

Primary Care Gatekeepers in HMOs

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The most pressing issue in health care delivery today is inflationary cost increases. The gatekeeping role of primary care physicians, particularly family physicians, may lower health care costs through a more judicious use of specialty referrals, expensive tests, and hospitalization. The study of such an impact is most readily carried out in the practice setting of health maintenance organizations (HMOs), where there is a defined patient population. Incomplete data and lack of sensitive indicators of the gatekeeping effect are limitations of this preliminary study. The results show, however, that the internal organization of an HMO does not influence hospital and ambulatory care utilization rates, with the exception that HMOs staffed by a group of salaried physicians (staff HMOs) reported higher ambulatory care utilization. No significant differences were demonstrated in hospital or ambulatory care utilization rates among HMOs using more primary care physicians or family physicians than others. The results indicate that ambulatory care utilization rates are proportional to the number of physicians per 1,000 members. The results also suggest that there may be an inverse relationship between hospital utilization rates and the number of primary care physicians, especially if they are family physicians. Further studies need more specific indicators to evaluate the effect of the gatekeeping role in health care delivery.

With increasing concern over the rapid rise in health care costs in recent years has come an interest in the gatekeeping role of primary care physicians, and family physicians in particular, as a means of promoting a more conservative medical practice style. Such practice is characterized by the judicious use of specialty referrals, expensive tests, and hospitalization. The development of health maintenance organizations (HMOs), espe-

cially those that are prepaid group practice plans, gives strong incentives for delivery patterns that provide needed services while being cost conscious. For this reason, this study examined the application of the gatekeeping principle within such HMOs. The purpose of this paper is to present some preliminary findings, mainly descriptive in nature, on the role of primary care physicians in HMOs and to suggest further research on this topic.

Background

Over a period of 40 years prepaid group practices have been providing health care to a slowly increasing percentage of the US population. In 1973 about 4.4 million people were enrolled in

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such plans, and by June 1981 this number had increased to 10.3 million, just under 4 percent of the total population.¹

The Health Maintenance Organization Act of 1973 described the common elements in prepaid group practices and prescribed certain regulations to be met by those plans desirous of federal qualification as health maintenance organizations. There remain, however, many variations among HMOs, an indication of their responsiveness to local needs at both consumer and provider levels.

By mid-1982 there was a total of 264 HMOs in the United States.² These have been categorized into four model types:

Staff, an HMO that delivers services through a group practice established to provide health services to HMO members; physicians are salaried staff of the HMO

Group, an HMO that contracts with a group practice to provide health services; the group is usually compensated on a capitation basis

Network, an HMO that contracts with two or more group practices to provide health services; the groups are usually compensated on a capitation basis

Individual Practice Association (IPA), an HMO that contracts with an association of physicians from various settings (some solo practitioners, some groups) to provide health services; physicians are usually reimbursed on a fee-for-service basis

According to the Department of Health and Human Services, 16 percent of all HMOs are staff models, 36 percent are group models, 9 percent are network models, and 37 percent are IPAs.

Among the many organizational factors that influence HMO performance, Luft³ concentrates on the following: the goals of the organization as indicated by its profit-nonprofit orientation, the presence of consumer involvement, the administrative structure, the degree of operational managerial skills, the method of physician reimbursement, and the organizational control of specialists and hospital services.

In discussing each of these, Luft points out that "the major issue with respect to specialists is the extent to which an HMO limits access to specialists through maintenance of control through the primary care physician."³ This is an important aspect of the gatekeeping role of primary care physicians within HMOs. Additional aspects to consider are the control of the use of expensive tests

and procedures and the control of the level of hospital utilization. Primary care physicians (an increasing percentage of whom are family physicians) have the potential for reducing health care costs in all three areas in the following ways: They can reduce specialist referrals (1) by restricting unnecessary referrals to specialists, as may occur when self-referral is an option for HMO members, (2) by choosing the appropriate specialist for the individual patient when referral is necessary, and (3) by choosing a specialist who will return the patient to the primary care physician in a timely fashion. They can reduce the use of tests and procedures (1) by careful history taking and physical examinations so that resort to costly diagnostic tests and procedures is kept to a minimum, and (2) by choosing specialists who show restraint in their use of expensive tests and procedures. They can reduce hospital utilization (1) by monitoring their own generation of hospital inpatient costs relative both to the severity of the condition of the patient and to the different levels and costs of hospital care available, and (2) by choosing specialists who show similar restraint in hospital utilization.

