Creating Enduring Change

Demonstrating the Long-Term Impact of a Faculty Development Program in Palliative Care

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BACKGROUND: Improved educational and evaluation methods are needed in continuing professional development programs.

OBJECTIVE: To evaluate the long-term impact of a faculty development program in palliative care education and practice.

DESIGN: Longitudinal self-report surveys administered from April 2000 to April 2005.

PARTICIPANTS: Physician and nurse educators from North America and Europe. All program graduates ($n=156$) were invited to participate.

INTERVENTION: Two-week program offered annually (2000 to 2003) with 2 on-site sessions and 6-month distance-learning period. Learner-centered training addressed teaching methods, clinical skill development, and organizational and professional development.

MEASURES: Self-administered survey items assessing behaviors and attitudes related to palliative care teaching, clinical care, and organizational and professional development at pre-, postprogram, and long-term (6, 12, or 18 months) follow-up.

RESULTS: Response rates: 96% ($n=149$) preprogram, 73% ($n=114$) follow-up. Participants reported increases in: time spent in palliative care practice (38% preprogram, 47% follow-up, $P<.01$); use of learner-centered teaching approaches (sum of 8 approaches used "a lot": preprogram 0.7 ± 1.1, follow-up 3.1 ± 2.0, $P<.0001$); and palliative care topics taught (sum of 11 topics taught "a lot": preprogram 1.6 ± 2.0, follow-up 4.9 ± 2.9, $P<.0001$). Reported clinical practices in psychosocial dimensions of care improved (e.g., assessed psychosocial needs of patient who most recently died: 68% preprogram, 85% follow-up, $P=.01$). Nearly all (90%) reported launching palliative care initiatives, and attributed their success to program participation. Respondents reported major improvements in confidence, commitment to palliative care, and enthusiasm for teaching. Eighty-two percent reported the experience as "transformative."

CONCLUSIONS: This evidence of enduring change provides support for the potential of this educational model to have measurable impact on practices and professional development of physician and nurse educators.

KEY WORDS: palliative care; medical education; nursing education; faculty development program.

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Creating enduring change, both in clinician behavior and patient outcomes, is the overarching goal of continuing education in the health professions. Current methods of education and evaluation, however, often show disappointing results in achieving meaningful and lasting change among clinicians in practice.[1,2] With some notable exceptions,[3,4] continuing professional education programs tend to be limited in scope and method: most address narrowly defined clinical content, and most are delivered using noninteractive teaching methods that have been shown to lack effectiveness in generating learning and change.[5–9] Evaluation methods also tend to be restricted in range, relying on satisfaction measures or single group, conventional pre- and post-designs measuring short term and possibly transient outcomes, thus limiting generalizability and validity of the results.[2,10–12]

Improving professional education is of particular concern in the rapidly growing field of palliative care, where the need for leaders in clinical care and education far outweighs supply,[13–15] and, except for full-time fellowship programs, there are relatively few educational experiences available for clinicians.[3,16,17] Deficiencies in care for the dying have been well-documented,[18,19] and national organizations have endorsed palliative care as a priority for training.[20–29] This report describes an evaluation of the long-term impact of the Harvard Medical School Program in Palliative Care Education and Practice (PCEP), an intensive, learner-centered, interdisciplinary faculty development program that aims to build the field of palliative care by enhancing clinical expertise, pedagogic competencies, and organizational skills among a cadre of physician and nurse educators. The program is distinguished by its close integration of clinical and educational skills training, attention to the broad sweep of professional practice, including organizational change and professional development, and emphasis on affective, interactive, and relational dimensions of clinical work and teaching. In a study of short-term outcomes of PCEP, we found statistically significant improvements with large effect sizes in educational practice, attitudes, and self-reported preparation to provide and teach end-of-life care.[30] Because the real merit of an educational program lies in its lasting impact on learners, we carried out a long-term follow-up of graduates, assessing preprogram, immediate

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postprogram, and long-term (6, 12, or 18 months) outcomes in: (1) palliative care teaching behaviors and attitudes; (2) clinical practice and self-assessed competencies; (3) palliative care program development and organizational change; and (4) professional development activities and attitudes related to palliative care.

