Published in final edited form as:

Med Decis Making. 2010 ; 30(1): 76–83. doi:10.1177/0272989X08317012.

The Language of Prognostication in Intensive Care Units

Douglas B. White, MD, MAS, Ruth A. Engelberg, PhD, Marjorie D. Wenrich, PhD, Bernard Lo, MD, and J. Randall Curtis, MD, MPH

From the Division of Pulmonary and Critical Care Medicine, University of California, San Francisco School of Medicine (DBW); Program in Medical Ethics, Department of Medicine, University of California, San Francisco (DBW, BL); Division of Pulmonary and Critical Care Medicine, Harborview Medical Center; University of Washington, Seattle (RAE, JRC); Department of Medical Education and Biomedical Informatics, University of Washington, Seattle (MDW); and Division of General Internal Medicine, Department of Medicine, University of California, San Francisco (BL).

Abstract

Rationale—Although misunderstandings about prognosis are common in intensive care units (ICUs), little is known about how physicians actually communicate prognostic information.

Objectives—The authors sought to 1) develop a framework to describe the language physicians use to disclose prognosis, 2) determine whether physicians frame prognostic statements as estimates for populations or estimates for individual patients, and 3) determine whether physicians use the recommended “ask-tell-ask” approach when discussing prognosis.

Methods—The authors conducted a multicenter, cross-sectional study of 51 audiotaped physician-family conferences about life support decisions in ICUs. They identified each prognostic statement and used grounded theory methods to develop a framework to understand the language physicians use to communicate prognosis.

Main Results—Physicians prognosticated in 50 of 51 conferences. When discussing prognosis, physicians used qualitative probability statements in 72% (36/50) of conferences, numeric statements in 20% (10/50), absolute statements in 13% (4/32), and nonprobabilistic statements in 40% (20/50). Physicians exclusively used population-based language in 10% (5/50) of conferences, single-event probability statements in 62% (31/50), and both in 28% (14/50). In only 2% (1/50) of conferences did physicians ask whether the family wished to hear prognostic information prior to discussing it, and in only 14% of conferences (7/50) did physicians check to verify that families understood the prognostic information.

Conclusions—There is considerable variability in the language used by physicians to disclose prognosis, with only 20% of physicians using quantitative terms. Very few physicians checked whether families understood prognostic information. These findings may provide potential targets for interventions to improve communication about prognosis in ICUs.

Keywords

intensive care units; prognostication; communication; physicians

One of the most challenging tasks for physicians is communicating information about a poor prognosis to a patient or a patient's family.^{1, 2} For the approximately 500,000 Americans yearly who die in or shortly after discharge from an intensive care unit (ICU),³ this information often

guides decisions about whether to withhold or withdraw life support.⁴⁻⁶ Several studies in the past 15 years have demonstrated high rates of misunderstanding about prognosis by families of critically ill patients,^{7, 8} but the reasons for these misunderstandings have not been clearly delineated.

Empirical evidence and expert opinion inform risk communication in clinical practice. For example, qualitative expressions of risk (e.g., “this drug is very likely to cause side effects”) are interpreted in highly variable ways by patients, leading some investigators to conclude that these expressions alone are inadequate to communicate risk.⁹⁻¹¹ Experts suggest using natural frequencies to express risk (e.g., “8 out of 10 people will have side effects from this drug”) rather than percentages (e.g., 80% of people will have side effects from this drug).⁹⁻¹² Moreover, because prognostic information applies to outcomes of groups of patients, experts recommend that prognostic information should be couched in terms of outcomes for populations (e.g., “roughly 5 out of 100 as sick as this patient do not survive the hospitalization”) rather than single-event probabilities (e.g., the patient has a 5% chance of dying).¹³ In addition, because some individuals have strong cultural reasons for not wanting to receive prognostic information,¹⁴ and because all methods of communicating prognosis are fallible, experts recommend the “ask-tell-ask” approach to discussing prognosis.^{15, 16} Under this approach, physicians seek permission to discuss prognosis prior to doing so and ask families their understanding of the prognosis after the discussion to ensure comprehension.

