Published in final edited form as:

Acad Med. 2009 November ; 84(11): 1533–1539. doi:10.1097/ACM.0b013e3181bbb490.

Medicine Residents' Self-Perceived Competence in End-of-Life Care

Dr. Martha E. Billings, MD [senior fellow],

Division of Pulmonary and Critical Care, University of Washington, Seattle, Washington

Dr. J. Randall Curtis, MD, MPH [professor of medicine], and

Division of Pulmonary and Critical Care, Department of Medicine, University of Washington, Seattle, Washington

Dr. Ruth A. Engelberg, PhD [research associate professor of medicine]

Division of Pulmonary and Critical Care, University of Washington, Seattle, Washington

Abstract

Purpose—Internal medicine residents frequently provide end-of-life care, yet feel inadequately trained and uncomfortable providing this care, despite efforts to improve end-of-life care curricula. Understanding how residents' experiences and attitudes affect their perceived competence in providing end-of-life care is important for targeting educational interventions.

Method—Medicine residents (74) at the University of Washington and Medical University of South Carolina enrolled in a trial investigating the efficacy of a communication skills intervention to improve end-of-life care. On entry to the study in the fall of 2007, residents completed a questionnaire assessing their prior experiences, attitudes, and perceived competence with end-of-life care. Multivariate regression analysis was performed to assess whether attitudes and experiences with end-of-life care were associated with perceived competence, controlling for gender, race/ethnicity, training year, training site, and personal experience with death of a loved one.

Results—Residents had substantial experience providing end-of-life care. In an adjusted multivariate model including attitudes and clinical experience in end-of-life care as predictors, only clinical experience providing end-of-life care was associated with self-perceived competence ($P = .015$).

Conclusions—Residents with more clinical experience during training had greater self-perceived competence providing end-of-life care. Increasing the quantity and quality of the end-of-life care experiences during residency with appropriate supervision and role modeling may lead to enhanced skill development and improve the quality of end-of-life care. The results suggest that cultivating bedside learning opportunities during residency is an appropriate focus for educational interventions in end-of-life care education.

Over the last decade, the public has increasingly recognized the need for end-of-life care. In response to this need, residency programs are incorporating end-of-life care into training as a key competency. Licensing organizations similarly support this goal. The Accreditation Council for Graduate Medical Education requires core curricula on end-of-life care,¹ and the American Board of Internal Medicine identifies aspects of end-of-life care, including symptom and pain control, skills in counseling, professionalism, and humanistic qualities, as core competencies.²

Despite this recognized need, end-of-life care education during medical school remains inadequate.³ One third to one fifth of graduating fourth-year medical students report that insufficient time is devoted to end-of-life care instruction^{4(p24),5}; two thirds of medical education deans agree.⁶ Didactic sessions teaching end-of-life care differ dramatically among medical schools,⁷ and medical students have variable exposure to observing and performing care for the dying during their clinical clerkships.⁸ In a national survey of fourth-year medical students, respondents specifically felt unprepared to address emotional, spiritual, and psychosocial issues with their dying patients.⁹

However, first-year residents are expected to assume the role of the primary provider for their patients. They may be the first to convey bad news, discuss prognoses, and address do-not-resuscitate orders, yet they report a lack of comfort and skill providing this care.¹⁰ Senior residents as well as faculty also report feeling unprepared to provide end-of-life care and lack confidence in their own skills.¹¹ A national survey of medicine residency program directors found that fewer than 50% of programs had faculty with expertise in teaching end-of-life care, and fewer than 30% provided instruction in nonpain symptom assessment and management and hospice care.¹² The lack of supervision and the impact of a novice resident delivering life-altering news to a patient may be extremely detrimental to patients' and families' well-being.

Residents' attitudes regarding end-of-life care may also affect their participation and confidence in providing care for the dying. These attitudes may be influenced by personal beliefs about dying rooted in cultural upbringing as well as by personal experiences with death. Similarly, experiences with the "hidden curriculum"—the messages trainees learn by observing faculty and residents' attitudes and behaviors—are likely to affect residents' attitudes.¹³ Negative attitudes or poorly modeled care may have a damaging effect on trainees' appreciation and delivery of care to dying patients.⁹ Further, these experiences may lead to "ethical erosion," a term used to describe the undermining of a trainee's personal and idealized values.¹⁴

What has not been explored is how residents attain perceptions of competence in end-of-life skills. We conducted a cross-sectional survey to evaluate our hypothesis that more extensive prior clinical experience and more positive attitudes toward end-of-life care would be associated with greater perceived competence with providing end-of-life care. Determining how residents build confidence in providing care at the end of life will enable the development of targeted interventions to successfully teach end-of-life care skills and foster interest in providing quality end-of-life care.