METHODS

The Massachusetts General Hospital Institutional Review Board approved this study. All respondents gave written consent to participate.

Program Description. Palliative Care Education and Practice has been offered annually since 2000 and consists of 2 1-week, on-site sessions, separated by a 6-month interim distance-learning period that includes e-mail case discussions and mentoring on individual projects (Box 1). Projects typically involve clinical or educational program development at participants' home institutions. Primary objectives of the course are to improve teaching, enhance clinical care, support program development by providing tools for effecting organizational change, and promote professional development related to palliative care. Design of the program (described in an earlier report[30]) is based on theories of adult learning[31,32] and on research documenting characteristics of programs effective in improving teaching skills,[33–37] or changing clinical practice.[5–9]

Participants. All graduates from 2000 to 2003 were invited to participate ($n=156$).

Measures. We developed 3 self-report evaluation instruments. Development of pre- and post-program surveys are described in an earlier report.[30] Portions of the surveys have been used in national studies of palliative care education among medical faculty, palliative care clinicians, and fellows in a variety of specialties, and have demonstrated good construct validity and internal consistency reliability (Cronbach's $\alpha=0.85$ to 0.89). We developed items to address the following domains of palliative care practice: pain management, psychosocial care, communication (with patients, families, clinical teams, and trainees), interdisciplinary practice, and self-care. In addition to repeating items from pre- and post-program surveys, follow-up surveys included items assessing specific behavioral and affective changes as program completion, and progress implementing palliative care initiatives.

A number of studies have shown that interventions that are effective in improving knowledge or skills are likely to cause respondents to reappraise and downgrade their prior (pre-program) assessments of competencies.[38–40] Thus, comparing conventional pre- and post-self-ratings is likely to underesti-

Box 1. Overview of Harvard Medical School Program in Palliative Care Education and Practice (PCEP)

- Content
  - Fundamentals of teaching and learning end-of-life care
    - Modeling of a variety of teaching approaches (e.g., small groups, role play, lecture, patient interviews)
    - Debriefing and reflection exercises about demonstrated teaching methods
    - Assessing learner's needs and exploration of individual learning styles
    - Review of theories of adult learning
  - Methods for clinical supervision, including evaluation and feedback
  - Fundamentals of clinical practice in end-of-life care
    - Assessment and management of pain and other physical distress
    - Assessment and management of psychosocial and spiritual care
    - Communication with patients and families
    - Ethical and cultural issues
    - Care for special populations (e.g., pediatric end-of-life care)
  - Program development, leadership, and organizational change strategies for developing palliative care initiatives
    - Assessing institutional structure and culture
    - Financing palliative care programs
    - Fund-raising strategies
    - Quality improvement projects
    - Leadership and change strategies
  - Professional and personal development related to palliative care practice
    - Strategies for self-care
    - Coaching on individual projects
    - Reflection on personal experience in care for dying patients and their families
    - Questioning assumptions about clinical care, teaching and learning, death and dying
    - Debriefing about best/worst experiences in caring for dying patients and their families
- Methods
  - Experiential and didactic methods (small groups, large group discussions, role play, standardized patients, lecture, and site visits to classrooms, hospice, and hospitals)
  - Interview real or simulated patients and offer and receive feedback about clinical encounters
  - Patients with life-threatening illness and bereaved family members also present their experiences in faculty-moderated discussions and small groups to provide opportunities for deeper understanding of their perspectives as well as models of communication about end-of-life issues
  - On-site and off-site sessions (1 wk on site in spring, 6-mo interim distance-learning period, 1 wk on site session in fall)
  - Individual projects related to educational programs or clinical services
- Participants
  - Open to health care professionals with interest in developing professional work in palliative care
  - Applicants are asked to describe their academic work and an educational or service project they propose to develop in collaboration with course faculty

mate intervention effects. In order to assess this potential "response-shift bias"—the tendency of interventions to change the standards by which participants rate themselves[41]—we used both conventional "real-time" preprogram ratings by participants and retrospective preprogram ratings wherein participants rated their preprogram preparation to provide or teach end-of-life care after completing the program. Having both conventional and retrospective preprogram measures allowed us to estimate the extent of response bias and, when present, to use retrospective measures.

