Effects of the Revised HCFA Evaluation and Management Guidelines on Inpatient Teaching

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OBJECTIVE: In 1996, the Health Care Financing Administration (HCFA) introduced new evaluation and management (E&M) guidelines mandating more intensive supervision and documentation by attending physicians. We assessed the effects of the guidelines on inpatient teaching.

DESIGN: Pretest-posttest, nonequivalent control group design.

SETTING: A university hospital and an affiliated county hospital where the guidelines were implemented and an affiliated VA medical center where they were not.

PARTICIPANTS: Sixty-one full-time faculty who had attended on the general medical wards for at least 1 month for 2 of 3 consecutive years prior to July 1996 and for at least 1 month during the 18 following months.

MEASUREMENTS AND MAIN RESULTS: We evaluated standardized, confidential evaluations of attending physicians that are routinely completed by residents and students after clinical rotations at all three sites. Comparing 863 evaluations completed before July 1, 1996 and 497 completed after that date, there were no significant differences at any of the hospitals on any items assessed. There were also no differences between the university and county hospitals as compared with the VA. Eighty-seven percent of 39 university and county attending physicians returned a survey about their perceptions of inpatient teaching activities before and after July 1, 1996. They reported highly significant increases in time devoted to attending responsibilities but diminished time spent on teaching activities.

CONCLUSIONS: Physicians reported a dramatic increase in overall time spent attending but a decrease in time spent teaching following implementation of the revised E&M guidelines. Yet, evaluations of their teaching effectiveness did not change.

KEY WORDS: Medical education; teaching; Medicare.

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Beginning with its inception nearly a century ago, the system for teaching internal medicine to students and residents has been based mainly in the hospital. It has been the traditional responsibility of the attending

physician to ensure the quality of the medical care by supervising residents and to provide clinical teaching. Recently, however, the latter role has been threatened by tensions arising between the institutions that deliver patient care and the agencies that provide the funding.

Because the attending is the physician of record, payers hold him or her responsible for having provided the full extent of care for which payment is sought. To limit the possibility of waste, fraud or abuse, the attending physician is required to provide documentation for these services. The most prominent example is the revised Health Care Financing Administration (HCFA) guidelines for Evaluation and Management (E&M) Services that became effective on July 1, 1996.¹ These guidelines require detailed and complex documentation of the clinical service for which a Medicare bill is rendered.

The new requirements proposed for practicing have been criticized for being "stupefyingly complicated, irrelevant to actual patient care, and adversarial in intent . . ."² Of additional concern to academic medical centers has been the potential effect of the guidelines, including Medicare's Final Rule for Teaching Physicians, on education. The stringent demands for involvement and documentation by attending physicians mandated by these guidelines have raised concerns that the resulting limits on the autonomy of trainees could reduce the quality of their training. If residents are not required to make independent decisions under the supervision of an attending physician, they might be unable to do so effectively when they complete their training. It is also argued that it is unnecessary for attending physicians to duplicate many of the functions of interns and residents, such as performing a complete history and physical and documenting them in full. A further criticism of these requirements is that the quality of teaching might decline because attending physicians must devote a much larger proportion of their available time to charting, leaving less time and energy for teaching.

To evaluate whether the HCFA guidelines influenced the ability of supervising physicians to provide high-quality teaching, we examined teaching evaluations collected routinely in a university system before and after introduction of the guidelines. We also surveyed the attending staff to ascertain their opinions about the effects of the guidelines on their teaching performance.

METHODS

Setting

The study was conducted using data collected at 3 teaching hospitals: the University of Washington Medical

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Center, with 337 active beds; Harborview Medical Center, a 349-bed county hospital operated by the University; and the Seattle Division of the Veterans Affairs (VA) Puget Sound Health Care System, with 331 acute care inpatient beds. The general medical wards of all 3 facilities are staffed exclusively by full-time University faculty and by rotating house staff from the University's Internal Medicine Training Program.

Participants

Eligible participants were the full-time faculty who had served as attending physicians on the general medical wards of the 3 medical centers for at least 1 month during at least 2 of the 3 years prior to and 1 month during the 18 months after July 1, 1996. Only physicians with 2 or more teaching assessments completed by interns, residents, or medical students for each month on service before and after implementation of the HCFA guidelines were included in the analysis. There were no other exclusions.

Study Design

We employed a quasi-experimental, pretest-posttest, nonequivalent control group design.³ Teaching evaluations assessing the performance of attending physicians that were routinely completed by students and trainees at Harborview Medical Center (county) and the University of Washington Medical Center (university) were compared for the periods before and after the revised HCFA guidelines became effective. Changes in these ratings between these two time periods were also compared with changes in teaching evaluations collected during the same time period at the VA hospital where the HCFA guidelines were not implemented. In addition, all participating attending physicians at the University and County hospitals were surveyed to elicit their perceptions as to how the new guidelines had affected their inpatient teaching activities and effectiveness.

