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Physicians' Decision Making Roles for an Acutely Unstable Critically and Terminally Ill Patient

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Abstract

Background—There is substantial variation in use of life sustaining technologies in patients near the end of life but little is known about variation in physicians' initial ICU admission and intubation decision making processes.

Objective—To describe variation in hospital-based physicians' communication behaviors and decision making roles for ICU admission and intubation decisions for an acutely unstable critically and terminally ill patient.

Methods—We conducted a secondary analysis of transcribed simulation encounters from a multi-center observational study of physician decision making. The simulation depicted a 78 year-old man with metastatic gastric cancer and life threatening hypoxia. He has stable underlying preferences against ICU admission and intubation that he or his wife will report if asked. We coded encounters for communication behaviors (providing medical information, eliciting preferences/values, engaging the patient/surrogate in deliberation, and providing treatment recommendations) and used a previously-developed framework to classify subject physicians into four mutually-exclusive decision-making roles: informative (providing medical information only), facilitative (information + eliciting preferences/values + guiding surrogate to apply preferences/values), collaborative (information + eliciting + guiding + making a recommendation) and directive (making an independent treatment decision).

Subjects—24 emergency physicians, 37 hospitalists, and 37 intensivists from 3 US academic medical centers.

Results—Subject physicians average 12.4 (SD 9.0) years since graduation from medical school. 38/98(39%) physicians sent the patient to the ICU, and 9/98(9%) ultimately decided to intubate. Most (93/98 (95%)) provided at least some medical information, but few explained the short-term prognosis with (26/98 (27%)) or without intubation (37/98 (38%)). Many (80/98 (82%)) elicited

the patient's intubation preferences, but few (35/98 (36%)) explored the patient's broader values. Based on coded behaviors, we categorized 1/98 (1%) as informative, 48/98 (49%) as facilitative, 36/98 (37%) as collaborative, and 12/98 (12%) as directive; 1/98 (1%) could not be placed into a category. No observed physician characteristics predicted decision making role.

Conclusions—The majority of the physicians played a facilitative or collaborative role, although a greater proportion assumed a directive role in this time-pressured scenario than has been documented in non-time pressured ICU family meetings, suggesting that physicians' roles may be context-dependent.

Keywords

intensive care; palliative care; mechanical ventilation; terminal care; aged; physician decision making; variation; patient-doctor communication

End-of-life intensive care unit (ICU) and life-sustaining treatment (LST) use among patients with advanced cancer varies considerably[1–4]. Observational studies of family meetings to discuss withholding or withdrawal of LST in the ICU demonstrate that physicians vary substantially in their approach to this decision making process[5]. Most assume a collaborative role, in which the physician shares in deliberations with the family and provides a recommendation. Others take a facilitative role in which the physician refrains from providing a recommendation but guides the family by clarifying the patients' values and applying those values to the decision. A minority take an informative role in which the physician only discusses the patient's condition, prognosis and treatment options but does not elicit information about the patient's values, engage in deliberations, or provide a recommendation. Rarely, physicians take a directive role in which the physician assumes all responsibility for the decision.

Upstream decisions regarding whether to initiate LST are equally important but less well-studied, in part due to their unscheduled nature. It is likely that time-pressures and greater prognostic uncertainty make the decision making process different from that observed during ICU family meetings. It is possible that the roles physicians' take are fluid, and may change with differences in the clinical context. We hypothesize that time-pressures and greater prognostic uncertainty increase the use of a directive role.

In this study we describe hospital-based physicians' communication behaviors and ICU admission and intubation decision making roles for an acutely unstable critically ill patient with end-stage cancer. We used a previously-developed high-fidelity simulation [6] with documented face validity to standardize the clinical and psychosocial aspects of the case.

MATERIALS AND METHODS

This is a secondary analysis of 98 audiotaped and transcribed encounters between hospital-based physicians from 3 U.S. academic medical centers and a simulated patient and surrogate. We have previously reported descriptive analyses of emotion-handling and general communication behaviors of 27 of the 98 subject physicians[7].

Conceptual Model

We used the normative framework of shared decision making articulated by Charles and colleagues[8]. In this framework, treatment decision making is broken down into three different stages: information exchange, deliberation or discussion of treatment preferences, and deciding what treatment to implement. The shared decision making model requires that doctor and patient share in all stages of the process. Both doctor and patient exchange

information, reveal treatment preferences and agree on what treatment to implement. The degree to which this normative framework can be applied in time-pressured, life-threatening decisions is unclear.

