



Palliative and end-of-life educational practices in US pulmonary and critical care training programs



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ABSTRACT

Purpose: To describe educational features in palliative and end-of-life care (PEOLC) in pulmonary/critical care fellowships and identify the features associated with perceptions of trainee competence in PEOLC.

Methods: A survey of educational features in 102 training programs and the perceived skill and comfort level of trainees in 6 PEOLC domains: communication, symptom control, ethical/legal, community/institutional resources, specific syndromes, and ventilator withdrawal.

We evaluated associations between perceived trainee competence/comfort in PEOLC and training program features, using regression analyses.

Results: Fifty-five percent of program directors (PDs) reported faculty with training in PEOLC; 30% had a written PEOLC curriculum. Neither feature was associated with trainee competence/comfort. Program directors and trainees rated bedside PEOLC teaching highly. Only 20% offered PEOLC rotations; most trainees judged these valuable. Most PDs and trainees reported that didactic teaching was insufficient in communication, although sufficient teaching of this was associated with perceived trainee competence in communication. Perceived trainee competence in managing institutional resources was rated poorly. Program directors reporting significant barriers to PEOLC education also judged trainees less competent in PEOLC. Time constraint was the greatest barrier.

Conclusion: This survey of PEOLC education in US pulmonary/critical care fellowships identified associations between certain program features and perceived trainee skill in PEOLC. These results generate hypotheses for further study.

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1. Introduction

Physicians who routinely treat patients near the end of life often lack knowledge and skills needed to provide quality palliative and end-of-life care (PEOLC) [1–4]. To facilitate delivery of quality PEOLC,

Abbreviations: PEOLC, palliative and end-of-life care; PD, program director; PCCM, pulmonary/critical care medicine.

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statements by professional societies in oncology, pulmonary/critical care (PCCM) and general medicine have outlined educational objectives for residents and fellows in PEOLC [5–8]. The Accreditation Council on Graduate Medical Education requires that PCCM fellowships integrate PEOLC issues into their curricula, to help trainees become knowledgeable about ethical and psychosocial aspects of end-of-life care and be skillful in interdisciplinary management [9]. Furthermore, the current American Board of Internal Medicine (ABIM) critical care certification examination specifies that 2% of questions relate to ethics and pain control. Internationally, critical care and pulmonary training are not as closely linked as in the US. Nonetheless, the Competency-Based Training in Intensive Care Medicine in Europe (CoBaTrICE) program identifies these same competencies as key educational goals for European training programs in critical care medicine [10].

To best respond to these educational demands, PCCM program directors (PDs) need to know what educational features of a fellowship best enable trainees to achieve competence in the domains of PEOLC. As part of an American College of Chest Physicians Palliative and End-of-Life NetWork effort, we designed a survey to assess the current state of educational methods and teaching resources for PEOLC in training programs, and to identify educational barriers and explore which educational methods, resources, and barriers are associated with perceptions of trainee competence and comfort in the domains of PEOLC.

2. Materials and methods

The study was approved by the Stony Brook University Institutional Review Board (Committee on Research Involving Human Subjects [CORIHS] committee A).

2.1. Survey development

Members of the American College of Chest Physicians PEOLC NetWork developed 2 parallel surveys to characterize PEOLC education in US PCCM fellowships from the perspectives of PDs and trainees. Surveys assessed respondents' perceptions of comfort (trainee) and skill (PD) using ordinal-scale responses (0 = unsatisfactory/very uncomfortable, 4 = outstanding/very comfortable). The scale is detailed in Fig. 3, legend). Comfort and skill levels were assessed separately in 6 PEOLC domains: patient/family communication, symptom control, ethical/legal issues, community/institutional resources, specific syndromes, and withdrawing mechanical ventilation. These domains were derived from a consensus conference on medical education in end-of-life care [11] and an analysis of educational domains in PEOLC [12]. Survey items in each domain were developed by an iterative consensus process conducted by 5 members of the PEOLC NetWork Steering Committee, resulting in 21 items. These are detailed in the legend of Fig. 2. The surveys also asked respondents whether bedside and didactic teaching was "sufficient" in each of the 6 PEOLC domains. A second dimension of PEOLC education queried was the methods in use and the perceived value of each method. Finally, we explored perceptions across 9 barriers in 3 categories to PEOLC education identified in the literature including ethical/cultural barriers, institutional barriers, and time constraints [3,11–14]. Demographic information and program characteristics were also included resulting in 44 total items. We refined the survey after piloting it in a sample of 6 PCCM PDs and 15 trainees. The surveys are available in the online supplemental material.