Although clear communication about prognosis is an essential aspect of shared decision making for critically ill patients,^{17, 18} little is known about how physicians actually communicate prognostic information. Prior reports from the study described here have described the content of communication during clinician-family conferences,¹⁹ identified missed opportunities during the conferences,²⁰ and identified clinician behaviors associated with higher family satisfaction with communication.²¹⁻²² We previously developed a framework to describe what aspects of prognosis are discussed during deliberation about life support in ICUs.²³ However, no prior analyses from this or other studies have examined the language used to communicate about prognosis and whether physicians follow current expert recommendations for this communication. Therefore, we conducted this study to develop a framework to describe the language used by physicians to communicate prognosis to family members of critically ill patients. We also examined whether physicians follow 2 recommended approaches to communicating prognosis: 1) framing their prognostic estimates as estimates for populations and 2) using the ask-tell-ask approach.

METHODS

Study Design, Patients, and Setting

We conducted a multicenter cross-sectional study from August 2000 to July 2002 in 4 Seattle-area hospitals, including a county hospital, a university hospital, and 2 community hospitals. Study procedures were described previously, although no prior report has analyzed the language of communication about prognosis.^{19, 21, 23, 24} Through daily contact with charge nurses, we identified eligible ICU family conferences meeting all of the following criteria: 1) occurring on weekdays, 2) including family and physicians, and 3) all participants spoke English well enough not to require the use of an interpreter. To specifically identify conferences in which there would be deliberation about major end-of-life treatment decisions, we included only conferences in which the patient's attending physician anticipated that there would be discussion of withholding or withdrawing treatment or discussing bad news. The conferences represent a consecutive sample of scheduled family conferences that occurred between 8 AM and 6 PM on weekdays. Institutional review boards at each hospital approved all procedures. Informed consent was obtained from all family members and clinicians who participated.

Qualitative Data Coding

The audiotaped conferences were transcribed verbatim by a medical transcriptionist. In a prior study, we identified each prognostic statement made by physicians during the conferences and determined what aspects of prognosis physicians discuss.²³ For the current study, we conducted an entirely distinct analysis using grounded theory methods to develop a framework to understand the types of language physicians used to discuss prognosis. We also determined whether physicians used the ask-tell-ask approach when discussing prognosis. Grounded theory is a qualitative research method often employed when conceptual frameworks for the topic under study are inadequate.²⁵⁻²⁶ To develop an initial draft of the coding framework, 5 investigators with diverse backgrounds (critical care, bioethics, palliative care, educational psychology, and health services research) reviewed a subset of 10 transcripts and developed a preliminary set of codes that described the language used in the family conferences. Through multiple investigator meetings and iterative analysis of 10 additional transcripts, a final coding scheme for the language of prognostication was developed. All investigators agreed on the final coding framework. For each prognostic statement about survival or functional outcomes, we also determined whether the physician stated the prognosis in terms of outcomes for populations of patients or in terms of the individual patient. We used ATLAS-ti software for qualitative data management.

Reliability of the Coding

Using the final coding framework, 1 investigator coded all conferences by listening to all 51 audiotapes and reviewing the transcripts. To assess interrater reliability, another investigator independently coded prognostic statements from 20% of the conferences. Coders were blinded to the demographic characteristics of the conference participants and to the other coder's results. Overall, the kappa statistic for identifying the language of prognostic statements was 0.90. A kappa value greater than 0.8 is considered excellent interrater reliability.²⁷

RESULTS

Of 111 eligible conferences, 46% (51/111) were audiotaped. Nineteen families were not approached at the request of the physician or nurse (17) or for risk management reasons (2). An additional 24 family members refused to speak with study personnel after reviewing the study pamphlet. Seventeen more families declined to participate after speaking with study staff. Demographic characteristics of the patients, clinicians, and family members who participated in the conferences are described in Table 1. Twenty-seven physicians conducted a single conference, 7 conducted 2 conferences, 2 conducted 3 conferences, and 1 physician conducted 4 conferences. The in-hospital mortality rate of the patients was 80% (41/51). A total of 221 clinicians participated in the conferences. The number of clinicians present ranged from 1 to 12 with a mean of 4.3. A total of 50 nurses participated in 41 of the family conferences, 25 social workers participated in 24 of the family conferences, and 12 chaplains, priests, or nuns participated in 12 of the family conferences. A total of 227 family members participated in the conferences. The number of family members in each conference ranged from 1 to 13, with an average of 4.5. The average length of the conferences was 32 ± 14.8 minutes.

