

Diagnosing and Discussing Imminent Death in the Hospital: A Secondary Analysis of Physician Interviews

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ABSTRACT

Background: Many reports suggest clinicians are often inadequately prepared to “diagnose dying” or discuss the likelihood of imminent death with patients and families.

Objective: To describe whether and when physicians report recognizing and communicating the imminence of death and identify potential barriers and facilitators to recognition and communication about dying in the hospital.

Methods: Secondary exploratory analysis of interviews with 196 physicians on the medical teams caring for 70 patients who died in the hospital.

Results: Although 38% of physicians were unsure on admission the patient would die during this hospitalization, over the course of hospitalization 86% reported knowing death was imminent. Most reported feeling certain days (57%) or hours (18%) before the patient died. Fewer than half of patients, however, were told of the possibility they might die. Communication was most likely to occur for patients who had at least one member of the medical team who was certain that death was imminent, patients who were lucid during their last days, and younger patients. Only 11% of physicians reported personally speaking with patients about the possibility of dying. Physicians who recognized imminent death early and who spoke with patients about the possibility of dying were more likely to report higher satisfaction with end-of-life care provided to patients.

Conclusions: Because more than two thirds of patients were unconscious or in and out of lucidity in the last few days of life, waiting for certainty about prognosis may leave little opportunity to help patients and their families prepare for death. Our results identify opportunities for improvement in communication in the face of uncertainty about the imminence of death. In addition to potential benefits to patients and families, these findings suggest that enhancing communication practices may also benefit physicians through increased satisfaction with care and closer connection with those for whom they provide care.

INTRODUCTION

THE NATIONAL CONSENSUS PROJECT FOR QUALITY PALLIATIVE CARE (NCP),¹ the Institute of Medicine, and other national organizations²⁻⁸ have defined

pain and symptom management and communication about end-of-life issues as key elements of quality care for terminally ill patients.^{6,9-14} Because the goals and priorities for care can vary widely across the trajectory of life-threatening illness, specific standards of

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care have been defined for the imminently dying patient. For this last phase of life, the NCP has specified the following overall guideline, “Signs and symptoms of impending death are *recognized* and *communicated*, and care appropriate for this phase of illness is provided to patient and family.”^{1(p33, emphasis added)} The NCP Guidelines and other national professional medical organizations^{3–5,7,15–17} concur that practice standards for care of patients at the end of life apply not only to specialist-level palliative care clinicians, but should also be considered as core clinical competencies and routinely integrated into disease treatment.¹⁷ Many reports, however, suggest that clinicians are often inadequately prepared to effectively “diagnose dying”^{18,19} or to discuss the likelihood of imminent death with patients and families.^{20–25}

Specific criteria for the NCP guideline relevant to this area include, “transition to the actively dying phase is recognized, when possible, and is documented and communicated appropriately to patient, family, and staff”; “end-of-life concerns, hopes, fears and expectations are discussed openly and honestly in the context of social and cultural customs in a developmentally appropriate manner”; and “symptoms at the end of life are assessed and documented with appropriate frequency and are treated based on patient-family preferences.”^{1(p41)} Clinicians’ recognition of impending death is considered important because knowledge of approaching death can clarify or change the goals of care, inform decision-making about medical care (including withdrawal or withholding of curative treatment), avoid pursuit of burdensome and nonbeneficial medical treatment, and allow for the option of transition to hospice care.^{18,19,26} Subsequent communication among clinicians can aid in coordinating care and, perhaps most important, communication to the patient and family enables them to prepare for death, make choices about how to spend their remaining time, make informed decisions about medical treatment, and have more control over the location and, in some cases, timing of death. While not all patients may want to know they are close to death, recent studies show the majority would like an opportunity to discuss this eventuality^{27–29} and suggest most patients and families benefit from this opportunity.^{30–32}

Numerous studies suggest that the NCP guidelines for imminently dying patients are not followed routinely and that patients at the end of life and their families often do not receive optimal end-of-life care.^{33,34} Understanding the facilitators and obstacles to clinicians’ recognition of and communication about the imminence of death is key to the design of effective interventions to improve care for imminently dying pa-

tients in the hospital and their families. The aims of this analysis, therefore, are to: (1) describe whether and when physicians (interns, residents, attending physicians) report recognizing the imminence of death of patients who die in the hospital; (2) describe whether and when physicians describe communicating the possibility of imminent death with patients, families, and the medical team; and (3) identify potential barriers and facilitators to recognition and communication about impending death in the hospital.