2.2. Survey administration

In May 2009, the Web-based surveys were e-mailed to all 186 members of the Association of Pulmonary/Critical Care Medicine Program Directors requesting they complete the PD survey and circulate the trainee survey to all trainees currently in their program. Nonresponding PDs received 3 e-mail requests and a follow-up telephone call.

2.3. Data analysis

For each PEOLC domain, summary scores were generated by averaging item responses in that domain. High scores indicate greater perceptions of trainee competence/comfort. Barriers to PEOLC education were defined both by total number of barriers and by barrier domain subscores. Total barrier score was computed by summing ratings for the 9 perceived barriers to PEOLC education. Barrier domains were derived by principal components analysis of the 9 barrier items, separately for PDs and trainees. The VARIMAX algorithm was used for factor rotation, to minimize the number of items that loaded heavily on each category. Barrier subscores were computed as average responses to items that loaded heavily on the resulting category (component loadings ≥ 0.6). Higher scores indicate greater perceived barriers.

Data were analyzed separately for PDs and trainees. Trainees were not linked to their own PD for analysis. Frequency distributions were examined for categorical variables. Means and SD are shown for continuous measures. Bivariate categorical variables were examined using crosstabular analyses and χ^2 tests of independence. Mann-Whitney nonparametric analysis was used to test associations between continuous measures and categorical variables. Independent-samples *t* tests were used for bivariate comparisons of continuous measures.

The strength of association between perceived barriers (total score and subscores) and PD-perceived competence or trainee comfort in each PEOLC domain was evaluated by multiple linear regression analyses with forced entry of all terms. The total barrier score and barrier subscores were entered on the first step for their respective models; trainee and/or program characteristics were entered on the second step of the respective models to examine effects of these covariates on relationships between barriers and perceived competence/comfort. Standardized regression coefficients (β) and total variance in competence/comfort explained by the model (R^2) are reported. External validity (generalizability) of the results was tested by comparing the responding to the nonresponding programs with respect to program type (pulmonary, critical care, or combined), geographic US region, urban vs nonurban setting, number of trainees, and number of faculty. A χ^2 test of independence was used for this purpose. Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS, IBM version 19, Armonk, NY). Significance tests were 2 sided, evaluated at the $P < .05$ level.

3. Results

We received responses from PDs and/or trainees at 129 (69%) of 186 US PCCM programs. Response rates were 55% for PDs (102/186) and 38% for trainees (212/558). At least 1 trainee response was received from 102 (55%) of the surveyed programs. Respondent and program characteristics are provided in Table 1. Most trainee respondents were in their second year, in urban training programs, white, with English as a native language. Approximately half the responding PDs indicated that their programs included faculty with training and/or scholarly interest in PEOLC. The majority had a palliative care consult service. Few programs had a written curriculum in PEOLC.

3.1. Methods of PEOLC education

Program directors and trainees reported similar usage of the various educational strategies for PEOLC. Fewer than 25% offered palliative care rotations or role-playing exercises in PEOLC. Nearly 60% of trainees felt that a palliative consult rotation would be valuable to extremely valuable; only 32% rated role-playing exercises this highly (data not shown). Most trainees rated rounds-based instruction and PEOLC seminars as valuable to extremely-valuable (75% and 64%, respectively); PDs reported similar assessments of the value of various teaching methods (data not shown). The number of times per month that fellows were directly involved in palliative care and ethics consultation varied widely among the training programs. This number correlated significantly with the presence of a formal PEOLC curriculum (Fig. 1).

3.2. Sufficiency of didactic teaching

In general, PDs rated their programs as having sufficient didactic teaching more frequently than did trainees. In 4 of the 6 PEOLC domains less than half of both PDs and trainees rated their didactic teaching as sufficient (in communication skills, symptom control, community/institutional resources, and withdrawing ventilation). The only domain where a majority of trainees rated their didactic teaching as sufficient was in managing specific clinical syndromes. Bedside teaching was judged more sufficient than didactic teaching (by 95% of PDs and 85% of trainees, averaged across all PEOLC domains; data not shown; Fig. 2).

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