Simulation

The details of the initial simulation case development and validation have previously been described[6]. Briefly, we designed a scenario of a 78-year old man with metastatic gastric cancer and progressively worsening respiratory distress, accompanied by his caregiver wife, by combining Sim-Man technology vital signs tracings with experienced and trained standardized patients. Physician subjects received a chart prior to entering the room, including a discharge summary from a recent 2-month hospital stay, a report of 1-week old CT scan showing widely metastatic gastric cancer, and a spiral CT negative for pulmonary embolism from his initial presentation to the ER. The chart contained no advance care plan.

The patient and his wife knew there were no further curative treatments available as he was deemed “too weak” by their oncologist for further chemotherapy, and expected him to live no longer than 3–6 more months. If asked during the course of the encounter, that patient and his wife would reveal their knowledge of the cancer prognosis, preference for avoiding re-admission to the ICU, or intubation, and to receive comfort-focused treatment. The husband’s role preference for decision making was to make his own decisions independent of the physician (however, he is dyspneic and unable to speak more than 1–2 words). The wife was aware of this role preference but is ambivalent about her husband’s treatment preference and has a more passive role preference for decision making. Given a choice between treatment alternatives, she will ask for a recommendation. If the doctor makes a treatment plan recommendation she will accept it. If the doctor makes a directive treatment plan without assessing treatment preferences, she will acquiesce. If, on the other hand, the doctor offers a choice between two treatment options, she will choose the least intensive option.

The scenario was designed to induce an experience of time pressure for decision making in two ways. First, the patient’s vital signs meet standard criteria for a “rapid response team” upon entry into the room. Second, they steadily deteriorate over the course of the simulation; however, the patient does not frankly arrest. The simulation ended when the physician makes a treatment plan or 30 minutes elapse, whichever came first.

Subjects

We employed distinct sampling strategies for each parent study. In one, we recruited all staff emergency medicine (EM) physicians, hospitalists, and intensivists with at least 2 months’ annual clinical service from staff lists of 3 purposively sampled U.S. academic medical centers (AMCs) representing a range of end-of-life ICU use, as measured by the Dartmouth Atlas of Health Care[9]. In the other, we recruited a random sample of EM physicians, hospitalists, and intensivists from a single US county using the county medical society list as the sampling frame, with purposive oversampling of black physicians. Only attending physicians were eligible for inclusion.

Data Collection

Two investigators (AB, DM) conducted the simulations at each institution’s simulation center. All encounters were audiorecorded and later transcribed. After each simulation, we collected demographic, training and employment information from each physician subject.

Measures

We adapted a previously-developed codebook used to code ICU family meetings[5]. This codebook included codes for specific physician behaviors and an algorithm for categorizing groups of behaviors into physician decision making “roles.” We adapted this codebook to the non-ICU family meeting context of our study: simulated encounters with a ward/ED patient suffering from crisis dyspnea. This process involved iterative application of the codebook to 20 randomly-selected encounters, followed by discussion of our coding disagreements and questions, and relevant codebook refinements by 3 investigators (JU, AB, DW); a medical student, a decision scientist, and an intensivist. We identified and defined 25 individual behaviors within 4 broad categories of communication behaviors: providing medical information, eliciting patient values, engaging the surrogate in deliberations, and providing a prompted or unprompted treatment recommendation (Table 1). Based on the coded behaviors, physicians were categorized into one of four roles: informative, facilitative, collaborative and directive. Two out of these three investigators (JU, AB), then independently co-coded a randomly chosen 15% of all 98 encounters using the final codebook, achieving role categorization kappa of >0.8, reflecting near-perfect agreement. Using the final codebook, one out of the three investigators (JU), a medical student who was not involved in the original data collection, independently coded all 98 encounters (Atlas. ti Version 5.6.3).

Statistical analyses

We summarized the characteristics of the subject physicians using means and proportions. We calculated inter-rater reliability using the kappa statistic. We summarized the frequency of communication behaviors using proportions. We explored the association between physician characteristics – role (emergency physician, hospitalist, intensivist) and experience (years since medical school graduation) and communication behaviors using the Chi-square statistic or Fisher’s exact test, as appropriate, followed by multivariable logistic regression. We conducted all analyses with STATA Version 11.1 (College Station, Texas).

Human subjects and role of the sponsor

The institutional review boards at all three institutions approved the studies. All physician subjects provided written informed consent with the understanding that they were participating in a study about how hospital-based physicians make decisions for sick patients with whom they had no prior relationship. We withheld the fact that we were particularly interested in “end-of-life” decision making until the end of the study. Upon this disclosure no subject physician withdrew. The National Cancer Institute and the Gleitsman Palliative Care Fund had no role in the design, analysis, or reporting of the study findings.

