Recommendations to Limit Life Support

A National Survey of Critical Care Physicians

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Rationale: There is debate about whether physicians should routinely provide patient surrogates with recommendations about limiting life support.

Objectives: To explore physicians' self-reported practices and attitudes.

Methods: A cross-sectional, stratified survey of 1,000 randomly selected US critical care physicians was mailed. We included a vignette to experimentally examine how surrogate desire for a recommendation and physician agreement with the surrogate modified whether physicians would provide a recommendation.

Measurements and Main Results: Proportion of respondents reporting they routinely provide surrogates with a recommendation and how responses varied based on vignette characteristics. A total of 608 (66%) of 922 eligible physicians participated. Approximately one (22%) in five reported always providing surrogates with a recommendation, whereas 1 (11%) in 10 reported rarely or never doing so. Almost all respondents reported comfort making recommendations (92%) and viewed them as appropriate (93%). Most also viewed recommendations as a critical care physician's duty (87%) and did not view them as unduly influential (80%). Approximately two-fifths (41%) believed recommendations were only appropriate if sought by surrogates. In response to the vignettes, nearly all respondents (91%) provided a recommendation when the surrogate requested a recommendation and the physician agreed with the surrogate's likely decision. Physicians were less likely to provide an unwanted recommendation, both when physicians agreed (29%) and disagreed with the surrogate's likely decision (44%).

Conclusions: There is substantial variation among physicians' self-reported use of recommendations to surrogates of critically ill adults. Surrogates' desires for recommendations and physicians' agreement with surrogates' likely decisions may have important influence on whether recommendations are provided.

Keywords: physician recommendations; life support; intensive care; medical ethics; surrogate decision maker

AT A GLANCE COMMENTARY

Scientific Knowledge on the Subject

Most experts and critical care professional societies have endorsed shared decision making between surrogates and physicians as the optimal approach to navigating decisions regarding life-sustaining treatments. Despite such guidelines, controversy exists about whether physicians ought to routinely provide recommendations about limiting life support.

What This Study Adds to the Field

Although based on reported practice rather than observed practice, this nationally representative survey of critical care physicians suggests there may be considerable variability in physicians' provision of recommendations to surrogates of critically ill adults. We also provide evidence that physicians' willingness to deliver recommendations may vary considerably based on surrogates' wishes and the extent of physicians' agreement with surrogates' decisions. These findings are important because of how commonly surrogates of critically ill adults must navigate end-of-life decision making in intensive care units in the United States.

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An estimated 500,000 adults die each year in the United States during or shortly after admission to an intensive care unit (1). Most of these deaths occur after decisions are made to limit life support (2, 3), and these decisions are often made by surrogate decision makers because patients' decision-making capacity is impaired (4, 5). Although the extent of surrogate involvement in end-of-life decision making varies among different cultures and countries (6–10), US law dictates that patients who lose decision-making capacity retain the right to control their future medical treatments, including decisions about withdrawal of life support, by transfer of decision-making authority to surrogate decision makers (11). Thus, US surrogate decision makers have considerable authority in end-of-life decision making and, for instance, may decline life-prolonging treatments or refuse withdrawal of life support for incapacitated patients despite physician recommendations. Physicians in intensive care units often play an important role in end-of-life decision making by informing, supporting, and guiding surrogates through the decision-making process (12–14). Part of this process may involve a physician providing a surrogate with a recommendation about whether to limit a patient's life support.

Most experts and critical care professional societies have endorsed shared decision making between surrogates and physicians as the optimal approach to navigating decisions regarding life-sustaining treatments (13, 15, 16). Despite such guidelines, controversy exists about whether physicians ought to routinely provide recommendations about whether to limit patients' life support

(17–21). In addition, although most US surrogates may desire physician input when making decisions about limiting a patient's life support (20, 22, 23), in one observational study physicians provided recommendations in less than half of end-of-life discussions with surrogates (17). There may be several reasons to account for this, including physician reluctance to provide a recommendation (24), a potential for some surrogates to regard physician recommendations as intrusive (20), and physicians' concern that providing a recommendation could exacerbate physician–surrogate disagreements.

