ORIGINAL ARTICLES

Teaching the Teachers

National Survey of Faculty Development in Departments of Medicine of U.S. Teaching Hospitals

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OBJECTIVE: **To determine the prevalence, topics, methods, and intensity of ongoing faculty development (FD) in teaching skills.**

DESIGN: **Mailed survey.**

PARTICIPANTS: **Two hundred and seventy-seven of the 386 (72%) U.S. teaching hospitals with internal medicine residency programs.**

MEASUREMENTS: **Prevalence and characteristics of ongoing FD.**

RESULTS: **One hundred and eight teaching hospitals (39%) reported ongoing FD. Hospitals with a primary medical school affiliation (university hospitals) were more likely to have ongoing FD than nonuniversity hospitals. For nonuniversity hospitals, funding from the Health Resources Services Administration and >50 house staff were associated with ongoing FD. For university hospitals, >100 department of medicine faculty was associated. Ongoing programs included a mean of 10.4 topics (standard deviation, 5.4). Most offered half-day workshops (80%), but 22% offered ≥1-month programs. Evaluations were predominantly limited to postcourse evaluations forms. Only 14% of the hospitals with ongoing FD (5% of all hospitals) had "advanced" programs, defined as offering ≥10 topics, lasting >2 days, and using ≥3 experiential teaching methods. These were significantly more likely to be university hospitals and to offer salary support and/or protected time to their FD instructors. Generalists and hospital-based faculty were more likely to receive training than subspecialist and community-based faulty. Factors facilitating participation in FD activities were supervisor attitudes, FD expertise, and institutional culture.**

CONCLUSIONS: **A minority of U.S. teaching hospitals offer ongoing faculty development in teaching skills. Continued progress will likely require increased institutional commitment, improved evaluations, and adequate resources, particularly FD instructors and funding.**

KEY WORDS: **faculty development; teaching skills; survey.**
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Education is a major mission of our teaching hospitals. Traditionally, most teaching occurred in team settings during inpatient care. More recently, the duration of hospital stays has decreased,[1–3] and teaching has followed patient care into outpatient settings.[4–6] There, an increased number of teachers[7] proficient in a different set of teaching skills[8,9] is required.[10,11] Thus, over the past decade the need has developed for an increased number of clinical teachers, including community-based physicians[7,10,12] with a broader range of teaching skills.

To be effective teachers, faculty require diverse skills such as creating a facilitative learning environment, observing and assessing learners, providing feedback, teaching in small groups, lecturing, mentoring, and developing and evaluating curricula. Such skills can be taught effectively,[13–21] but most faculty have not received formal training in them. Accordingly, medical organizations have recognized the need for faculty development (FD) in teaching skills.[22,23] The Health Resources and Services Administration (HRSA) and other organizations have funded local, regional,[24] and now national[22,25] FD activities for teaching skills. Several programs have gained national prominence,[16,17,26,27] and local efforts focused on community-based teachers have been reported.[18,24,28–30] However, planning is hindered by a lack of knowledge about current FD offerings at the national level.

To address this knowledge gap and provide information for future planning, we conducted a national survey of U.S. teaching hospitals. Our goals were 1) to determine the prevalence, topics, methods, and intensity of ongoing FD efforts in teaching skills in U.S. departments of medicine (DOMs), and 2) to identify factors associated with the existence of ongoing and advanced FD efforts.

METHODS

Study Population

We identified our target population, all 389 hospitals with internal medicine residency training programs in the United States in 1999–2000, using the American Medical Association Fellowship and Residency Electronic Interactive Database (FREIDA), the Association of Professors of Medicine list of department chairs, and the Association of Program Directors of Internal Medicine database. We confirmed the name and address of each department chair via telephone.

Questionnaire Design

The survey instrument was developed through an iterative process with feedback from experts in the field of survey design and medical education and members of the General Internal Medicine Generalist Education Leadership group (GIMGEL) and their advisory board (see Acknowledgments). Further revisions were made after piloting the survey on 15 faculty from various institutions.

Our primary outcome was assessed by the following question: "Are there any ongoing faculty development (FD) activities (i.e., programs, courses, workshops, or other offerings) that serve DOM faculty associated with your teaching hospital and that focus on improving their teaching/educational skills?"

Respondents answered either "No, we have none"; "No, but we have occasional FD activities"; or "Yes, we have ongoing FD activities." We defined faculty as "individuals associated with your teaching hospital, based either at your hospital or in the community, who teach medical students, residents, and/or fellows."

