ORIGINAL ARTICLES

Informal Consultations Provided to General Internists by the Gastroenterology Department of an HMO

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OBJECTIVE: To study the process, outcomes, and time spent on informal consultations provided by gastroenterologists to the primary care general internists of an HMO.

DESIGN: Observational study.

SETTING: A large, urban staff-model HMO.

PATIENTS/PARTICIPANTS: Seven gastroenterologists constituting the total workforce of the gastroenterology department of the HMO.

MEASUREMENTS AND MAIN RESULTS: Data on 91 informal consultations were obtained, of which 55 (60%) involved the acute management of a patient with new symptoms or test results, and 36 (40%) were for questions related to nonacute diagnostic test selection or medical therapy. Questions regarding patients previously unknown to the gastroenterology department accounted for 74 (81%) of the consultations. Formal referral was recommended in only 16 (22%) of these cases. As judged by the time data gathered on the 91 consultations, the gastroenterologists spent approximately 7.2 hours per week to provide informal consultation for the entire HMO.

CONCLUSIONS: Gastroenterologists spend a significant amount of time providing informal consultation to their general internist colleagues in this HMO. The role informal consultation plays in the workload of physicians and in the clinical care of populations is an important question for health care system design, policy, and research.

KEY WORDS: informal consultation; gastroenterologists; health maintenance organization (HMO); physician workload. *J GEN INTERN MED* 1998;13:435-438.

Informal consultation is a process by which a clinician obtains information or advice from a consulting clinician about the diagnosis or management of a particular patient without the patient being seen by the consultant in an official capacity.¹⁻⁴ Because formal referrals to specialists often represent a gateway to expensive and inva-

sive interventions, integrated health care delivery systems have shown increasing interest in managing the interface between generalists and specialists in search of greater efficiency and quality.⁵⁻⁷ The contribution of informal consultation to the generalist-specialist interface, however, remains poorly understood.

Research on informal consultation has been hindered by its "invisibility" in administrative and medical record databases, but some data have suggested that informal consultations are prevalent in some settings.^{3,4} Despite the importance to physicians of accounting for their time and productivity within managed care, no published study thus far has evaluated the time spent in informal consultations by a medical specialty group across the continuum of care within a managed care system.

In this study we monitored the informal consultations provided to primary care physicians by the seven physicians of the gastroenterology department of a large staff-model HMO. One study found gastroenterology to be the medical subspecialty that receives the greatest number of formal referrals from general internists.⁸ The primary goal of our study was to estimate the "time cost" of informal consultation by the gastroenterologists across the continuum of care during a typical week.

METHODS

Setting

This study was performed within the staff-model division of Harvard Pilgrim Health Care (HPHC), a large mixed-model managed care organization based in New England. Six HPHC centers in the urban Boston area form the core of a staff-model HMO that serves approximately 140,000 adult members over the age of 18. All of the approximately 125 primary care physicians within this portion of the staff-model HMO are general internists.

In general, referral by a primary care internist, or occasionally by an oncologist or surgeon, is necessary for members of the HMO to be seen for the first time by a gastroenterologist. At the time of this study, in 1996, referral (but not discussion) was necessary for consideration of endoscopy. Primary care internists and staff gastroenterologists were paid a straight salary, with less than 3% of salary potentially available as a year-end bonus if the entire HMO met its financial targets. Under this system, neither the primary care internists nor the gastroenterologists had

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a direct financial incentive linked to referrals, nor were referral rates or informal consultation analyzed in any way as part of clinicians' performance review.

The gastroenterologists in this HMO see outpatients in offices within the same health center buildings in which their primary care colleagues practice. In some of the health centers, the office space for gastroenterology is directly contiguous with primary care practices. The health centers have a unified computerized medical record in which all medical information is available. Primary care internists and gastroenterologists, therefore, have nearly real-time access to each other's medical notes immediately following their entry into the medical record system. Similarly, all laboratory and pathology data are entered into the common computerized medical record and are available to all clinicians via computer terminals located in every office.

The Gastroenterology Practice

Seven board-certified gastroenterologists constitute the gastroenterology department that serves the six health centers of the HMO in this study. Each gastroenterologist sees patients in the office, performs procedures at the hospital, and shares in on-call and consultative duties. The gastroenterologists do not limit their clinical practice to only one location: six of the seven physicians conduct outpatient sessions each week at two or more of the health centers.

Each day of the week one of the gastroenterologists is designated as being "on call" by beeper to handle questions on acute patient management from primary care internists. The on-call gastroenterologist spends the day performing procedures at the hospital and does not see outpatients that day. If a primary care internist calls a gastroenterology office at any health center and asks for general assistance with a patient case or question, the on-call gastroenterologist will be paged. However, the other gastroenterologists in practice who are not on call still receive and respond to direct calls for informal consultation from primary care internists.