METHODS

This is a secondary, exploratory analysis of data from a cross-sectional, observational study. Data are drawn from a study conducted from 1999–2001 with attending physicians, residents, and interns ($n = 251$) who cared for patients ($n = 81$) who died on the medical services at two hospitals.³⁵ Medical records of patients who had recently died were randomly sampled for inclusion in the study, and a median of three physicians participated in interviews about each sampled patient case. Physician and patient data were anonymized and secondary analysis of these data has been exempted from further review by the Dana-Farber/Harvard Cancer Institute Institutional Review Board.

Sample

Patients. To obtain the index patient sample, researchers in the original study conducted a weekly chart review of inpatient deaths to identify eligible patient cases. From this list of eligible patients, 1–2 cases were randomly selected each week. Eligibility criteria included: minimum stay of 24 hours, death occurring on a general medicine unit or intensive care unit (ICU), and involvement of house staff in patient care. Eighty-one index patient cases were included in the original study.

Physicians. Eligible physicians were identified by review of the index patient charts for the medical intern, resident, and attending physician who cared for the patient at the time of death. Of the 251 identified physicians for the 81 index cases, 246 remembered working with the patient and were thus eligible, and 196 agreed to participate (80% response rate). Informed consent was obtained from all participants prior to data collection.

Analytic sample. Because physician data were clustered at the patient level, a minimum of two physicians

per patient was required to produce correct standard error estimates³⁶; patient cases with a minimum of two responding clinicians were therefore included in this analysis (patient $n = 70$, physician $n = 196$). All physicians completed closed-ended portions of the surveys, and most ($n = 159$ physicians, representing 58 patient cases) were also asked to complete a qualitative interview for the parent study.

Measures

Clinicians participated in 90-minute semistructured interviews in which they were asked both closed- and open-ended questions about the patient's illness and death and their own observations, experiences and emotional responses related to care they provided to the patient. Patient medical records were also abstracted for the parent study. We created both physician-level and patient-level variables for this analysis.

Physician-level variables. We used a series of closed-ended items to construct variables for the primary outcomes of recognizing and discussing imminent patient death (Fig. 1). For recognition of imminent death, we created a four-level outcome variable representing whether and when physicians felt certain the patient would die (Fig. 1). For communication about imminent death, we created three variables representing whether and when anyone on the medical team discussed the possibility the patient might die during this hospitalization with the patient, with the family, and within the medical team (Table 3). Because this item only asked if someone on the team had spoken with the patient, we created an additional variable representing whether or not the responding physicians themselves had spoken directly with patients. To construct this variable, we reviewed the text of the qualitative interviews and counted the number of affirmative responses to the question "did you talk with [patient name] about dying?" All physicians who completed the qualitative interview were asked this question.

Other physician-level variables, all drawn from closed-ended survey items, included physician gender, race/ethnicity, age, specialty, percent of time in direct patient care, training level (intern, resident, or attending physician), length of time they provided care to the patient, closeness to the patient (0–10 scale, 0 = not at all, 10 = extremely close), and overall satisfaction with end-of-life care provided to patient (0 = not at all, 10 = extremely satisfied). Experience, attitudes, and training related to end-of-life care were assessed

through questions about the number of patients who had died in the past 6 months, several attitude items related to communication with patients ("Talking about death tends to make patients with terminal illnesses more discouraged" and "Physicians have a responsibility to help patients prepare for death"), and a summed score of 7 "check all that apply" items asking physicians to indicate whether they had "participated in any formal coursework or clinical experiences during your education related to death, dying, grief, and bereavement" (response choices were: CME course, course on death and dying, small group session on death and dying, hospice/palliative care elective (outpatient), hospice/palliative care elective (inpatient), lectures on death and dying, and pain course).

Patient-level variables. Patient-level variables were created from patient records and from aggregated physician-level variables. We used previously abstracted medical record data to create variables for patient gender, age, race/ethnicity, diagnosis (created from medical record text and International Classification of Diseases, Ninth Revision [ICD-9] code), whether or not the patient had spent any time in the ICU during this hospitalization, location of death (ICU or general medicine unit), and presence of advance directives. We reviewed physician interview transcripts for text describing the last few days of the patient's life to create patient-level variables for level of patient consciousness. In each physician transcript, we coded text that described the patient's mental status into one of three categories: 2 = "lucid and talkative," 1 = "in and out of consciousness," and 0 = "unconscious." We then averaged these physician-level scores to create the patient-level variable. Because only a subset of physicians (159 physicians who cared for 58 of the patients) were asked to complete the qualitative portion of the study, and physician transcripts for one of these did not mention patient mental status, only 57 (81%) patient cases had data for this variable.