Fear is often expressed that promoting such conservative medical practice styles will lead to inadequate patient care on the part of HMOs.^{4,5} Although such a result is possible in any delivery system using salary or capitation fees as methods of reimbursement, many family physicians remain committed to high standards of patient care while practicing a conservative style of medicine.^{6,7} Within the context of the HMO movement, two factors that balance the temptation to give inadequate care are peer review by physician members and the disenrollment option for patients.

The use of primary care gatekeepers has been attempted by some HMOs, but little is known about the degree of utilization or the impact on cost, standard of care, and patient satisfaction. It is hoped that this study will stimulate further research of these issues.

Methods

This study used information from the 1981 National HMO Census combined with that obtained from a questionnaire sent to 153 HMOs. All staff, group, and network HMOs included in the census, plus several that began operations after the census date (June 30, 1981) were examined. IPAs were not included in this study because it was believed that any effect of the primary care gatekeeping

role in an HMO is likely to be least marked when fee for service is the method of physician reimbursement. One hundred four HMOs returned the questionnaire, for a response rate of 68 percent. Most questionnaires were completed by the executive directors of the organizations.

If the gatekeeping role of primary care physicians does indeed influence the cost of care, it seems reasonable to use as an indicator of this influence the relationship between hospital utilization rates and the use of primary care physicians within an HMO. A second indicator of utilization readily available is ambulatory care utilization measured by physician encounters per member per year.

Using these indicators, the following two hypotheses were tested: (1) there is an inverse relationship between hospital utilization rates and the degree of support for the gatekeeping function of the primary care physician, and (2) there is a direct relationship between ambulatory care utilization rates and the degree of support for the gatekeeping function of the primary care physician.

A further purpose of this study was to examine the impact made by family physicians as primary care physicians within HMOs using the same two indicators.

The study data were matched with data from the 1981 National HMO Census using the following indicators:

1. Federal qualification. In both groups approximately 60 percent of the HMOs were federally qualified.

2. Distribution of size of membership. This showed a very close fit (Table 1).

3. Inpatient utilization rates measured by the number of hospital days per 1,000 members per year. The census mean was 434, and the study group mean was 439.

4. Ambulatory care statistics measured by the number of physician encounters per member per year. The census mean was 3.49, and the study group had a mean of 3.55.

From this evidence it was assumed that the study group was a representative sample of the non-IPA HMO population and was not biased by self-selection.

HMO policies concerning patient access to specialists were measured in two ways. First, they were measured by the response given to the question "Is *direct* access to specialists by all patients available under the terms of your HMO?" (Only

Table 1. Distribution and Size of Membership by HMO Census Group and Study Group

| Membership Size | HMO Census (n = 243) % | Study Group (n = 104) % |
|-----------------|------------------------------|-------------------------------|
| 1-4,999 | 21 | 20 |
| 5,000-14,999 | 33 | 31 |
| 15,000-24,999 | 17 | 19 |
| 25,000-49,999 | 16 | 17 |
| 50,000-99,999 | 7 | 3 |
| 100,000 or more | 7 | 10 |

positive and negative answers were counted, omitting six who gave justifiably ambiguous responses.) Second, a ranking was given on a scale of 1 through 5 (unimportant through very important) measuring the respondent's perception of the importance of patients' seeing a primary care physician before seeing a specialist.

The following measures of physician availability were used: total number of physicians per 1,000 members, total number of primary care physicians per 1,000 members, total number of family physicians per 1,000 members, total number of primary care physicians as a percentage of the total number of physicians, and number of family physicians as a percentage of the total number of physicians. For each group of physicians an estimate of the number of full-time equivalents was used. Relationships were sought between physician availability and the following variables: type of HMO, descriptive base of HMO (hospital or multi-specialty based, or primary care or family practice based), number of hospital days per 1,000 members per year, access to specialists, and importance of primary care gatekeeping.

Results

Statistical tests were applied to all sets of data used in the study. No statistical significance was found using nonparametric tests (chi-square) for the nominal data. When *t* tests were applied to differences in means, no statistical significance was demonstrated.

HMO Characteristics

Staff and group models. Within the study group 29 (28 percent) of the HMOs were staff models, and 70 (67 percent) were group or network models (considered as one type in this study). There were 5 (5 percent) with model type unknown.

Federal qualification. The federal qualification status was the same in the two models. Sixty-two percent of each type, staff and group, were federally qualified.