During a typical week, each of the seven gastroenterologists has 33 hours scheduled for direct patient care, including office appointments and procedure time. The gastroenterologists all share in on-call duties and in providing formal consultation for hospitalized patients. When combined with practice management, these commitments produce an average work week of approximately 50 to 60 hours for each gastroenterologist.

Sampling Strategy

Data were collected on selected clinical sessions and from on-call logs from July 8 to August 9, 1996. The goal of the sampling strategy was to gather data that could be used to accurately estimate the time spent by the gastroenterology department as a whole in providing informal consultation to primary care clinicians within the health

centers. Because of time pressures and the threat of interphysician variation in data gathering, it was not thought feasible to ask the gastroenterologists to record their own informal consultations. We therefore devised a strategy in which the gastroenterologists were each followed throughout their daily practice by a second-year medical student recording information on all informal consultations. The student followed each gastroenterologist on several occasions, at different centers, and on different days of the week in order to monitor sessions in a pattern that would most closely approximate a representative sample of the many combinations possible between each gastroenterologist, center, and day of the week. The gastroenterologists themselves were responsible for recording data on their own informal consultations only when they were on call during nighttime and weekend hours. No system was available to assess the relative accuracy of these physician self-reports.

An informal consultation was defined as any conversation, in person or by telephone, between a primary care clinician and a gastroenterologist regarding a particular patient or a clinical question. Both the student and the gastroenterologists used a formatted pocket-sized data sheet to record the following information on each informal consultation: the date and time; type (phone vs face-to-face); duration; whether the patient had been seen before in the gastroenterology department; purpose (acute presentation vs nonacute diagnostic test or treatment advice); and outcome of each informal consultation (formal referral recommended or not).

Estimating Total Informal Consultation Time

We used the gastroenterologists' standard schedule of clinical sessions and on-call duties as a template with which to derive an estimate of total time spent in informal consultation per week. Time estimates for informal consultations provided during on-call days, nights, and weekends could be taken directly from the averages of the data gathered, but because we gathered data on only a sample of all outpatient sessions, we did not have data from each unique combination of physician, center, and day of the week among the practice sessions scheduled each week. To compensate for this limitation, the time spent on informal consultations for a particular session was assumed to be the average time spent by that physician in all the sessions that we had actively monitored. Therefore, for all clinical sessions scheduled for physician A, no matter at which center or on what day, we input into the summation model the same number: the average time spent by physician A on the days of the week and at the health centers where that physician had worked when monitored.

RESULTS

We obtained first-hand data from 18 clinical practice sessions, 9 during the morning and 9 in the afternoon; we

also gathered data directly from five on-call weekdays (8 AM to 5 PM), and we used the log books kept by the gastroenterologist on call to record data during five weekday nights (5 PM to 8 AM) and four full weekends on call (Saturday 8 AM to Monday 8 AM). All six health centers and all seven gastroenterologists were included in the data gathered, although for one physician no clinical practice sessions were monitored because his sessions were reduced and replaced by extra on-call sessions during the time of the study.

Data on 91 informal consultations were gathered during this study. All of the informal consultations were by telephone; no spontaneous, face-to-face, informal consultations occurred during the sessions monitored. Of the 91 informal consultations, 55 (60%) were noted to involve the acute management of a patient with new symptoms or test results; the remaining 36 consultations involved questions related to nonacute diagnostic test selection or medical therapy. Questions regarding "new" patients unknown to the gastroenterology department made up 74 (81%) of all consultations, but a recommendation for formal referral of the patient to the gastroenterology department was made in only 16 (22%) of these cases.

During the 18 clinical practice sessions, the average number of calls per session was 2.3 (range 0–9), and the average amount of time spent performing informal consultations per session was 10.1 minutes (range 0–42.5). The on-call gastroenterologist averaged 4.6 calls (range 1–6) per day, requiring an average of 30 minutes (range 5–37.5) to complete.

On weekday nights, the on-call gastroenterologist received few calls, averaging only 1.25 per night, corresponding to an average time of 3.88 minutes. Weekends on call produced an average of 3.75 informal consultations that took an average of 19.38 minutes to perform.

The average number of calls and amount of time spent for informal consultations during practice sessions differed widely among the gastroenterologists (Table 1). For example, the physician who spent the most time giving informal consultations spent an average of 21 min-

utes per 4-hour clinical session, compared with an average of only 6 minutes per clinical session spent by the physician with the lowest average ($p = .14$).

