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The Experience of Hospital Death: Assessing the Quality of Care at an Academic Medical Center

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Abstract

Background—The quality of perimortem care received by patients who died at our hospitals was unknown.

Objective—To describe the quality of hospital care experienced in the last week of life, as perceived by decedents' families.

Design—Telephone survey that included established measures and investigator-developed content.

Setting—Large, tertiary care center known for high-quality, cost-effective care.

Participants—Family members of 104 patients who died in-hospital (10% of annual deaths) over the course of 1 year.

Intervention—None.

Measurements—Participant perceptions of the decedent's care, including symptom management, personal care, communication, and care coordination.

Results—Decedents were mostly male (64%), white (96%), married (73%), and Christian (91%). Most survey participants were spouses of the decedent (68%); they were predominately white (98%), female (70%), and Christian (90%) and had a median age of 70 years (range, 35-91 years). Overall satisfaction was high. Pain, dyspnea, and anxiety or sadness were highly prevalent among decedents (73%, 73%, and 55%, respectively) but largely well managed. Most participants believed that decedents were treated respectfully and kindly by staff (87%) and that sufficient help was available to assist with medications and dressing changes (97%). Opportunities for

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improvement included management of decedents' anxiety or sadness (29%) and personal care (25%); emotional support of the family (57%); communication regarding decedents' illness (29%); and receiving contradictory or confusing information (33%).

Conclusions—Despite high satisfaction with care overall, we identified important unmet needs. Addressing these gaps will improve the care of dying patients.

Keywords

death; decedent; family caregivers; hospitals; quality of healthcare; terminal care

Introduction

Care of dying patients and their families is a critical component of excellent health care; this task is becoming increasingly challenging as the population ages and more Americans suffer and die of chronic disease (1-5). Demographic trends incited an urgent call for improvement in end-of-life care in the United States (US) in 2000 (6), and it is improving slowly, with fewer hospital days at the end of life and better use of hospice (4,7). Still, gaps remain, with more late referrals to hospice more intensive care unit (ICU) use, and more repeat hospitalizations in the last 90 days of life (6,7).

Gaps in quality of end-of-life care are most notable for those dying in the hospital (4,6). One-third of US deaths occur in the hospital (2,4,8), often with suboptimal symptom control (6,9) and medical care that is sometimes perceived to be “more” than patients and families desire (1). Compared with those receiving hospice care at home, people dying in the hospital receive inferior symptom management, poorer communication from health care professionals, less emotional support, and overall lower quality of care (9-12). Furthermore, escalating costs are a growing concern: one-quarter of Medicare spending goes toward caring for patients with severe chronic illness in their last year of life (4). The annual US death rate is rising (13) and the percentage of Americans who die in the hospital remains persistently high (2,4,8), despite most peoples' preference to die at home (14-17).

The Dartmouth Institute reported that chronically ill patients in their last 2 years of life were often better served by more cost-effective medical centers run by organized group practices or integrated hospital systems (1). Not only did more costly and aggressive care fail to improve performance on quality metrics, it often resulted in poorer quality care overall (1,4). In the context of the Dartmouth Atlas data, Mayo Clinic (Rochester, Minnesota) (MCR) received national acclaim for cost-effective end-of-life care and was cited as a benchmark for efficient, high-quality care (1). Despite this approbation, we have little data about the quality of perimortem care received by patients who died at our hospitals. Therefore, we sought to identify additional gaps in our practice that, when addressed, could further improve the end-of-life experience for patients and their families at our hospitals. The objectives of this study were to describe the quality of care experienced in the last week of life by patients who died in-hospital at a large tertiary academic medical center, as perceived retrospectively by decedents' family members, and to determine if any characteristics of the patient, family, or care delivery were associated with actionable gaps in the quality of that experience. These data will serve as a foundation from which improvements in the patient and family experience can be measured.

