Current Status of Medical Grand Rounds in Departments of Medicine at US Medical Schools

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OBJECTIVE: **To assess the status of medical grand rounds (MGR) as an educational endeavor.**

METHODS: **A survey of 133 departments of medicine at US medical schools was performed from September 2003 to March 2004; the results were compared with those of a previous (1988) survey.**

RESULTS: **Ninety-nine departments (74%) responded to the survey; all 99 conducted MGR. Providing updates in diagnosis, treatment, and medical research, educating house staff and faculty, and promoting collegiality were the most important objectives of MGR. Regarding objectives, responses to the current survey differed significantly from the responses to the 1988 survey for providing updates in medical research (*P*=.047), providing continuing medical education credit (*P*<.001), educating house staff (*P*=.048), and educating faculty (*P*<.001); the differences were primarily due to higher proportions of current survey respondents rating these objectives as "quite" or "very" important. The most common format was the didactic lecture. Case presentations were uncommonly used, and patients were rarely present. Only 44% of departments used educational needs assessments, and only 13% assessed knowledge gained by attendees. Feedback was irregularly provided to presenters. Most departments (64%) relied on industry to pay for MGR. Lack of presenter-attendee interaction and conflicting meetings were cited as important challenges. Nevertheless, most (62%) of the current survey respondents thought the quality of MGR had increased.**

CONCLUSIONS: **Departments of medicine regard MGR as an important educational and social endeavor. However, most departments use suboptimal teaching, planning, and evaluation methods, and many rely on industry to pay for MGR. Addressing these concerns and other challenges may enhance the value of MGR.**

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ACCME = Accreditation Council for Continuing Medical Education; CME = continuing medical education; MGR = medical grand rounds

William Osler regarded bedside instruction as the "natural method of teaching" medicine[1]; from this practice medical grand rounds (MGR) emerged as a central teaching activity in departments of medicine at US medical schools. Indeed, for the first half of the past century, patients and case discussions were central features of MGR. Experienced faculty conducted MGR using patients, while discussing with learners the diagnostic and therapeutic approaches to clinical problems.[2-4]

During recent decades, however, MGR in departments of medicine has changed substantially. In 1982, Bogdonoff[4] conducted a survey of 122 departments of medicine at US medical schools and found that patients were seldom present at MGR, and their case presentations, if used, were typically preludes to a didactic lecture. In 1988, Parrino and White[5] conducted a survey of the same departments of medicine and found similar results. They also found that providing updates in diagnosis and treatment and educating house staff and faculty were important objectives of MGR but that the educational impact of MGR was infrequently assessed and that the popularity of and attendance at MGR had decreased. In 2001, Hebert and Wright[6] conducted a survey of departments of medicine at 389 hospitals with accredited internal medicine residency programs and found that educational needs assessments, program evaluations, and knowledge assessments related to MGR were used in only 73%, 59%, and 17% of departments, respectively, and that university-based departments used these tools less often than other hospitals. They also reported that industry was a major source of funding for MGR.

The transition of MGR over time from an interactive teaching activity involving living patients to a passively received didactic lecture has led some to suggest that the term *medical grand rounds* for this activity is no longer appropriate.[4,7] Furthermore, some authors have perceived a decline in the relevance (eg, to internal medicine subspecialists) of MGR.[3,4,8-10] Nevertheless, most departments of medicine regard MGR as an important activity to which they commit considerable organizational and financial support.[5,6,8] Still, little is known about how MGR has specifically changed over time, how departments organize, pay for, and determine the effectiveness of MGR, the challenges to MGR, or the interventions that departments have used in an attempt to improve attendance at and the quality of MGR.

Herein, we report the results of our survey of departments of medicine of current US medical schools. Many of the survey questions were derived from the aforementioned survey conducted by Parrino and White[5] in 1988. With this survey, we sought to obtain current detailed information about MGR as an educational and social endeavor in de-

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partments of medicine. We also conducted statistical comparisons of the results of the current survey to those of the 1988 survey conducted by Parrino and White[5] to assess for changes in MGR (eg, learning objectives, attendance, popularity, quality, and other aspects) over time.