Measures

A standard teaching assessment form is distributed to all University of Washington students and residents at the end of their rotations on the general medical wards at all 3 facilities. The forms are collected anonymously and embargoed for 6 to 12 months to help prevent an attending physician from connecting a student or resident to a particular form. The forms request that the evaluator rate the attending physician's teaching effectiveness in 9 domains, using a 6-point Likert scale ranging from poor to excellent. The domains consist of medical knowledge, clarity, enthusiasm, establishment of rapport, encouragement of learning, provision of feedback, demonstration of procedures, accessibility, and overall teaching effectiveness. The forms also ask the evaluator to provide informa-

tion about his or her level of training and the amount of contact he or she had with the teaching physician. These forms have been shown to be highly reliable in previous studies.⁴⁻⁶ Ratings are strongly influenced by the degree of involvement by the attending physician with the trainee but not by faculty rank.

The information gathered on each teaching physician included gender, age, rank, years on the faculty, specialty, academic track (i.e., physician-scientist vs clinician-teacher), and number of months of inpatient general medicine teaching per year.

For the purpose of this study, we developed a second 24-item questionnaire to elicit the attending physicians' perceptions about how introduction of the revised HCFA guidelines had influenced their ability to teach effectively while supervising on the inpatient service. Fifteen items addressed the physicians' clinical and teaching activities during a typical month of service as an attending before and after July 1, 1996. Clinical activities included the number of days on rounds, the frequency of documentation, and the time it required. Teaching activities included the frequency and time requirements for scheduled and unscheduled teaching of students and residents. The physicians were also asked to estimate the total number of hours worked per week while attending. In addition, they were asked how they believed the revised HCFA guidelines affected the quality of care for patients on their service and the quality of teaching. This questionnaire was distributed to the attending physicians at only the university and county hospitals.

Analysis

All teaching assessment forms and questionnaires were coded before analysis to maintain confidentiality. Scores from the teaching assessment forms for each physician were pooled for the time periods before and after the revised HCFA guidelines were implemented. Each item was scored using a 6-point scale ranging from 1 (very poor) to 6 (very good). Mean scores were computed for the groups of attending physicians at each hospital during each period of study. Under the null assumption, we hypothesized no changes in the mean differences in scores between the two periods using a 2-group permutation test based on an unweighted *t* statistic. A paired *t* test was used to approximate the nonparametric permutation test.⁷ To confirm the validity of this approximation, we also performed the actual permutation tests. Because the results were essentially identical to those of the *t* test, only the latter are reported.

Twelve items on the questionnaire distributed to the teaching attendings requested responses for the periods before and after the implementation of the guidelines. Responses to each item were rank ordered, and significance was assessed using a Wilcoxon signed rank test. Five items had 5-point scales ranging from strongly agree to strongly disagree with a neutral midpoint. We also used

the Wilcoxon test for these items. For both types of items, there were a large number of tied ranks. A *t* statistic approximation was used to check for the effect of tied ranks on the tail probabilities. For easier interpretation of the data, categories were dichotomized using cut-points that were selected by the authors before data analysis on the basis of perceived relevance.

The Human Subjects Committee of the University of Washington approved the study protocol.

RESULTS

Sixty-one attending physicians met the criteria for inclusion in study including 13 at the university hospital, 26 at the county hospital, and 22 at the VA hospital. There were no statistically significant differences among the sites in terms of age, gender, academic rank, number of years on the faculty, or specialty of the attending physicians (Table 1).

There were 846 teaching assessment forms completed on all participating attending physicians before the revised guidelines were implemented and 512 completed after implementation (Table 2). The mean number of assessment forms completed per attending physician was 13.7 prior to July 1, 1996 and 8.6 after that date. There were no statistically significant differences among sites with regard to the number of forms completed (Table 1). The distributions of students and residents who completed the forms during the two time periods were roughly similar, although there were proportionately more evaluations from third-year students for the period before July 1, 1996 and fewer evaluations from fourth-year students and first-year residents (Table 2).

The average scores for overall teaching effectiveness before and after implementation of the revised guidelines were 5.4 and 5.5, respectively, at the university hospital and 5.4 and 5.2, respectively, at the county hospital. The overall ratings for attending physicians at the VA hospital during these two time periods were 5.4 and 5.6, respectively. None of the differences between the before and after overall scores for teaching effectiveness for the attending physicians at the university and county hospitals from the two time periods were statistically significant (Fig. 1). In addition, the comparison of the change in scores for the university and county hospitals versus the change at the VA hospital was not statistically significant (Fig. 2). There were also no significant within-site or between-site differences for any of the 8 individual items on the teaching effectiveness forms or on a calculated summary scale for all 8 items. Moreover, there were no differences after adjustment for the degree of contact between the student or resident and the attending physician.