Preprogram surveys were administered by mail immediately before the program; postprogram surveys were administered in person on the last program day; and follow-up surveys were administered by mail 6 months (2001 cohort), 12 months (2002 and 2003 cohorts), or 18 months (2000 cohort) after program completion. Timing of follow-up was staggered to explore how change was associated with time since program completion.

Statistical Analysis. Analyses were conducted using SAS® Version 8.2 software (SAS Institute, Cary, NC). All tests of statistical significance were set at a predetermined α level of 0.01 (2-tailed) to lessen the probability of Type I errors from multiple testing. To test for changes over time on single variables at 2 time points (e.g., preprogram vs follow-up), we used paired t-tests for continuous variables and McNemar's χ^2 test for categorical variables. Effect sizes are calculated as mean difference (follow-up minus preprogram) divided by the preprogram standard deviation, with effects of 0.8 or greater considered large.[42] To test for change over 3 time points (preprogram, postprogram, and follow-up), and to determine if change over time varied by cohort, profession or other predictor variables (such as gender or years in practice), we fit general linear models (GLM) using the SAS/STAT® GLM procedure, employing the REPEATED statement to account for the correlated data structure arising from repeated measures.[43,44] For each model we carried out a priori contrasts of estimated regression coefficients to test for differences over time and across cohorts.

RESULTS

Respondents

Response rates were 96% for the preprogram survey, and 73% for completion of preprogram and follow-up surveys (Table 1). Two surveys, returned after data analysis was completed, are not included in this report. There were no statistically significant differences by cohort or profession; therefore, we combined all 4 cohorts for our analytic sample, and combined results for physicians and nurses. Physicians comprised the majority (60.9%) of the sample; 30.9% were nurses. To assess potential nonresponse bias due to attrition, we compared results for follow-up respondents with those who completed pre- and postprogram but not follow-up surveys, and found no statistically significant differences in demographic characteristics or in changes (pre- vs postprogram) in key outcome variables.

Changes in Teaching Behaviors and Attitudes. Participants reported increases in time spent teaching: on average, they reported spending 33.5% of their time in clinical care that included teaching at follow-up, compared with 24.5% before the course (t=2.65, P=.01) (Table 1).

Participants also reported increases in the range of methods used and topics taught in palliative care (Table 2). Compared with retrospective accounts of preprogram behavior, follow-up reports showed statistically significant increases on all 8 items describing teaching methods used. For example, there were 4- to 8-fold increases in proportion of respondents who reported frequently conducting small groups, giving feedback, and encouraging reflection on emotional responses to dying patients. Summary scores of methods taught "a lot" showed increases from an average of less than 1 method at preprogram (0.7 ± 1.1 on a scale of 0 to 8) to 3 at follow-up (3.1 ± 2.0, t=13.5, P<.0001).

Table 1. Demographics and Palliative Care Experience for Participants in Year 2000 to 2003 Programs (n=112) (Follow-up Response Rate 73%)

Description	Preprogram*	Follow-up	Paired t-Test Statistic, P Value
Gender (% female)	60.9	—	—
Degree (%)			
MD	61.8	—	—
RN	30.9		
Other (PhD, MSW, PharmD)	7.3		
Years in practice: mean ± SD (range)	17.6 ± 10.0 (1 to 42)	—	—
Had prior special training in palliative care? (% yes)	54.6	—	—
Number of patients who have died over the past 3 mo: mean ± SD (range)	12.0 ± 19.0 (0 to 130)	—	—
Proportion of time spent in: Mean ± SD (range)*			
Patient care that includes teaching	24.5 ± 25.0 (0 to 100)	33.5 ± 30.7 (0 to 100)	2.6, =.01
Patient care only, without teaching	32.8 ± 32.8 (0 to 100)	24.4 ± 29.1 (0 to 100)	2.0, =.05
Teaching only, not including patient care	12.7 ± 16.4 (0 to 70)	12.5 ± 15.9 (0 to 75)	0.07, =.95
Percent of time currently spent on palliative/end-of-life care (including teaching, research, patient care, and administration): mean ± SD	38.1 ± 35.1 (0 to 100)	47.0 ± 36.1 (0 to 100)	3.4, ≤.01
Institution paid for "all" or "most" of expenses listed (tuition, travel, lodging) (%)	—	51.8	—