METHODS

We developed a 73-question survey (31 single-answer questions and 6 multipart questions containing 42 questions). Many of the survey items were taken directly from the 51-question survey conducted by Parrino and White[5] in 1988 (with the permission of the lead author, who is also a coauthor of this paper [T.A.P.]). Responses to the questions were yes or no, multiple choice, or 5-point scales (eg, "not valuable" to "highly valuable"). The survey questions addressed a variety of aspects of MGR including the organizational and financial aspects, attendance, objectives, and practical problems related to conducting the MGR, perceived changes over time, and possible means of improving attendance and quality. In addition, 22 questions offered respondents the opportunity to enter free-text responses. For some of these questions, the respondents were asked to draft lists.

During September 2003, the paper survey and a self-addressed return envelope were mailed to the 133 chairpersons of departments of medicine at US medical schools represented in the Association of American Medical Colleges faculty roster database. The chairpersons were asked to complete the survey or to have a colleague responsible for organizing MGR complete the survey. Nonrespondents were periodically contacted and encouraged to complete the survey. Data collection concluded during March 2004, after which abstraction and analysis of the survey data were performed.

For survey questions taken directly from the survey conducted by Parrino and White,[5] statistical testing was performed comparing the responses to the questions in the current survey to the 1988 responses. Categorical variables were compared using a χ^2 test. The Fisher exact test was used when the expected value in any one cell of a contingency table was 5 or less. Comparisons were statistically significant at $P \leq .05$. A copy of the current survey is available on request from the lead author (P.S.M.).

RESULTS

Representatives of 99 (74%) of the 133 departments of medicine responded to the survey. Fifty-five (56%) of the respondents were department chairpersons, 12 (12%) were internal medicine residency program directors, 4 (4%) were chief medical residents, and 28 (28%) were other individuals.

Organizational Aspects of MGR

All 99 departments of medicine (100%) conducted MGR, and 95 (96%) did so weekly. The MGR was regarded as the "most important" educational conference in 60 departments (61%), whereas the morning report was regarded as most important in 30 (30%). The most popular days for MGR were Wednesday and Thursday. Thirty-two departments (32%) conducted MGR on Wednesday, 30 (30%) on Thursday, 18 (18%) on Tuesday, 16 (16%) on Friday, 1 (1%) on Monday, and none on weekends (2 respondents did not report a day). Fifty-one departments (52%) conducted MGR during the midday and 47 (47%) before 10:00 AM (1 respondent did not report a time). The MGR was 1 hour long in 97 departments (98%).

In addition to the live sessions, 64 respondents (65%) reported other means of disseminating information presented at MGR. Forty-five departments (45%) telecast (eg, via closed circuit television) their MGR to other sites within the institution, 45 (45%) used written materials (eg, handouts), and 27 (27%) used videotapes.

The department chairperson organized MGR in 37 departments (37%). This responsibility was assigned to faculty leaders in 19 departments (19%), the internal medicine residency program director in 16 (16%), the chief medical resident in 13 (13%), other individuals in 10 (10%), and a MGR committee in 4 (4%). However, the department chairperson presided at MGR in 72 departments (73%).

Objectives of MGR

Eight questions regarding the objectives of MGR in the current survey were taken from the 1988 survey[5] (Table 1). In the current survey, providing updates in diagnosis and treatment, providing updates in medical research, educating internal medicine house staff, and educating faculty were regarded as "quite or very important" objectives of MGR in 90 (91%), 66 (67%), 86 (87%), and 84 (85%) departments, respectively. Furthermore, promoting collegiality and providing continuing medical education (CME) credit were rated as at least "fairly important" objectives of MGR in 75 (76%) and 68 (69%) departments, respectively. Providing income for and generating referrals to the department were rated as relatively unimportant.