Types of Language Used to Express Prognosis

Physicians provided prognostic information in 98% of conferences (50/51). In these 50 conferences, physicians' prognostications centered on prognosis for survival in 64% (32/50) and prognosis for functional outcomes in the remaining 36% (18/50).

Table 2 contains the framework developed to describe the types of language physicians use to discuss prognosis, along with examples of each type of prognostic statement. Prognostic statements fell into 2 main categories: probabilistic, which were used in 82% (41/50) of

conferences, and nonprobabilistic, which were used in 40% (20/50) of conferences. We defined probabilistic statements as those that frame prognostic information in terms of the chances that a particular outcome will occur.

Probabilistic language—In 82% (41/50) of conferences, physicians used at least 1 probabilistic statement to express prognosis, including numeric probabilistic statements, qualitative probability statements, and absolute statements. Qualitative expressions were the most common type of probabilistic statement and occurred in 72% (36/50) of conferences. Statements in this category included language such as “low likelihood of survival,” “probably won’t survive,” “high risk of death,” “could die,” and “a good chance he will not survive.”

Numeric prognostic statements occurred in 20% (10/50) of conferences. For example, a physician used the following language to discuss prognosis with the family of a patient with sepsis and acute respiratory distress syndrome (ARDS):

In my experience, less than 10% of people as sick as your father survive.

Nonprobabilistic language—Physicians used nonprobabilistic language to communicate prognosis in 40% (20/50) of conferences. Within this category, there were several different types of prognostic statements (Table 2). These statements ranged from very general statements about prognosis, such as “his prognosis is poor,” to statements in which all possible outcomes were described, but no information was given about which was more likely. Some physicians avoided probabilistic statements by couching their prognostic estimates in terms of an overall impression, such as “my opinion is that he just won’t survive this.”

Mixed statements—We observed several instances in which physicians’ prognostic statements contained both probabilistic and nonprobabilistic elements, such as “my opinion is that he has about a 20% chance of surviving.” These statements reveal that physicians sometimes modify probabilistic prognostic statements to identify the source of the prognostic estimate (e.g., “it’s my opinion that his chances of survival are small”) or to add an element of emotional valence to what otherwise could be perceived as undue bluntness about a poor prognosis (e.g., “I wish I had better news, but most patients as sick as him don’t survive”). We also observed several instances in which physicians disclosed prognosis first with a very general prognostic statement, then followed with a more specific probabilistic statement (e.g., “I’m afraid things don’t look good. What I mean by that is that most patients in this situation don’t survive”). The technique of starting a discussion about prognosis in very general terms, then proceeding to specifics, is termed *perspective display* by linguists²⁸ and “a warning shot” by physicians.^{16, 29}

Population-Based Statements v. Single-Event Probability Statements

In 10% (5/50) of conferences, physicians used only population-based language to express prognosis. In the following example, physicians discuss with a family the prognosis of an intubated patient with multiorgan system failure:

Physician: “Each individual person is different and we base a lot of our information on what we know about what groups of people do in similar situations, and in similar situations, people who are like your father and in his condition, most of the people do not do well, do not survive.”

In 62% of conferences (31/50), physicians did not use population-based language when discussing prognosis but instead gave an estimate for the patient at hand, known as a single-event probability, as in the following case of a patient with a large stroke:

Physician: “I would say it is very unlikely he will survive.”

In 28% (14/50) of conferences, physicians used both population-based statements and single-event statements to convey prognosis. In these cases, physicians often provided statistical information from published research and then tailored the prognostic estimate based on patient-specific clinical information, such as in the following example concerning a patient with acute lung injury and multiple comorbidities:

Physician: “More than half of people who have only this injury to the lungs can survive. The thing that makes her chances worse is the fact that she has other underlying diseases like the lupus, the MS, the prior stroke, all those things just make it tougher to know how much again another insult like this infection, like this lung injury, will have in terms of her ability to get home.”

Ask-Tell-Ask Approach to Communicating Prognosis

In 2% (1/50) of conferences, the physician asked family members if they wanted to hear prognostic information prior to discussing prognosis. In 14% (7/50) of conferences, physicians made an attempt to check whether families understood the prognostic information they conveyed. Six of these 7 attempts took the form of a simple question, such as “Do you understand what we've talked about?” In only 1 conference, the physician explicitly asked families to state their understanding of the patient's prognosis. There were no conferences in which physicians both asked whether families wanted prognostic information and, after giving such information, asked if the family understood the information.

