BRIEF REPORT: Utilizing an Audiotape for Outpatient Preceptor Faculty Development

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BACKGROUND: Faculty development for busy and geographically dispersed ambulatory preceptors is a difficult task for course directors.

PURPOSE: A faculty development audiotape intended for playing in the preceptor's car was created. The feasibility of this form of faculty development was tested in this pilot study.

METHODS: A short audiotape, focusing on strategies for the provision of independence to students in the office setting, was made and distributed to all preceptors of students taking a fourth-year required clerkship in ambulatory medicine. Preceptor behavior was reported by students on postclerkship evaluations before and after tape distribution.

RESULTS: In the year before tape distribution, 21% of evaluations indicated a lack of independence on the part of the student, compared with 14% in the year following the intervention ($P=.03$). There was no regression of behavior among preceptors already providing independence. Among the preceptors initially identified as not following recommendations for student independence, the percentage of evaluations indicating a lack of independence went from 72% preintervention to 42% postintervention ($P<.001$).

CONCLUSIONS: A short audiotape is a novel form of faculty development, which was acceptable to preceptors and may influence teaching behavior in the desired manner.

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Over the past 2 decades, there has been increasing utilization of ambulatory preceptors for medical student education.[1] Ambulatory clerkship directors struggle with reaching and influencing the teaching behaviors of busy and geographically dispersed preceptors through faculty development programs.[1–5]

A persistent criticism by students of our required fourth-year ambulatory medicine clerkship has been inadequate independence in some preceptors' offices, i.e., "shadowing." Telephone calls to preceptors by the clerkship director did not rectify the problem. Faculty development seminars were attended mostly by faculty already regarded as excellent preceptors. Therefore, we tested the feasibility and effectiveness of a novel method to modify faculty teaching technique. An audiotape intended for playing in the car was distributed to preceptors, in the hope of utilizing their commute time for faculty development. The tape focused on the provision of independence for the student in the office setting. Preceptor behavior was examined before and after the audiotape distribution.

The authors have no conflicts of interest to declare.

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METHODS

Course Description

Since 1994, there has been a 4-week fourth-year required ambulatory internal medicine clerkship at our suburban, state-supported medical school. All students have an individualized schedule including multiple outpatient medicine experiences. Preceptors are recruited from both the salaried faculty and the community. The community-based preceptors practice in a variety of settings, primarily in small group private practices.

Audiotape Description

The 20-min audiotape was structured as an interview by the course director of 2 of our best-received preceptors, 1 community-based and 1 salaried. The tape focused on: (1) the educational benefits of student independence[6]; (2) patient satisfaction with student involvement in the office[7–9]; and (3) time-saving strategies for achieving student independence.[10]

Both doctors described a similar procedure for precepting students in the office. Students are assigned to see selected patients independently. Often the preceptor sees 2 to 3 patients on his or her own while the student interviews and examines 1 patient. The student then presents the history and physical to the preceptor in the examination room in the presence of the patient.[7,11] The preceptor can review pertinent history and exam findings with the patient, answer questions from the student, and query the student regarding the diagnostic or therapeutic plan. Reading is assigned to remedy major gaps in knowledge. The interviewed doctors also described how they orient students to their practice and give feedback during the patient encounter and afterwards. Both preceptors felt that student presentations "at the bedside" helped them enhance patient satisfaction and use time efficiently.

The tape was distributed to all fourth-year clerkship preceptors in June 2001, after the 2000 to 2001 year (preintervention) was complete and before the 2001 to 2002 year (postintervention) had begun.

Primary and Secondary Outcomes

The primary outcome was the overall percentage of preceptor evaluations indicating shadowing as reported by the students. Student names were not written on the evaluations; preceptors received the evaluations from all the students seen in 1 year at the end of that year. One of the questions on the postclerkship evaluation of each preceptor was, "How many patients per half-day session did you see with yourself as the initial examiner?" If the answer was "0," that evaluation was tabulated as indicating a shadowing experience. By comparison, our best-rated preceptors usually score "1 to 3" or "4 to 6" on this question. Comparisons of shadowing rates were made between the preintervention and postintervention years using a χ^2-test; relative risk and 95% confidence intervals were calcu-

Table 1. Change in Shadowing Behavior, All Preceptors

Preceptor Type	Preintervention				Postintervention				Relative Risk (95% CI)	P Value
	N	Evaluations, per preceptor Median	Total Evaluations, N	Shadow Evaluations, N (%)	N	Evaluations, per preceptor Median	Total Evaluations, N	Shadow Evaluations, N (%)		
All	53	5 (1 to 17)	281	60 (21%)	47	6 (1 to 15)	274	39 (14%)	0.67 (0.46 to 0.96)	.03
Academic	25	5 (1 to 17)	138	6 (4%)	20	7 (1 to 15)	131	2 (2%)	0.35 (0.07 to 1.71)	.17
Community	28	6 (1 to 12)	143	54 (38%)	27	5 (1 to 9)	143	37 (27%)	0.69 (0.48 to 0.97)	.03

CI, confidence interval.

lated. Two-tailed *P* values were calculated, with a value of .05 considered significant.

Several post hoc analyses were performed. We compared the behavior of academic (practicing in the university clinic) versus community preceptors. Additional analyses targeted the "continuing" preceptors, those who participated in both the preintervention and postintervention years. These continuing preceptors were surveyed 3 years after tape distribution, to see if they remembered listening to the tape. Preceptors with 25% or fewer of their evaluations indicating shadowing were classified as "compliant." Other preceptors were classified as "noncompliant."