To better characterize current FD activities, we used questions with fixed responses to ask those teaching hospitals with ongoing activities about the topics covered, teaching methods, intensity of the programs, evaluation strategies used, participants in the programs, resources available for the FD programs, changes in the last 2 years, and their most important FD needs.

We included 3 open-ended questions that asked respondents with ongoing FD to identify the major facilitators and barriers to FD, and all respondents to identify the most important FD needs, at their teaching hospitals.

Data Collection

In March 2000, we mailed surveys to DOM chairs at the 389 targeted teaching hospitals and asked each to complete or forward it to the DOM faculty member most responsible for FD. Through September 2000, multiple attempts were made to follow-up with the chair, designated respondent, or medicine residency program director using telephone, fax, and e-mail, and up to 2 additional mailings (Fig. 1). Survey data were linked to information about each teaching hospital including geographic location and number of house staff in the DOM from the American College of Graduate Medical Education. Data on previous funding for primary care FD were obtained from HRSA. Hospitals whose chairman of the department of medicine was also the chairman of the department of medicine at one of the 126 medical schools in the United States and served as the representative in the Association of Professors of Medicine (APM) were considered to have a primary affiliation with a medical school. We termed these *university hospitals*.

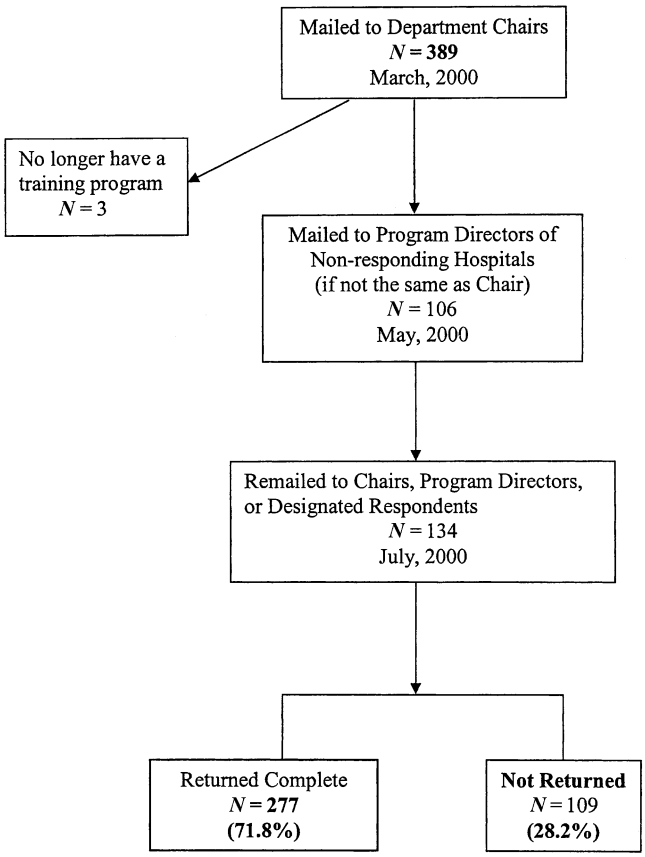

FIGURE 1. Study flow sheet. Surveys were mailed to 389 department of medicine chairs in March 2000, and then to the internal medicine program directors in May 2000 if there had been no response. If needed, a third mailing was made to the chair, program director, or a respondent designated by the chair in July 2000. When data collection was finalized at the end of September 2000, 277 completed surveys were returned.

Data Analysis

We developed a systematic method of dichotomizing categorical responses based first on the distribution of the data, and then expert opinion. For these outcome variables, we then conducted bivariate analysis using contingency tables and χ^2 to determine the significance of independent variables. To show the strength of the relationships, results are displayed as odds ratios (OR) with 95% confidence intervals (CI) obtained from logistic regression. To determine factors that were independently associated with each outcome, we used user-controlled forward and backward stepwise logistic regression. Variables were added or

Table 1. Characteristics of University* Compared to Nonuniversity Hospitals

Factors	Total N = 277		Nonuniversity Hospital N = 169†		University Hospital N = 108		χ^2	P Value
	%	n	%	n	%	n		
Number of DOM faculty							85.6	<.001
≤100	176	64.0	144	85.2	32	30.2		
>100	99	36.0	25	14.8	74	69.8		
Number of DOM house staff							88.6	<.001
≤50	149	53.8	129	76.3	20	18.5		
>50	128	46.2	40	23.7	88	81.5		
Received institutional funding from HRSA in past 10 years							105.0	<.001
No	199	71.8	159	94.1	40	37.0		
Yes	78	28.2	10	5.9	68	63.0		
Located in urban area (population >500,000)							1.19	.31
No	58	20.9	32	18.9	26	24.1		
Yes	219	79.1	137	81.1	82	75.9		

** University hospitals were defined as those with a primary affiliation with a U.S. medical school according to the Association of Professors of Medicine (APM).*

† Totals fluctuate for individual variables because of missing data.

