

# Special Reports

## Structure and performance of health maintenance organizations: A review

by Kathryn M. Langwell

*During the past decade, the number of and enrollment in health maintenance organizations (HMOs) have grown dramatically. In 1980, 236 HMOs served 9 million members. By 1989, there were 591 HMOs with over 34 million enrollees.*

*New HMOs are very different in organizational structure and arrangements than the HMOs that were operating in the 1970s, and the health care markets they serve also have changed substantially with the increasing supply of physicians and declining hospital admissions. Consequently, the accepted research findings on HMO performance in the 1970s may have only limited usefulness in understanding the role of HMOs and their effect on today's market for health services. This is of particular concern as the Health Care Financing Administration considers the further expansion of managed care options available to Medicare and Medicaid beneficiaries.*

*In this article, the author reviews evidence on the relationship between HMO organizational arrangements and performance, and the trends within the HMO industry toward new organizational structures. The implications for Medicare and Medicaid risk contracting are also examined.*

### Introduction

Research on health maintenance organization (HMO) participation in public programs and on the effects of HMOs in serving public program enrollees has focused primarily on the Medicare or Medicaid experience of these HMOs. Most of this research fails to recognize that, for most of these HMOs, the Medicare or Medicaid program represents only one of many contracts from which these organizations draw enrollees.

Federal regulations require that Medicare and Medicaid enrollments not exceed 50 percent of any HMO's total enrollment. Although a few HMOs have enrolled public program members in sufficient numbers to approach that limit, most have enrolled a much smaller proportion of these members in their total enrollment. Nelson et al. (1989) report that the relatively small proportion of

Medicare enrollment is most frequently the result of the deliberate policy of the HMO.

If public program enrollees constitute a relatively small share of most HMOs' members, then studies that attempt to understand the dynamics of HMO participation and the impacts of HMOs on the Medicare and Medicaid markets by focusing on these lines of business exclusively may produce incomplete results. Such research may fail to identify factors that are not unique to the public program contract but which are important in understanding HMO behavior, overall. For example, if most HMOs that withdraw from Medicare risk contracting are individual practice associations (IPAs) that pay their physicians on a fee-for-service basis (Langwell and Hadley, 1989), this information may be important for Medicare HMO contracting and monitoring. It may also be important to know whether IPAs that pay their physicians on a fee-for-service basis are experiencing poor financial performance in their non-Medicare line of business. If they are, then the Medicare experience is simply an additional component of the IPAs' overall experience. If, however, this type of HMO is financially successful in its non-Medicare contracting, then there may be reason to investigate the unique characteristics of Medicare beneficiaries or of Medicare risk contracts that account for this outcome.

Current research on Medicare and Medicaid contracting with HMOs includes examination of variations in performance by selected characteristics of the HMO (e.g., profit status and chain affiliation) and of its market area (e.g., a market area with only a single Medicare HMO option). No examination of the performance of HMOs in their Medicare and Medicaid lines of business (often a relatively small component) has been undertaken. For most HMOs, their competitive position and financial performance in the private program market are far stronger determinants of their behavior and strategic planning than are their Medicare and Medicaid experiences.

The purpose of this article is to provide background information on the organization, operation, and management aspects of HMOs that relate to HMO performance in both the private sector and in the public sector, specifically the Medicare and Medicaid programs. The specific questions to be addressed are:

- What changes in HMO organizational structure and management policies have occurred over time in response to changing market conditions? What structures and policies generally result in better performance?
- What utilization management approaches have evolved over time? Which approaches appear to result in better performance? How is the success of these approaches influenced by the characteristics of the HMOs' organizational arrangements and types of enrollees?

The final section of the article includes a summary of the evidence on HMO internal management and structure and effects on HMO performance, emphasizing the implications for public program policies and the

---

This article was prepared, under Health Care Financing Administration (HCFA) Cooperative Agreement No. 99-C-99169/5-02 with the University of Minnesota/University of Pennsylvania/Mathematica Policy Research Center, for the meeting of the Technical Advisory Panel on Health Maintenance Organization Research convened by HCFA, September 27, 1989.