Finally, we aggregated physician-level recognition and communication variables to create the corresponding patient-level variables. The patient-level recognition variable corresponds to the earliest point (if at all) an attending or resident on the medical team realized an individual patient would die during the hospitalization. (For example, if a resident said s/he was certain that the patient would die weeks before the death, and an attending reported knowing the patient would die days before the death, the patient-level variable would be coded to indicate that at least one senior member of the medical team knew the patient would die weeks before the death.) For the patient-level communication vari-

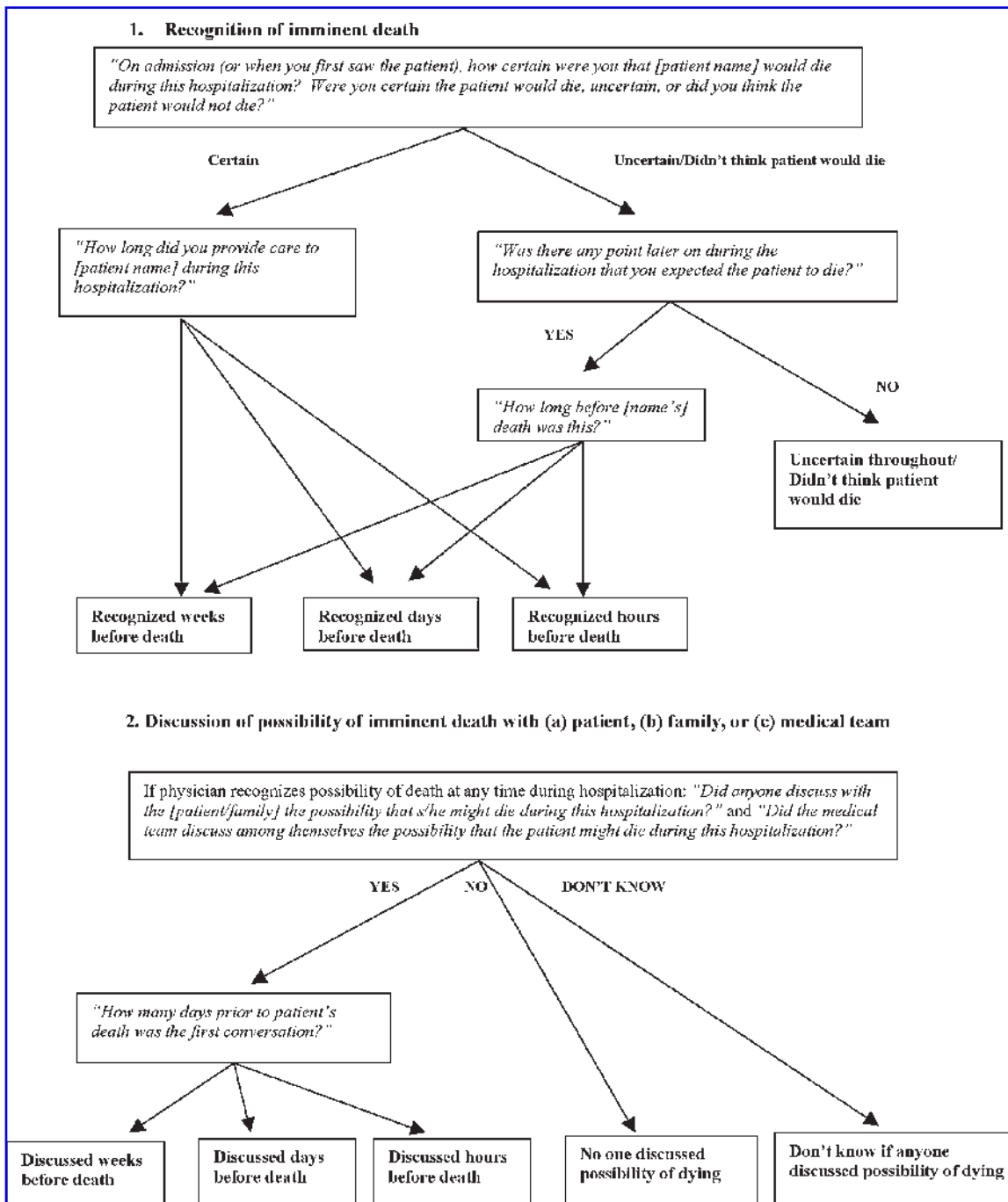


FIG. 1. Creation of four key outcome variables: (1) whether and when physicians recognized patient death was imminent and (2) whether and when physicians discussed the possibility of imminent death with the (a) patient, (b) family, or (c) medical team.

able, we used the earliest point in time that physicians caring for that patient reported that someone on the team spoke with the patient about the possibility of imminent death. (For example, if an intern reported that someone on the team spoke with the patient hours before his or her death, and a resident reported that someone on the team spoke with that same patient days before, the pa-

tient-level variable would indicate that someone spoke with him or her days before death.) The same algorithm was used to create patient-level variables representing whether and when someone on the medical team spoke with the family, and whether and when someone on the medical team discussed this possibility with other members of the team.