DOM, department of medicine; HRSA, Health Resources and Services Administration.

subtracted to maximize the model χ^2. Only variables that were significant at $P < .10$ in the bivariate analysis were considered for entry in the forward stepwise model. However, we considered university status and number of faculty important enough to be included in all models even if they did not reach statistical significance. A similar analytic approach was followed for the 1 continuous outcome, number of topics covered, using linear regression. All quantitative analyses were carried out using Stata 6.0 (Stata, College Station, Tex).

Finally, 2 researchers analyzed the 3 open-ended responses. Each independently reviewed all comments for themes and subthemes. Consensus was reached by comparison and discussion. The entire research team checked the analysis for relevance and consistency.

Ethics

The Institutional Review Board of the Johns Hopkins Bayview Medical Center exempted the study from further review. Consent was assumed by completion of the survey.

RESULTS

Respondents and Response Rate

Three teaching hospitals indicated that their training programs had closed. From the 386 remaining hospitals, we received completed surveys from 46 department chairs, 122 residency program directors, 27 who were chairs and program directors, 11 directors of FD, and 71 others, for an overall response rate of 72% (277/386). The majority of respondents were men (77%) from general internal medicine (55%), with a mean age of 47.6 years. Hospitals that responded were significantly more likely to be university hospitals, to have ever received funding from HRSA, and to have more DOM house staff compared with hospitals that did not respond ($P < .005$).

The characteristics of the responding teaching hospitals are summarized in Table 1. Of the responding hospitals, 101 were university hospitals, and 176 were not. Compared to nonuniversity hospitals, university hospitals were more likely to have >100 DOM faculty, >50 DOM house staff, and to receive funding from HRSA.

Prevalence of Ongoing Faculty Development

Twenty-six percent of the 277 respondents reported that they had no FD activities in teaching skills, 35% reported occasional, and 39% (N = 108) reported ongoing activities. University hospitals were more likely to have ongoing FD than nonuniversity hospitals (53% vs 31%; OR, 2.3; 95% CI, 1.4 to 3.7). Because of an interaction between university status and the relationship between ongoing FD and several other variables, further analyses were stratified by university status (Table 2). For university programs, only the number of DOM faculty was associated with having ongoing FD. For nonuniversity programs, having >50 DOM house staff and receipt of HRSA funding were significantly associated with having ongoing FD in bivariate and multivariate analysis. Although the presence of >100 DOM faculty was significantly associated with ongoing FD in bivariate analysis, the association lessened after adjustment.

Almost 60% of hospitals reported making arrangements for faculty to attend FD offsite (i.e., not associated with their institution). However, 72% of them sent only 1 to 5 people in the past 2 years. Furthermore, hospitals without FD

Table 2. Crude and Adjusted Odds of Having Ongoing Faculty Development Activities in University and Nonuniversity Hospitals

	University Hospitals *N* = 108					Nonuniversity Hospitals *N* = 169				
Factors	*n* (% of total)	Crude OR	95% CI	Adjusted OR	95% CI	*n* (% of total)	Crude OR	95% CI	Adjusted OR*	95% CI
>100 DOM faculty vs fewer	74 (70%)	3.1	1.3 to 7.3	4.0	1.4 to 11.7	25 (15%)	2.3	1.0 to 5.5	1.9	0.8 to 4.8
>50 DOM house staff vs fewer	88 (81%)	1.3	0.5 to 3.5	0.7	0.2 to 2.5	40 (24%)	2.5	1.2 to 5.3	2.1	1.0 to 4.7*
Received HRSA institutional funding vs none	68 (63%)	1.5	0.7 to 3.2	1.5	0.6 to 3.3	10 (6%)	3.6	1.0 to 13.3	3.9	1.0 to 15.2†
Located in urban area (pop. > 500K) vs nonurban (≤500K)	82 (76%)	1.1	0.4 to 2.5	0.6	0.2 to 1.9	137 (81%)	2.3	0.9 to 5.9	1.8	0.7 to 4.7

* P *value = .06.*
† P *value = .05.*
OR, odds ratio; CI, confidence interval; DOM, department of medicine; HRSA, Health Resources and Services Administration. Adjusted for all the variables in the table.

activities were less likely to send their faculty offsite (38%) than those with occasional (69%) or ongoing (64%) FD activities ($P < .001$).