Method

Design

This report provides data from the Improving Clinician Communication Skills (ICCS) study, a randomized trial evaluating the efficacy of an eight-session course teaching end-of-life communication skills. The intervention uses a seminar format and provides skills practice with simulated patients. Before beginning the skills workshops, all trainees were asked to complete an online survey assessing attitudes, experiences, and self-perceived competence at delivering end-of-life care. This study reports data gathered from this baseline survey.

Sample

First- through fifth-year internal medicine residents at two academic centers (University of Washington and Medical University of South Carolina) were recruited for the ICCS study in the fall of 2007. The study was approved by the institutional review boards of both participating institutions.

Measures

The measures used in the ICCS survey^{11,15,16} were adapted for this study. We selected items on the basis of face validity and internal consistency reliability analyses. Face validity was assessed by three of the ICCS study's investigators who reviewed the items to determine which were appropriate for the study's participants. Using internal consistency reliability analyses, we omitted items that had low interitem correlations ($<.10$) and low item-total correlations ($<.20$). For the total scale scores, we required a minimum Cronbach alpha value 0.65.

Experiences with end-of-life care scale

Clinical experience with providing or observing end-of-life care was assessed with two items using a three-point scale (range: 1 = none; 3 = four or more times) and one item using a four-point scale (1 = none; 4 = 10 or more times).¹⁷ Items were summed into a total score quantifying prior experience with providing end-of-life care (range of 0–7), with higher scores indicating more experience. The Cronbach alpha for these three items was 0.69. Interitem correlations ranged from 0.26 to 0.63, and item-total correlations ranged from 0.36 to 0.68.

Attitudes toward end-of-life care scale

The original end-of-life care attitudes instrument contained 18 statements.¹¹ Scale analyses suggested a reduced scale of nine items. While interitem correlations for this reduced scale ranged from 0.01 to 0.57, somewhat less than our criteria for scale construction, item-total correlations ranged from 0.20 to 0.48, and the Cronbach alpha was 0.69. Of the retained items, five were scored on a four-point scale (1 = strongly disagree; 4 = strongly agree), and four items were scored on a five-point scale (1 = never; 5 = always). Ratings of all nine items were summed to create a total attitude score ranging from 9 to 40. Scoring of some items was reversed so that higher scores indicate more positive attitudes toward end-of-life care.

Competence in end-of-life care scale

The perceived competence with end-of-life care scale consists of 17 questions scored on a five-point Likert-type scale (1 = not very competent; 5 = very competent).^{15,16} Questions included perceived competence in the following areas: (1) communication, (2) pain management, and (3) comfort with emotions. A total score of summed responses ranged from 17 to 85. A score based on all 17 items performed well with a Cronbach alpha of 0.93. Interitem correlations ranged from 0.10 to 0.93, and item-total correlations ranged from 0.51 to 0.77.

Demographics

Respondents self-reported race and ethnicity as well as personal experiences with death of a loved one. Gender and year-of-training were collected from the residency programs.

Analysis

The competence in end-of-life care scale was the outcome variable. We were interested in the association of this scale with the following predictors: (1) experience with end-of-life care scale, and (2) attitudes toward end-of-life care scale. We also included the following covariates: gender, race/ethnicity (dichotomized as white, non-Hispanic or nonwhite and/or Hispanic), year-of-training, training site, and a personal experience with death. The association of each of the covariates and predictors with the outcome was explored initially with bivariate analysis. To fully understand potential confounding, we also examined associations among the predictors and covariates. Specifically, we determined whether the covariates were associated with the two predictors (experience with end-of-life care and attitudes toward end-of-life care).