The responses to the 8 questions regarding the objectives of MGR in the current survey were significantly different compared with the responses to the same questions in the 1988 survey,[5] except for those on providing updates in diagnosis and treatment, promoting collegiality, and providing income for the department of medicine. These differences were primarily due to higher proportions of respondents rating providing updates in medical research, providing CME credit, educating house staff, educating faculty, and generating referrals to the department as "quite or very

TABLE 1. **Importance of Various Conference Objectives of Medical Grand Rounds***

Medical grand rounds objective	Survey	No. of respondents	Response (%)			*P* value†
			Quite important or very important	Fairly important	Somewhat important or not important	
Provide updates in diagnosis and treatment	1988‡	117	81	17	2	.08
	Current	99	91	10	0	
Provide updates in medical research	1988	117	50	36	14	.047
	Current	99	67	22	11	
Promote collegiality among faculty	1988	117	44	25	31	.56
	Current	99	50	26	24	
Provide CME credit	1988	116	18	21	61	<.001
	Current	99	37	31	31	
Educate IM house staff	1988	117	74	21	6	.048
	Current	99	87	9	4	
Educate IM faculty	1988	117	62	30	8	<.001
	Current	99	85	11	4	
Provide income for DOM	1988	116	0	0.9	99	.73
	Current	97	1	1	98	
Generate referrals to DOM	1988	117	3	5	92	.02
	Current	99	0	14	86	

*CME = continuing medical education; DOM = department of medicine; IM = internal medicine.
†The χ^2 test was used for comparing the results of the current survey to those of the 1988 survey conducted by Parrino and White[5] (the Fisher exact test was used for comparisons in which the expected value in any 1 cell of a contingency table was ≤5).
‡Results of the 1988 survey conducted by Parrino and White.[5]

important" or "fairly important" in the current survey compared with the 1988 survey[5] (Table 1).

Format, Content, and Other Educational Aspects of MGR

By far, the most common format of MGR was the didactic lecture, used by 94 departments (95%). Only 13 respondents (13%) reported using interactive sessions, panel discussions, and debates in combination with or in addition to didactic lectures. One topic was presented per MGR session in 97 departments (98%) and 2 topics in only 2 departments (2%). Seventy-eight departments (79%) used more than 1 presenter (eg, panel) at least occasionally at MGR.

Five questions related to the format and content of MGR were taken from the 1988 survey[5] (Table 2). Respondents to the current survey reported that presentations were prepared specifically for MGR at least half of the time in 85 departments (86%). However, case presentations were a regular part of MGR at least half of the time in only 42 departments (42%), and no department reported bringing patients to MGR more than half the time (on further questioning, only 35 departments [35%] reported bringing patients to MGR occasionally). Only 13 departments (13%) assessed knowledge (eg, preconference and postconference testing) more than half the time. Finally, 56 departments (57%) used outside speakers (ie, from outside the department's institution) at least half the time (on further questioning, 97 [98%] used outside speakers at least occasionally).

The responses to the format and content questions in the current survey were significantly different compared with the responses to the same questions in the 1988 survey,[5] except for the question regarding the frequency of bringing patients to MGR. These differences were primarily due to higher proportions of respondents reporting using presentations specifically prepared for MGR, preconference and postconference knowledge assessments, and outside speakers and lower proportions using case presentations in the current survey compared with the 1988 survey[5] (Table 2).

Respondents were asked about methods used to determine topics presented at MGR. The MGR presenters determined the topics in 66 departments (67%). Needs assessments and topics assigned to presenters were used in 44 (44%) and 33 (33%) departments, respectively (the total of the percentages is >100 because some departments used >1 method). In fact, 30 respondents (30%) listed other means (the most common of which was developing a list of desired topics from which presenters were asked to choose). The topics presented at MGR were clinical or mostly clinical in 56 departments (57%) and half clinical and half research in the remainder.

Eighty-three departments (84%) reported using a mechanism for evaluating individual MGR sessions. The respondents were asked to describe the method their department used. The most common reported method was a paper evaluation form in 56 departments (67%), followed by periodic (eg, monthly) surveys in 10 (12%), electronic evaluations in 5 (6%), and unknown in the remainder. Notably, only 54 (55%) of all 99 departments provided regular feedback directly to presenters at least half the time.