Patients and Methods

The Mayo Clinic Institutional Review Board approved this study. We conducted telephone surveys of families of 104 patients who died in-hospital at MCR from March 20, 2009 through March 19, 2010. “Family” was defined as the person closest to the decedent, regardless of whether that person was a relative or friend. We sought to study 10% of adult decedents over 1 year, basing our target number on an average of 1,000 annual in-hospital deaths. We recruited participants from 3 separate periods to account for potential seasonal variations.

Study Population

Mayo Clinic Survey Research Center (SRC) specialists screened hospital registration databases for deaths, automatically excluding decedents not meeting initial eligibility criteria (Figure). Two clinicians (E.C.C., A.M.D.) subsequently reviewed the electronic health records of potentially eligible patients, further excluding decedents meeting secondary exclusion criteria (Figure) and determining cause of death.

The study participant was the primary contact listed in the decedent's record, unless he or she identified someone else. Potential participants were contacted 3 to 7 months following the death, after acute grief had diminished but before memory of the experience had faded (18). SRC staff mailed potential research participants an invitation. Eligible participants could opt out by mail, be unavailable by phone, or verbally refuse participation. Verbal consent for research participation was obtained before the interview. Permission to audio-record the interview was requested but did not affect participation. Unless otherwise noted, participants were asked to answer every question but any could be declined.

Survey Design

The survey assessed participants' perceptions of quality of care provided in the last week of life and included established measures and investigator-developed content. Survey design was based on a validated tool, the Toolkit After-Death Bereaved Family Member Interview (11,19), and incorporated 5 domains: 1) provide physical comfort and emotional support, 2) attend to emotional and spiritual needs of the family, 3) inform and promote shared decision-making, 4) focus on the individual, and 5) provide coordination of care. To create a comprehensive survey, the research team developed questions addressing issues identified by institutional stakeholders and by relevant literature. The final survey was piloted on 2 bereaved volunteers to ensure face validity and feasibility.

Data Management and Analysis

Descriptive statistics were used to summarize participant and decedent demographic and clinical data and to convey participants' perceptions of care quality. Because psychometric testing showed poor internal consistency within each domain, we evaluated outcomes by using individual variables. Because of high satisfaction overall and a resulting ceiling effect, we dichotomized all variables to reflect any level of dissatisfaction with the patient's care (eg, participants were either “always” satisfied or “usually, sometimes, or never” satisfied). Any degree of dissatisfaction became our dependent variable.

We considered the toolkit domains to be proxies for categories of care. Therefore, in subsequent inferential analyses, we identified 1 outcome variable per domain that was both clinically actionable and relevant and accompanied by at least a 25% rate of dissatisfaction. We used unadjusted logistic regression models to determine whether specific characteristics were independently associated with outcome variables. We chose these characteristics based on literature indicating that certain factors can result in increased suffering and risk of complicated grief (12,20-22) for the bereaved. We hypothesized that younger decedent age, being a spouse of the decedent, and death in the ICU would be associated with lower satisfaction. Additionally, we hypothesized that having the first and only encounter with MCR conclude in death might result in more dissatisfaction. Multivariable models were used when sample size allowed. All analyses were conducted using SAS (version 9.2; SAS Institute Inc).

Results

Patient Population

During the 1-year study period, 1,014 inpatient deaths occurred at MCR. Of those, 739 occurred within the sampling periods and 386 were study eligible. We enrolled 104 decedent-participant pairs (approximately 10% of inpatient deaths; Figure). Decedent demographic and clinical data are shown in Table 1. We did not identify significant differences between study decedents and eligible, nonparticipant decedents from the same time frame with regard to sex (36% vs 41% female, respectively; P=.28), mean age (67 years; P>.99), or race (96% white; P=.43).

Participant median age was 70 (range, 35-91 years). They were predominantly white (98%), female (70%), and Christian (90%). Fifty-three percent had a high school degree or less, and 68% were spouses of the decedent (Table 1).

Quality of Care in the Last Week of Life

Table 2 summarizes family perceptions of the quality of care provided. Most decedents were receiving pain medications, had difficulty breathing, and experienced feelings of anxiety and sadness, with 8% to 29% of participants reporting that symptoms were suboptimally managed. Participants reported that most decedents were treated with respect and kindness and that sufficient help was available to manage medications and dressing changes, but they also indicated that decedents' personal care needs were not always optimally addressed.