We used two-sample *t* tests, one-way ANOVA, and Spearman correlations for dichotomous, categorical, and continuous independent variables, respectively. Significant differences identified in the ANOVA were explored with post hoc pairwise comparisons. Multivariate linear regression was subsequently used to assess predictors of the competence scale, controlling for covariates postulated a priori to be possible confounders (gender, race/ethnicity, year-of-training, training site, and a personal experience with death). Separate equations, adjusted for covariates, were constructed for each of the two predictors (i.e., experience, attitudes) as well as a combined model including both predictors. The level of significance for all analyses was .05. Analyses were performed using SPSS statistical package software (SPSS, Inc., Chicago, Illinois, SPSS 13.0 for Windows).

Results

Of the 222 eligible internal medicine residents at both institutions, 104 (47%) enrolled in the study and 74 (71%) of these completed the survey. The majority of residents were from the University of Washington (58, 78%). The responding residents were evenly divided by gender and fairly evenly divided by training year (Table 1). For analyses, we grouped third-, fourth-, and fifth-year residents into a single group. Seventy-two percent (52) of the residents reported having had personal experiences with death of a loved one.

On the items related to clinical experiences, almost all residents reported having had a number of experiences with end-of-life care: 72 (97%) reported having observed end-of-life care, 69 (93%) reported giving bad news, and 66 (90%) reported discussing end-of-life care. A majority of residents had given bad news and discussed end-of-life care at least four or more times (Table 2). Each of these items varied significantly by training year. The clinical experience with end-of-life care scale scores ranged from 1 to 7, with a mean of 4.96 (standard deviation [SD] 1.57). First-year residents reported significantly less clinical experience than both second- and third-year residents ($P < .001$; Table 3). In the bivariate analyses, none of the other covariates (gender, race/ethnicity, training site, personal experience with death) were significantly associated with the experience with end-of-life care total score.

On the attitude toward end-of-life care items, residents had generally positive attitudes toward caring for patients at the end of life. Only four (5%) residents agreed with the statement, "There is little that can be done to ease suffering and grief" (Table 4). Half of residents reported that they "rarely" to "never" feel guilty after a patient's death. Nine (12%) "often" to "always" dreaded dealing with the emotional distress of family members. The attitudes toward end-of-life care total scores ranged from 20 to 38 (mean of 30, SD 3.2) and, in the bivariate analyses, did not differ by year-of-training (Table 3). Similarly, there were no differences by gender, race/ethnicity, training site, or a personal experience with death (data not shown).

On the competence in end-of-life care items, residents often endorsed "competent" and "very competent" regarding expressing empathy (52; 71%) and discussing code status with both patients (48; 65%) and families (46; 62%) (Table 5). Nine (11%) reported feeling not competent to give a patient bad news. Fifty percent (37) also felt not competent to discuss religious and spiritual issues with patients and families. The mean competence in end-of-life care scale score was 52.3 (SD 11.5) with a range from 20 to 75. There were no differences by gender, race/ethnicity, training site, or a personal experience with death in the bivariate analyses. The competence in end-of-life care score differed by year-in-training ($P = .005$); pairwise comparisons identified first-year residents reporting less self-perceived competence than third-year residents (Table 3).

In the regression analyses in which experience was a single predictor and gender, race/ethnicity, year-of-training, training site, and personal experience with death were covariates, experience was significantly associated with perceived competence with providing end-of-life care ($F = 3.66$; $P = .004$) (Table 6). None of the covariates were significantly associated with perceived competence in this equation. In the regression analyses with attitudes as a single predictor and including the demographic covariates, the overall equation was significant ($F = 3.59$; $P = .004$), but the attitudes toward end-of-life care scale score were not significantly associated with perceived competence (Table 6). The covariates year-of-training and a personal experience with death were significantly associated with self-perceived competence. In the combined model, including both predictors and all covariates, the experience with end-of-life care scale was the only variable significantly associated with perceived competence at end-of-life care ($F = 3.86$; $P = .002$) (Table 6). Neither the covariates nor the attitudes toward end-of-life care scale score were significant.

Discussion

Medicine residents report substantial experience providing end-of-life care, even those at the beginning of internship. Sixty-four percent of first-year residents had more than four experiences observing and 44% had more than four experiences providing end-of-life care; likely, many of these experiences occurred during medical school. Not surprisingly, the amount of residents' experience correlated with training year. The percent of residents reporting having given bad news often (i.e., 10 or more times) increased from 4% in the first year to 40% in the third year of training. Importantly, after adjusting for year-of-training, experience with end-of-life care was the only predictor of residents' perceived competence delivering end-of-life care.