TABLE 2. **Format and Content of Medical Grand Rounds (MGR)**

Question	Survey	No. of respondents	Response (%)			*P* value*
			More than half the time	Half the time	Less than half the time	
How often do your presenters specifically prepare original material for MGR?	1988†	117	53	26	21	.04
	Current	97	70	18	12	
How often are case presentations a regular part of MGR?	1988	116	33	18	49	.049
	Current	99	18	24	58	
How often are patients brought to MGR?	1988	117	2	0.9	97	.50
	Current	98	0	0	100	
How often do you assess knowledge gained at MGR (eg, preconference and postconference testing)?	1988	117	0.9	2	97	<.001
	Current	98	13	0	87	
How often do you use outside speakers?	1988	117	13	23	64	.003
	Current	97	28	30	42	

*The χ^2 test was used for comparing the results of the current survey to those of the 1988 survey conducted by Parrino and White[5] (the Fisher exact test was used for comparisons in which the expected value in any 1 cell of a contingency table was ≤5).
†Results of the 1988 survey conducted by Parrino and White.[5]

In nearly all (98%) of the departments, CME credit for attending MGR was offered. However, in 12 (14%) of the 83 departments, MGR attendees were required to complete evaluations of MGR presenters to get CME credit.

Financial Support of MGR

In 86 (87%) of all 99 departments, MGR was regarded as the "most expensive" conference to conduct. Institutional or departmental funding was used to support MGR in 85 departments (86%), industry funds in 63 (64%), and endowed funds in 27 (27%). Many departments used a combination of these funding sources to support MGR. Notably, 68 departments (69%) allowed consumption of food at MGR, of which 44 (65%) provided the food free of charge. These 44 respondents were asked to identify the source of funding for the complimentary food. Of the 39 who answered the question, 24 (62%) said the institution or department paid for the food, and 15 (38%) said industry (eg, pharmaceutical) representatives paid for the food. Finally, 3 departments specifically reported using speakers recruited and sponsored by industry representatives.

Challenges and Distractions at MGR

Respondents were asked to rate the significance of a number of potential challenges and distractions at MGR. Conflicting meetings and other responsibilities for the potential attendees were moderate to major problems in 39 departments (39%). Lack of presenter-attendee interaction (passive and uninvolved attendees) was a moderate to major problem in 37 departments (37%). Noise, inconvenient location, attendee clustering at the rear of the room, and MGR session starting or ending late were regarded as minor or not problems in most departments (Table 3).

Attendance at MGR

Attendance at MGR was tracked in 88 departments (89%) using sign-in sheets and in 8 departments (8%) using electronic means. Only 3 departments (3%) did not track attendance. Respondents were asked to estimate attendance at MGR by internal medicine house staff and faculty. Of the 98 departments that responded to this question, the estimated attendance of house staff at MGR was 61% or more in 48 departments (49%) and 41% to 60% in 32 (33%). Notably, in 85 departments (86%), internal medicine residents were required to attend MGR. The estimated attendance of general internal medicine faculty at MGR was 61% or more in 21 departments (21%) and 41% to 60% in 24 (24%), whereas the estimated attendance of internal medicine subspecialty faculty at MGR was 61% or more in only 7 departments (7%) and 41% to 60% in only 18 (18%).

TABLE 3. **Challenges and Distractions of Medical Grand Rounds (MGR)**

Potential problems related to MGR	No. of respondents	Response (%)				
		Major problem	Significant problem	Moderate problem	Minor problem	No problem
Conflicting meetings and other conferences	99	2	10	27	40	20
Little presenter-attendee interaction; attendees passive	99	0	11	26	35	27
Attendees cluster at the rear of the conference room	99	2	7	8	50	33
Session starts and/or ends late	98	1	5	10	35	49
Inconvenient location	99	0	3	8	19	70
Noise	99	0	0	5	44	51

Internal medicine physicians were not the only MGR attendees. In 82 departments (83%), medical students rotating on an internal medicine service were required to attend MGR. Other attendees included non–internal medicine physicians (42% of departments), nurse practitioners (46% of departments), physician assistants (34% of departments), nurses (25% of departments), and others.

Respondents were asked to list measures that their departments had taken to increase attendance at MGR. Seventy-seven respondents (78%) reported 139 measures (17 distinct) that comprised 4 broad categories: management focused, presenter focused, format focused, and learner focused (Table 4). The most common measures were encouraging or requiring attendance, increasing publicity, providing food, using case-based presentations, and recruiting better speakers.