Although participants believed that patients received sufficient help with emotional and spiritual needs, they perceived that their own emotional needs were insufficiently addressed: 57% reported that they were not directed to someone who could provide support when they were distressed and 29% reported that staff did not talk with family about how they might feel after the patient's death when they wanted the staff to do so. Twenty-nine percent reported that they were not always informed about the patient's condition. Thirty-three percent stated that doctors sometimes gave contradictory or confusing information, and 20% were unsure which doctor was directing the patient's care.

The 5 key outcome variables (1 per toolkit domain) included: 1) patient had feelings of anxiety or sadness and received inadequate help managing those feelings; 2) patient's personal care needs were not always taken care of as well as they should have been; 3) staff did not suggest someone that the family could turn to if distressed; 4) family was not always kept informed about the patient's condition; and 5) doctors gave contradictory or confusing information about the patient's medical treatment at least some of the time.

Table 3 shows the unadjusted logistic regression models testing whether specific demographic and clinical variables were independently associated with dichotomized versions of the 5 outcome variables. Family members of patients who received only subspecialty or intermittent care at the institution were significantly more likely to report feeling under-informed about the decedent's condition than families whose decedents were at the institution for the first time (odds ratio [OR], 3.3 [95% CI, 1.1-9.7]; $P=.03$). Families of older decedents were less likely to report receiving contradictory or confusing information than families of younger patients (OR, 0.4 [95% CI, 0.2-0.9]; $P=.02$), and spouses were marginally more likely to report contradictory or confusing information than other participants (adjusted model only; OR, 1.5 [95% CI, 0.5-4.8]; $P=.046$). When significant associations were identified, multivariable models were used; these showed similar results.

Discussion

We sought to describe the quality of care experienced in the last week of life by patients who died in-hospital at a large tertiary medical center and to identify actionable gaps in the quality of that experience. We further wished to identify any patient or family characteristics that were associated with lower satisfaction with care. Participants were highly satisfied with the overall quality of care decedents received; they reported that symptoms were well managed overall and that their loved ones were treated with kindness, dignity, and respect. Nonetheless, an appreciable minority of participants reported unmet needs in key domains of clinical care, including symptom management, attention to personal care, communication, and coordination of care.

When we attempted to determine whether specific clinical or demographic characteristics influenced families' perception of care in 5 areas, we identified 3 significant associations, all pertaining to communication between the family and medical team. Surprisingly, families of patients who received only subspecialty or intermittent care were more likely to report being under-informed about the patient's condition. This may reflect the hazards in transitions of care as patients navigate among different providers and care systems (23). Such challenges may be heightened when patients, in distress and seeking a “miracle” (24), come to a tertiary care center with multiple subspecialty teams providing complex care. Consistent with other work, families perceived decedents to receive equally good care whether patients died in the ICU or on the general care unit (25).

Families of younger patients were more likely to report receiving confusing or contradictory information; spouses likewise had similar perceptions. These findings suggest that a loved one's death is even more stressful when decedents are younger (20) or when the bereaved is particularly close to the decedent (21,22). Certainly, difficult information is even more challenging to receive in the setting of intense emotions and anticipatory grief (26-28).

To isolate opportunities for improvement, we applied a rigorous standard to identify perceived gaps in care. First, a significant percentage of participants reported that decedents' personal care needs were not always optimally addressed. Personal care needs include self-care activities that may require assistance in the setting of illness, including toileting, oral care, bathing, and dressing—actions that healthy people complete largely by rote. Optimal maintenance of personal care is an important part of preserving dignity (29,30), deserves meticulous attention, and denotes a clear opportunity for improvement.

Second, participants noted challenges in care coordination, including communication missteps. Many reported being under informed about the patient's condition, receiving contradictory or confusing information, and not understanding which physician was directing care. In large academic medical centers, multiple physician teams often are involved in the care of each patient, which can result in communication gaps and misunderstandings (31,32).