The importance of the association between experience and perceived competence in end-of-life care has been supported in a number of studies. Fischer and colleagues¹⁸ showed that the strongest predictor of performance on a palliative care knowledge test was prior experience with end-of-life care. More clinical experience with palliative care has been associated with a greater level of comfort and perceived skill with end-of-life communication among first-year residents¹⁰ and senior medical students.¹⁹ In other studies, increased exposure to end-of-life care through hospice rotations improved medical residents' attitudes and perceived skills with end-of-life care.^{20,21} Medical students interviewed most highly valued their experience playing an active role providing end-of-life care with their team, and they gained confidence in their ability to perform as physicians.²² Residents recalling their first experience delivering bad news reported that the most valuable way to learn this skill was through direct patient experience.²³ These studies provide support for the implications of our study, that clinical experiences caring for the dying are needed to complement didactic training and develop confidence in end-of-life care skills. Significantly, lacking in the literature are studies evaluating the impact of residents' demonstrated or perceived competence on patient and family experiences. Additional studies are needed to evaluate the effect of competence, whether demonstrated or perceived, on patients' and families' experiences and quality of care.

Although clinical experience was associated with the residents' perceived competence in providing end-of-life care, prior personal experience with death was not consistently associated. Experiences of personal loss are likely to be highly variable and thus may not uniformly or predictably affect perceptions of competence. Personal experiences were significantly associated with perceived competence ($P = .04$) only when unadjusted for clinical experience. Further studies are needed to delineate the influence of prior personal experience with death on perceived and actual competence with end-of-life care.

Some authors have suggested that the transmission of the hidden curriculum or the socialization of trainees into medical culture imparts a negative perception of providing care for the dying.^{22,24} In our study, attitudes were not associated with clinical experiences with end-of-life care. Thus, our findings do not provide evidence for a hidden curriculum transmitted through clinical experiences with end-of-life care. However, we may have been limited by our small sample size and also by our attitude instrument and its suboptimal reliability. Attitudes toward end-of-life care likely develop from a complex interaction of

personal values, spirituality, cultural background, and the values conveyed by the hidden curriculum; none of these aspects were measured in this survey. Residents' attitudes toward end-of-life care were also not associated with their perceived competence, suggesting that residents' attitudes have less impact on their confidence and perceived skill in providing this care than their prior clinical experience.

The demographic characteristics that were included as covariates in our analyses were not associated with self-perceived competence; this finding is consistent with some prior studies of medical students.²⁴ However, studies with practicing physicians have suggested race/ethnicity differences, with nonwhite physicians being less comfortable than white physicians with talking about end-of-life care with their patients.^{25,26} Gender differences have also been identified, with women physicians described as experiencing more grief and requiring more support to cope with a patient's death.²⁷ Women have also scored higher on tests of empathy,²⁸ which is a key aspect of providing competent care at the end of life. However, we did not find gender differences on our empathy or grief items (data not shown).

This study has several important limitations. First, the survey used self-report, which may lead to recall bias and inaccurate assessment of prior experiences. Furthermore, self-reported skills or perceived competence may not reflect true skills but rather confidence in those skills.²⁹ A resident with greater confidence may not necessarily deliver more competent end-of-life care. A second key limitation is the lack of diversity among the participants. The small numbers of each minority necessitated grouping for analysis; this may have masked the diverse end-of-life values of these groups. Therefore, conclusions regarding the possible effects of race and ethnicity are limited. Third, our small sample size limits our confidence in finding no association between perceived competence and attitudes. Nonetheless, our finding of an association with clinical experience suggests this is a stronger predictor of perceived competence. Fourth, residents were recruited from only two institutions. Although these institutions represent two distinct geographic areas of the United States, our small sample size limits our ability to test the hypothesis that institutional differences might impact experience, attitudes, or competence. Finally, we studied internal medicine residents only, and these findings may not generalize to other residency training programs.