DISCUSSION

We present a framework to describe how physicians disclose prognostic information to family members of critically ill patients. We found considerable variability in the language physicians use to disclose prognosis. Few physicians used numbers to convey the prognosis, instead opting for qualitative probability statements and/or a wide variety of nonprobabilistic statements. Physicians seldom checked whether family members wanted to discuss prognosis or whether they understood the prognostic information provided.

Physicians in our study frequently used nonstandard language to communicate prognostic information. Prior research has focused on only 2 types of language for risk communication in medicine: numeric expressions and qualitative probability expressions. Published studies yield conflicting results on whether physicians agree on the meaning of common qualitative probability statements.^{30, 31} Patients' interpretations of these types of statements vary substantially, leading some investigators to conclude that qualitative probability statements should not be used in the clinical encounter.^{10, 11}

Few physicians in our study used numeric terms to express prognosis. This finding contrasts with reports from prior studies that demonstrate that physicians use probabilistic thinking about prognosis in critically ill patients³² and readily formulate numeric prognostic estimates for critically ill patients.^{5, 33, 34} These numeric prognostic estimates are as accurate³³ or more accurate^{5, 34} in predicting survival than severity of illness scoring systems. Studies from other clinical contexts suggest that numeric expressions of risk are acceptable to most, but not all, patients.^{11, 35} Moreover, a recent randomized trial revealed that patients who received numeric risk information had a better understanding of their risk and felt more informed about subsequent treatment decisions compared with patients who received qualitative risk information.³⁶ Risk communication experts suggest that physicians communicate their numeric estimates in natural frequencies with balanced framing (e.g., “If there were 100 patients in your mother's condition, roughly 90 would not survive and 10 would survive”).^{9, 37}

Why, then, do physicians in ICUs rarely communicate about prognosis in quantitative terms? We speculate that there may be multiple factors at play, including physicians' uncertainty about their prognostic estimates despite available scoring systems and outcome studies,² a lack of training about communicating prognosis,⁹ and an overall reluctance among physicians to predict the future.^{1, 2}

A surprising finding from our study is the frequent use of nonprobabilistic statements by physicians to convey prognosis. No prior work has documented the use of this type of language to communicate prognosis, and it is unknown if these expressions effectively communicate prognosis. However, emerging work on patients' processing of risk information raises the possibility that it may be necessary only to convey the gist of risk information because this may be what individuals use when making decisions.³⁸ A clear understanding of how patients use risk information will help identify effective communication strategies. However, it seems likely that there will be variability among patients in risk processing, and this will require that physicians be able to discuss prognosis in several different ways.

Another important finding from our study is that physicians rarely use "checking behaviors" when delivering prognostic information, such as checking whether the family wants to hear prognostic information and whether they understand what they have been told. Although most bioethicists consider discussions about prognosis to be an important part of shared decision making,¹⁸ some ethnic groups view discussing a poor prognosis as potentially harmful and a violation of traditional values.^{14, 39} Moreover, even individuals who generally prefer to receive prognostic information may at particular times feel emotionally disinclined to discuss it.^{15, 16}

We also observed that few physicians checked whether families understood the prognostic information they provided. Prior research suggests that checking for understanding after a discussion results in improved understanding and patient outcomes.⁴⁰ In light of the high prevalence of misunderstandings about prognosis by family members of critically ill patients,^{7, 8} checking for understanding may be an especially important behavior during decision making about life support. However, physicians may be reluctant to push a family to state their understanding of a patient's prognosis, especially if the prognosis is extremely poor.

This study has several limitations. First, slightly less than 50% of eligible conferences were audiotaped, and the majority of physicians and family members were white; therefore, these findings may not generalize to ethnic groups underrepresented in the study sample. This response rate reflects the known difficulty of enrolling families of patients near death in research studies.^{41, 42} Second, although subjects were not aware of the specific study aims, knowledge that the conference was being audiotaped may have affected the physicians' behaviors; if so, the sample may represent physicians' best behaviors rather than usual behaviors. Third, expert recommendations for communicating about prognosis are not based on research and experience in the critical care setting. It may be that the best approach to communicating prognosis to family of critically ill patients is different than what is recommended by experts. Fourth, the relatively small sample size precludes a more detailed quantitative analysis of factors associated with adherence to recommended prognosis disclosure strategies. Finally, although our data suggest substantial diversity in the language used to communicate about prognosis, we do not know whether this variability in language was associated with variability in the families' understanding of prognosis. We are currently addressing this question in an ongoing prospective cohort study of prognosis communication in ICUs.