Finally, participants did not always believe that their own distress as a family member was sufficiently addressed. They wanted more information about the dying process and tasks at the time of death than they received. For patients dying in the hospital and especially the ICU, the shift from aggressive, life-prolonging care to comfort-focused care of the dying can feel abrupt and surprising (33,34). However, after patients, families, and clinicians have accepted that death is unavoidable, families want anticipatory guidance when navigating the dying experience (33).

We identified deficits in basic services at an otherwise high-performing institution (1), consistent with other studies reporting suboptimal symptom management and lower satisfaction with patient-provider communication and coordination of care for patients who die in the hospital vs in hospice care (6,11). Such findings have changed little in the past decade or longer, despite increased availability of palliative care services (6). Similar to another recent study (35), we found that providers not only need to relieve symptoms, they also must be attuned to worsening clinical status, individual patient and family needs, and patient and family preferences regarding communication and medical decision-making.

Nearly 2 decades of work have gone into defining quality end-of-life care as care that ensures physical comfort and emotional support, promotes shared decision making, treats dying patients with respect, provides information and emotional support to families, and coordinates care across settings (5,11,36,37). Still, even in a top-ranked tertiary care center known for high-quality, cost-effective care (1,4), we face challenges and demonstrate deficits in care similar to those identified across the country. Thus, providing quality end-of-life care is not only a problem within individual hospitals, it is a complex problem within the US health care system.

Strengths of our study include its representative sample (10%) of hospital deaths occurring in 1 year at a large academic medical center, with a mix of patients and illness severity on par with other US academic medical centers (1) and a mix of local and referral patients. Survey completion rate was high. Most survey participants resided within 140 miles of the medical center, thereby appropriately reflecting the sociocultural makeup of our region. Nonetheless, the homogeneity of local residents may limit generalizability of our findings when considering more ethnically and culturally diverse populations, such as that which might be found at a large urban center. One could argue, however, that the challenges of meeting the needs of dying patients and their families may be even greater in a more heterogenous population. We did not evaluate the influence of palliative care consultations because palliative care services were limited when these data were collected; other studies have demonstrated that increased palliative care involvement improves satisfaction with care (5,38-40). Interviewing participants retrospectively could be viewed as another limitation. Although the patient's perspective is preferred, we can learn much from family members as proxies, and most research evaluating care of dying patients has been conducted through after-death surveys of family (18,19). The 3- to 7-month pause between the patient's death and the interview may not reflect the just-in-time views of participants but honors their need to grieve acutely. This pause is a commonly accepted practice in studies of the dying experience (18,19), and our participants remembered the relevant events clearly and in detail (33). Finally, participants' perception of care may have been influenced by grief (27), but emotions and grief are inextricable from the dying process, one's perception of events, and one's ability to understand and interpret medical data. Our intent is to improve patients' and families' experience of care, which is linked to their feelings and perceptions.

Future research should address systems changes to improve the care of the dying in all settings, especially in hospitals, when transition to home is not possible. Our results highlight several opportunities for future interdisciplinary research, particularly in improving patient and family communication with providers, giving better attention to personal care needs, and providing emotional and spiritual support to family members and to patients. Our data identify a starting point for improvement efforts at our institution. Studies are currently underway to evaluate the impact of more robust, interdisciplinary interventions in palliative care and decedent affairs on the patient and family experience.

Conclusion

Despite high satisfaction with care overall, decedents' family members in a large tertiary referral hospital reported significant unmet needs and highlighted opportunities to improve the care of dying patients. Most of the deficits described are actionable and some straightforward solutions appear evident, including improving communication about patients' illness, prognoses, and treatment plans and providing families with increasing support as the illness course changes and it becomes clear that death is unavoidable. After it becomes apparent that the patient will die in the hospital, patients and families want help navigating the dying process, especially to know what to expect and what the ongoing care will entail. Although such solutions may appear self-evident and readily accessible, the deficits identified at our institution are pervasive within the health care system as a whole and may indicate the need for a multifaceted, systems-based solution.