Characteristics of Ongoing Faculty Development Activities

Topics Covered. The mean number of topics covered at the hospitals with ongoing FD (*N* = 108) was 10.4 (standard deviation, 5.4) with a range of 2 to 26. Hospitals that had ≥5 FD instructors included significantly more topics in their FD programs than those with fewer instructors, as did those that offered salary support and/or protected time to instructors, or had sufficient support staff. After adjustment, only offering salary support and/or protected time for FD instructors was significantly associated with a greater number of topics (Table 3).

The proportion of the 108 hospitals that covered a specific FD topic is contrasted with the mean importance rating for that topic by all respondents in Figure 2. There

Table 3. Factors that Are Associated with the Number of Topics Covered at Hospitals with Ongoing FD Activities (*N* = 107)*

	Number of Topic Areas Offered *N* = 107				
Factors	*n* (% of total)	Crude β Coefficient	95% CI	Adjusted β Coefficient†	95% CI
University hospital vs nonuniversity	55 (51.4%)	1.6	−0.5 to 3.6	1.9	−1.0 to 4.8
>100 DOM faculty vs fewer	54 (51.4%)	1.0	−1.1 to 3.1	−0.8	−3.7 to 2.0
>50 DOM house staff vs fewer	65 (60.8%)	0.6	−1.5 to 2.7		
Ever received HRSA institutional funding vs received none	43 (40.2%)	1.4	−0.7 to 3.5	–	–
Located in urban area (pop. > 500,000) vs nonurban (≤500,000)	88 (82.2%)	−0.5	−3.2 to 2.2	–	–
>5 FD instructors vs fewer	33 (30.8%)	2.4	0.2 to 4.6	2.1	−0.4 to 4.6
Salary support and/or protected time offered to instructors vs not offered	38 (40.9%)	2.2	−0.1 to 4.5	2.7	0.4 to 5.0
Moderate or strong support from leaders vs less support	87 (82.1%)	1.8	−0.9 to 4.5	–	–
Number of support staff that is sufficient or almost sufficient vs insufficient or none	61 (57.6%)	2.3	0.2 to 4.4	–	–
External funding that covers most or all expenses vs few or none	13 (13.1%)	−1.1	−4.3 to 2.1	–	–
Institutional funding that covers most or all expenses vs few or none	45 (43.7%)	0.4	−1.7 to 2.6	–	–
Tuition from participants that covers most or all expenses vs few or none	3 (3.0%)	−4.7	−11.0 to 1.6	–	–

* *The β coefficients indicate the difference in number of topics covered between hospitals with a factor compared to one without that factor. For example, on average, after adjustment university hospitals offer 1.9 (95% CI, 1.0 to 4.8) more topics covered than nonuniversity hospitals.*
† *Adjusted model was obtained using user-controlled forward and backward stepwise linear regression; the final model includes those factors that were significant as well as university status and size of faculty, because they were considered important.*
CI, confidence interval; DOM, department of medicine; HRSA, Health Resources and Services Administration.