Size of membership. The mean membership size was 31,507 for staff model HMOs in the study group and was 90,506 for group models. The staff models were more likely to be middle sized, that is, between 5,000 and 50,000 members. Only 4 (13 percent) of staff models had fewer than 5,000 members, and only 3 (10 percent) had more than 50,000 members. For group models, 14 (22 percent) had fewer than 5,000 members and 11 (17 percent) had more than 50,000 members.

Descriptive base. Overall, 57 (55 percent) of the HMOs in the study group described themselves as hospital or multispecialty based, and 44 (42 percent) described themselves as primary care or family practice based. Relatively more staff models described their HMO as primary care or family practice based (17, or 59 percent) than did group models (25, or 36 percent).

Access to specialists. Staff and group models showed no difference in the availability to patients of direct access to specialists: 4 (14 percent) and 9 (13 percent), respectively, allowed self-referral. Those HMOs describing themselves as primary care or family practice based were more likely to restrict access to specialists (42, or 95 percent) than those categorized as hospital or multispecialty based (45, or 79 percent).

Attitude toward primary care gatekeeping. Overall, 70 percent of the HMOs studied ranked primary care gatekeeping as very important. Only 3 percent ranked it as unimportant. Staff and group model HMOs ascribed the same importance to primary care gatekeeping; 20 (68 percent) and 49 (70 percent), respectively, ranked it very important. Primary-care- or family-practice-based HMOs, however, were more likely to rank gatekeeping as very important (34, or 77 percent) than were the hospital- or multispecialty-based HMOs (38, or 67 percent).

Physician staffing. Table 2 shows the percentage of each HMO model type having specified physician-membership ratios. An indication of higher physician-membership ratios appeared for all except family physicians in the group model HMOs. Very little difference existed between the two models in the number of full-time equivalent (FTE) primary care physicians or the number of FTE family physicians as a percentage of the total

Table 2. Percentage of HMOs by Types and Number of Physicians per 1,000 Members

| Type of Physician per 1,000 Members | Type of HMO | |
|-------------------------------------|-------------|-----------|
| | Staff (%) | Group (%) |
| All Physicians | | |
| Less than 2 | 60 | 46 |
| 2 or more | 40 | 54 |
| Primary Care Physicians | | |
| Less than 1.5 | 74 | 61 |
| 1.5 or more | 26 | 39 |
| Family Physicians | | |
| None | 29 | 29 |
| More than zero but less than 1.5 | 57 | 57 |
| 1.5 or more | 14 | 14 |

number of FTE physicians in each HMO. The mean percentage of all primary care physicians was 53.6 percent and of family physicians was 19.7 percent.

Hospital Utilization

HMO characteristics. Hospital utilization rates of HMOs with different characteristics did not vary greatly. The data indicate, however, lower hospitalization rates in group HMOs (423 days per 1,000) and in primary-care- or family-practice-based HMOs (414) compared with staff HMOs (462) and hospital- or multispecialty-based HMOs (446). HMOs ranking primary care gatekeeping very important reported higher hospital utilization rates than those ranking it less important. Neither these differences nor those discussed in the remainder of this section and the ambulatory care utilization section are statistically significant.

Physician-membership ratio. Table 3 indicates higher hospitalization rates in HMOs with a higher number of physicians per 1,000 members. These higher rates are seen for the total number of all physicians and for the total number of primary care physicians. Conversely, hospital utilization rates are lower in HMOs with a greater number of family physicians per 1,000 members.

Percentages of primary care and family physicians. Table 4 displays the differences in hospital utilization rates when the number of primary care physicians in an HMO is expressed as a percentage of the total number of physicians. It suggests that there is lower hospitalization if the percentage of primary care physicians is greater than the

| Type of Physician per 1,000 Members | Hospital Days per 1,000 Members per Year | Physician Encounters per Member per Year |
|-------------------------------------|--|--|
| All Physicians | | |
| Less than 2 | 428 | 3.32 |
| 2 or more | 459 (P = .53) | 3.74 (P = .07) |
| Primary Care Physicians | | |
| Less than 1 | 410 | 3.42 |
| 1 or more | 464 (P = .24) | 3.74 (P = .15) |
| Family Physicians | | |
| Less than 1 | 443 | 3.55 |
| 1 or more | 339 (P = .35) | 3.62 (P = .80) |

| Type of Physician as Percentage of All Physicians | Hospital Days per 1,000 Members per Year | Physician Encounters per Member per Year |
|--|--|--|
| Primary Care Physicians | | |
| Less than 54 percent* | 430 (P = .69) | 3.65 (P = .31) |
| 54 percent or more | 414 | 3.41 |
| Family Physicians | | |
| Less than 20 percent* | 433 (P = .42) | 3.62 (P = .41) |
| 20 percent or more | 402 | 3.41 |
| *The mean percentage of all physicians in a study HMO who are primary care physicians or family physicians | | |

mean percentage (54 percent) for all HMOs in the study. Similar results are seen when the percentage of family physicians is greater than the mean (20 percent).