TABLE 1. DEMOGRAPHIC CHARACTERISTICS OF PATIENTS AND PHYSICIANS

Variable	Patients (n = 70)	Physicians				Total (n = 196)
		Attendings (n = 73)	Residents (n = 58)	Interns (n = 65)		
Age, M \pm SD (range)	65.7 \pm 18.3 (21–94)	41.9 \pm 7.0 (31–61)	29.3 \pm 2.8 (25–39)	28.6 \pm 3.2 (25–45)	33.7 \pm 7.9 (25–61)	
Race/ethnicity						
White	84.3	84.5	70.2	62.9	73.2	
African American	10.0	5.7	1.8	1.6	3.2	
Latino	2.9	1.4	10.5	1.6	4.2	
Asian	2.9	7.0	14.0	29.0	16.2	
Other	0.0	1.4	3.5	4.9	3.2	

STATISTICAL ANALYSIS

We conducted both physician-level and patient-level analyses. For physician-level variables, we carried out descriptive statistics for physician reports of recognition and communication of imminent death. We carried out bivariate analyses (likelihood ratio χ^2 tests of independence and t tests) to test whether physician characteristics (such as age, gender, race, specialty, training level, or attitudes and experiences related to end-of-life care) or patient characteristics (such as age, gender, disease, presence of advance directives) predicted whether and when physicians reported recognizing death was imminent (both at the time of admission as well as later, during the course of hospitalization). We fit multiple logistic regression models to test if physician or patient characteristics were associated with whether or not physicians felt certain at the time of admission that the patient would die during this hospitalization, controlling for length of time they provided care to the patient. We fit ordinal logistic models to assess predictors of the timing of recognition of imminent death throughout the hospital course (never, hours before death, days before death, or weeks before death). Interaction effects were tested for all models. We used SAS[®] version 9.2 (SAS Institute, Cary, NC) for all analyses. Because physician responses were clustered at the patient level, we used the GENMOD procedure to adjust for the correlated errors resulting from this sample design for physician-level analyses, and report the Wald χ^2 statistic for these models.^{36,37} Due to the exploratory nature of this analysis, we set the α level for analyses at a less stringent level of $p < 0.10$.

Patient-level analyses were conducted with the aggregated physician variables to describe the proportion of patients who had someone on the medical team talk with them about the possibility of dying during this

hospitalization. To explore if patient characteristics predicted whether and when someone on the team reportedly spoke with the patient, we fit multiple logistic regression models to assess predictors for whether (yes/no) anyone reportedly spoke with the patient, and multiple ordinal logistic regression models to assess when (never, hours, days, or weeks) this occurred.³⁸ We used the weighted κ statistic (which measures the extent of agreement between two ordinal variables) to explore the association between recognition and communication of impending death to determine if reported communication about possible death coincided with the timing of physicians' recognition of the imminence of death, whether communication about the possibility of dying occurred in the absence of physician certainty of imminent death, and whether there was evidence of a delay between recognition of impending death and the communication of its possibility.

RESULTS

Patient ($n = 70$) and clinician ($n = 196$) characteristics are shown on Table 1. Most patients were white (84.3%), nearly half (47.1%) were female, and average patient age was 65.7 (range, 21–94). Half died in the ICU, and slightly more than half spent at least part of this last hospitalization in the ICU (Table 2). Most (83.8%) had advance directives. Physicians described patients as varying in levels of consciousness in the last few days of life, with 36.8% lucid and able to talk, 35.1% in and out of consciousness, and 28.1% unconscious (Table 2). Physicians reported having cared for patients for a range of time periods: 13.2% reported having cared for the patient less than 1 day, 21.8% for 1–3 days, 34.0% for 4–7 days, and 26.9% for 8–30 days. Attendings were more than twice as likely as residents and interns to have cared for patients less than

1 day (20.3% versus 8.6% and 9.2%, respectively, likelihood-ratio χ^2 statistic = 14.5, $df = 6$, $p = 0.02$).