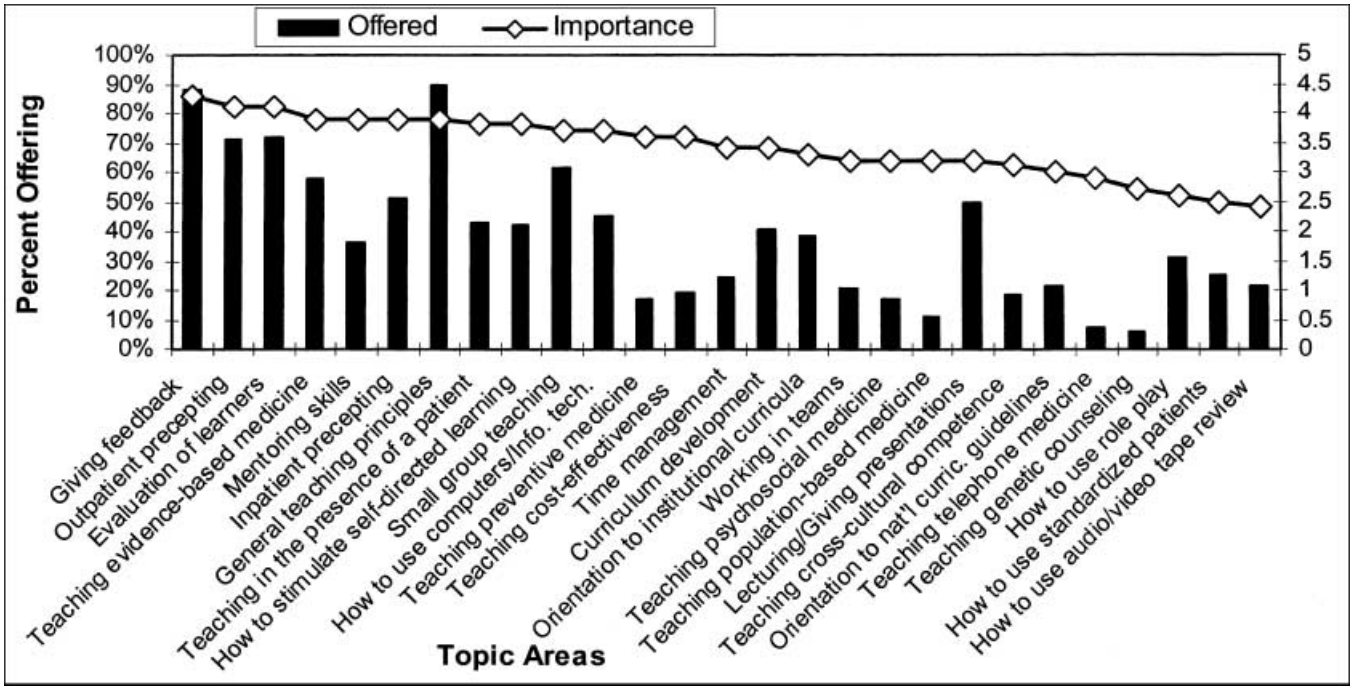

FIGURE 2. The percentage of ongoing faculty development (FD) programs ($N = 107$) that offered a specific topic area (or topic) is shown in the dark bars and is contrasted with the mean rating of importance of each of the same areas (white diamonds) by all of the responding hospitals ($N = 266$). While they are similar in many areas, mentoring skills, teaching in the presence of the patient, how to stimulate self-directed learning, teaching cost-effectiveness/utilization management, teaching preventive medicine, and how to use computers/information technology were rated as important (≥3.6), but were offered in a minority of ongoing FD programs.

was a general correlation between the proportion offering a topic and its rating of importance, with some exceptions. Mentoring skills, teaching in the presence of the patient, how to stimulate self-directed learning, teaching cost-effectiveness/utilization management, teaching preventive medicine, and how to use computers/information technology were rated as important (mean rating ≥3.6) but were offered by <50% of ongoing FD programs.

Teaching Methods. For analysis, programs were considered to use a teaching method if they reported using it at least sometimes (3 on a 5-point scale). Almost all 108 ongoing programs used small group discussions (94%) and lectures (89%). A minority (21%) used distance learning strategies (computer-based courses, or telephone or video conferences). Many programs used 1 or more experiential methods such as role plays (64%), observation and feedback on real teaching encounters (51%), and audio or video review of performance (42%). Fewer programs used projects by participants (34%), standardized patients (21%), or simulated learners (19%). Overall, 84% of hospitals with ongoing FD used at least 1 experiential teaching method, 61% ≥ 2, 37% ≥ 3, and 23% ≥ 4. In multivariate analysis, hospitals with ≥5 FD instructors or sufficient support staff were more likely to incorporate ≥3 experiential methods of teaching (Table 4).

Intensity. Faculty development activities were most likely to be offered as a half-day workshop (80% of ongoing programs). Forty percent of hospitals utilized courses of >0.5 to 2 days, 16% used courses of >2 to 7 days, 16% courses of >7 days to 1 month, and 22% had programs of >1-month duration. University hospitals tended to use courses of >2 days compared with nonuniversity hospitals (44% vs 28%; $P = .09$). After adjustment, offering salary support and/or protected time for FD instructors was the only factor significantly associated with more intense FD programs (Table 5).

Advanced Programs. We defined "advanced" programs as those that were above average in the 3 categories of number of topics, use of experiential methods, and intensity. Fourteen percent of the hospitals with ongoing FD met all 3 criteria (having 10 or more topics, ≥3 experiential teaching methods, and courses >2 days). In multivariate analyses, the advanced programs were significantly more likely to be university programs (OR, 17.8; 95% CI, 1.2 to 274.0) and offer salary support and/or protected time to most or all of their instructors (OR, 4.1; 95% CI, 1.0 to 17.2).

Evaluation Methods and Design. The most common methods of evaluating the ongoing FD programs were evaluation forms filled out by participants (83%) and self-assessments or self-ratings (50%). Only 8% used objective assessments of participants' skills or performance using independent raters, and 12% used written tests of participants' knowledge. Nine percent reported that they had not evaluated their FD activities at all.