RESULTS

Subjects

Eighty-two of 229 (36%) eligible physicians from the 3 purposively sampled AMCs completed the simulation encounter. Fifteen of 121(12%) eligible physicians from a single county random probability sample, enriched with a convenience sample of 18, completed two simulation encounters, 17 of whom saw the 78 year old man with gastric cancer first[10]. In total, 99 physicians completed the simulation encounter. One of these encounters was not recorded and transcribed due to technical error and was not included in our analysis. We describe these 98 subject physicians in Table 2. Thirty-seven were hospitalists (38%), 37 were intensivists (38%), and 24 were emergency physicians (25%). Their mean age was 40 years, with an average of 12 years since medical school graduation

and 8 years at their current institution. Most (71%) were men and non-Hispanic white (65%).

Communication behaviors

Providing Medical Information—As shown in Table 3, the vast majority of physicians provided at least some medical information (96%), but the quality and thoroughness of this information was variable. While almost all the physicians explained the patient's medical condition (95%), relatively few explicitly mentioned more than one potential treatment option (37%). Although discussion of the likely outcomes of intubation versus without intubation may have been useful for the patient and surrogate, only 27% mentioned the possible outcomes with intubation and 38% mentioned that death was the likely result of withholding intubation. More frequently, general prognostic statements not tied to any particular treatment plan were used (69%); for example "It is very likely you will die soon." While the physicians were all aware of the patient's diagnosis of metastatic gastric cancer, less than half (43%) attempted to ascertain what the patient and surrogate knew about the cancer or to discuss the patient's long term prognosis if they survived the acute critical illness.

Eliciting Treatment Preferences—While the majority of physicians elicited patient preferences or values (88%), the overwhelming majority did so narrowly (82%). For example, "If we are not able to get you better with this mask or with some other noninvasive types of masks that provide oxygen do you want us to place a breathing tube to help you breathe?" In contrast, few (36%) physicians probed more broadly regarding goals or values. For example, "Have you talked about this with your primary doctor, about how aggressive you want to be if a situation like this were to come up?" Few physicians (4%) discussed the likely outcome of different treatment strategies prior to beginning a discussion about patient preferences.

Deliberative Behaviors—Half the physicians (54%) tried to engage the patient and surrogate in a deliberative process about preferences. Most commonly physicians accomplished this by making statements to link the patient's stated values or treatment preferences with specific recommended treatment decisions (41%), for example "If he is tired of fighting and if he is tired of just putting up with this, then making him comfortable and stopping the treatments is probably the best." Some physicians also guided the surrogate to separate their own personal wishes from what the patient would choose for themselves, with priority given to the patient's own wishes (10%). For example, "Once more you are speaking for him right now, your decisions. What would he want if he was able to speak for himself in this situation?" Finally, physicians also highlighted the preference-sensitive nature of the decision to initiate LST (13%). For example, in response to a surrogate's request for a treatment recommendation, one physician stated "That is a very difficult question. It is a very personal thing."

Making Treatment Recommendations—A total of 77/98 (78%) of encounters involved the physician making an explicit treatment recommendation. In 64/98 encounters (65%), the surrogate solicited the recommendation in response to a choice offered by the physician (see scripted response principles, Appendix). Half responded to this request by providing a specific treatment recommendation; 16/64 (25%) responded by either eliciting the patient preferences or reframing the request as a question to the patient and surrogate; and 20/64 (31%) simply restated medical information. Nine (14%) ultimately refused to give any recommendation. Thirteen/98 (13%) physicians made treatment recommendations absent any solicitation by the surrogate.

Making a Treatment Plan Independent of Patient/Surrogate—Nine (9%) physicians stated their plans to intubate the patient independently of the patient/surrogate treatment preferences, either by not eliciting these preferences or by ignoring them. For example, one subject entered the room, assessed the patient's vital signs, and announced: "So, we're going to put you to sleep with some medication and then we're going to put a tube into his lungs to help him breathe."

Physician decision making role

We define physician decision making roles in Table 1. One (1%) of the physicians was classified as informative; s/he provided information about the patient's medical condition, prognosis or treatment options but did not elicit information about the patient values or provide any recommendations on care. Fifty-two (53%) physicians were classified as facilitative; they did not provide any recommendations but actively guided patient and surrogate to clarify patient's values and apply those values to decision-making. Thirty two (33%) of the physicians were categorized as collaborative; they actively participated in deliberations with the family, elicited patient values and provided a recommendation based on these values. Twelve (12%) physicians were classified as directive; they made an independent treatment decision without considering the family's values. One (1%) could not be categorized. He obtained the chief complaint, a brief past medical history without obtaining intubation preference or assessing understanding of prognosis, and left the room saying "I'm going to write some orders now," without describing his treatment plan to the patient and surrogate. His written orders included further diagnostic work-up only. No observed physician characteristics predicted decision making role.