RESULTS

All evaluations submitted by students coordinated through the university hospital site were analyzed (see Table 1). During the preintervention year, 57 students attended this site. In the postintervention year, 49 students did so. Overall, the percentage of evaluations indicating a shadowing experience declined from 21% to 14% ($P=.03$). This derived entirely from a decrease in the percentage of the community preceptors receiving shadowing evaluations, as there was almost no shadowing in the academic practices. Preintervention, only 1 academic preceptor generating 2 evaluations was classified as noncompliant. After tape distribution, 2 academic preceptors, each with just 1 evaluation, were noncompliant. Preceptors participating in just the preintervention year had a median of 3 (range 1 to 12) evaluations per preceptor and a shadowing rate of 8%. Preceptors evaluated only in the postintervention year also had a median of 3 (range of 1 to 6) evaluations per preceptor and a shadowing rate of 10%.

Table 2 describes the evaluations of the 37 continuing preceptors, who participated during both academic years, to see if there was any change in individual preceptor behavior. Of the 13 continuing preceptors who were noncompliant before the intervention, 5 became compliant after the intervention. These 5 preceptors who changed their teaching style generated a median of 5 (range of 2 to 7) evaluations per preceptor in the first year and 8 (range of 3 to 8) evaluations per preceptor in the postintervention year. The overall percentage of evaluations indicating shadowing in the initially noncompliant group went from 72% to 42% ($P<.001$).

Preceptors were not required to respond to the tape, but 10 returned a voluntary response form. All indicated that they would like to receive faculty development information in the audiotape format in the future. Three years after distribution of the tape, we surveyed the 37 continuing preceptors. This survey did not address comments on the quality, usefulness, or applicability of the material, nor did it address the amount of time spent with the material including if the faculty member listened to the tape more than once. This did not assess where the faculty member listened to the tape: in the car, office, home, or elsewhere. It also did not ask if the faculty member used audio continuing medical examination (CME) tapes as a proxy for comfort or acceptance of the method overall. Thirty surveys were returned, for an 81% response rate. Of these, 50% indicated they remembered listening to the audiotape. Of the 5 noncompliant preceptors who changed their behavior, 4 returned the questionnaire and 3 (75%) remembered listening to the tape. Of the 8 preceptors who were noncompliant in both years, 6 returned the questionnaire and only 1 (17%) remembered listening to the audiotape.

DISCUSSION

Distribution of a brief faculty development audiotape to a suburban, geographically dispersed faculty has potential for improving preceptor teaching technique. This approach to faculty

Table 2. Change in Shadowing Behavior, Only Preceptors Participating Pre- and Postintervention Compliance Defined as <26% of Evaluations Indicating Shadowing

Preceptor Type	Preintervention				Post-intervention				Relative Risk (95% CI)	P Value
	N	Evaluations, per preceptor Median	Total Evaluations, N	Shadow Evaluations, N (%)	N	Evaluations, per preceptor Median	Total Evaluations, N	Shadow Evaluations, N (%)		
All	37	6 (1 to 17)	237	55 (23%)	37	7 (1 to 15)	234	36 (15%)	0.60 (0.37 to 0.98)	.03
Compliant preintervention	24	6 (2 to 17)	165	3 (2%)	24	7 (1 to 15)	156	3 (2%)	1.00 (0.17 to 6.67)	.94
Non-compliant preintervention	13	6 (1 to 9)	72	52 (72%)	13	7 (3 to 9)	78	33 (42%)	0.28 (0.13 to 0.59)	<.001

CI, confidence interval.

development may be fairly new. A Medline search of "faculty development" and "tape," "CD," or "audio" did not reveal any published information on faculty development methods using preceptor commute time. For a dispersed group of ambulatory preceptors, who are difficult to get to seminars, this may be a practical way to disseminate faculty development information.

A major strength of this pilot study is the high face validity of the primary outcome. This behavior was directly reported by the students,[12,13] rather than self-reported by the preceptors. The analysis by preceptor type showed no regression among already-compliant preceptors, but a positive change among preceptors who were not already giving independence to their students. The course had been in existence for 6 years before the intervention without any noticeable change in precepting behavior among the noncompliant physicians during that time. Also, preceptor turnover did not seem to account for the observed changes, as the preceptors leaving the course had similar shadowing rates to those joining the clerkship.

Major limitations of this study are the lack of a concurrent control group and the fact that only 1 clerkship site was involved, limiting generalizability. A future study would be improved if it used more than 1 clerkship site or institution and had a randomized control group, stratified for academic versus community setting. We would assess for listening to the tape or CD shortly after distribution, rather than waiting 3 years, and test for extinction of the behavior change over time. We would pair the data for pre- and postintervention with each faculty member. The duration of any effect from this intervention is difficult to assess as it is likely contaminated with other contacts such as congratulatory notes and phone calls. Contacts from the clerkship director. In our current evaluation system, preceptors cannot track individual evaluations to particular students (unless they have only 1 student per year); we would make this system explicit to the students. Power calculations suggest that a study would need to include 200 evaluations in the control and intervention groups to have an 80% power to detect a 50% relative change in behavior given a baseline-shadowing rate of 20%. Given the evident acceptability of this faculty development method to our preceptors and the potential for improvement in teaching technique, a randomized trial of an audio CD is planned.

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