Table 4. Factors that Are Associated with Three or More Experiential Teaching Methods* at Hospitals with Ongoing FD Activities

Factors	Three or More Experiential Teaching Methods *N* = 107			
	Crude OR	95% CI	Adjusted OR†	95% CI
University Program vs nonuniversity	2.5	1.0 to 6.4	2.0	0.5 to 7.8
>100 DOM faculty vs fewer	2.5	1.0 to 6.4	1.1	0.3 to 4.3
>50 DOM house staff vs fewer	1.5	0.6 to 3.9	–	–
Ever received HRSA institutional funding vs received none	1.5	0.6 to 3.8	–	–
Located in urban area (population >500,000) vs nonurban (≤500,000)	0.6	0.2 to 1.8	–	–
≥5 FD instructors vs fewer	3.4	1.3 to 8.5	3.1	1.1 to 8.8
Salary support and/or protected time offered to instructors vs not offered	2.1	0.8 to 5.5	–	–
Moderate or strong support from leaders vs less support	3.1	0.7 to 14.3	–	–
Number of support staff that is sufficient or almost sufficient vs insufficient or none	7.9	2.2 to 28.5	8.0	2.2 to 31.6
External funding that covers most or all expenses vs few or none	1.6	0.4 to 5.7	–	–
Institutional funding that covers most or all expenses vs few or none	1.9	0.8 to 4.8	–	–
Tuition from participants that covers most or all expenses vs few or none	1.5	0.1 to 17.3	–	–

* *Experiential teaching methods include role plays, standardized patients, simulated learners, observation and feedback on real teaching encounters, audio or video review of performances, and projects by participants.*
† *Adjusted model was obtained using user-controlled forward and backward stepwise logistic regression; the final model includes those factors that were significant as well as university status and size of faculty, because they were considered important.*
OR, odds ratio; CI, confidence interval; DOM, department of medicine; HRSA, Health Resources and Services Administration.

Evaluation was most commonly performed at the end of FD (84%), but 46% used a prepost design. Few (21%) evaluated their participants more than 2 months after the FD program to assess sustainability of results. Only 8% had ever used a nonrandomized control group and only 2% had used a randomized control group for the evaluation.

Penetrance of Faculty Development in Departments of Medicine. Most programs with ongoing FD ($n = 57/108$) had trained 10 to 29 participants in the preceding year. Twenty-three percent had trained <10, and 25% ≥30. Respondents reported that they had more hospital-based faculty (HBF) participate than community-based faculty (CBF) in the past year (median 51% to 75% vs 11% to 25%; $P < .001$), and more general internists than subspecialists (median 51% to 75% vs 11% to 25%; $P < .001$). Overall, hospitals with ongoing programs estimated that approximately half of their HBF had ever participated in their FD programs compared to one-quarter of CBF, and half of the general internists compared to one-quarter of their subspecialty faculty. The latter differences were not statistically significant. There were no differences between the reported characteristics of faculty who had ever

Table 5. Factors that Are Associated with Offering Courses of Greater Intensity (Courses Taught for More Than 2 Days) at Programs with Ongoing FD Activities

Factors	Courses of Greater Intensity *N* = 107			
	Crude OR	95% CI	Adjusted* OR	95% CI
University hospital vs nonuniversity	2.0	0.9 to 4.5	3.3	0.9 to 11.7
>100 DOM faculty vs fewer	1.2	0.5 to 2.6	0.8	0.2 to 2.8
>50 DOM house staff vs fewer	1.2	0.5 to 2.8	–	–
Received HRSA institutional funding vs received none	1.5	0.7 to 3.4	–	–
Located in urban area (population >500,000) vs nonurban (≤500,000)	0.7	0.3 to 2.0	–	–
>5 FD instructors vs fewer	1.2	0.5 to 2.9	–	–
Salary support and/or protected time offered to instructors vs not offered	2.3	1.0 to 5.5	3.5	1.3 to 9.4
Moderate or strong support from leaders vs less support	3.1	0.7 to 14.3	–	–
Number of support staff that is sufficient or almost sufficient vs insufficient or none	1.8	0.8 to 4.2	–	–
External funding that covers most or all expenses vs few or none	1.6	0.4 to 5.7	–	–
Institutional funding that covers most or all expenses vs few or none	1.9	0.8 to 4.8	–	–
Tuition from participants that covers most or all expenses vs few or none	1.5	0.1 to 17.3	–	–

* *Adjusted model was obtained using user-controlled forward and backward stepwise logistic regression; the final model includes those factors that were significant as well as university status and size of faculty, because they were considered important.*
OR, odds ratio; CI, confidence interval; DOM, department of medicine; HRSA, Health Resources and Services Administration.

participated in the ongoing FD programs compared to those who had participated in the past year.