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Abbreviations

ICU	intensive care unit
MCR	Mayo Clinic (Rochester, Minnesota)
OR	odds ratio
SRC	Mayo Clinic Survey Research Center
US	United States

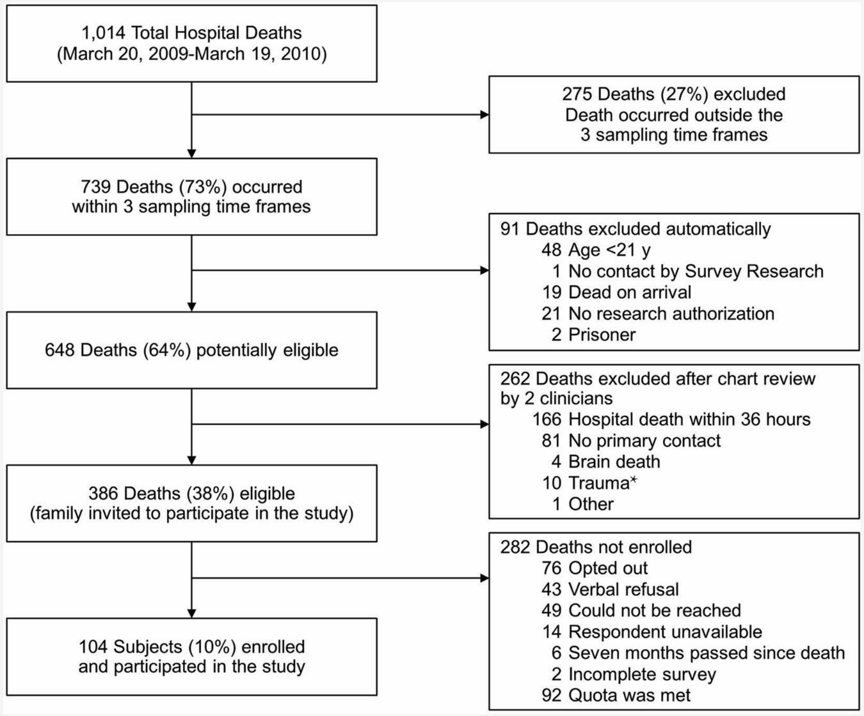

Figure.

Flowchart Detailing Inclusion and Exclusion Criteria for Participants Surveyed About the Quality of Death and Dying at Mayo Clinic (Rochester, Minnesota). * Trauma was defined as hospital death within 72 hours of a traumatic accident or act of violence.

Table 1

Decedent and Participant Characteristics (N=104)

Characteristic	Value
Decedent Characteristics	
Age, y	
Mean	67
Median (range)	70 (23-91)
Female sex, No. (%)	37 (36)
Race/ethnicity, No. (%)	
White	100 (96)
Asian	2 (2)
Black	1 (1)
Hispanic	0 (0)
Other	1 (1)
Highest level of education, No. (%)	
Less than high school	11 (11)
High school	44 (42)
Technical school or associate's degree	14 (13)
Bachelor's degree or higher	35 (34)
Religious affiliation, No. (%) (n=102)	
Christian	93 (91)
Jewish	0 (0)
None	8 (8)
Other	1 (1)
Marital status, No. (%) (n=103)	
Married	76 (73)
Divorced	11 (11)
Widowed	10 (10)
Never married	7 (7)
Clinical Features	
Cause of death, No. (%)[a]	
Malignant neoplasm	37 (36)
Heart disease	18 (17)
Infection	15 (14)
Cerebrovascular disease	10 (10)
Chronic lung disease	5 (5)
Liver disease or cirrhosis	4 (4)
Renal failure	2 (2)
Peripheral vascular disease	2 (2)
Progressive neurologic decline	1 (1)
Other[b]	10 (10)
Overall condition during the last month of life, No. (%) (n=95)[c]	