Physicians reported spending an average of $75.3\% \pm 26.0\%$ time in direct patient care, with attendings reporting spending less time in patient care (63.4%) than residents (83.8%) or interns (81.5%) (F statistic = 19.7, $p = 0.0001$). Over the previous 6 months, clinicians reported having provided care to an average of 8.2 ± 6.3 patients who died; attendings reported having cared for slightly more patients at the end of life compared to residents or interns (10.2 ± 7.7 , 7.5 ± 5.2 , 6.8 ± 4.8 , respectively; range, 1–30, F statistic = 19.7, $p = 0.0001$). The large standard deviations for each of these groups suggest a wide range of experience providing for dying patients. Formal education in end-of-life care was limited for physicians at all levels of training: overall, physicians reported having attended an average of 1.5 ± 1.2 (of a possible 7) courses, lectures, or sessions on end-of-life or palliative care. There was a marginally significant dif-

ference among groups in amount of training in this area, with interns (1.7 ± 1.3) slightly more likely to report training in end-of-life care compared to residents (1.5 ± 1.1) or attendings (1.2 ± 1.2) (F statistic = 2.6, $p = 0.075$).

Recognizing imminent death

Upon admission (or when they first met the patient), 42.8% of physicians said they were certain the patient would die during this hospitalization, 38.3% of reported they were uncertain the patient would die, and another 18.9% felt the patient would not die. Over the course of hospitalization, however, many changed their assessment, and 86.4% of physicians said they had become certain the patient would die. Eleven percent of physicians reported anticipating the patient would die weeks before the death, 57.1% days before, and 18.3% hours before the death (Table 3). Controlling for the length of time physicians provided care for

TABLE 2. PATIENT CHARACTERISTICS AND CLINICIAN REPORTS OF WHETHER ANYONE ON MEDICAL TEAM DISCUSSED THE POSSIBILITY OF IMMINENT DEATH WITH THE PATIENT

Variable	Patients (n = 70)	Someone on medical team discussed the possibility of imminent death with patient ^a (% Yes)	χ^2 or t statistic, p value
Level of consciousness in last few days of life (%)			
Lucid and talkative	36.8	66.7	6.75, $p = 0.03$
In and out of lucidity	35.1	55.0	
Unconscious	28.1	25.0	
Diagnosis (%)			
Respiratory disease	25.7	61.5	2.82, $p = 0.59$
Cardiac disease	21.4	40.0	
Cancer	18.6	61.1	
Sepsis	10.0	57.1	
Other ^b	24.3	41.2	
Patient had advance directives (%)	83.8	54.4	1.21, $p = 0.27$
Patient in the ICU at any point during hospitalization (%)	57.4	46.2	1.04, $p = 0.31$
Location of death (%)			
ICU	50.7	40.0	3.30, $p = 0.07$
General Medicine Unit	49.3	61.8	
Physician certainty of imminence of death (%) ^c			
Uncertain/didn't think would die during hospitalization	4.3	0.0	10.63, $p = 0.01$
Certain—Hours before death	14.3	30.0	
Certain—Days before death	61.4	51.2	
Certain—Weeks before death	20.0	57.1	

^a“Discussed the possibility of imminent death with patient” represents whether physician respondents reported that at least one member of the patient’s medical team had discussions with the patient.

^b8.6%, neurologic disease; 7.1%, renal system failure; 8.6%, other.

^c“Physician certainty” represents the earliest period of time (if at all) that at least one member of the patient medical team knew the patient would die during the hospitalization. Two categories, “uncertain” and “didn’t think patient would die,” were combined.

ICU, intensive care unit.

TABLE 3. PHYSICIAN-LEVEL REPORTS OF RECOGNITION AND COMMUNICATION OF IMMINENT DEATH, BY PHYSICIAN TRAINING LEVEL (%) (n = 196)

Variable		If yes, how long before death?						
		Never	Hours	Days	Weeks			
Recognition of imminent death	Respondent group	Yes	No ^a					
Felt certain (upon admission, or later during the course of hospitalization) patient would die during this hospitalization	Attending	89.9	10.1	10.1	23.2	46.4	20.3	
	Resident	76.8	15.5	15.5	15.5	60.4	8.6	
	Intern	53.6	12.5	12.5	15.6	68.8	3.1	
	Total	86.4	13.6	13.6	18.3	57.1	11.0	
Communication about imminent death	Respondent group	Yes	No	Don't know	Never	Hours	Days	Weeks
Did anyone on the medical team discuss the possibility of death...								
With the patient	Attending	38.0	38.0	23.9	62.0	0.0	25.9	12.1
	Resident	29.3	32.8	37.9	70.7	2.3	27.0	0
	Intern	31.3	35.9	32.8	68.7	3.5	20.9	6.9
	Total	33.2	35.7	31.1	66.8	1.9	24.4	6.9
With the family	Attending	90.1	4.2	5.6	10.0	17.7	58.3	14.1
	Resident	89.7	3.4	6.9	10.3	16.3	63.1	10.2
	Intern	85.9	4.7	9.4	14.1	14.9	63.5	7.5
	Total	88.6	4.2	7.2	11.4	16.3	61.6	10.7
Within the medical team	Attending	80.3	8.4	11.3	19.7	16.8	52.3	19.7
	Resident	91.4	5.2	3.5	8.6	8.7	71.8	8.6
	Intern	87.7	9.2	3.1	12.3	14.0	59.6	12.3
	Total	86.1	7.7	6.2	13.8	13.4	60.6	13.8