Effective communication about prognosis is an important responsibility of physicians. This research reveals wide variation in how physicians communicate about prognosis and that most do not follow recommended practices. These findings provide potential targets for

interventional trials designed to improve prognosis communication and decision making for the sickest ICU patients.

Acknowledgments

The project was supported by a grant from the National Institute of Nursing Research NR-05226 (JRC and RAE). Additional support was provided by NIH grants KL2 RR024130 (DBW) and K24 HL 68593 (JRC).

REFERENCES

1. Christakis, NA. *Death Foretold: Prophecy and Prognosis in Medical Care*. University of Chicago Press; Chicago: 1999.
2. Christakis NA, Iwashyna TJ. Attitude and self-reported practice regarding prognostication in a national sample of internists. *Arch Intern Med* 1998;158:2389–95. [PubMed: 9827791]
3. Angus DC, Barnato AE, Linde-Zwirble WT, et al. Use of intensive care at the end of life in the United States: an epidemiologic study. *Crit Care Med* 2004;32:638–43. [PubMed: 15090940]
4. Lloyd CB, Nietert PJ, Silvestri GA. Intensive care decision making in the seriously ill and elderly. *Crit Care Med* 2004;32:649–54. [PubMed: 15090942]
5. Cook D, Rocker G, Marshall J, et al. Withdrawal of mechanical ventilation in anticipation of death in the intensive care unit. *N Engl J Med* 2003;349:1123–32. [PubMed: 13679526]
6. Murphy DJ, Burrows D, Santilli S, et al. The influence of the probability of survival on patients' preferences regarding cardio-pulmonary resuscitation. *N Engl J Med* 1994;330:545–9. [PubMed: 8302322]
7. Azoulay E, Chevret S, Leleu G, et al. Half the families of intensive care unit patients experience inadequate communication with physicians. *Crit Care Med* 2000;28:3044–9. [PubMed: 10966293]
8. SUPPORT. A controlled trial to improve care for seriously ill hospitalized patients. *JAMA* 1995;274:1591–8. [PubMed: 7474243]
9. Paling J. Strategies to help patients understand risks. *BMJ* 2003;327:745–8. [PubMed: 14512489]
10. Nakao MA, Axelrod S. Numbers are better than words: verbal specifications of frequency have no place in medicine. *Am J Med* 1983;74:1061–5. [PubMed: 6859055]
11. Ohnishi M, Fukui T, Matsui K, et al. Interpretation of and preference for probability expressions among Japanese patients and physicians. *Fam Pract* 2002;19:7–11. [PubMed: 11818343]
12. Elmore JG, Gigerenzer G. Benign breast disease: the risks of communicating risk. *N Engl J Med* 2005;353:297–9. [PubMed: 16034016]
13. Thomson R, Edwards A, Grey J. Risk communication in the clinical consultation. *Clin Med* 2005;5:465–9. [PubMed: 16268328]
14. Carrese JA, Rhodes LA. Western bioethics on the Navajo reservation: benefit or harm? *JAMA* 1995;274:826–9. [PubMed: 7650807]
15. Back AL, Arnold RM, Baile WF, Tulskey JA, Fryer-Edwards K. Approaching difficult communication tasks in oncology. *CA Cancer J Clin* 2005;55:164–77. [PubMed: 15890639]
16. Buckman, R. *How to Break Bad News: A Guide for Health Care Professionals*. Johns Hopkins University Press; Baltimore: 1992.
17. Charles C, Whelan T, Gafni A. What do we mean by partnership in making decisions about treatment? *BMJ* 1999;319:780–2. [PubMed: 10488014]
18. Thompson BT, Cox PN, Antonelli M, et al. Challenges in end-of-life care in the ICU: statement of the 5th International Consensus Conference in Critical Care: Brussels, Belgium, April 2003: executive summary. *Crit Care Med* 2004;32:1781–4. [PubMed: 15286559]
19. Curtis JR, Engelberg RA, Wenrich MD, et al. Studying communication about end-of-life care during the ICU family conference: development of a framework. *J Crit Care* 2002;17:147–60. [PubMed: 12297990]
20. Curtis JR, Engelberg RA, Wenrich MD, Shannon SE, Treece PD, Rubenfeld GD. Missed opportunities during family conferences about end-of-life care in the intensive care unit. *Am J Respir Crit Care Med* 2005;171:844–9. [PubMed: 15640361]