We conducted a nationally representative survey of critical care physicians in the United States to examine (1) physicians' self-reported practices providing recommendations to surrogates about whether to limit life support, (2) their attitudes and beliefs about such practices, and (3) how a surrogate's desire for a recommendation and the degree of physician–surrogate agreement modifies physicians' likelihood of providing surrogates with a recommendation.

METHODS

Subjects

We derived our sample from the American Medical Association Physician Masterfile, a comprehensive directory of physicians that includes American Medical Association members and nonmembers. We limited our sample to critical care physicians who had either a primary or secondary specialty listed as medical, pulmonary, surgical, or anesthesia critical care as of March 2011. We excluded trainees, physicians living outside the United States, retired physicians, and physicians who practiced a pediatric specialty or subspecialty, yielding a sample frame of 13,079 physicians (25). We used a stratified random sample design, selecting 250 physicians from each of the four critical care fields of interest to ensure adequate representation of anesthesia and surgical critical care practitioners.

Instrument

We used a mixed-methods approach to develop our survey questionnaire. We began by conducting semistructured interviews with 14 critical care physicians in the Chicago metropolitan area (26). We purposively sampled participants to represent different practice settings and critical care specialties. We then used these interviews to develop a draft questionnaire, which we piloted among a focus group of 12 physicians with experience in health services research and clinical ethics. Next, we iteratively revised the questionnaire based on in-depth cognitive pretesting performed by the University of Chicago Survey Lab with 10 critical care physicians. The final seven-page instrument (*see* online supplement) included information regarding physicians' self-reported practices providing recommendations, their attitudes and beliefs about such behaviors, and their sociodemographic and clinical characteristics.

We also included an experimental vignette using a 2×2 between-subjects factorial design to examine how physicians' likelihood of delivering a recommendation varied based on surrogate's desire for such and whether or not the physician agreed with the decision the surrogate favored. The vignettes were randomly allocated across the sample population. Thus, each participant received one of four vignette versions and was queried: "Now imagine you are in a situation where a surrogate says that they (want versus do not want) your recommendation and the surrogate is favoring a decision about life support that (you agree with versus you disagree with), how likely are you to provide a specific recommendation?" We used a four-point response scale ranging from "Very Unlikely" to "Very Likely" to examine this outcome.

Survey Administration

The survey was fielded between March and July 2011 using a modified Dillman approach (27). All subjects were sent a prenotification letter before the first survey mailing. Surveys were sent first class mail with a postage-paid return envelope. The first wave of survey mailings contained

a \$10 bill to encourage participation. All nonresponders were sent a reminder postcard 2 weeks after the first survey mailing and nonresponders were sent additional surveys at 5 and 10 weeks after the first mailing. We used Google (Google, Mountainview, CA), online searches of the state medical boards and the Social Security Death Index to locate physicians whose mailings were returned to us because of incorrect addresses. If none of these queries resulted in an alternative address (or confirmed that the physician was deceased), we considered the subject ineligible for study inclusion. Responses were entered in Microsoft Access (Microsoft, Seattle, WA), and double-key entry and crosschecking was used to minimize entry errors. Data were deidentified to maintain strict confidentiality.

Analysis

We calculated the response rate by using the number of respondents divided by the number of nonrespondents considered within the scope of the survey sample. We excluded subjects who were deceased, retired, not clinically active, or without a usable address (25). We compared characteristics of respondents and nonrespondents with information obtained from the American Medical Association file using a chi-squared or t test.