^aIncludes "uncertain throughout hospitalization that patient would die" and "thought patient would not die."

patients, none of the measured patient variables or physician-level variables, including physician training level, was associated with physician recognition of imminent death. Earlier recognition was associated with a greater reported overall satisfaction with end-of-life care provided to the patient (estimated $\beta = 0.46 \pm 0.17$, Wald χ^2 statistic = 7.6, $p = 0.006$).

Aggregated at the patient level, physician reports suggest that 61% of patients had at least one attending or resident member of the medical team who reported being certain death was imminent days prior to patient death, and 14% of patient deaths were predicted hours ahead (Table 2). Death was not anticipated for only 4% of patients. Again, none of the patient variables (e.g., age, gender, disease, level of consciousness, in ICU) predicted the presence and timing of recognition.

Communication about the possibility of death

Clinicians reported limited communication with patients about the possibility of dying: 33.2% of physicians said someone on the team had discussed this possibility with the patient during this hospitalization (Table 3). Although a large majority reported the possibility of death was discussed with the family (88.6%)

and among the medical team (86.1%), most conversations were reported to occur only within days before the patient's death (Table 3).

Aggregating physician reports of communication at the patient level suggested a somewhat higher proportion of patients were told about the possibility they might die, with an average of 47.2% of patients (66.7% of patients who were fully conscious in the last few days of life, Table 2) reported to have had at least one member of the medical team speak with them about the possibility of imminent death. Most discussions were reported to happen days before death (Table 4).

We used the weighted κ test to examine the association between the variable representing whether and when attendings or residents on patients' medical teams reported feeling certain the patient would die, and whether and when someone on the medical team reportedly spoke to the patient about the possibility they might die during this hospitalization (both variables aggregated at the patient level) (Table 4). Percentages along the diagonal of Table 4, which represent agreement between recognition and communication, suggest that the timing of recognition and communication are more likely to coincide when communication is with the family (Table 4B, κ statistic = 0.49) or medical team (Table 4C, κ statistic = 0.50)

than with the patient (Table 4A, κ statistic = 0.15). For example, Table 4A shows that for patients whose physicians felt certain the patient would die days before the death, 37.2% of patients were told of this possibility days before the death, compared to 79.1% of patients' families who were told days before the patient died (Table 4C). Percentages to the lower left of the diagonal, which are shaded on Table 4, suggest a delay between recognition and communication about imminent death for some patients; among patients whose medical team knew weeks before, 42.9% were never told. Finally, the percentages to the upper right of the diagonal suggest that communication about the possibility of dying occurred *prior* to the certainty death was imminent. For example, among patients whose physicians were certain days in advance, 11.6% reportedly had someone speak with them about this possibility weeks before their death.

In other bivariate analyses, patient level of consciousness and patient age were also associated with whether or not someone had discussed the possibility

of dying with patients (Table 2), and these predictors all remained significant when included in multiple logistic regression models (Table 5). Patient level of consciousness, not surprisingly, predicted whether or not they were told of the possibility of imminent death, with patients who were more lucid being three times more likely to be told than those who were in and out of consciousness (odds ratio 3.11, 95% confidence interval [CI] 1.33–7.27). Patient age also made a difference: controlling for patient consciousness and physician certainty, older patients were less likely to be told about the possibility of death compared with younger patients. The average age of patients who were told was 60, compared with age 72 for patients who were not told. A fitted logistic regression model shows that, controlling for patient age and level of consciousness, patients whose physicians were aware earlier in the course of hospitalization were more likely to be told of the possibility of dying (odds ratio 3.4, 95% CI 1.28–9.08). For example, controlling for patient age and level of consciousness, those whose physicians