DISCUSSION

In this high-fidelity simulation study of decision making by hospital-based physicians from three U.S. academic medical centers, physicians consistently provided basic medical information and asked about patient's intubation preferences when faced with a decision regarding intubation and mechanical ventilation for a critically and terminally ill elder. However, relatively few offered more than one treatment option, explained the implications of those options or asked about the patient's broad values or goals of care. Although most assumed a facilitative or collaborative role in decision making, a sizeable minority assumed a directive role.

Previous studies regarding discussions about code status and end-of-life decision making have examined physician roles in other clinical contexts, including during clinic appointments or during the initial admission encounter[11]. Our study is the first of its kind to examine the decision roles that physicians adopt in conversations with patients and surrogates about the initiation of life sustaining treatment for an acutely unstable patient, a very different type of scenario given the greater prognostic uncertainty and time-pressures. We found that physicians in our cohort reliably provided information about the patient's current medical state and the potential cause of the patient's respiratory distress, but oftentimes neglected discussing comprehensive treatment options and their associated prognoses. When physicians did talk about prognosis, it was typically after the elicitation of intubation treatment preferences. Specifically, most physicians seemed to follow a protocol in which they asked a closed-ended question to discern whether the default strategy (intubation and ICU admission) would be acceptable, then, upon learning it was not, checking that the patient understood choosing not to be intubated would likely result in death. This suggests that physicians perceive a patient's intubation preference as a stable trait rather than one that might depend upon information the physician would provide about the risks and benefits of intubation. End-of-life communication experts argue that it may be

appropriate to forgo discussing treatment options that do not meet the patient's values and goals, but narrow treatment preferences are typically context-dependent. Few physicians were aware of the patient's values and goals, since this broader elicitation only occurred in 36% of encounters. This is consistent with what has been found in previous studies looking at discussions about preferences for end-of-life care in other decision contexts. In two different studies looking at admission encounters, it was found that most discussion focused on life-sustaining interventions as opposed to larger life goals[11] and that discussions regarding resuscitation tended to be procedure-focused[12]. The majority of physicians were found to be either facilitative or collaborative, however this may be due to a generosity in coding which counted treatment preference and values elicitation equally. A sizeable minority were found to be directive, many more than has been documented in ICU family meetings[5]. Although ICU family meetings had similar clinical valence, involving decisions about withholding or withdrawing life-sustaining treatment, the lack of time pressure may allow more physicians to engage in deliberative behaviors during ICU meetings than in our time-pressured clinical situation of acute instability. This implies that physicians' roles in life-sustaining treatment decision making is context-dependent

Our study has several limitations. It is possible that the behavior observed in this simulation experiment does not reflect physicians' actual practice, a limitation of our study. If anything, being observed would bias the findings towards physicians' "best" behavior, yet we still found marked variation between physicians, many of whom did not follow principles of shared decision making. Although the standardized simulation allowed us to isolate patient sources of variation, we cannot generalize the findings to clinical scenarios that may be more common, such as situations when the longer-term prognosis is less certain or when the patient does not have a clear answer to the question: "do you want to be intubated?" It is possible that an answer of "I don't know" would have prompted more values elicitation and deliberation or would have resulted in directive decision making. Nor can we generalize to clinical situations in which the treatment under consideration may be perceived by many physicians as non-beneficial, in which case the rate of directive decisions against the treatment may be much higher.

Additionally, qualitative analysis may be subject to some subjectivity. We followed best practices in qualitative analysis, including codebook development and refinement with the input of investigators from different disciplines and independent co-coding of a randomly selected sub-sample of the encounters. Role categorization kappa of >0.8 , representing near-perfect agreement, implied high coding reliability.

The use of convenience sampling from four geographically limited areas potentially limits the generalizability of this study. Given the high cost of high-fidelity simulation, which requires actors and investigators to travel to simulation centers for data collection, it would be infeasible to conduct this study using a nationwide probability sample. Moreover, even paper- or web-based case vignette survey studies of physician decision making targeted to nationwide sampling frames such as specialty society members are limited by biases introduced by the frame and response rates on the order of 25%.

Finally, we used a framework validated in a different decision context to assess communication behaviors and physician decision roles. There is a question of whether it is fair to hold physicians accountable to principles of shared decision making in emergency situations. However, the IOM considers patient-centered care the hallmark of high quality healthcare, making shared decision making the communication paradigm for most medical treatments. Ensuring that patients participate in end-of-life decision making even in this time-pressured, life-threatening context is essential to avoid treating patients in ways not congruent with their preferences.