**Wording for proportion of professional time spent in patient care and teaching was different for 2002 to 2003 cohorts compared with prior cohorts, so only respondents in clinical practice from the 2002 to 2003 cohorts are represented for this item (n =59). Participants were asked to have their responses add to 100% (they were also asked about time spent doing research or administrative work; these were not included in this report).*

Table 2. Teaching End-of-Life Care: Changes from Preprogram (Retrospectively Assessed) to Follow-up in Methods Used and Topics Taught (n=112)*

		Not at All/A Little (%)	A Lot (%)	Δ	McNemar's Statistic, P Value
Teaching Methods Used					
Item stem: Thinking about any teaching you may have done before the PCEP program (preprogram), and your teaching since (program end date), please indicate the extent to which you have done any of the following related to end-of-life care					
Encouraged learners to reflect on their emotional responses to dying patients (e.g., guilt, satisfaction, grief)	Preprogram	92.9	7.1	47.4	43.3, <.0001
	Follow-up	45.5	54.5		
Conducted teaching exercises that allowed learners to practice new skills (e.g., equianalgesic conversions, role play of breaking bad news)	Preprogram	99.0	1.0	31.3	31.0, <.0001
	Follow-up	67.7	32.3		
Gave lecture	Preprogram	76.0	24.0	41.0	34.3, <.0001
	Follow-up	35.0	65.0		
Conducted small group	Preprogram	89.0	11.0	33.0	31.1, <.0001
	Follow-up	56.0	44.0		
Gave specific and structured feedback to learners	Preprogram	90.0	10.0	39.0	37.1, <.0001
	Follow-up	51.0	49.0		
Elicited learners' personal goals	Preprogram	91.8	8.2	29.6	27.1, <.0001
	Follow-up	62.2	37.8		
Incorporated poetry, music, literature into teaching	Preprogram	97.0	3.0	15.2	15.0, =.0001
	Follow-up	81.8	18.2		
Conducted "real patient" exercises†	Preprogram	95.9	4.1	14.3	14.0, =.0002
	Follow-up	81.6	18.4		
Topics taught					
Item stem: Thinking about the palliative care topics you taught before the program (preprogram), and those you have taught since (program end date), please indicate the extent to which you have taught each of the following topics related to palliative care					
Breaking bad news	Preprogram	90.8	9.2	46.9	46.0, <.0001
	Follow-up	43.9	56.1		
Ethics (e.g., informed consent, decision making, advance directives)	Preprogram	79.2	20.8	44.6	45.0, <.0001
	Follow-up	34.6	65.4		
Eliciting patient preferences	Preprogram	82.8	17.2	42.4	42.0, <.0001
	Follow-up	40.4	59.6		
Pain assessment and management	Preprogram	72.0	28.0	35.0	31.4, <.0001
	Follow-up	37.0	63.0		
Nonpain symptoms (e.g., nausea, dyspnea)	Preprogram	87.0	13.0	33.0	29.4, <.0001
	Follow-up	54.0	46.0		
Managing patients' emotional suffering	Preprogram	84.0	16.0	36.0	32.4, <.0001
	Follow-up	48.0	52.0		
Cultural issues	Preprogram	88.1	11.9	30.7	31.0, <.0001
	Follow-up	57.4	42.6		
Family conference	Preprogram	84.9	15.1	33.4	33.0, <.0001
	Follow-up	51.5	48.5		
Spiritual issues	Preprogram	90.1	9.9	22.8	21.2, <.0001
	Follow-up	67.3	32.7		
Bereavement care	Preprogram	90.0	10.0	13.0	13.0, =.0003
	Follow-up	77.0	23.0		
Addictions assessment	Preprogram	91.8	8.2	7.1	7.0, =.0082
	Follow-up	84.7	15.3		

**From follow-up survey, responses use actual wording of items.*

†Refers to inclusion of patients and families in faculty-moderated discussions.

Key: Preprogram-retrospective self-rating of teaching before the start of the program: Follow-up-self-rating at time of follow-up survey.