Perceived Changes of MGR Over Time

In the current survey, respondents were asked 6 questions regarding their perceptions of how various aspects of MGR have changed over time ("over the years") in their departments (Table 5). Most respondents (62%) thought the quality of MGR had improved over time.

Six questions regarding how various aspects of MGR have changed over time in the current survey were taken from the 1988 survey.[5] No statistically significant differences occurred in the responses to these questions between the 2 surveys, except for the question regarding the perceived quality of MGR over time, in which a higher proportion of respondents to the current survey reported increased quality (and a smaller proportion reported decreased quality) of MGR "over the years" (Table 5).

TABLE 4. **Measures Taken by Departments of Medicine to Improve Attendance at Medical Grand Rounds***

Measure	No. of times mentioned by respondents
Management focused	
Encourage or require attendance	46
More and better publicity	20
Provide free food	14
Change time	10
Senior leadership manage	4
Better audiovisuals	4
Change location	3
Offer CME credit	3
Begin on time	1
Presenter focused	
Better presenters	9
More internal speakers	3
Mentor presenters	1
More external speakers	1
Format focused	
Cased-based presentations	10
Special topic series	2
Learner focused	
Better topics	5
Conduct needs assessments	3

*CME = continuing medical education.

Interventions to Improve the Quality of MGR

Respondents were asked about the potential effects of a number of specific interventions on the quality of MGR at their institutions. Fifty respondents (51%) thought increased financial support would be a fairly to highly valuable intervention. In addition, 41 respondents (41%) thought using more clinical material and 29 respondents (29%) thought bringing patients to MGR would be fairly to highly valuable. Twenty-five respondents (25%) thought presenting more basic research material would be fairly to highly

TABLE 5. **Aspects of Medical Grand Rounds (MGR) and Their Perceived Changes Over Time**

Perceived change	Survey	No. of respondents	Response (%)			*P* value*
			Increased	No change	Decreased	
Popularity of MGR	1988†	101	22	33	46	.15
	Current	99	33	24	42	
Attendance at MGR	1988	101	20	37	44	.13
	Current	99	31	27	41	
Quality of MGR	1988	101	48	31	22	.009
	Current	99	62	31	7	
Importance of MGR	1988	101	29	42	30	.60
	Current	99	25	38	36	
Teaching value of MGR	1988	101	26	52	23	.73
	Current	99	28	46	25	
Social value of MGR	1988	101	7	54	38	.62
	Current	99	9	48	43	

*The χ^2 test was used for comparing the results of the current survey to those of the 1988 survey conducted by Parrino and White[5] (the Fisher exact test was used for comparisons in which the expected value in any 1 cell of a contingency table was ≤5).

†Results of the 1988 survey conducted by Parrino and White.[5]

TABLE 6. **Interventions That Survey Respondents Believed Would Improve the Quality of Medical Grand Rounds in Their Departments**

Intervention	No. of times mentioned by respondents
Management focused	
Protected time to attend	19
Better audiovisuals	6
Provide free food	5
Encourage or require attendance	4
More financial support	4
Less industry presence	3
Change location	2
More publicity	2
Start on time	1
Learner focused	
Facilitate audience participation	6
Knowledge assessment	6
More topics	2
Handouts	1
Presenter focused	
Better presenters	4
More internal speakers	3
Mentor presenters	1
Format focused	
Cased-based presentations	8

valuable. Finally, 22 (22%) thought a better conference room and 10 (10%) thought eliminating distractions (eg, noise) would be fairly to highly valuable interventions for improving the quality of MGR at their institutions.

Respondents were then asked to list other interventions that they believed would improve the quality of MGR at their institutions. Sixty-one respondents (62%) listed 77 interventions that comprised 4 broad categories: learner focused, presenter focused, format focused, and management focused (Table 6). The most frequently suggested interventions were protecting the time for those attending MGR (eg, by eliminating conflicting meetings and patient care duties), using case-based presentations, facilitating audience participation, and using better audiovisuals.