Despite the importance of clinical experiences in residency training, such experiences are not always positive and can have detrimental effects on residents' self-perceived competence. A study of graduating residents at an urban training program found that only 16% reported good palliative care training, although the residents had had an average of 10 experiences with caring for the dying.³⁰ Another survey found that whereas almost all medical students had end-of-life experiences, over one third reported never receiving feedback about these experiences or observing role modeling. Those students with more experiential learning rated their end-of-life education lower.²⁴ Thus, without oversight, end-of-life care experiences may fail to be beneficial and result in poor training. Residents, feeling unprepared and unsupported, may experience emotional distress and lack the empathy needed to provide quality end-of-life care. Furthermore, lack of guidance may ultimately result in deleterious care, with significantly poor outcomes for patients and their families. Consequently, learning experiences must include supervision, feedback, and appropriate role modeling to ensure that the learners develop the correct skills. Further

studies are needed to investigate the influence of guidance and direction on acquiring both perceived and demonstrated competence at end-of-life care.

Developing competence in medical skills is likely best achieved through direct experience. Our findings suggest that clinical experiences with end-of-life care have the greatest impact on residents' perceived competence and highlight the importance of providing supervised end-of-life care experiences during training. By contrast, residents' intrinsic characteristics, personal experiences with death, and current attitudes toward end-of-life care were not as important. Residents are struggling with conversations about wishes for end-of-life care, sharing bad news, and treating pain and dyspnea; these are profoundly teachable moments. It is important to ensure that the right lessons are learned, incorporating the ideals of patient-centered care and ethical principles, so that the provision of high-quality care at the end of life can be carried into future practice. Further study is needed to determine the best way to provide these optimal experiences and evaluate whether these experiences lead to better-quality end-of-life care delivered to the patient and their families.

Acknowledgments

This research was performed with the financial support of National Institutes of Health grant RO1NR009987.

References

1. Accreditation Council for Graduate Medical Education. [Accessed July 16, 2009] Internal medicine program requirements. Available at: (http://www.acgme.org/acWebsite/RRC_140/140_prIndex.asp)
2. Blank LL. Defining and evaluating physician competence in end-of-life patient care. A matter of awareness and emphasis. *West J Med.* 1995; 163:297–301. [PubMed: 7571595]
3. Billings JA, Block S. Palliative care in undergraduate medical education. Status report and future directions. *JAMA.* 1997; 278:733–738. [PubMed: 9286833]
4. Association of American Medical Colleges. [Accessed July 16, 2009] Medical School Graduation Questionnaire: All Schools Summary Report. Available at: (<http://www.aamc.org/data/gq/allschoolsreports/2007.pdf>)
5. Sulmasy DP, Cimino JE, He MK, Frishman WH. U.S. medical students' perceptions of the adequacy of their schools' curricular attention to care at the end of life: 1998–2006. *J Palliat Med.* 2008; 11:707–716. [PubMed: 18588402]
6. Sullivan AM, Warren AG, Lakoma MD, Liaw KR, Hwang D, Block SD. End-of-life care in the curriculum: A national study of medical education deans. *Acad Med.* 2004; 79:760–768. [PubMed: 15277133]
7. Bickel-Swenson D. End-of-life training in U.S. medical schools: A systematic literature review. *J Palliat Med.* 2007; 10:229–235. [PubMed: 17298271]
8. Barzansky B, Veloski JJ, Miller R, Jonas HS. Education in end-of-life care during medical school and residency training. *Acad Med.* 1999; 74(10 suppl):S102–S104.
9. Sullivan AM, Lakoma MD, Block SD. The status of medical education in end-of-life care: A national report. *J Gen Intern Med.* 2003; 18:685–695. [PubMed: 12950476]
10. Ury WA, Berkman CS, Weber CM, Pignotti MG, Leipzig RM. Assessing medical students' training in end-of-life communication: A survey of interns at one urban teaching hospital. *Acad Med.* 2003; 78:530–537. [PubMed: 12742792]
11. Block SD, Sullivan AM. Attitudes about end-of-life care: A national cross-sectional study. *J Palliat Med.* 1998; 1:347–355. [PubMed: 15859853]
12. Mullan PB, Weissman DE, Ambuel B, von Gunten C. End-of-life care education in internal medicine residency programs: An interinstitutional study. *J Palliat Med.* 2002; 5:487–496. [PubMed: 12353495]

