when projecting, such as keeping Mom alive

Table 3 Frequencies for Surrogates Incorrectly Predicting Patients' Extend Life v. Relieve Pain Preferences

What Surrogate Wants for the Patient	What Surrogate Thinks the Patient Wants Although the Patient Wants the Opposite	
	Extend Life	Relieve Pain
Extend life	149 ^a	8
Relieve pain	26	111 ^a

a. Cases in which projection occurred.

as long as possible, it is the responsibility of a surrogate to accurately communicate the preferences of the patient on behalf of whom he or she is making decisions. Indeed, the substituted judgment standard states that surrogates should use the following evidence to choose for the patient the treatment option that the patient would have chosen if he or she were capacitated: explicit formal evidence (e.g., an advance directive), explicit informal evidence (e.g., previous discussion with the patient), and implicit evidence (e.g., knowledge of the patient's character).⁹ The results of the current study suggest that when surrogates must make difficult, end-of-life decisions for a loved one, surrogates may use a form of "evidence" not delineated in the substituted judgment standard: their wishes *for* the patient tend to enter into surrogates' predictions of patients' preferences. We can not determine from the current analysis whether such a substitution on the part of the surrogate is a conscious decision or an unconscious tendency, but such a distinction may be worth studying in future research.

Previous studies have dealt with various difficulties inherent in making end-of-life decisions for others. Seckler and others¹ demonstrated that neither physicians nor close family members of patients were able to predict patients' preferences adequately, whereas Smucker and others³ showed that surrogates who knew the patients for an average of 46 years did not predict patients' preferences better than an actuarial model based on modal preferences of a sample of patients. Although it is difficult to conclude objectively whether the rate at which surrogates are able to predict accurately patients' preferences in the current study suggests a good or a poor level of agreement, the rate of patient-surrogate agreement for CPR/DNR (74%) and extend life v. relieve pain (65%) preferences in the SUPPORT study is similar to the overall rate of agreement reported by

Smucker and others³ (74%–75%) for both the actuarial model and the surrogates. In addition, the meta-analysis by Shalowitz and others⁴ brings to the forefront numerous problems with the substituted judgment task, including the failure of recommended methods to improve surrogates' predictive accuracy (e.g., discussions between patients and surrogates) and the fact that the surrogate-patient relationship does not affect surrogates' ability to accurately predict patients' preferences. In fact, a study conducted by Fagerlin and others² demonstrates that the close surrogate-patient relationship may encourage the use of nonnormative prediction strategies, such as the projection of surrogates' own end-of-life treatment preferences onto their predictions of patients' treatment preferences.

The current study further emphasizes the added difficulty, above making substituted judgments in general, in making predictions of end-of-life treatment preferences for loved ones. When asked to make decisions on behalf of a patient, who is usually a close family member, surrogates often are unable to discriminate between what they want for the patient and what the patient would want for himself or herself. In addition, there do not appear to be specific demographic features, such as age, race, or religious preference, which make projection more likely to occur in some cases than in others. Although we suspected that the ages of the patients and surrogates may have had some bearing on surrogates' propensity to project, we are not particularly surprised that other demographic features, such as race or religion, do not relate to the likelihood of projection on the part of the surrogates. Although race and religious preference have been shown to affect some end-of-life decisions,⁷ it is unclear why these aspects should affect projection.

"Compliance"

A reviewer suggested that it would be interesting to examine those cases in which the surrogate wanted a different course of action for the patient than the patient wanted, but the surrogate nevertheless was able to set aside his or her own contrary preference and accurately predict the patient's preference. This is the opposite of projecting one's own preferences onto those of the patient. We will call this behavior "compliance" because it pertains to compliance with the patient's wishes despite one's own contrary preferences. Recall that surrogates predicted patients' CPR/DNR preferences correctly 74% of the time. Of these 408 surrogates, 15% ($n = 62$)

actually had a contrary preference for the patient but nevertheless correctly predicted the patient's own preference. Of the 549 surrogates who correctly predicted patients' extend life v. relieve pain preferences, 9% ($n = 51$) had a contrary preference for the patient but nevertheless correctly predicted the patient's own preference. Note that it is entirely possible for patients and surrogates to agree without the surrogate manifesting "compliance"; the 2 persons need only have the same preference.

Limitations

Limitations in this study must be acknowledged. First, we were only able to ascertain patient-surrogate agreement and surrogate projection in those patients who were able to express their own preference. Layde and others¹⁰ found that patients within SUPPORT patient-surrogate pairs for whom both members of the pair were able to provide CPR preferences had a considerably lower 6-month mortality rate than patients who were not able to provide a CPR preference but whose surrogate did so. This same finding also applies to our CPR/DNR analysis, because the patients who were and were not able to state their preference in our study were similar to the persons in the analysis by Layde and others.¹⁰ Note that the data used in the current study are a subset of those used in the analysis by Layde and others, because to create the projection variable, we required that an additional question be answered by a surrogate. Thus, missing or unusable responses on this question constituted an additional exclusion criterion to our data to obtain the sample for the current study. In concordance with Layde and others' findings, the 6-month mortality rate of the participants in our CPR/DNR analysis was 20.1%, whereas the mortality rate of the patients who could not respond, but whose surrogates could, was 54.8% (as reported in Layde and others¹⁰). Similarly, patients within SUPPORT patient-surrogate pairs for whom both members of the pair were able to respond to all of the required extend life/reduce pain questions had a substantially lower 6-month mortality rate (31.3%) than patients who were not able to answer this question but whose surrogates were able to do so. Thus, our results may more confidently be generalized to the less infirmed of these seriously ill patients compared with those patients who were more infirmed.