We were interested in two main outcome variables. We defined our first outcome variable as the response to the item: "How often, if at all, do you make a specific recommendation about whether to continue or limit life support?" This item used a five-point response scale (Always, Often, Sometimes, Rarely, and Never). We elected *a priori* to only include respondents who reported being clinically active in critical care in this analysis. Additionally, to simplify our analyses, we dichotomized respondents and compared those responding "Always" or "Often" with all others. We examined the bivariate association between each physician and practice characteristic of interest and this outcome variable. Next, we conducted logistic regression to examine the multivariate relationships. We included three sets of variables in our multivariate models (1): basic physician demographic characteristics; (2) variables of at least borderline statistical significance on bivariate analyses ($P < 0.20$); and (3) those in which we had a substantive *a priori* interest.

We defined our second outcome variable as participants' responses to the 2×2 experimental vignette. To simplify our analyses, we created a dichotomous outcome variable by combining "Somewhat likely" and "Very likely" and contrasting these responses with "Somewhat unlikely" and "Very unlikely."

Our choice to select equal numbers of the four types of critical care physicians resulted in disproportionate sampling within each stratum. To account for disproportionality we applied a stratum weight by taking the inverse of the selection probability for cases within each critical care specialty stratum (28). We adjusted the stratum weight for nonresponse using response propensity modeling within each stratum, estimating response propensity using a logistic regression model including sex, age, and foreign medical graduation status (29). The stratum weight was multiplied by the inverse of the propensity score and adjusted slightly to the stratum population totals. Thus, the weighted sample statistics provide estimates that are reflective of the population of critical care specialists in the United States, with most of these physicians practicing in medical or pulmonary critical care and fewer practicing in surgical or anesthesia critical care.

RESULTS

Participants

Of the 1,000 physicians in the original sample, 69 were unreachable by mail and 9 were ineligible because they were no longer practicing critical care medicine. Of the remaining 922 physicians, 608 returned completed questionnaires (unadjusted response rate, 61%; adjusted response rate, 66%). Of the 608 physicians who responded to the survey, 571 reported working in an intensive care unit.

Most respondents were male (83%), the median age was 49 years, 84% were board certified in critical care, and respondents practiced in a variety of clinical subspecialties and practice types (Table 1). Respondents were similar to nonrespondents

TABLE 1. CHARACTERISTICS OF SURVEY RESPONDENTS (N = 571)

Age (median, interquartile range)	49 (42.5–56)
Trained in the United States, %	75
Immigrated to the United States, %	32
Specialty, %	
Anesthesia	25
Medical	24
Surgical	25
Pulmonary	24
Region, %	
Northeast	27
South	33
Midwest	22
West	18
Board certified in critical care medicine, %	84
Type of practice, %	
Private	35
Academic	41
Private with academic affiliation	16
Other	9
Primary ICU %	
Medical	26
Surgical	22
Trauma	6
Mixed	33
Other	5
Multiple	8
Primary ICU is a “closed” unit, %	29
Number of surrogate discussions about life support in typical ICU week, %	
None	7
2–3	49
3–5	31
6–10	9
11–15	3
≥16	<1

Definition of abbreviation: ICU = intensive care unit.

Percentages may not equal 100% because of rounding.

with respect to sex, critical care specialty, and geographic region (all P values > 0.05), although respondents were slightly older than nonrespondents (48.9 vs. 47.6 yr; $P < 0.02$) and were more likely to have graduated from US medical schools (adjusted response rate, 63 vs. 55%; $P = 0.03$).

Physician-reported Practices of Providing Recommendations

Physicians varied considerably in how often they reported making a specific recommendation to a surrogate about whether to continue or limit life support. Approximately one-fifth of respondents (21%) reported “always” providing such information, nearly one-third of physicians (29%) reported only “sometimes” doing so, and more than 1 (12%) in 10 of critical care physicians reported “rarely” or “never” providing recommendations to surrogates (Table 2). Although only approximately one-third of respondents worked in “closed” intensive care units, most critical care physicians reported leading discussions for the healthcare team. There was also considerable variation in physicians’ practices in regards to asking surrogates whether they wanted a physician’s recommendation, with only 1 in 10 physicians reporting always doing so. Most physicians (67%) reported being “very comfortable” making specific recommendations to surrogates about whether to continue or limit life support.