Characteristic	**Value**
Gradual decline	41 (43)
Up and down decline	8 (8)
Sudden decline	46 (48)
Overall condition during the last 6 months of life, No. (%) (n=91)[c]	
Gradual decline	56 (62)
Up and down decline	22 (24)
Sudden decline	13 (14)
Location of death, No. (%)[a]	
Intensive care unit	58 (56)
General care unit	46 (44)
Prior experience with medical center, No. (%)[c]	
All care	34 (33)
Intermittent or specialty care	40 (38)
First encounter	30 (29)
Length of stay <7 days, No. (%)[a]	54 (52)
Days in hospital[a]	
Mean	13
Median (range)	8 (2-170)
Distance from medical center[a]	
Mean	140
Median (range)	59 (1-1,716)
Participant Family Member Characteristics	
Female sex, No. (%)	73 (70)
Age, y	
Mean	62
Median (range)	70 (35-91)
Race/ethnicity, No. (%) (n=103)	
White	101 (98)
Black	2 (2)
Highest level of education, No. (%) (n=103)	
Less than high school	3 (3)
High school	42 (41)
Technical school or associate's degree	19 (18)
Bachelor's degree or higher	39 (38)
Religious affiliation (n=103)	
Christian	93 (90)
None	8 (8)
Other	2 (2)
Relationship to decedent	
Life partner or spouse	71 (68)
Child	20 (19)

Characteristic	Value
Biological parent	5 (5)
Sibling	3 (3)
Other[d]	5 (5)
Self-rated health now compared with 1 year ago	
Much better today	6 (6)
Somewhat better	10 (10)
About the same	67 (66)
Somewhat worse	16 (16)
Much worse	3 (3)

[a] From chart review.

[b] Diagnosis was not included in the list above or death resulted from multiple comorbid conditions.

[c] From participant interview.

[d] Includes in-laws, friends, and nieces or nephews.

Table 2

Family Perceptions of the Quality of In-Hospital Care Provided in the Last Week of Life

Domain and Corresponding Survey Items[a]	**No. (%)**[b]
Physical Comfort and Emotional Support	
Pain[c]	
Patient was receiving medication to treat pain	63/86 (73)
Patient received too much medication for pain	2/67 (3)
Patient received too little medication for pain	8/67 (12)
Patient received right amount of medication for pain	57/67 (85)
Difficulty breathing[d]	
Patient had trouble breathing	63/86 (73)
Patients with difficulty breathing received insufficient help managing it	5/64 (8)
Anxiety or sadness	
Patient experienced feelings of anxiety or sadness	47/85 (55)
Patients with anxiety or sadness received inadequate help managing it	11/38 (29)
Focus on the Individual	
Patient's personal care needs were not always taken care of as well as they should have been	25/102 (25)
Patient was not always treated with respect by staff	13/104 (13)
Patient was not always treated with kindness by staff	14/104 (13)
There was not always enough help with medications and dressing changes	3/104 (3)
Attend to Emotional and Spiritual Needs of the Family	
Family did not get enough support in dealing with feelings about patient's death	8/103 (8)
Staff did not talk to loved ones about how they might feel after death when help was desired	21/73 (29)
Staff did not suggest someone that the loved one could turn to if distressed	54/94 (57)
Inform and Promote Shared Decision-Making	
Family sometimes had difficulty understanding what to expect from treatment	11/97 (11)
Doctors sometimes provided either too much or too little information about the patient's medical condition	17/98 (17)
Family desired but did not get sufficient information about the dying process	18/102 (18)
Family desired but did not get sufficient information about what to do at the time of death	18/98 (18)
Family desired but did not get sufficient information about medicines to manage pain or symptoms	18/101 (18)
Family was not always kept informed about the patient's condition	30/104 (29)
There were times that the staff did not know enough about the patient's medical history to provide the best possible care	11/100 (11)
Provide Coordination of Care	
Doctors sometimes gave contradictory or confusing information about the patient's medical treatment	32/98 (33)
There either was not always a doctor in charge of the patient's care or it was unclear which doctor was in charge of the patient's care	20/99 (20)

[a] Items in boldface text were dependent variables in Table 3.

[b] Some study participants did not answer every question, either because a prior question made that question irrelevant or because the participant declined to answer.