Factors that Influence Participation in Faculty Development. Among hospitals with ongoing FD programs, 47% offered CME credit, 40% offered certificates of participation, and 47% offered reduction or waiver of fees to most or all faculty (when applicable). Community-based faculty were offered at least some protected time or relief from other responsibilities for participation in FD less often than HBF (25% vs 54%; $P < .001$).

Supervisor attitudes about participation, promotion criteria, and timing of FD activities were more likely to be reported as promoting HBF participation than CBF participation (all $P < .001$). In contrast, productivity incentives/requirements were reported as inhibiting HBF participation by 47% of hospitals and CBF participation by 60% ($P < .001$). Distance from the community sites was reported to inhibit participation for CBF by 63%. Access to computers was not an important issue.

Faculty Development Instructors. Sixty-four percent of programs with ongoing FD reported having 1 to 4 instructors within their DOM, 31% ≥ 5, but 6% had none. Those without their own instructors imported them from outside institutions (5/6) or from another department (1/6). Most programs (84%) used a combination of faculty instructors from within their DOM, from other departments, and from affiliated or nonaffiliated institutions.

Salary support was offered to at least some of the FD instructors in 58% of programs. Protected time was offered to at least some instructors in 65% of programs; 35% did not offer it to any instructors.

Maintenance of Faculty Development Programs and Recent Changes. Forty-one percent of respondents with ongoing programs reported moderate support, and 41% reported strong support from institutional leaders for their FD programs. Only 43% of institutions provided funding for FD that covered most or all of the expenses. External funding was reported by 44% of programs, but this covered most expenses in only 12% and all expenses in only 1% of programs. One-third of programs reported an insufficient number or no FD instructors with appropriate expertise (33%), and 42% reported insufficient or no dedicated support staff. Tuition covered some expenses in 14% of hospitals, and most or all in only 3%.

Most programs reported no change or an increase in the total number of participants, community-based participants, courses or offerings, FD instructors, and support staff over the last 2 years. While 46% reported an increase in the supportive attitude from institutional leaders, only 29% reported that funding increased.

Needs for Further Development. Over 75% of respondents reported that their programs needed at least some development in administrative structure, content, teaching methods, intensity, and evaluation. At least 50% reported the need for moderate to major improvement in content, intensity, evaluation, or administrative structure of their FD programs.

Written Comments on the Facilitators, Barriers, and Needs for Faculty Development

The 3 open-ended questions about major facilitators, major barriers, and the most important needs related to FD yielded 763 separate comments. These comments were sorted into 5 major themes. Four of the themes paralleled the quantitative results and were categorized as follows: FD expertise in teaching skills (249 comments), time (156), funding (95), and infrastructure (35; e.g., space, facilities, and support staff). Respondents stated that developing FD content expertise, either by utilizing outside experts or sending faculty to regional or national centers for FD training, was critical for their own FD activities. Respondents felt that their faculty needed protected time to learn FD skills and more time to teach residents and students. Lack of infrastructure and funding to support FD activities were viewed as important barriers.

A final, unique theme emerged from the written comments. Respondents described a concept we characterized as *culture* (228 comments). Central to this concept was how faculty and institutions valued teaching. This emerged both as a facilitator and a barrier, and was mentioned again as an important need. Key facilitators were effective leadership, institutional support, and allocation of resources, as well as a strong faculty commitment to teaching. Respondents described interest and motivation related to teaching: "Faculty are genuinely interested in teaching. Many are motivated by the desire to teach and be role models."

Demands for clinical productivity and lack of recognition for teaching were viewed as important barriers to FD, exemplified by the following: "No clear benefits for doing this—doesn't really increase career (promotion)—just good citizen"; "…not a priority, seeing patients and making money is the priority"; "…minimal recognition for academic advancement."

DISCUSSION

In 2000, 39% of teaching hospitals had ongoing FD programs in teaching skills and 60% (half of the university hospitals, and two-thirds of nonuniversity hospitals) did not. This suggests that there is room for improvement if FD is to reach its potential to improve teaching across the United States. Most programs taught fewer than 30 faculty members each year, and respondents estimated that less than half of their HBF and about one-quarter of their CBF had ever participated.

Hospitals with ongoing FD were considerably more likely to be university hospitals than not. Receipt of HRSA funding increased the likelihood of ongoing FD for nonuniversity hospitals more than 3-fold. This suggests that

in order for FD to spread from university to nonuniversity teaching hospitals, outside funding may be critical. However, only 6% of nonuniversity hospitals reported having received HRSA funding in the last 10 years, compared to 63% of university hospitals.