Thirty-four (88%) of the 39 participating attending physicians at the university and county hospitals returned the questionnaire dealing with their perceptions of the influence of the revised HCFA rules on their duties and teaching effectiveness. They reported spending significantly more time fulfilling their responsibilities as attendings and significantly less time on scheduled teaching activities (Fig. 3). For example, 80% of attending physicians reported they provided scheduled teaching on 20 or more days per month before July 1, 1996 compared with 50% after that date ($P = .001$). Similarly, 100% reported that on days there was scheduled teaching, such as attending rounds or meeting with medical students, they spent more than 1 hour in preparation prior to July 1996 compared with only 79% after that date ($P = .007$). Over two

Table 1. Characteristics of Attending Physicians

	Respondents			
	University (n = 13)	County (n = 26)	VA (n = 22)	All Hospitals (n = 61)
Mean age	45	44	46	44
Male, %	85	77	86	82
On faculty >5 y, %	85	88	81	88
Specialty, %				
General internal medicine	54	38	45	44
Endocrinology	23	8	5	10
Infectious disease	8	19	5	11
Other	15	35	45	34
Rank, %				
Assistant professor	23	31	18	25
Associate/full professor	77	69	82	75
Mean no. of teaching assessment forms available per attending physician (SD, range)				
Before July 1, 1996	12.5 (5.7, 5 to 24)	12.8 (8.0, 5 to 41)	15.0 (5.8, 5 to 30)	13.5 (6.8, 5 to 41)
After July 1, 1996	5.0 (2.8, 1 to 9)	6.8 (5.0, 1 to 17)	11.9 (2.0, 2 to 27)	8.3 (6.0, 1 to 27)

Table 2. Training levels of students and residents who completed evaluations

Level of Trainee	Number of Evaluations (%) Before July 1, 1996			Number of Evaluations (%) After July 1, 1996			Total All Periods
	University plus County	VA	Total	University plus County	VA	Total	
Third-year student	169 (32%)	75 (24%)	244 (29%)	42 (17%)	50 (19%)	92 (18%)	336 (25%)
Fourth-year student	12 (2%)	23 (7%)	35 (4%)	5 (2%)	28 (11%)	33 (6%)	68 (5%)
PGY-1 resident	226 (44%)	135 (42%)	361 (43%)	118 (47%)	114 (44%)	232 (45%)	593 (44%)
PGY-2 resident	33 (6%)	47 (15%)	80 (9%)	20 (8%)	43 (16%)	63 (12%)	143 (11%)
PGY-3 resident	68 (13%)	21 (7%)	89 (11%)	29 (11%)	10 (4%)	39 (8%)	128 (9%)
Unknown	20 (4%)	17 (5%)	37 (4%)	37 (15%)	16 (6%)	53 (10%)	90 (7%)
Total	528 (100%)	318 (100%)	846 (100%)	251 (100%)	261 (100%)	512 (100%)	1358 (100%)

PGY indicates postgraduate year.

thirds of the attending physicians described their primary focus while attending prior to July 1996 as teaching compared with just 6% after July 1996. Only 6% of the attending physicians disagreed with statement, "The HCFA guidelines have reduced the quality of my teaching," and 41% strongly agreed.

Although the attending physicians described spending less time engaged in and preparing for scheduled teaching activities after the revised guidelines were mandated, they also reported having more unscheduled con-

tact with interns and residents. Eighty-six percent of the attending physicians reported unscheduled contact with the house staff on more than 25 days per month before enactment of the revised guidelines compared with 94% afterwards ($P = .005$). However, their perceptions as to whether this improved their supervision of residents were mixed. Only 32% of the attending physicians agreed with the statement, "The HCFA guidelines have helped me personally improve my ability to monitor and care for patients."

In contrast to their perceptions that they were devoting substantially less time to teaching activities, the attending physicians described spending much more time on activities related to clinical care. Whereas 38% reported rounding every day of their month on service before July 1996, 97% claimed to do so after that date. Prior

FIGURE 1. Box plots of the mean ratings given to university and county hospital attending physicians for each item on the teaching assessment form for the periods before and after July 1, 1996 (7/1/96). Differences are shown for pooled values within each attending on each scale.¹⁰ Each box covers 50% of the observations, with the median in the center and the quartiles at the ends. The outside lines are a crude approximation of a 95% confidence interval if the data were normally distributed. Outliers are shown as individual points.

FIGURE 2. Box plots of differences in the mean ratings for each item on the teaching assessment form for the periods before and after July 1, 1996 (7/1/96).