21. McDonagh JR, Elliott TB, Engelberg RA, et al. Family satisfaction with family conferences about end-of-life care in the intensive care unit: increased proportion of family speech is associated with increased satisfaction. *Crit Care Med* 2004;32:1484–8. [PubMed: 15241092]
22. Stapleton RD, Engelberg RA, Wenrich MD, Goss CH, Curtis JR. Clinician statements and family satisfaction with family conferences in the intensive care unit. *Crit Care Med* 2006;34:1679–85. [PubMed: 16625131]
23. White DB, Engelberg RA, Wenrich MD, Lo B, Curtis JR. Prognostication during physician-family discussions about limiting life support in intensive care units. *Crit Care Med* 2007;35:442–8. [PubMed: 17205000]
24. West HF, Engelberg RA, Wenrich MD, Curtis JR. Expressions of nonabandonment during the intensive care unit family conference. *J Palliat Med* 2005;8:797–807. [PubMed: 16128654]
25. Glaser, BG.; Strauss, AL. *Discovery of Grounded Theory*. Adline; Chicago: 1967.
26. Strauss, AL.; Corbin, J. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Sage; Thousand Oaks, CA: 1998.
27. Sackett, DL.; Haynes, RB.; Guyatt, GH.; Tugwell, P. *Clinical Epidemiology: A Basic Science for Clinical Medicine*. 2nd ed.. Little, Brown; Boston: 1991.
28. Maynard DW. Perspective-display sequences in conversation. *West J Speech Commun* 1989;53:91–113.
29. Buckman R. Talking to patients about cancer. *BMJ* 1996;313:699–700. [PubMed: 8819425]
30. Kong A, Barnett GO, Mosteller F, Youtz C. How medical professionals evaluate expressions of probability. *N Engl J Med* 1986;315:740–4. [PubMed: 3748081]
31. Bryant GD, Norman GR. Expressions of probability: words and numbers. *N Engl J Med* 1980;302:411. [PubMed: 7351941]
32. Knaus WA. Probabilistic thinking and intensive care: a world view. *Crit Care Med* 2004;32:1231–2. [PubMed: 15190982]
33. Kruse JA, Thill-Baharozian MC, Carlson RW. Comparison of clinical assessment with APACHE II for predicting mortality risk in patients admitted to a medical intensive care unit. *JAMA* 1988;260:1739–42. [PubMed: 3137374]
34. Rocker G, Cook D, Sjøkvist P, et al. Clinician predictions of intensive care unit mortality. *Crit Care Med* 2004;32:1149–54. [PubMed: 15190965]
35. Mazur DJ, Hickam DH. Patients' interpretations of probability terms. *J Gen Intern Med* 1991;6:237–40. [PubMed: 2066829]
36. Man-Son-Hing M, O'Connor AM, Drake E, Biggs J, Hum V, Laupacis A. The effect of qualitative vs. quantitative presentation of probability estimates on patient decision-making: a randomized trial. *Health Expect* 2002;5:246–55. [PubMed: 12199663]
37. Gigerenzer G, Edwards A. Simple tools for understanding risks: from innumeracy to insight. *BMJ* 2003;327:741–4. [PubMed: 14512488]
38. Reyna VF, Adam MB. Fuzzy-trace theory, risk communication, and product labeling in sexually transmitted diseases. *Risk Anal* 2003;23:325–42. [PubMed: 12731817]
39. Carrese JA, Rhodes LA. Bridging cultural differences in medical practice: the case of discussing negative information with Navajo patients. *J Gen Intern Med* 2000;15:92–6. [PubMed: 10672111]
40. Schillinger D, Piette J, Grumbach K, et al. Closing the loop: physician communication with diabetic patients who have low health literacy. *Arch Intern Med* 2003;163:83–90. [PubMed: 12523921]
41. Casarett DJ, Crowley R, Hirschman KB. Surveys to assess satisfaction with end-of-life care: does timing matter? *J Pain Symptom Manage* 2003;25:128–32. [PubMed: 12590028]
42. Krouse RS, Rosenfeld KE, Grant M, et al. Palliative care research: issues and opportunities. *Cancer Epidemiol Biomarkers Prev* 2004;13:337–9. [PubMed: 15006905]