TABLE 4. PHYSICIAN REPORTS OF WHETHER AND WHEN THEY FELT CERTAIN THE PATIENT WOULD DIE DURING THIS HOSPITALIZATION, AND WHETHER AND WHEN SOMEONE ON THE MEDICAL TEAM DISCUSSED THE POSSIBILITY OF DEATH DURING THIS HOSPITALIZATION WITH THE (A) PATIENT, (B) FAMILY, AND (C) MEDICAL TEAM^a

Certainty the patient would die during this hospitalization	(A) When did someone on the team speak to the patient? (%)				Weighted κ statistic of agreement ^b
	Never	Hours	Days	Weeks	
Uncertain or didn't think throughout (n = 3)	100	0.0	0.0	0.0	$\kappa = 0.1520$ (ASE = 0.0571) 95% CI: [4, 0.26]
Certain—hours before (n = 10)	70.0	0.0	30.0	0.0	
Certain—days before (n = 43)	48.8	2.3	37.2	11.6	
Certain—weeks before (n = 14)	42.9	7.1	14.3	35.7	
Total (n = 70)	52.9	2.9	30.0	14.3	
	(B) When did someone on the team speak to the family? (%)				
	Never	Hours	Days	Weeks	
Uncertain or didn't think throughout (n = 3)	66.7	33.3	0.0	0.0	$\kappa = 0.4895$ (ASE = 0.0987) 95% CI: [0.30, 0.68]
Certain—hours before (n = 10)	0.0	40.0	60.0	0.0	
Certain—days before (n = 43)	2.3	4.6	79.1	14.0	
Certain—weeks before (n = 14)	7.1	0.0	35.7	57.1	
Total (n = 70)	5.7	10.0	64.3	20.0	
	(C) When did the medical team discuss among themselves the possibility the patient might die? (%)				
	Never	Hours	Days	Weeks	
Uncertain or didn't think throughout (n = 3)	66.7	33.3	0.0	0.0	$\kappa = 0.4977$ (ASE = 0.0935) 95% CI: [0.31, 0.68]
Certain—hours before (n = 10)	20.0	40.0	30.0	10.0	
Certain—days before (n = 43)	4.6	4.6	79.1	11.6	
Certain—weeks before (n = 14)	14.3	0.0	21.4	64.3	
Total (n = 70)	11.4	10.0	57.1	21.4	

^aBoth recognition and communication variables are aggregated at the patient level (n = 70).

^bHigher κ statistics indicates greater agreement between recognition and communication timing.

Shaded area indicate communication came later than recognition of imminent death (or did not occur at all).

TABLE 5. MULTIPLE LOGISTIC REGRESSION MODEL PREDICTING WHETHER ANYONE ON THE MEDICAL TEAM SPOKE WITH THE PATIENT ABOUT THE POSSIBILITY THEY MIGHT DIE DURING THIS HOSPITALIZATION (PATIENT LEVEL ANALYSIS, $n = 70$)

<i>Outcome</i>	<i>Predictor</i>	β <i>estimate</i>	<i>Standard error</i>	<i>Odds ratio</i>	<i>95% Wald CI</i>	<i>Wald χ^2 statistic, p value</i>
Did anyone discuss with the patient the possibility that s/he might die during this hospitalization?	Certain the patient would die during this hospitalization: Uncertain or didn't think— Certain weeks (0–3)	1.23	0.50	3.41	(1.28, 9.08)	6.02, $p = 0.01$
	Was the patient conscious?	1.14	0.43	3.11	(1.33, 7.27)	6.88, $p = 0.01$
No or Yes (0 or 1)	Unconscious—Lucid and talkative (0–2)					
	How old was the patient? Years	–0.04	0.02	0.96	(0.93, 1.00)	3.61, $p = 0.06$

were certain they would die at least 1 week prior to death were more than 3 times more likely to be told of this possibility than patients whose physicians knew only days ahead. Disease, patient gender, having an advance directive, and receiving care in the ICU were not associated with this outcome.

Finally, we examined physician interview transcripts to assess whether the respondents themselves had discussed the possibility of dying with patients. Only 10.7% of physicians ($n = 17$ physicians, out of 159 with qualitative data, representing 13 (22.4%) patient cases) reported they had this conversation with patients; of these, more than half were attendings (attendings $n = 9$, resident $n = 3$, intern $n = 5$). There was some association between physician attitudes about end-of-life care and whether they personally spoke with patients about dying: physicians who more strongly agreed with the item, “Talking about death tends to make patients with terminal illnesses more discouraged,” were less likely to say they spoke with patients about death ($\beta = -0.70 \pm 0.42$, $p = 0.09$), whereas those who more strongly agreed with the statement and, “Physicians have a responsibility to help patients prepare for death,” ($\beta = 0.79 \pm 0.46$, $p = 0.08$) were more likely to report having discussed dying with patients. Compared to physicians who did not talk with patients about this issue, those who did reported feeling closer to the patient (5.2 versus 2.8, 0–10 scale, $p < 0.002$) and more satisfied with the care they provided (7.2 versus 5.6, $p < 0.02$).