Conclusion

There is substantial variation in end-of-life ICU and LST use among patients with terminal illness. While previous studies have looked at discussions regarding code status and LST use in the context of clinic visits, admission interviews and ICU family meetings, this is the first study to examine this decision in an acute and time-pressured setting. While we did find that physicians were more likely to play a directive role in the setting of acute clinical instability than in ICU family meetings, other aspects of the end-of-life preference discussion were not necessarily context dependent. The tendency to focus more on specific LST interventions and procedures as opposed to the broader life goals and values of the patient was found not only in the acute care setting of our study, but also in the less time-pressured scenarios of clinic visits and hospital admission encounters. While evidence-based recommendations for communication and decision making about end-of-life care generally encourage broad discussion of patient values in order to determine an appropriate treatment course, actual physician practice tends to focus on specific treatments and interventions. Further study is necessary to understand the source of this variation.

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Table 1

Physician role categories

Domain of Communication	Role			
	Informative	Facilitative	Collaborative	Directive
Providing Medical Information	X	X	X	+/-
Eliciting Treatment Preferences		X	X	+/-
Deliberative Behaviors			X	+/-
Give Treatment Recommendations			X	+/-
Responding to Surrogate Recommendation request				+/-
Makes a treatment plan independent of family/surrogate				X
	1%	49%	37%	12%

Table 2

Characteristics of study physicians (N=98)

Characteristic	Summary
Age, mean (SD)	40 (9)
Male, n (%)	70 (71)
Race, n (%)	
Non-Hispanic white	64 (65)
Hispanic white	3 (3)
Asian	30 (31)
Black	1 (1)
Role, n (%)	
Emergency physician	24 (25)
Hospitalist	37 (38)
Intensivist	37 (38)
Years since graduation from medical school, mean (SD)	12 (9)
Years at the current institution, mean (SD)	8 (7.2)
Months on service annually, mean (SD)	7 (3.9)

Table 3

Coded communication behaviors

Communication Domain	Domain Rate (n=98)	Communication Behavior	Behavior Rate (n=98)
Providing Medical Information	94 (96%)	Explain patient's medical condition	93 (95%)
		Explicitly discusses treatment options	36 (37%)
		Implicitly discusses treatment options	27 (28%)
		Discusses likely prognosis with intubation	26 (27%)
		Discusses likely prognosis without intubation	37 (38%)
		Discusses longer term prognosis	42 (43%)
		Discusses longer term prognosis for physical or cognitive function or quality of life	0 (0%)
		Discusses longer term prognosis for survival	0 (0%)
		Makes any other prognostic statement	68 (69%)
Eliciting Treatment Preferences	86 (88%)	Inquires about values or general treatment goals	35 (36%)
		Inquires about specific treatment preferences	80 (82%)
		Asks permission to start a specific treatment	20 (20%)
		Confirms treatment preferences or values	78 (80%)
Deliberative Behaviors	53 (54%)	Makes bridging statement linking values with specific recommended treatment	40 (41%)
		Highlights a key consideration in the decision making process	1 (1%)
		Instructs surrogate that a decision should be based on patient values	10 (10%)
Give Treatment Recommendations	36 (37%)	Highlights the preference sensitive nature of the decision	13 (13%)
		Makes a recommendation about the best treatment	52 (53%)
		Makes a recommendation for treatment incongruent to patient values	4 (4%)
Responding to Surrogate Recommendation request	38 (39%)	Provides definitive recommendation	32 (33%)
		Elicits information about patient values or treatment preferences	0 (0%)
		Provides hypothetical recommendation	5 (5%)
		Reframes request as a question to surrogate/patient	16 (16%)
		Refuses to provide recommendation	9 (9%)
Makes a treatment plan independent of family/surrogate	12 (12%)	Restates medical information, prognosis or treatment choices	20 (20%)
		Makes a treatment plan independently of family/surrogate preferences (either by failing to elicit preferences or by ignoring them)	12 (12%)

Table 4

Physician Types

Physician Type	Example
Informative	“He has either aspirated or he has developed a pneumonia, possibly he could have had a blood clot go to his lungs.”
Facilitative	“Have you talked about this with your primary doctor about how aggressive you want to be if a situation like this were to come up?”
Collaborative	“I would like to, if it is okay with you, give him just a tiny bit of morphine to make his breathing more comfortable, although it might mean that he does not breathe as fast.”
Directive	“So, we’re going to put you to sleep with some medication and then we’re going to put a tube into his lungs to help him breathe.”