There were also statistically significant increases on all 11 items representing end-of-life care topics taught (Table 2): at follow-up, there were 2- to 6-fold increases in the proportion of respondents who reported teaching these topics "a lot." For example, 9.2% said they taught "breaking bad news" "a lot," before the program, compared with 56.1% at follow-up. Summary scores of topics taught "a lot" increased from an average of less than 2 topics at preprogram (1.6 ± 2.0 on a scale of 0 to 11) to 5 at follow-up (4.9 ± 2.9, t=12.3, P<.0001).

Participants were also asked to rate their preparation to teach palliative care "overall" and on 11 tasks such as breaking bad news, managing pain or emotional distress, discussing end-of-life decisions with patients or families, and addressing spiritual issues (data not shown—see prior report[30] for items). All 12 items showed statistically significant increases pre- to postprogram, with large effect sizes ranging from 1.1 to 2.4, and these improvements were sustained at follow-up. For example, average overall preprogram preparation was 2.3 ± 0.8 (1 to 5 scale, 1 ="not well," 5 ="very well" prepared); at postprogram this increased to 4.3 ± 0.6 (F-statistic=684.0, P<.0001) and remained unchanged at follow-up at 4.3 ± 0.7 (F-statistic=0.19, P=.66).

Changes in Clinical Practice and Self-Assessed Competencies. Changes in clinical practices were assessed through items about care provided by the medical team to the patient who had died most recently (preprogram and follow-up). Responses were dichotomized to compare "yes" versus combined categories of "no," "not necessary," and "don't know." At follow-up, participants reported patients were more likely to re-

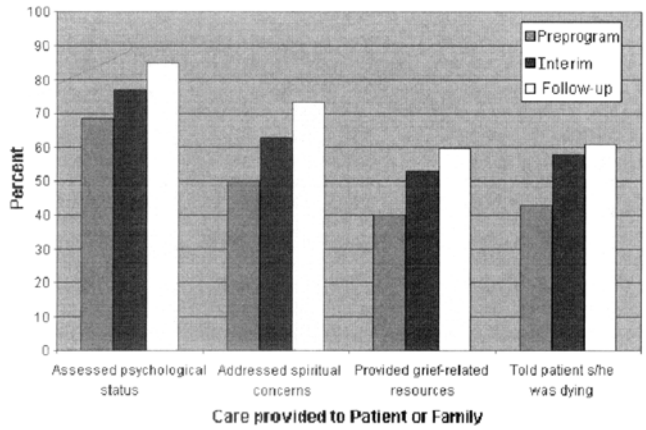

FIGURE 1. Clinician reports of care provided by medical team to patient who died just before the start of program (''preprogram''), during interim period just before the second session of program (''interim''), and just before the follow-up (''follow-up'') (n=80). Figure shows statistically significant contrasts between follow-up and preprogram responses, P<.01.

ceive care along 4 of 21 dimensions measured (Fig. 1). Two additional items were significant at $P<.05$ but did not meet our criteria for statistical significance. Remaining items indicate stability or trends toward improvement between preprogram and follow-up (e.g., "Assessed pain," preprogram 93.7%, follow-up 97.5%; "Treated nausea/vomiting," 49.4% vs 57.5%; "Assessed dyspnea," 86.1% vs 86.3%; "Met with family after death," 46.2% vs 48.7%).

We compared changes in addressing psychosocial versus physical aspects of care by compositing items into 2 scales (rescaled to 0 to 10, with 0 = no change in number of "yes" responses, 10 = change to "yes" on all items). Psychosocial care improved (preprogram 5.1 ± 2.8, follow-up 6.5 ± 2.7; F=14.2, $P<.01$); changes in care for physical symptoms were not significant (preprogram 7.1 ± 2.1, follow-up 7.6 ± 1.8; F=2.5, P=.12).

Participants' ratings on all 12 items relating to preparation to provide care showed short-term postprogram changes representing very large effect sizes, and improvements remained stable at follow-up. For example, average rating of overall preprogram preparation was 2.7 ± 1.1 (1 = not prepared at all, 5 = very well prepared), indicating slightly less than moderate levels of preparation. At postprogram, average ratings were 4.3 ± 0.7 (F-statistic=236.4, $P<.0001$), indicating respondents felt "well" to "very well" prepared, and improvements were sustained at follow-up (4.3 ± 0.9, F-statistic=0.0, P=1.00).