DISCUSSION

We sought to assess the current status of MGR as an educational and social endeavor in departments of medicine at US medical schools. Our results validate those of a survey conducted in 2001 by Hebert and Wright,[6] who found that MGR was offered by and accredited for CME in nearly all departments of medicine. They also reported that, although education was an important objective of MGR, educational needs assessments, program evaluations, and knowledge assessments related to MGR were variably used. Moreover, they found that MGR consisted primarily of lectures and that clinical case presentations or the utilization of patients rarely occurred. Finally, Hebert and Wright found that a greater proportion of respondents perceived that the quality of MGR had improved over time and that the pharmaceutical industry provided most of the funding for MGR. In these areas, we found similar results.

Our study adds to previous research on MGR in a number of important ways. First, many of our survey questions were taken directly from the 1988 survey conducted by Parrino and White,[5] which allowed us to make statistical comparisons of the responses to questions that were in both surveys. These comparisons are novel and allow us to describe how various aspects and views of MGR have changed in recent decades. Second, we obtained detailed information regarding when MGR occurs, the dissemination of information presented at MGR, the individuals responsible for organizing and presiding at MGR, the determination of topics presented at MGR, the attendees at MGR, and the financial support of MGR (eg, complimentary food) in departments of medicine. Third, unlike previous surveys, we assessed perceived changes over time of various aspects of MGR (ie, popularity, importance, teaching values, and social value) and potential challenges and distractions at MGR. Finally, unlike previous surveys, we specifically asked respondents to describe measures that their departments had taken to increase attendance at MGR, comment on the effects of specific interventions on the quality of MGR, and list interventions they believed would improve the quality of MGR at their institutions.

Our study confirms that MGR continues to be a central teaching activity in US departments of medicine. All the departments that responded to our survey conducted MGR, and nearly all of them did so weekly. Most (61%) of the respondents regarded MGR as their most important (and most expensive) departmental conference. Indeed, departmental chairpersons or other leaders organized and presided at MGR in most departments.

Despite its universal presence in US departments of medicine, the educational aspects of MGR are of concern. By far, the most common format of MGR was the didactic lecture. Clinical cases, if used, were usually preludes to a lecture, and patients were almost never present. In fact, responses to the question regarding the frequency of case presentations at MGR in the current survey were significantly different compared with the responses to the same question in the 1988 survey,[5] primarily because fewer departments reported using case presentations in the current survey than in 1988 (Table 2). Furthermore, most respondents (73%) regarded lack of presenter-attendee interaction as a problem in their departments (37% regarded it as a moderate to significant problem). These findings are consistent with previous observations that MGR has evolved from a learner-focused and interactive teaching activity involving patients to a passive activity (ie, didactic lecture) in which patients may not be discussed at all.[4-6]

In the current survey, nearly all departments (98%) reported offering CME credit for attending MGR, and most (69%) rated providing CME credit as a "quite or very important" or "fairly important" objective of MGR. In fact, responses to the question regarding CME credit in the current survey were significantly different compared with the responses to the same question in the 1988 survey,[5] primarily because higher proportions of respondents rated providing CME credit as "quite or very important" or "fairly important" in the current survey than in 1988 (Table 1). As a CME activity, however, MGR should support the professional development of physicians and improve patient outcomes.[11] Although didactic lectures can be an efficient means of summarizing large amounts of information, providing structure for future learning, emphasizing the importance of certain topics, and improving knowledge and attitudes,[11,12] systematic reviews have found that CME activities that use primarily didactic lectures do not improve physician performance or patient outcomes.[13-17] Notably, the same reviews also found that CME activities that use interactive techniques such as case discussions or hands-on practice sessions can improve physician performance and patient outcomes.[13-17]

Adults, including physicians, are self-directing learners who are motivated to learn more by internal drives than external ones. Physicians are more interested in immediate, problem-centered approaches to learning than in subject-centered approaches. Furthermore, most physicians have accumulated a substantial amount of practical experience, a rich resource for learning, and they value learning that integrates with the demands of their lives.[18] In addition, interactive teaching techniques such as case discussions are more effective than didactic lectures in changing physician behavior and patient outcomes.[17] Ironically, case discussions that involve patients were commonly used at MGR in US departments of medicine for decades only to be largely abandoned in recent decades for less effective didactic lectures.