Physician Attitudes and Beliefs about Providing Recommendations

Almost all physicians (93%) reported that it was appropriate for critical care physicians to provide surrogates recommendations

about continuing or limiting life support (Table 2). Many (87%) also viewed providing a specific recommendation as a critical care physician’s duty, with 52% reporting that they “agree strongly” with this statement (Figure 1). Nearly all physicians (95%) reported that recommendations from a physician made it easier for the surrogate to make decisions. Nearly one-fifth (19%) agreed that recommendations unduly influence surrogates, but fewer (11%) agreed that physician recommendations further burden surrogates. Opinions were more divided with respect to whether providing a recommendation “is appropriate only if the surrogate wants the recommendation,” with a minority (41%) agreeing with the statement.

We then examined whether there were physician factors that were associated with physicians who reported “always” or “often” providing recommendations compared with physicians who reported providing recommendations “sometimes,” “rarely,” or “never.” On bivariate analysis, only the type of critical care training had a significant association with the frequency that the physicians reported “always” or “often” providing surrogates with recommendations, with medicine-based critical care physicians reporting a higher frequency of providing recommendations than their counterparts in anesthesia and surgery. However, after adjusting for potentially confounding covariates, the likelihood of respondents’ reporting “always” or “often” providing recommendations was similar among physicians regardless of their age, sex, type of critical care training, and percent of time devoted to clinical care (Table 3).

Role of Surrogate Desire for Recommendation and Physician–Surrogate Agreement

In physician responses to the experimental vignettes, the surrogate’s desire for a recommendation modified the odds that a physician would provide a surrogate a recommendation regardless of whether the physician agreed with the surrogate’s likely decision. Eighty-eight percent of physicians would provide a recommendation when advice was wanted compared with 36% when advice was not wanted (odds ratio, 0.27; 95% confidence interval, 0.21–0.34). Table 4 depicts the results of responses to the hypothetical vignette by combination of surrogate wishes and physician–surrogate agreement. Nearly all physicians (91%) reported delivery of a recommendation where the surrogate desired such a recommendation and the physician and surrogate were in agreement. There was a slight decrease in the percentage of physicians who reported delivery of recommendation when the surrogate desired it and the physician and surrogate were in disagreement (86%) but the difference was not statistically significant. The use of recommendations was much less common when the surrogate did not want it, but it was least common when the surrogate did not want it and the physician and surrogate were in agreement (29%) compared with when the surrogate did not want a recommendation and there was physician–surrogate disagreement (44%) (odds ratio, 0.36; 95% confidence interval, 0.27–0.49).

DISCUSSION

Our nationally representative survey of critical care physicians supports several conclusions about physicians’ reported use of recommendations to surrogates regarding limitations on patients’ life support. We found considerable variation in the frequency that critical care physicians reported making such recommendations, with more than a fifth reporting they always do so and 1 in 10 reporting that they rarely or never do so. In addition, most physicians have favorable views about providing this type of information to surrogates, and no physician or practice characteristics

TABLE 2. REPORTED PRACTICES AND ATTITUDES REGARDING RECOMMENDATIONS ABOUT LIFE-SUSTAINING CARE

	%
1. During discussions with surrogates about continuing or limiting life support for your patients, how often are you the person leading the discussion for the health care team?	
Always	26
Often	60
Sometimes	11
Rarely or never	4
2. How often, if at all, do you make a specific recommendation about whether to continue or limit life support?	
Always	21
Often	38
Sometimes	29
Rarely or never	12
3. How often, if ever, do you ask surrogates if they want your recommendations about whether to continue or limit life support?	
Always	11
Often	27
Sometimes	29
Rarely	20
Never	13
4. In general, how comfortable or uncomfortable are you with making specific recommendations to surrogates about whether to continue or limit life support?	
Very comfortable	67
Somewhat comfortable	25
Somewhat or very uncomfortable	8
5. In general, how appropriate or inappropriate is it for critical care physicians to provide surrogate decision makers with specific recommendations about continuing or limiting patients' life support?	
Very appropriate	65
Somewhat appropriate	28
Somewhat or very inappropriate	7

Percentages may not equal 100% because of rounding.

examined were significantly associated with physicians' tendency to report providing recommendations to surrogates. Finally, we found that a surrogate's desire for the critical care physician's recommendations and the extent of the physician's agreement with the surrogate may both influence the likelihood that a recommendation would be delivered. These findings are important because of how commonly surrogates of critically ill

adults must navigate end-of-life decision making in intensive care units in the United States.