FIGURE 3. Histogram displaying selected responses to the questionnaire completed by attending physicians. Black bars represent responses related to activities prior to July 1, 1996, and shaded bars reflect activities after that date. *P* values were calculated from the permutation rank sum test using all response categories.

to implementation of the revised HCFA guidelines, 27% said they documented their inpatient activities every day; 94% reported doing so after implementation. Not only did the physicians report performing documentation on significantly more days, they also indicated that it took more time. Forty-one percent of the respondents stated they spent 2 hours or more charting on the days they performed documentation before July 1996 compared with 92% after July 1996, including 24% who described spending 4 or more hours on documentation.

The increase in the requirements for supervision and documentation appeared to result in a significant increase in the overall time required to fulfill their responsibilities. Eighteen percent of the attending physicians reported that they had worked more than 70 hours per week before they were required to adhere to the revised HCFA guidelines, while 57% reported doing so afterwards. Despite the markedly increased time devoted to attending duties, 56% of physicians disagreed or strongly disagreed with the statement, "The HCFA guidelines have improved the overall quality of patient care" and only 19% agreed that the guidelines improved quality of care.

DISCUSSION

Although there have been numerous articles criticizing the revised HCFA guidelines for evaluation and management, to our knowledge, this is the first study of their effects on teaching. Our initial hypothesis was that the revised guidelines were reducing the quality of teaching because attending physicians were being forced to spend time charting that would have otherwise been devoted to activities related to teaching. However, we found that standardized evaluations of the attending physicians' teaching performance completed by students and trainees

demonstrated no decrement after the revised guidelines were implemented.

The maintenance of consistently high ratings for teaching performance may be related to the increase in total time that supervisory physicians devoted to their attending duties. Other explanations are also possible. The increased demands for documentation may have required attending physicians to become more informed about and involved with the care of individual patients, which may have been viewed favorably by the house staff. The new rules may have prompted the attending physicians to spend more time during attending rounds at patients' bedsides. Earlier studies have documented that attending physicians devote very little time to bedside teaching, even though it is highly valued by residents.⁸

These findings are both encouraging and dispiriting. The dedication of the attending staff was laudable. However, their ability and willingness to sustain this level of commitment can be questioned, and the effect on the other functions of faculty is potentially negative. Informally, many physicians have complained that the increasing demands required by ward attending are among the many factors that curtail their scholarly activities.

The findings of this study suggest that attending physicians are not necessarily accurate judges of how students and trainees rate the effectiveness of their teaching. While the teachers perceived the quality of their efforts to have diminished, the learners did not. This may in part reflect a change in the nature of the teaching. The attending physicians reported spending less time engaged in preparing for and delivering formal teaching but more time in informal contact. The attending physicians may have discounted this type of interaction, but the students and trainees may have regarded it as valuable. Prior research has indicated that attending physicians who spend more time with house staff outside of rounds are perceived as better role models.⁹

Although our findings are intriguing, this investigation has several limitations that deserve mention. First, the study was conducted at only one university and at hospitals that had only full-time academic staff. It is possible that our results cannot be extrapolated to other institutions, particularly those with a mixture of faculty and private attending physicians. Second, not all students and trainees completed the teaching assessment forms. No records are maintained that would permit us to estimate the true response rate. This should not, however, have biased our results unless the characteristics of respondents differed for the periods before and after July 1, 1996. Third, the information that we obtained about the attending physicians' activities was based on their responses to a questionnaire. Thus, their recollections about the amount and allocation of time related to attending duties could have been faulty. Fourth, the teaching evaluations may have been insensitive to changes in teaching effectiveness, particularly since the ratings were strongly skewed toward the high end of the scale. If so, however,

the differences missed were apt to have been subtle. Previous research using the same teaching assessment forms collected in an identical fashion have demonstrated statistically significant differences in ratings between different physicians.^{10,11} Although these forms have not been rigorously validated, they have been shown to detect significant differences between types of physicians (e.g., faculty vs residents) and within-physician differences comparing ratings in different educational settings.¹² Fifth, this study was limited in scope to the evaluation of subjective assessments by learners and by teaching physicians. We had no way of determining directly if the actual content or nature of teaching was altered or if the quality of patient care changed after the guidelines were implemented.

In summary, we found that despite a dramatic increase in the time required by attending physicians to adhere to the revised HCFA evaluation and management guidelines, the quality of their teaching, as perceived by students and house staff, did not change. However, given the attending physicians' more demanding and longer workweek, along with their perceptions that they were devoting less time to preparing for and doing scheduled teaching and that the quality of patient care was not improved, it is possible that the physicians' morale will decline. This could ultimately reduce the quality of both teaching and patient care. More study of the HCFA requirements is necessary in order to determine if they actually do improve the level of supervision and the quality of patient care as intended or whether they merely increase the workload of teaching physicians without having a demonstrable effect on patient care. Additional studies are also needed to elucidate the effects of the HCFA guidelines on the nature and outcomes of teaching, such as decision making by residents, as well as on other functions of the faculty.

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