For CME credit to be assigned to an educational activity such as MGR, the Accreditation Council for Continuing Medical Education (ACCME) requires evidence that the activity is needed, has clear objectives, is properly planned, and uses appropriate evaluation methods.[19] Most departments rated providing updates in diagnosis and treatment, providing updates in medical research, and educating house staff and faculty as "quite or very important" objectives of MGR. In fact, the proportions of departments that rated providing updates in medical research and educating house staff and faculty as "quite or very important" were significantly higher in the current survey than in the 1988 survey. However, only 45% of departments conducted needs assessments to guide topic selection for MGR. In fact, the most common means of determining topics for MGR was to let presenters determine the topics (67%). Furthermore, few departments (13%) assessed knowledge gained by MGR attendees at least half the time; however, responses to the question regarding knowledge gained at MGR in the current survey were significantly different compared with the responses to the same question in the 1988 survey,[5] primarily because more departments reported assessing knowledge gained in the current survey than in 1988 (Table 2), and only 54% provided feedback to MGR speakers (which was done inconsistently). These findings are important because physicians may be unaware of what they do not know, and evidence suggests that assessing and addressing physician learning needs may change physician behavior.[11] Furthermore, these findings suggest that MGR in many US departments of medicine are not conducted in accordance with ACCME criteria.

Almost all (91%) of the survey respondents regarded MGR as their department's most expensive conference. External speakers and complimentary food account for most MGR costs. Nearly all departments (98%) invited external speakers to present at MGR. In fact, the proportion of departments reporting the use of outside speakers at least half of the time was significantly higher in the current survey than in the 1988 survey. Furthermore, many departments (44%) provided complimentary food to attendees, presumably to improve attendance.[20-22] However, inviting outside speakers to speak and providing food to attendees are expensive. Because of these costs, many departments reported relying on industry (eg, pharmaceutical companies) financial support of MGR and some reported using speakers specifically recruited and sponsored by industry representatives. In fact, industry spends millions of dollars every year to support CME activities, including MGR.[23-25]

Industry support of MGR raises the ethical concern of potential inappropriate industry influence over MGR organizers, contents, speakers, and attendees.[22] Indeed, several systematic reviews have found that industry-sponsored CME activities preferentially highlight the sponsor's products (eg, drugs), and attending industry-sponsored CME activities was associated with increased physician prescribing of the sponsors' products.[26,27] However, this ethical concern can be addressed by adhering to the following guidelines: (1) industry support (eg, funds used for complimentary food) must be unrestricted; (2) faculty must disclose conflicts of interest; (3) industry representatives should not determine the content of MGR; and (4) MGR topics should be presented without bias, especially when the industry sponsor's products are discussed.[22,28,29]

Many respondents (41%) reported decreased attendance at MGR. Despite the fact that most departments required

internal medicine trainees to attend MGR, the average attendance at MGR in most departments (58%) was only 100 persons or less. Notably, most respondents (79%) believed that conflicting meetings and conferences were minor to major problems (Table 3). Nevertheless, most departments (77%) had taken specific measures to improve attendance. These measures comprised 4 broad categories: management, presenter, format, and learner focused (Table 4). Commonly attempted methods to increase attendance at MGR were encouraging attendance, increasing publicity, providing complimentary food, changing the time of MGR, using better presenters, and using cased-based presentations. Indeed, an organized effort, including adopting policies that discourage scheduling of departmental meetings and other activities at the same time as MGR, can improve attendance at MGR.[20] However, each institution has a unique culture and set of educational needs; thus, specific measures to improve MGR attendance at one institution may not work at others.

Despite attendance concerns, most (62%) of the survey respondents said the quality of MGR in their departments had improved over time. In fact, we found a significant increase in the proportion of respondents who perceived an increase in the quality of MGR over time in the current survey vs in the 1988 survey. Some departments reported using evidence-based CME teaching methods, including interactive sessions (eg, audience response systems) and case-based discussions, to improve the quality of MGR.[13-17] Respondents were also asked to list measures that would improve the quality of MGR. These measures comprised 4 broad categories: management, presenter, format, and learner focused (Table 6). Commonly cited measures to improve the quality of MGR were protecting time for attending MGR, using case-based presentations, facilitating audience participation, conducting knowledge assessments, using better audiovisuals, and providing free food.