13. Hafferty FW. Beyond curriculum reform: Confronting medicine's hidden curriculum. *Acad Med.* 1998; 73:403–407. [PubMed: 9580717]
14. Feudtner C, Christakis DA, Christakis NA. Do clinical clerks suffer ethical erosion? Students' perceptions of their ethical environment and personal development. *Acad Med.* 1994; 69:670–679. [PubMed: 8054117]
15. Baile WF, Kudelka AP, Beale EA, et al. Communication skills training in oncology. Description and preliminary outcomes of workshops on breaking bad news and managing patient reactions to illness. *Cancer.* 1999; 86:887–897. [PubMed: 10463990]
16. Maguire P. Can communication skills be taught? *Br J Hosp Med.* 1990; 43:215–216. [PubMed: 2317616]
17. Smith AK, Ries AP, Zhang B, Tulsy JA, Prigerson HG, Block SD. Resident approaches to advance care planning on the day of hospital admission. *Arch Intern Med.* 2006; 166:1597–1602. [PubMed: 16908792]
18. Fischer SM, Gozansky WS, Kutner JS, Chomiak A, Kramer A. Palliative care education: An intervention to improve medical residents' knowledge and attitudes. *J Palliat Med.* 2003; 6:391–399. [PubMed: 14509484]
19. Fraser HC, Kutner JS, Pfeifer MP. Senior medical students' perceptions of the adequacy of education on end-of-life issues. *J Palliat Med.* 2001; 4:337–343. [PubMed: 11596545]
20. Hallenbeck JL, Bergen MR. A medical resident inpatient hospice rotation: Experiences with dying and subsequent changes in attitudes and knowledge. *J Palliat Med.* 1999; 2:197–208. [PubMed: 15859816]
21. Yacht AC, Suglia SF, Orlander JD. Evaluating an end-of-life curriculum in a medical residency program. *Am J Hosp Palliat Care.* 2006; 23:439–446. [PubMed: 17210997]
22. Ratanawongsa N, Teherani A, Hauer KE. Third-year medical students' experiences with dying patients during the internal medicine clerkship: A qualitative study of the informal curriculum. *Acad Med.* 2005; 80:641–647. [PubMed: 15980080]
23. Orlander JD, Fincke BG, Hermanns D, Johnson GA. Medical residents' first clearly remembered experiences of giving bad news. *J Gen Intern Med.* 2002; 17:825–831. [PubMed: 12406353]
24. Rabow M, Gargani J, Cooke M. Do as I say: Curricular discordance in medical school end-of-life care education. *J Palliat Med.* 2007; 10:759–769. [PubMed: 17592988]
25. Knauff E, Nielsen EL, Engelberg RA, Patrick DL, Curtis JR. Barriers and facilitators to end-of-life care communication for patients with COPD. *Chest.* 2005; 127:2188–2196. [PubMed: 15947336]
26. Curtis JR, Patrick DL, Caldwell E, Greenlee H, Collier AC. The quality of patient–doctor communication about end-of-life care: A study of patients with advanced AIDS and their primary care clinicians. *AIDS.* 1999; 13:1123–1131. [PubMed: 10397544]
27. Redinbaugh EM, Sullivan AM, Block SD, et al. Doctors' emotional reactions to recent death of a patient: Cross sectional study of hospital doctors. *BMJ.* 2003; 327:185. [PubMed: 12881257]
28. Hojat M, Gonnella JS, Nasca TJ, Mangione S, Vergare M, Magee M. Physician empathy: Definition, components, measurement, and relationship to gender and specialty. *Am J Psychiatry.* 2002; 159:1563–1569. [PubMed: 12202278]
29. Davis DA, Mazmanian PE, Fordis M, Van Harrison R, Thorpe KE, Perrier L. Accuracy of physician self-assessment compared with observed measures of competence: A systematic review. *JAMA.* 2006; 296:1094–1102. [PubMed: 16954489]
30. Schwartz CE, Goulet JL, Gorski V, Selwyn PA. Medical residents' perceptions of end-of-life care training in a large urban teaching hospital. *J Palliat Med.* 2003; 6:37–44. [PubMed: 12710574]

Table 1

Demographic Characteristics of 74 Medicine Residents From the University of Washington and Medical University of South Carolina Participating in an Improving Clinician Communication Skills Study, 2007

Resident demographics	No. (%)
Male	37 (50)
Race/ethnicity	
White, non-Hispanic	57 (77)
Asian	11 (15)
Hispanic	2 (3)
Black	2 (3)
Pacific-Islander	1 (1)
Training year	
Postgraduate year (PGY) 1	26 (35)
PGY2	23 (31)
PGY3	20 (27)
PGY4-5	5 (7)
Experienced death of loved one	53 (72)
Training site	
University of Washington	58 (78)
Medical University of South Carolina	16 (22)