Program Development and Organizational Change Efforts. At follow-up, we asked whether respondents had undertaken initiatives in palliative care education, clinical care, organizational change, or quality improvement. Overall, 90% reported having implemented change in at least 1 of these areas as program completion; 17% reported initiatives in all 4. Specifically, 84% reported educational program initiatives, 44% reported clinical initiatives, 52% organizational change efforts, and 25% quality improvement projects. Asked to assess the impact of the program on their ability to implement these changes, 88% of those who successfully implemented educational initiatives, 96% of those reporting changes in clinical programs, 80% of those reporting organizational change, and 52% of those with successful quality improvement projects credited PCEP with the "majority" of their ability to do so.

Professional Development. Respondents reported increases in proportion of time spent in palliative care, from 38% at preprogram to 47% at follow-up (t=3.4, $P<.01$) (Table 1). Participants were also surveyed about palliative care-related professional development since course completion (e.g., additional training, application for certification, grant submission). Respondents reported having accomplished an average of 3.2 ± 1.9 (out of 10) professional development activities.

Seven out of 8 items retrospectively describing respondents' preprogram attitudes and relationship to their work showed statistically significant improvements at follow-up (Table 3). Participants reported greater confidence in ability and motivation to develop palliative care programs or services. Enthusiasm for teaching, sense of support from colleagues, commitment to palliative care, and commitment to their profession also increased and showed large to very large effect sizes. Sense of isolation showed a moderate decline, and stress levels remained unchanged.

We also asked follow-up respondents to rate the importance of networking opportunities in the program, and nearly all reported this as "very" (48.7%) or "somewhat" (37.8%) important to their work in palliative care. Of these, 93.7% reported having been in contact with classmates in the previous 6 months (contact with 1 to 2 participants, 36.5%; with 3 to 6, 46.9%; with >6, 10.4%).

Finally, we asked whether the program experience had been transformative in any way. Eighty-two percent said that it had been, and in open-ended responses describing why this was

Table 3. Professional Development: Affective Change and Relationship to Palliative Care (n=112)

Item*	Retrospective Preprogram	Follow-up	Δ	ES†
Feeling of confidence to develop new programs or services in palliative care	2.6 (1.1)	4.3 (0.8)	1.7‡	1.6
Feeling of motivation to develop new programs or services in palliative care	3.1 (1.1)	4.5 (0.8)	1.4‡	1.2
Sense of support from colleagues for your work in palliative care	2.6 (1.1)	3.9 (1.0)	1.2‡	1.1
Sense of commitment to palliative care as a focus of your work	3.5 (1.2)	4.6 (0.6)	1.1‡	1.0
Enthusiasm for teaching	3.7 (1.2)	4.5 (0.7)	0.8‡	0.7
Sense of isolation in your work	3.2 (1.3)	2.5 (1.2)	0.7‡	0.5
Sense of commitment to your profession	4.3 (0.9)	4.7 (0.5)	0.4‡	0.5
Sense of stress in your work	3.3 (1.0)	3.3 (1.1)	0.0	0.1

**From Follow-up survey. Item stem: Thinking about how you felt before the program (as best you can recall) (preprogram) and how you feel now, please rate the strength of your feelings in the following areas. Items are on a 1 to 5 scale (1 = weak, 3 = moderate, 5 = strong).*

†ES is defined as effect size calculated as mean change in score divided by the standard deviation of the retrospective preprogram score for that variable. ES key: 0.2, small; 0.5, medium; 0.8, large.

‡P<.001.

so, participants attributed this to having gained a sense of validation and enhancement of their interest and passion in their work, feeling transformed by the new teaching skills acquired and increases in personal confidence related to palliative care practice, and a sense of connection, community, and shared mission with a larger network of palliative care clinicians.

CONCLUSION

Our findings suggest that participation in the Harvard Medical School Program in PCEP resulted in large-scale, sustained changes across multiple dimensions in physician and nurse behaviors and attitudes. Most striking were use of a wider range of interactive, learner-centered teaching methods, and greatly expanded repertoires of palliative care topics taught. Psychosocial dimensions of clinical care provided to patients also appeared to improve. In addition, large effect sizes associated with self-reported preparation to teach and provide end-of-life care documented immediately after program completion were all maintained at follow-up.