[c] Some participants indicated that the decedent had not received pain medication but also answered questions about whether the amount of medication received was appropriate.

[d] Some participants indicated that the decedent did not have breathing difficulty but also answered questions about whether the amount of breathing assistance received was appropriate.

Table 3

Associations Between Decedent or Participant Characteristics and Perceptions of Inadequate Quality of Care During the Last Week of Life [a]

Characteristic of Decedent or Participant	Decedent Anxiety or Sadness (Less Help Than Needed)		Personal Needs (Decedent Needs Not Always Met)		Times of Distress (No Help or Suggestions for Family)		Regarding Decedent's Condition (Family Not Always Informed)		Regarding Medical Treatment (Received Confusing or Contradictory Information)	
	No. (%)	**OR (95% CI)**	**No. (%)**	**OR (95% CI)**	**No. (%)**	**OR (95% CI)**	**No. (%)**	**OR (95% CI)**	**No. (%)**	**OR (95% CI)**
Age of decedent, y										
<60	7/16 (43.8)	1.0	9/39 (23.1)	1.0	22/39 (56.4)	1.0	13/40 (32.5)	1.0	18/39 (46.2)	1.0
≥60	4/21 (19.0)	0.3 (0.1-1.3)	16/63 (25.4)	1.1 (0.4-2.9)	32/55 (58.2)	1.1 (0.5-2.5)	17/64 (26.6)	0.8 (0.3-1.8)	14/59 (23.7)	0.4 (0.2-0.9)[b]
Relationship to decedent										
Child	3/8 (37.5)	1.0	6/19 (31.6)	1.0	9/19 (47.4)	1.0	7/19 (36.8)	1.0	5/19 (26.3)	1.0
Spouse	7/23 (30.4)	0.7 (0.07-3.9)	15/70 (21.4)	0.6 (0.2-1.8)	38/63 (60.3)	1.7 (0.6-4.7)	20/71 (28.2)	0.7 (0.2-2.0)	23/65 (35.4)	1.5 (0.5-4.8)[c]
Other	1/6 (16.7)	0.3 (0.03-4.4)	4/13 (30.8)	1.0 (0.2-4.4)	7/12 (58.3)	1.6 (0.4-6.7)	3/14 (21.4)	0.5 (0.1-2.3)	4/14 (28.6)	1.1 (0.2-5.3)
Experience with Mayo Clinic										
First time	4/9 (44.4)	1.0	5/29 (17.2)	1.0	13/27 (48.1)	1.0	6/30 (20.0)	1.0	8/29 (27.6)	1.0
Specialty or intermittent	3/15 (20.0)	0.3 (0.1-1.9)	13/39 (33.3)	2.4 (0.7-7.7)	23/36 (63.9)	1.9 (0.7-5.3)	18/40 (45.0)	3.3 (1.1-9.7)[d]	14/38 (36.8)	1.5 (0.5-4.4)
Primary	4/13 (30.8)	0.6 (0.1-3.2)	7/34 (20.6)	1.2 (0.3-4.4)	18/31 (58.1)	1.5 (0.5-4.2)	6/34 (17.6)	0.9 (0.2-3.0)	10/31 (32.3)	1.3 (0.4-3.8)
Location of death										
General care unit	5/17 (29.4)	1.0	13/45 (28.9)	1.0	23/43 (53.5)	1.0	14/46 (30.4)	1.0	15/44 (34.1)	1.0
Intensive care unit	6/20 (30.0)	1.0 (0.3-4.2)	12/57 (21.1)	0.7 (0.3-1.6)	31/51 (60.8)	1.3 (0.6-3.1)	16/58 (27.6)	0.9 (0.4-2.0)	17/54 (31.5)	0.9 (0.4-2.1)

Abbreviation: OR, odds ratio.

[a] Associations were tested with logistic regression models.

[b] P=.02 (unadjusted) and P=.004 (adjusted).

[c] P=.046 in adjusted model (not significant unadjusted).

[d] P=.03 (unadjusted) and P=.047 (adjusted).