Table 2

Clinical Experiences With Observing and Providing End-of-Life Care by Postgraduate Year (PGY) Among 74 Medicine Residents at the University of Washington and Medical University of South Carolina, 2007

Experience	No. (%) of PGY1 (n = 26)	No. (%) of PGY2 (n = 23)	No. (%) of PGY3+ (n = 25)
Observing end-of-life care [*]			
Never	1 (4)	0 (0)	0 (0)
1–3 times	8 (32)	6 (26)	3 (12)
4 times	16 (64)	17 (74)	22 (88)
Giving bad news [†]			
Never	4 (15)	1 (4)	0 (0)
1–3 times	11 (42)	6 (26)	2 (8)
4–9 times	10 (38)	13 (57)	13 (52)
10 times	1 (4)	3 (13)	10 (40)
Discussing end-of-life care [‡]			
Never	7 (28)	0 (0)	0 (0)
1–3 times	11 (44)	13 (57)	3 (12)
4 times	7 (28)	10 (43)	22 (88)

^{*}Based on ANOVA analyses, $P = .11$. Only 25 of 26 PGY1 respondents answered this question.

[†]Based on ANOVA analyses, $P < .001$.

[‡]Based on ANOVA analyses, $P < .001$. Only 25 of 26 PGY1 respondents answered this question.

Table 3

Summary of End-of-Life Care Survey Responses by Postgraduate Year (PGY) for 74 Medicine Residents at the University of Washington and Medical University of South Carolina, 2007

Instrument	PGY1 (n = 26)	PGY2 (n = 23)	PGY3+ (n = 25)
Experiences with end-of-life care[*]			
Mean (SD)	3.8 (1.6)	5.0 (1.3)	6.1 (0.86)
Range of scale	1–6	3–7	4–7
Attitudes toward end-of-life care[†]			
Mean (SD)	29.8 (3.5)	28.9 (2.9)	30.9 (3.0)
Range of scale	24–38	22–34	24–38
Competence in end-of-life care[‡]			
Mean (SD)	47.8 (12.5)	51.8 (10.8)	57.9 (8.5)
Range of scale	20–68	33–74	45–75

^{*} Based on ANOVA analyses, $P < .001$.

[†] Based on ANOVA analyses, $P = .09$.

[‡] Based on ANOVA analyses, $P = .01$.

Frequencies of Ratings of Items Measuring Attitudes Toward End-of-Life Care on an Improving Clinician Communication Skills Survey of Medicine Residents (N = 74) at the University of Washington and Medical University of South Carolina, 2007

Table 4

Survey item	Rating of 1: No. (%)	Rating of 2: No. (%)	Rating of 3: No. (%)	Rating of 4: No. (%)	Rating of 5: No. (%)
There is little that can be done to ease the suffering and grief. [*]	38 (51)	32 (43)	3 (4)	1 (1)	N/A
Talking about death tends to make patients more discouraged. [*]	16 (22)	46 (62)	10 (14)	1 (1)	N/A
Depression is not treatable in patients with terminal illness. [*]	31 (42)	41 (55)	1 (1)	1 (1)	N/A
Family members tend to interfere in the care of terminally ill patients. [*]	19 (26)	38 (51)	17 (23)	0 (0)	N/A
An interdisciplinary approach to terminal illness better treats patients' needs. [*]	0 (0)	1 (1)	14 (19)	58 (78)	N/A
Caring for patients who are dying is depressing. [†]	1 (1)	8 (11)	44 (60)	20 (27)	1 (1)
I feel guilty after a patient's death. [†]	1 (1)	36 (49)	28 (38)	9 (12)	0 (0)
When a patient dies, I feel that I have failed as a doctor. [†]	5 (7)	35 (47)	33 (45)	1 (1)	0 (0)
I dread having to deal with the emotional distress of family members. [†]	4 (5)	29 (39)	32 (43)	8 (11)	1 (1)

^{*} Participants ranked their agreement on a four-point scale (1 = Strongly disagree; 2 = Disagree; 3 = Agree; 4 = Strongly agree).

[†] Participants ranked frequency of occurrence on a five-point scale (1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Often; 5 = Always).