Ambulatory Care Utilization

HMO characteristics. Staff model HMOs reported fewer physician encounters per member per year (3.27) than did group models (3.71). HMOs dissimilar in other characteristics examined showed very little difference in ambulatory care utilization.

Physician-membership ratio. Table 3 shows that HMOs with 2 or more physicians per 1,000 members reported higher ambulatory care utilization than those with fewer than 2 physicians per 1,000 members. Similar indications were seen in HMOs with 1 or more primary care physicians per 1,000 members, but there was almost no difference between those having fewer than 1, and 1 or more

family physicians per 1,000 members.

Percentages of primary care and family physicians. There is little difference in ambulatory care utilization reported by HMOs with greater or less than the mean percentage of primary care physicians of the total number of physicians (Table 4). The same is true for family physicians.

Discussion

The results of this study do not provide any firm evidence that the primary care gatekeeping principle is effective in containing health care costs. However, no final conclusion can be reached at this stage for the following reasons:

The data used in this study have not been corrected for differences in enrollee characteristics among HMOs, for example, age, sex, health status. Other confounding variables such as percentage of the total HMO enrollment who are Medicaid and Medicare members and the degree of

coverage offered by each HMO also have not been taken into account.

The indicators used, hospital days per 1,000 members per year and physician encounters per member per year, are not necessarily those most sensitive to the measurement of the process of health care delivery using the primary care gatekeeping principle. Other indicators (such as the number of referrals made, their appropriateness and timeliness; the number of tests ordered, by whom, and at what intervals; and the time spent in primary care consultation, especially at the first encounter) may measure more accurately the style of medicine practiced by primary care gatekeepers. Other relevant services that act as supports to primary care gatekeeping are preventive measures, health education, and home health care. The availability of these services will influence the measure of success of primary care gatekeepers in containing health care costs. Another factor may be the protocol followed in relation to the return of patients by specialists to primary care physicians.

The questions used to measure access to specialists may not be true indicators of the actual practice of primary care gatekeeping in an HMO. In most cases the questionnaire was completed by the executive director, who was rarely a physician. Therefore, even though the questions were answered in good faith, the answers do not necessarily imply that the primary care physicians themselves were practicing a style of medicine appropriate to that of the gatekeeper model, with a view to cost containment as well as the improvement of health status. In addition, some physicians counted as primary care physicians may serve a proportion of patients in a specialist capacity, which would confound the results.

Conclusion

It is clear that much work needs to be done in the study of the primary care gatekeeper role and of the potential impact of family physicians in this area. The authors recognize that this role of gatekeeper is not the most satisfying aspect of the work of a family physician. In fact Stephens⁸ goes so far as to describe the tasks of triaging patients and regulating the utilization of services as "objectionable." However, the most pressing issue in health care delivery today is inflationary costs, and a wide variety of methods of containing health care costs is being explored.

The primary care gatekeeper principle is one

that may have an impact on health care costs and is, therefore, worthy of study. It can be effective in two ways—by the physician's own style of medical practice, and by control over the utilization of other services.

This attempt to measure such an impact used HMOs as a practice setting because a defined patient population allows the calculation of rates for purposes of comparison. Practice settings in which the patient population is not so clearly defined are more difficult to study, but that is not to imply that the family physician in the primary care gatekeeping role would have less impact outside HMOs.

The results of this study indicate that there may be an inverse relationship between hospital utilization rates and the number of family physicians working in an HMO. This relationship is present whether the number of family physicians is measured by the ratio to HMO membership or as a percentage of the total number of physicians. Such a trend is not so clearly seen for the cluster of primary care physicians considered as a type in this study (ie, internists, family physicians, and pediatricians).

The relationship between family physicians and ambulatory care utilization was not so clear, nor could it be shown that the primary care gatekeeping role, as measured in this study, is related to differences in utilization rates.

Future studies to show whether the trends described above are associated with a conservative use of more costly services are needed in order to establish the value of primary care gatekeeping principles as a means of reducing health care costs.

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