DISCUSSION

This secondary analysis of physicians' descriptions of patients' dying and death in the hospital suggests

that, despite considerable uncertainty on admission about whether the patient would die during this hospitalization, most deaths were anticipated within days prior to the event. Fewer than half of the patients were informed of this possibility, however, which may have left little or no opportunity for patients and their families to prepare for death. Although we do not know how many patients might have indicated they did not want to discuss the possibility of death, our results suggest factors other than patient preference played a part in whether they were told death might be imminent. In particular, physician certainty of imminent death was a key predictor: patients whose physicians were certain of imminent death were three times more likely to have been told of this possibility compared with those whose physicians were not certain. Because certainty came only within days of death, however, and because more than two-thirds of patients were, by that point, unconscious or in and out of lucidity, waiting for certainty appeared to preclude meaningful communication with the majority of patients. Given the inherent uncertainty in predicting death, these findings point to a need for enhancing communication about end-of-life issues in the face of this prognostic uncertainty.

We were interested to find that none of our variables predicted the presence and timing of recognition of dying. For example, because clinical signs and symptoms of impending death are most well-recognized for people with cancer,^{18,39} we expected (but did not find) physicians caring for patients with cancer to recognize imminent death earlier than those caring for patients who died of diseases with a less predictable course.^{18,40,41} Nor did differences in physician characteristics explain variation in recognition of dying. In part, this is likely a reflection of the inherent com-

plexity and ambiguity of the dying process, as well as the limited training in end-of-life care reported by physicians at all training levels; it may also be that the quantitative variables for this study did not adequately capture key elements of process and context predicting death. Future research that prospectively examines how clinicians become aware of the imminence of death may further elucidate these elements.

Although advancing scientific understanding of late stage illness trajectories and improving physicians' competencies in recognizing the signs and symptoms of dying are clearly worthwhile and necessary goals, clinicians and patients can still plan and discuss possible outcomes in the face of uncertainty with a strategy to "hope for the best, and prepare for the worst."⁴² Extensive literature has addressed clinician-patient communication, documenting that patients at the end of life and their families consider clinician communication skills essential in their care,^{43,44} that better clinician education in this area is needed,^{21,23,45} that sensitive use of language⁴⁶ and abilities to respond to intense emotions are critical competencies,⁴⁷ and that communication about end-of-life care is a teachable skill.^{22,23,44,48-52} Our results suggest physicians at all levels of training could benefit from enhanced skills in this area. Findings also indicate that physician attitudes—about communication with older patients, about the impact of end-of-life communication on dying patients, and about physician responsibilities for end-of-life care—may also be important targets for intervention. Furthermore, these results suggest that physicians themselves may benefit from better communication practices through increased sense of satisfaction with care they provide and closer connection they feel with the people for whom they provide care.

There are several limitations to this study. Most important, and inherent to secondary analyses, is that data were collected for purposes somewhat different from those specified in our aims. For example, our variables related to recognition of imminent death addressed physicians' *certainty* about dying, whereas future studies should also address whether and when physicians consider the *possibility* a patient might die soon. In addition, because their accounts are retrospectively constructed after patients had died, it is possible physicians overestimated their predeath level of certainty of the imminence of death. Also, the discrepancy between the proportion of physicians who reported that *someone* on the team had spoken with the patient about the possibility of dying compared with the those who actually described (in interview transcripts) talking with patients themselves about this issue (33% versus 11%) raises the possibility respondents may have thought

someone had spoken with patients when, in fact, they had not done so. The parent study was also cross-sectional, so findings here provide evidence of associations rather than causal relationships. Finally, our analyses lack the perspective of patients and families, and we do not know patient and family preferences for information about prognosis or the impact of communication on them.

There are also several important strengths in this study, particularly the multiple perspectives of clinicians who cared for the same patient. The perspectives of multiple members of the medical team may provide more accurate descriptions of the care patients were provided. In addition, the 80% response rate from the parent study suggests that results are not likely to be limited by nonresponse bias.

In summary, this study provides a rich base for future research in care for hospitalized patients in the last few days of life and their families. In particular, communication in the face of uncertainty emerges as a key direction for future work. Skillful communication holds potential not only for enhancing care at an intensely vulnerable time, but also for deepening physicians' sense of connection and satisfaction in providing that care for patients at the end of life and their families.

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