Frequency of Ratings of Items Measuring Perceived Competence (1 = Not Competent; 5 = Very Competent) in End-of-Life Care on an Improving Clinician Communication Skills Survey of Medicine Residents (N = 74) at the University of Washington and Medical University of South Carolina, 2007

Table 5

Survey Item	Rating of 1: No. (%)	Rating of 2: No. (%)	Rating of 3: No. (%)	Rating of 4: No. (%)	Rating of 5: No. (%)
Give bad news to a patient about his or her illness	2 (3)	6 (8)	33 (45)	28 (38)	5 (7)
Conduct family conference	3 (4)	15 (20)	32 (43)	20 (27)	4 (5)
Elicit a patient's emotional reaction to his or her illness	5 (7)	15 (20)	27 (36)	26 (35)	1 (1)
Express empathy	2 (3)	4 (5)	16 (22)	33 (45)	19 (26)
Respond to a patient asking, "Why did this happen to me?"	4 (5)	23 (31)	23 (31)	20 (27)	4 (5)
Discuss treatment options—for instance, palliative chemotherapy versus best supportive care	10 (14)	11 (15)	22 (30)	26 (35)	5 (7)
Respond to patients who deny the seriousness of their illness	9 (12)	27 (37)	26 (35)	9 (12)	2 (3)
Respond to patients or family members wanting treatments not indicated	9 (12)	23 (31)	28 (38)	13 (18)	1 (1)
Discuss how a patient can maintain hope	11 (15)	25 (34)	25 (34)	10 (14)	3 (4)
Discuss code status with a patient	2 (3)	6 (8)	18 (24)	35 (47)	13 (18)
Discuss code status with family	0 (0)	10 (14)	18 (24)	34 (46)	12 (16)
Discuss a hospice referral	4 (5)	10 (14)	24 (32)	28 (38)	8 (11)
Discuss religious and spiritual issues with patients and families	16 (22)	21 (28)	24 (32)	12 (16)	1 (1)
Elicit a patient's goals for the end-of-life	3 (4)	12 (16)	31 (42)	23 (31)	5 (7)
Elicit a patient's fears for the end-of-life	6 (8)	22 (30)	26 (35)	16 (22)	4 (5)
Manage pain at the end-of-life	4 (5)	13 (18)	25 (34)	27 (37)	5 (7)
Deal with conflict between health care professionals	11 (15)	14 (19)	31 (42)	17 (23)	1 (1)

Table 6

Multivariate Regression Analysis of Improving Clinician Communication Skills Survey Responses Predicting Perceived Competence With End-of-Life Care Among 74 Medicine Residents at the University of Washington and Medical University of South Carolina, 2007

Predictor	β	Standard error	95% CI	Significance (P value)
Predictor 1: Experiences with end-of-life care	2.84	1.04	(0.76 to 4.92)	.01 *
Gender	-0.62	2.55	(-5.71 to 4.47)	.81
Race/ethnicity	2.24	3.08	(-3.91 to 8.39)	.47
Postgraduate year	1.19	1.95	(-2.71 to 5.09)	.54
Site	-2.08	2.93	(-7.94 to 3.78)	.48
Personal experience with death	3.26	2.81	(-2.36 to 8.88)	.25
Predictor 2: Attitudes toward end-of-life care	0.75	0.42	(-0.08 to 1.58)	.08
Gender	1.77	2.60	(-3.42 to 6.96)	.50
Race/ethnicity	0.06	3.21	(-6.36 to 6.48)	.99
Postgraduate year	3.93	1.65	(0.63 to 7.22)	.02 *
Site	-5.29	3.36	(-12.0 to 1.43)	.12
Personal experience with death	6.14	2.95	(0.24 to 12.0)	.04 *
Full model with predictors 1 and 2: Experiences with end-of-life care	2.56	1.02	(0.52 to 4.60)	.02 *
Attitudes toward end-of-life care	0.72	0.39	(-0.51 to 1.51)	.07
Gender	0.49	2.55	(-4.61 to 5.59)	.85
Race/ethnicity	3.33	3.10	(-2.87 to 9.53)	.29
Postgraduate year	0.58	1.93	(-3.28 to 4.43)	.77
Site	-4.89	3.10	(-11.08 to 1.35)	.12
Personal experience with death	4.11	2.78	(-1.49 to 9.67)	.15

* Statistically significant.