US physicians who are involved in decision making with surrogates but choose not to provide a recommendation may be failing to meet the needs of some surrogates. In one recent study using clinical vignettes, although more than half of surrogates for critically ill patients preferred to have the final control over

Providing a surrogate with a specific recommendation about whether to continue or limit life support...

Figure 1. Reported beliefs regarding recommendations about life-sustaining care.

TABLE 3. BIVARIATE AND MULTIVARIATE ASSOCIATION BETWEEN PHYSICIAN CHARACTERISTICS AND PHYSICIANS' PRACTICE OF PROVIDING RECOMMENDATIONS (N = 562)

	Total	Often/Always, %	Bivariate <i>P</i>	Odds Ratio (95% CI)
Physician age				
32–42	147	61	0.24	Referent
43–48	131	51		0.6 (0.3–1.1)
49–55	148	65		1.4 (0.7–2.6)
56–65	145	60		1 (0.5–1.8)
Physician sex				
Female	98	63	0.54	Referent
Male	463	59		0.8 (0.4–1.4)
Physician type				
Anesthesia	127	53	0.05	Referent
Medicine	140	65		1.6 (0.8–3.1)
Surgical	145	54		1 (0.6–1.8)
Pulmonary	149	66		1.7 (0.8–3.4)
Origin				
Foreign born	163	65	0.12	Referent
First generation (US)	73	67		1.1 (0.5–2.2)
Second generation (US)	325	56		0.6 (0.4–1)
Percent of clinical time				
0–60%	111	59	0.32	Referent
61–80%	125	54		0.8 (0.4–1.5)
81–100%	325	62		1 (0.6–1.8)
Percent of intensive care unit time				
0–20%	116	56	0.47	Referent
21–40%	181	57		1.3 (0.7–2.3)
41–60%	145	66		2 (1–3.9)
61–100%	119	60		1.2 (0.6–2.4)
Discussions per week				
0–2	310	61	0.12	Referent
3–5	179	54		0.6 (0.4–1)
≥6	72	70		1.2 (0.6–2.4)
Type of intensive care unit				
Medical	145	62	0.27	Referent
Neurologic	127	50		1 (0.5–2.2)
Surgical	35	59		1.4 (0.5–4)
Trauma	180	62		1.3 (0.7–2.2)
Mixed	28	77		2.6 (0.8–8.3)
Multiple	48	61		1.3 (0.5–3.2)

Definition of abbreviations: CI = confidence interval; US = United States.

life-support decisions, only approximately 1 in 10 thought such decisions should be made without incorporating or seriously considering the physician's opinion (23). Audiotaped discussions corroborate the potential for physicians to fail to provide surrogates with adequate directive counsel despite surrogates' wishes to the contrary (17). Additional investigations suggest that physicians often fail to meet the communication needs of surrogates (30, 31) and that surrogates may desire more support as they struggle with the burdens of the decision-making process (32).