Table 1

Demographic Characteristics of Patients, Family Members, and Physicians

	Patients (<i>n</i> =51)	Family Members/Loved Ones (<i>n</i> =169)	Physicians Leading Conferences (<i>n</i> =35)
Characteristics	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Gender			
Female	26 (51)	101 (60)	12 (34)
Male	25 (49)	68 (40)	23 (66)
Race/ethnicity ^d			
White	31 (61)	136 (81)	30 (86)
African American	7 (14)	14 (8)	0
Hispanic	2 (4)	6 (4)	2 (6)
Asian/Pacific Islander	1 (2)	5 (3)	4 (11)
Native American	1 (2)	10 (6)	0
Other/undocumented	9 (18)	0	1 (3)
Admission diagnosis			
Intracranial hemorrhage	9 (18)		
End-stage liver disease/ gastrointestinal bleed	8 (16)		
Trauma	8 (15)		
Sepsis/infection	7 (14)		
Respiratory failure	6 (12)		
Cardiac failure/myocardial infarction	5 (10)		
Other	8 (15)		
Relationship to patient			
Spouse/partner		17 (10)	
Child		35 (21)	
Sibling		34 (20)	
Parent		20 (12)	
Friend		9 (5)	
Other relative		52 (31)	
Other		2 (1)	
Staff position			
Attending physician			20 (57)
Resident or fellow			15 (43)
Medical specialty			
Internal medicine			26 (74)
Neurology			5 (14)
Surgery			3 (7)
Anesthesia			1 (3)
	Mean (SD) Median (IQR)	Mean (SD)	Mean (SD)
Age, years	60 (20.3) 58 (45–81)	48 (15.8)	38 (9.5)

	Patients (<i>n</i>=51)	Family Members/Loved Ones (<i>n</i>=169)	Physicians Leading Conferences (<i>n</i>=35)
Characteristics	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Years in practice			12.4 (9.7)

IQR, interquartile range.

^aSums are greater than 169 family members and 35 physicians because some individuals identified with more than one race/ethnicity.

Table 2

Framework of the Language of Prognostication in the 50 Conferences

PROBABILISTIC STATEMENTS	
Numeric probabilities	Statements that use numbers to convey prognosis. “About 50% of people as sick as your father don't survive.”
Qualitative probabilities	Statements that use nonnumeric expressions of probability to convey prognosis. “It's <i>very likely</i> that he won't survive.”
Absolute probabilities	Statements that convey the predicted outcome with certainty. “He <i>will not</i> survive this illness.”
NONPROBABILISTIC STATEMENTS	
General statement	All statements that address prognosis without probabilistic language. Statements that express prognosis in vague terms. “In terms of survival, things don't look good.”
Best-case/worst-case scenario	Statements that express the range of possible outcomes but do not specify which is more likely. “Best-case scenario is that he survives and returns home; the worst-case scenario is that he dies after weeks in the ICU.”
Emotion based	Statements in which an emotional descriptor is used to express prognosis. “I'm <i>concerned</i> that he won't survive.”
Opinion based (nonprobabilistic)	Statements in which prognosis is expressed as an opinion. “I <i>think</i> he will not survive.”
Uncertainty based	Statements in which prognosis is explicitly couched in uncertainty. “I <i>don't know</i> whether the patient will survive.”

Table 3

Frequency of Prognostic Language in the 50 Conferences

	Proportion of Conferences (n=50) n (%) ^a
Probabilistic	41 (82)
Numeric	10 (20)
Qualitative	36 (72)
Absolute	13 (26)
Nonprobabilistic	20 (40)
General terms	19 (38)
Opinion based	9 (18)
Uncertainty based	8 (16)
Emotion based	3 (6)
Best-worst possible	4 (8)

^a Percentages add to greater than 100% because in some conferences, physicians used more than 1 type of language to communicate prognosis within a single family conference.