Second, projection can only be detected when the patient and surrogate disagree about what the patient wants. Layde and others¹⁰ have found that disagreement

is more likely when the patient wants DNR rather than CPR, for example. Thus, the absolute frequency with which projection will be detected on any dependent variable will vary with the base rate of disagreement, which may in turn vary with the propensity of the patient or surrogate population to prefer a given option. This propensity may differ substantially among various disease categories, demographic groups, age groups, and other factors.¹¹ Hence, projection may be a more powerful influence on some categories of surrogate decisions than on others.

Another possible limitation pertains to the fact that all surrogates were first asked to predict the patients' preferences and were subsequently asked to state their own preferences for the patient. Because the analysis in the current study involves the examination of data previously collected, we did not have control over the order in which the questions were asked during the interview, and thus we were unable to test for any effects that the question order may have produced. We believe, however, that any order effect that could have arisen in the data would only have served to *decrease* the number of surrogates who projected. Specifically, being asked to predict the patient's preference first should have served as a cue for the surrogate to answer the question regarding his or her own preference for the patient in accordance with what the surrogate thought the patient wanted. We question whether a surrogate derives any benefit by revealing that his or her preference contradicts that of the patient. Thus, projection would be the only likely reason for such a disagreement to occur. Other factors potentially influencing the surrogates' propensity to project might be the false consensus bias,¹² defined as the belief that one's own beliefs and traits are widely shared by others, including the patient, and the false uniqueness bias,¹³ which is exactly the opposite. The former is more likely to occur when a person considers the commonality of one's undesirable characteristics, and the latter is more likely to occur when a person considers the commonality of one's desirable ones. Because it is not apparent whether it is more desirable for a surrogate to agree with a patient's preferences or to respond honestly to a query about one's own preferences, it is not clear whether either of these biases would play a role in the propensity to project.

Finally, both patients and surrogates were asked about their preferences following a future medical condition, such as a cardiac arrest. We recognize that neither party might be able to predict accurately

what they would want at that later point in time.^{14,15} However, a potentially imperfect prediction concerning one's later preference is a realistic component of end-of-life decision making.

Conclusion

Despite the above-mentioned limitations, use of the SUPPORT database in the current analyses allowed us to gain insight into the decision-making processes of both surrogates and seriously ill patients making *real* end-of-life decisions. The improvement in realism that the current study affords above that of previous end-of-life decision-making studies sets our study apart. Furthermore, the type of projection described in the current study has not been addressed previously for seriously ill patients and their surrogates, making the contributions of this study all the more significant. The possibility that surrogates inadvertently may make decisions that represent more accurately their own wishes for a seriously ill loved one than the patients' own preferences is an issue worth bearing in mind when considering the complicated decisions surrogates must make at the end of their loved ones' lives.

REFERENCES

1. Seckler AB, Meier DE, Mulvihill M, Cammer Paris BE. Substituted judgment: how accurate are proxy predictions? *Ann Intern Med.* 1991;115:92–8.
2. Fagerlin A, Ditto PH, Danks JH, Houts RM, Smucker WD. Projection in surrogate decisions about life-sustaining medical treatments. *Health Psychol.* 2001;20:166–75.
3. Smucker WD, Houts RM, Danks JH, Ditto PH, Fagerlin A, Coppola KM. Modal preferences predict elderly patients' life-sustaining treatment choices as well as patients' chosen surrogates do. *Med Decis Making.* 2000;20:271–80.
4. Shalowitz DI, Garrett-Mayer E, Wendler D. The accuracy of surrogate decision makers: a systematic review. *Arch Intern Med.* 2006;166:493–7.
5. Raymark PH. Accepting or rejecting medical treatment: a comparison of decisions made for self versus those made for a significant other. *J Appl Soc Psychol.* 2000;30:2409–36.
6. Knaus WA, Harrell FE Jr, Lynn J, et al. The SUPPORT prognostic model: objective estimates of survival for seriously ill hospitalized adults. *Ann Intern Med.* 1995;122:191–203.
7. Pruchno RA, Lemay EP Jr, Field L, Levinsky NG. Predictors of patient treatment preferences and spouse substituted judgments: the case of dialysis continuation. *Med Decis Making.* 2006;26:112–21.
8. 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.
9. Wendler D, Emanuel E. Assessing the ethical and practical wisdom of surrogate consent for living organ donation. *JAMA.* 2004;291:732–5.
10. Layde PM, Beam CA, Broste SK, et al. Surrogates' predictions of seriously ill patients' resuscitation preferences. *Arch Fam Med.* 1995;4:518–23.
11. Phillips RS, Wenger NS, Teno J, et al. Choices of seriously ill patients about cardiopulmonary resuscitation: correlates and outcomes. *Am J Med.* 1996;100:128–37.
12. Ross L, Greene D, House P. The false consensus phenomenon: an attributional bias in self-perception and social-perception processes. *J Exp Soc Psychol.* 1977;13:279–301.
13. Monin B, Morton MI. Perceptions of a fluid consensus: uniqueness bias, false consensus, false polarization, and pluralistic ignorance in a water conservation crisis. *Pers Soc Psychol B.* 2003;29:559–67.
14. Jansen SJT, Stiggelbout AM, Wakker PP, Nooij MA, Noordijk EM, Kievit J. Unstable preferences: a shift in valuation or an effect of the elicitation procedure? *Med Decis Making.* 2000;20:62–71.
15. Christensen-Szalanski JJJ. Discount functions and the measurement of patients' values: women's decisions during childbirth. *Med Decis Making.* 1984;4:47–58.