Large effects were also found in program development activities and professional growth. Nearly all respondents reported having undertaken initiatives to advance palliative care, and the majority attributed this directly to their PCEP experience. Even though having plans to initiate a palliative care program was required for enrollment, the rate of successful (and multiple) change initiatives by participants remains impressive. Respondents also reported major improvements in confidence, motivation, commitment to palliative care, and enthusiasm for teaching. They described a decreased sense of isolation, and cited program-related networking to be of ongoing importance to their work. Given the large magnitude and extensive nature of these changes, it is not surprising that 82% also reported the experience as "transformative."

Our findings are supported by, and aligned with, several lines of educational research and policy development. First, research in continuing education suggests characteristics of effective educational interventions include interactive, learner-centered designs, assessment of learning needs, multifaceted activities (such as educational materials, role play, feedback), and longitudinal (2 or more days), sequenced (2 or more sessions) training,[45–47] all of which were incorporated into the program design. We believe that the high level of intellectual, emotional, and relational engagement required of participants in this program fostered and sustained the changes documented here.

The goals and processes of this program are also well aligned with the core competencies defined by the Accreditation Council for Graduate Medical Education.[48] The 6 competencies—patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice—are addressed in multiple ways throughout PCEP, and our evaluation demonstrates improvements in *all* of these domains. We believe that PCEP represents a model that effectively and efficiently teaches these core competencies to clinicians in practice. For example, intensive teaching about conducting family meetings enhances patient care and communication competencies, but also reinforces professionalism and self-reflective abilities that are part of practice-based learning. Similarly, teaching about cultural issues in end-of-life care provides participants with medical knowledge (about cultural values related to end-of-life care), enhances communication skills, stimulates reflection in practice,[49] and explores systems-based challenges in caring for patients of diverse backgrounds.[50,51] The PCEP model of attending to and integrating these multiple levels of professional practice and competencies can be usefully applied to faculty development programs in a wide range of clinical areas.

There are several limitations to this study. Lack of a comparison group may cause our findings to overestimate program impact. Reliance on self-report may bias results through the effects of social desirability and subjectivity. Generalizability is also limited because participants represent a highly motivated group willing to commit considerable time and resources to this program. In addition, no single form of assessment can adequately measure the range of knowledge, competency, and patient outcomes that constitute the overarching goals of continuing education,[52,53] and future studies would benefit by inclusion of objective measures such as the Objective Structured Clinical Examination,[54] multiple perspectives such as patient and peer surveys, and other approaches recommended by educational experts.[55–57] Developing and implementing such assessments should be priorities for future research.

A number of strengths of our design and instruments support the validity of results. These include a comprehensive set of items mapped to program objectives,[52] domains that extend beyond satisfaction to include a wide range of reported behaviors and attitudes, and measures at multiple time points. Our retrospective preprogram measures of preparation to provide care and teach are likely to be more reliable and valid measures of self-assessed ratings than conventional measures.[30,41] The validity of our results is also supported by the consistency of outcomes across all 4 cohorts. Greater changes in teaching compared with clinical care also support the validity of findings, as participants were experienced clinicians but had considerably less grounding in education. Finally, although evidence suggests that studies without comparison groups tend to overestimate effects,[58] effect sizes documented here would remain large even if reduced by half.

This evidence of enduring and meaningful change, and consistency of effects across cohort and profession, provide support for the potential impact and widespread applicability of this educational model. Its key components—integrating clinical and educational content, providing tools to effect organizational change, offering ongoing coaching of program development activities, and fostering a network of support of like-minded peers—have relevance beyond the palliative care setting and can be adopted in faculty development or professional development programs in other clinical areas. Although developing and delivering this type of program requires considerable resources, our study provides evidence that an intensive yet relatively brief intervention can produce impressive long-term change. We believe the model presented here represents a promising, and feasible, response to the imperative to develop new models for continuing professional education. The "transformative" nature of the course for the large majority of participants also suggests that this educational experience has potential to contribute to professional revitalization for some clinicians in mid-career, rededicating them to the practice of medicine, and opening new opportunities for professional growth.

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