We found that surrogates' wishes regarding whether or not to receive a critical care physician's recommendation, and the

TABLE 4. PERCENT OF PHYSICIANS LIKELY TO PROVIDE A RECOMMENDATION BASED ON SURROGATES' WISHES AND PHYSICIAN–SURROGATE AGREEMENT (N = 603)

	Physician and Surrogate Agree?	
	Yes	No
Surrogate desires recommendation?		
Yes	91%	86%
No	29%	44%

Question stem: "Now imagine you are in a situation where a surrogate says that they [want vs. do not want] your recommendation and the surrogate is favoring a decision about life support that [you agree with vs. you disagree with], how likely are you to provide a specific recommendation?"

physicians' agreement with surrogates' decisions, were influential in guiding whether respondents reported they would offer a recommendation. One reason this is noteworthy is that up to half of US surrogates may not want a physician's recommendation about whether to limit life support (20). Despite this, one-third of the physician respondents reported "rarely" or "never" asking surrogates whether or not they wished for a recommendation, highlighting the opportunities for improved communication between physicians and surrogates about this matter. Our data suggest that some physicians may selectively provide recommendations, whereas other physicians may provide recommendations routinely, even to surrogates who explicitly do not want physician input. Of course, there are circumstances where a physician has a duty to provide even an unwanted recommendation to a surrogate, such as when the surrogate's choice goes against known patient preferences (20). There are potential downsides to selectively providing recommendations based upon surrogate preferences for recommendations. Providing recommendations only when a surrogate requests them might delay decision making, prolong patient discomfort, and result in suboptimal decision making from some surrogates that could have benefitted from more proactive physician guidance.

We believe practitioners who are providing recommendations less often may be interested to read about the broad support providing recommendations has among critical care physicians. Our data also raise interesting questions about why there may be a discrepancy between belief about recommendations and

the provision of recommendations. Although our data suggest that some of these differences could be explained by surrogates' desires for recommendations, few physicians seem to report routinely asking surrogates if they want a physician's recommendation. Other variables, such as physicians' personal values, fear of litigation, and prognostic uncertainty, may modify whether recommendations are provided. Additional research to better understand why physicians decide to provide or withhold recommendations may shed additional light on the variability of physicians' practices. Because providing recommendations seems to be something trainees observe, and our report suggests there may be considerable variation in physician behavior, a more formal curriculum around how and when to provide recommendations, in conjunction with observation of role-model physicians providing recommendations, may be a useful adjunct to an overall curriculum focused on end-of-life communication.

Although our study only focused on US critical care physicians, there may be considerable international differences in whether critical care physicians provide recommendations to surrogates. Cultural, religious, healthcare system, and legal differences certainly influence end-of-life practice and behaviors from the physician side (6–8) and likely family-surrogate side (33–35). Physicians' practices of providing recommendations to surrogates, attitudes about recommendations, and responses to experimental scenarios might be quite different in these environments. Future research might repeat key aspects of our survey in a more cross-cultural, international context.

Our study has several limitations. First, our survey is based on physicians' self-reported behaviors and beliefs rather than actual clinical practice and may be influenced by socially desirable response bias. Because there may be differences between reported practice and actual practice, additional research using modalities other than physician self-report are needed to confirm our findings. Second, our findings should not be used to infer the quality of counsel that critical care physicians provide, because physicians can support surrogates through information delivery, elicitation of patient and surrogate values, and the linkage of particular values with specific decisions, whether or not recommendations are provided (17). Third, as with all surveys, our findings may be influenced by nonresponse bias. Although we adjusted for modest differences in the likelihood of response based on physicians' observable characteristics, additional unmeasured characteristics could also have affected physicians' likelihood of responding and thus biased our results. Fourth, our analysis is limited to critical care physicians and thus may not reflect the views and experiences of other providers for critically ill adults (36). Finally, our study was not designed to capture the experiences of patients and surrogates, and further work is needed to explore their experiences with respect to life support decision making.

CONCLUSIONS

Although critical care physicians may vary in providing recommendations to surrogates about limiting life support, they generally view making such recommendations as appropriate, and neither unduly influential or burdensome. Our findings also indicate that physicians may modify whether they provide a recommendation according to surrogate desire for a recommendation and the level of agreement they have with surrogates, suggesting physicians avoid a "one size fits all" approach. Despite this, more work is needed to understand how physicians come to their recommendations, which factors indeed modify their use of them, and ultimately how physicians might best tailor their provision of recommendations to maximally fulfill the needs of surrogates and patients alike.

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