Multiple and experiential educational methods and sufficient duration and intensity of training are felt to be important for fundamental changes in attitudes, skills, and behaviors.[17,27,31–37] Only 14% of ongoing programs were classified as advanced in terms of breadth of topics covered, number of experiential teaching methods, and duration or intensity of offerings. Hospitals with advanced programs tended to offer salary support and/or protected time for instructors, be university affiliated, and have more instructors and support staff. The majority of respondents reported the need for moderate to major improvement in areas of their FD programs. These findings suggest that targeted interventions in the form of salary support or protected time for instructors and increased support staff could improve the quality of ongoing FD programs. This is reinforced by the finding that HRSA funding increased the likelihood of having ongoing FD in nonuniversity hospitals. Thus, our survey presents a picture of the "haves" and the "have nots" among teaching hospitals, where the haves are at least minimally though hardly lavishly supported, and the have nots are relatively impoverished.

The majority of faculty who participated in these ongoing FD programs were hospital-based, general internists; community-based physicians and subspecialists represented the minority. There are several possible explanations for this. First, most programs occurred at the teaching hospital or medical school, which are more convenient for the HBF. In addition, most grant support for FD comes from HRSA, which targets generalists. We found that supervisors' attitudes about participation were reported as promoting factors, while productivity incentives and distance from community sites (for CBF) were reported as inhibiting factors. Because many teaching hospitals rely on community-based teachers, as well as hospital-based subspecialists for teaching residents and students, our results suggest that FD programs should develop strategies to reach these groups.

Evaluation methods tended to be limited to postworkshop critiques and participant self-assessments. Because rigorous evaluation requires expertise and resources, these findings are not surprising. Evaluation efforts at the individual and program level do not need to be sophisticated for formative purposes.[27,37–39] However, rigorous evaluations of FD interventions are required to increase our understanding and guide future efforts in FD across programs, and these require adequate funding.

The qualitative data from our study not only added support for the importance of FD expertise, protected time, funding, and a FD infrastructure for FD activities, but provided deeper insight into factors that may be important to the success of FD efforts. Respondents describe a concept we have identified as "culture." Calls for change in medical education have recognized "culture" as a powerful force in influencing individuals and institutions.[37,38,40,41] Strong leadership and shifts in institutional attitudes toward the value and rewarding of teaching may be necessary for the further success of FD efforts.[37,42,43]

Our study has several limitations. First, we know that the hospitals that responded were significantly more likely to be medical school affiliated or to have received funding from HRSA, and had more DOM house staff compared with programs that did not respond. Because these factors are associated with ongoing FD, our results likely overestimate the prevalence of ongoing FD in the United States. In addition, the understanding that we gained about FD is limited by the survey methodology. While this questionnaire provided broad information on the characteristics of the programs, it could not provide in-depth understanding of their topics covered, methods, and program details. While we collected some qualitative data, this was limited. Our main outcome was assessed by only 1 question, which could have been interpreted differently by different respondents. In particular, we did not define "occasional FD activities" compared to "ongoing FD activities." Furthermore, we relied on the assessment of 1 respondent, who was identified as being most responsible for FD in the DOM. Many respondents were residency program directors. Their knowledge of ongoing FD programs may not reflect the entirety of FD activities at an institution or its associated medical school.

Despite these limitations, our study has several strengths. As a national study, it represents the state of FD in DOMs in the United States and, to our knowledge, is the first survey to do so. In addition, our response rate of 72% is high compared to other surveys[44] and comparable to published national surveys of medical institutions.[45–51] Our survey instrument underwent intensive, iterative development and pilot testing to ensure the face validity and answerability of questions. Finally, given the comprehensive nature of the questionnaire and the use of other existing data, we obtained a broad base of information about hospitals with ongoing programs, as well as those that did not have ongoing FD programs.

Although FD has come a long way since its inception about 15 years ago, it remains limited in scope. Increased support, sophisticated evaluation, and a commitment to innovation and expansion on the part of local and national leaders will be required for its growth and development in the next decade. Because of resource constraints, alternatives to fully funded local efforts may need to be considered. These might include regional programs that serve several local teaching hospitals, partnerships whereby experienced teachers travel to small institutions to help local program directors plan and implement programs, or national programs to train and mentor local leaders of FD. Increasing funding for evaluation research could help determine which FD methods are efficacious and efficient, and thus help spur dissemination. Requirements by national

organizations, such as the Accreditation Council for Graduate Medical Education, could also encourage development and dissemination.

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