To reach a final summation for time spent on informal consultation in a week, we added the time averages for on-call days, nights, and weekends to these time estimates for practice sessions, and subtracted from each weekday the contribution to practice session time expected for the physician in the group who would be on call that day. This summation resulted in a total time estimate of 430.05 minutes (7.2 hours) per week for the physician-based estimate (Fig. 1), and 436.68 minutes (7.3 hours) per week for the health center-based estimate.

For the seven gastroenterologists who constitute the department, each week would be expected to contain $7 \times 33 = 231$ hours scheduled for direct patient care. Using this expected time for direct patient care as the denominator, an estimate of 7.2 hours spent in informal consultation would represent 3% of the clinical effort of the gastroenterology department.

DISCUSSION

Our data suggest that more than 7 hours per week is spent by the gastroenterology department of this staff-model HMO to provide informal consultations for a population of 140,000 adults. The cost of this 7 hours, were it financed separately as direct patient contact time, might be that of a gastroenterologist in a position of approxi-

Total = 430.05 minutes (7.2 hours) per week

Figure 1. Approximation of total informal consultation time provided by the gastroenterology department.

Table 1. Informal Consultations Delivered by Each Gastroenterologist During Regularly Scheduled Outpatient Clinical Sessions

Physician	Number of Outpatient Sessions Monitored	Average Number of Informal Consultations per Session	Average (Range) of Minutes Spent per Session
MD1	4	5.25	21 (10–42.5)
MD2	4	0.75	6 (0–15)
MD3	2	1	8 (0–15)
MD4	2	1.5	9 (7.5–10)
MD5	2	2.5	11 (10–12.5)
MD6	4	1.5	8 (0–15)
MD7	0		

mately 0.20 full-time-equivalent. Conversely, this amount of time represents a very small percentage of the overall clinical effort provided by the department as a whole.

Because informal consultations are not systematically recorded in most clinical or administrative databases, these are the first published data with which the magnitude of this "invisible" clinical effort may be gauged. No previous study to our knowledge has attempted to measure the number of informal consultations or the amount of time spent in informal consultation for any subspecialty in the care of a defined population.

Unlike official referrals and consultations, informal consultations have been invisible to health services research because they are neither routinely billed for nor recorded in the medical record. Yet, like formal referral, informal consultation may have an important impact on the quality and costs of care.¹ Within integrated health care delivery systems, programs to foster informal consultation in lieu of formal referral have been described as ideal mechanisms to reap the benefits of integration by making clinical expertise available to the patient when it can be of the greatest benefit and efficiency.⁹

It is easy to speculate that informal consultation is more common in this salaried staff-model HMO practice setting than in other multispecialty group practices, particularly those with fee-for-service incentives for both primary care and specialist physicians. Because there was no financial incentive for these gastroenterologists to see patients in formal consultation, it is likely that informal consultation would be more common in this HMO than in traditional fee-for-service settings. How patient outcomes are affected by a system of care that fosters informal over formal consultation is an important question that cannot be addressed by this study. Nor do our data provide any insight into the appropriate amount of time gastroenterologists should spend providing informal consultation to primary care colleagues. Understanding how the informal consultation practices of gastroenterologists and other specialists in different practice settings vary and affect the cost-effectiveness of care is an area that will require further research.

This study did not seek to capture any data on informal consultation provided by general internists for the care of their patients formally referred to the gastroenterology department. Informal consultation from a primary care physician to a consultant for the management of conditions outside the scope of the referral would be rare in this integrated staff-model HMO, but in other settings the contribution of informal consultation by generalists

may not be inconsiderable. This study is also limited by its setting within a single gastroenterology department, and by its reliance on a sampling strategy that could not measure every permutation of practice sessions over time, requiring the use of estimates to build a summation model of the total time spent by the gastroenterology group. Nevertheless, the method of having an independent observer monitoring the gastroenterologists in practice is likely to be more accurate and reliable than a method based on self-report alone.

There was substantial variation among the gastroenterologists in time spent providing informal consultation. Although the number of practice sessions monitored for each physician was relatively small, we believe that the variation we found was due more to the characteristics of the individual physicians (openness to consultation, perceived expertise, etc.) than to random fluctuations.

As policy makers in managed care systems contemplate requirements for specialist manpower and continue to refine new models for referral and consultation, it will be important to remember the role that informal consultation plays in the workload of physicians and in the clinical care of a population. Further study of informal consultation as part of the spectrum of generalist-specialist interaction may shed light on new ways to bring specialist expertise into the health care process in the most cost-effective manner.

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