Many respondents to the current survey (43%) believed the social value of MGR had decreased over time, and few (9%) believed it had increased. These findings are similar to those of the 1988 survey[5] (Table 5). These perceptions may be due to the fragmentation of departments of medicine in recent decades. Subspecialization has led to some of this fragmentation. As internal medicine subspecialties have expanded their areas of knowledge and expertise, they have moved from the "core" of internal medicine.[30] Subspecialties not only have their own professional societies, but subspecialty divisions in many institutions have their own educational conferences. On the other hand, the diversity of attendees and topics presented at MGR is broad. Thus, some internal medicine subspecialists may not perceive an educational value to attending MGR, where topics unrelated to their subspecialty are presented. In fact, respondents to our survey reported low attendance at MGR by subspecialists.

Nevertheless, in addition to education, survey respondents reported that promoting collegiality was an important objective of MGR. The finding that respondents regarded MGR as an important social enterprise is important. The defining characteristics of groups, including departments of medicine, are the perception of being a group, interdependence of group members, commonality of purpose, and social interaction.[31] To be considered a group, members must interact with each other in meaningful ways. For departments of medicine, MGR may facilitate interaction among faculty members. In fact, MGR has been called an "occupational ritual" that provides a context in which physician colleagues regularly gather to discuss clinical problems, integrate new knowledge, reflect on the humanistic aspects of medicine, and assert their obligations to patients.[32] Furthermore, like all organizations, departments of medicine must integrate specialized knowledge into common tasks[33]; MGR may facilitate this integration. Finally, MGR may provide opportunities for individuals from increasingly disparate groups (eg, physicians from different subspecialty divisions) to interact and learn from and with each other.[34] The desire to maintain group cohesiveness, enhance collegiality, and integrate specialized knowledge may, in part, account for the continued universal presence of MGR in US departments of medicine.

Our study has several limitations. Our results reflect the impressions and opinions of respondents who play a role in organizing MGR in their respective institutions, a potential source of reporting bias. Although our response rate was excellent (74%), departments that did not respond may have unique characteristics (and hence unique perspectives on MGR) that would affect their responses to the survey and the overall results. Finally, our results may not completely apply to departments of medicine unaffiliated with US medical schools.

CONCLUSIONS AND RECOMMENDATIONS

Medical grand rounds remains a universal educational and social endeavor in departments of medicine at US medical schools. Indeed, it is regarded as the most important (and most expensive) conference by most departments. However, case discussions are infrequently used, and patients are rarely present at MGR. Nearly all departments used the didactic lecture, a teaching method that has not been shown to change physician performance and patient outcomes. Furthermore, many departments do not use planning, needs assessment, and evaluation processes in accordance with ACCME guidelines, and many departments rely on industry support to fund MGR. Although the quality of MGR in

most departments was perceived to have increased over time, the attendance at and social value of MGR were perceived to have decreased. Nevertheless, despite the problems associated with MGR, US departments of medicine continue to sponsor this activity. This continued sponsorship might be in part due to desires not only to educate but also to promote collegiality among departmental members.

To improve the value of MGR, departments of medicine should develop a strategic plan for MGR that includes identifying a goal or goals, the target audience, and measurable outcomes for the conference. Departments should use evidence-based teaching methods (eg, problem-based and interactive methods), learner needs assessments, and evaluation mechanisms (eg, speaker feedback and assessments of knowledge gained at MGR). Planners of MGR who rely on financial support from industry should be mindful of possible inappropriate industry influence, especially if presenters are recruited directly by industry representatives. Furthermore, departments should eliminate barriers to attending MGR (eg, conflicting meetings) that are unique to their institutions and implement measures that encourage attendance. Finally, MGR appears to serve an important social function. In an era of increasing fragmentation of departments of medicine, MGR may play an increasingly important role in providing opportunities for individuals from disparate groups to interact and learn from each other. Hence, MGR organizers should plan sessions that are relevant to most, if not all, members of their departments. Indeed, the desires to integrate specialized knowledge, maintain group cohesiveness, and enhance collegiality will likely encourage the continued universal presence of MGR in departments of medicine.

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