Reprint requests: Kathryn M. Langwell, Congressional Budget Office, Room 419C, HOB Annex #2, 2nd and D Streets, SW., Washington, D.C. 20515.

interrelationships between private sector HMO experience and public program policies.

## Overview of organizational arrangements

In 1980, 236 HMOs served 9 million members in the United States. By 1989, there were 591 HMOs with over 34 million enrollees. In addition to the rapid growth in the number of HMOs and of enrollees, the organizational characteristics of HMOs have changed substantially over this period. Most of this change has come about because new HMOs are distributed differently by organizational characteristics than are older HMOs. Older HMOs have been changing over this period in response to the growing competitiveness of the health services market. In this section, each organizational issue is examined, followed by a discussion of the relationship between organizational structure and performance.

### Model types

In the early 1970s, HMOs were classified into three types: Staff, Group, and IPA. The Staff Model is characterized by HMO ownership of the delivery system facilities and the employment of physicians on salary to serve exclusively the HMO membership. The Group Model is characterized by an HMO contracting with a medical group to serve the HMO's membership. Most often the medical group was serving the HMO membership exclusively and was paid on a capitation basis for providing its services. The IPA Model is characterized by an HMO contracting with individual fee-for-service physicians to provide services to HMO members in the physicians' private offices. These physicians were generally paid on a discounted fee-for-service basis and may have been at financial risk to the extent of a withhold from their fee-for-service payments.

The rapid growth in the number of HMOs occurred primarily through the development of new IPAs and HMOs that contracted with medical groups that serve both fee-for-service and prepaid patients. The development of a Staff Model or Group Model HMO that contracts with a medical group to serve exclusively prepaid patients requires substantial capital investment for facilities and physician recruitment and salaries. In contrast, the development of an IPA Model HMO or teaming with a fee-for-service medical group requires minimal capital investment since the physicians' existing private offices are to be used for serving prepaid patients.

Two other variations of the traditional HMO model types (mixed and open-ended) have evolved over the past decade. Mixed Model HMOs have developed in response to the desires of Staff and Group Model HMOs to expand their market areas without using substantial capital investment to build or purchase new facilities. Typically, a Mixed Model HMO involves an HMO that adds an IPA component to its HMO-owned Staff or Group Model facilities. By contracting with individual fee-for-service practitioners, the HMO may expand into contiguous market areas with minimal investment costs. Group Health Association of America (1989) reports that in

1988 37 percent of those HMOs in existence for more than 3 years were Mixed Model HMOs. Staff Model HMOs were most likely to have added a Mixed Model component, with 63 percent reporting this change.

A recent innovation in HMO model type is the open-ended arrangement. Under this variation, an HMO enrollee is permitted to use providers (usually physicians) who are outside the HMO provider network. When using these physicians, the HMO enrollee is subject to traditional insurance arrangements, including possibly a deductible and coinsurance of some fixed percentage. This HMO variation appears similar to the preferred provider organization (PPO) arrangements that offer the enrollee a provider network at a lower out-of-pocket price, but permits the enrollee to use other providers at a higher out-of-pocket price. Gruber, Shadle, and Glaser (1989) report that 7.5 percent of all HMOs offered an open-ended option as of June 30, 1988.

Despite (or perhaps because of) the rapid changes occurring in HMO model types over the past 15 years, it is difficult to document the current mix of HMOs by model. Each of the organizations that monitors HMOs on a continuing basis uses a slightly different definition of HMO model for classifying reported HMOs. The Group Health Association of America (GHAA), American Medical Care and Review Association (AMCRA), *InterStudy*, Medical Group Management Association (MGMA), and the Health Care Financing Administration's Office of Prepaid Health Care (OPHC) use model classification systems that include Staff, Group, and IPA Model HMOs. In addition, GHAA, AMCRA, and *InterStudy* also include a category for Network Model HMOs, which are defined as those that contract with two or more fee-for-service group practices to provide medical services. GHAA recognizes Mixed Model HMOs but classifies them by the model that serves the largest number of members in the HMO. MGMA distinguishes between Group Model HMOs that contract with prepaid-only medical groups and those that contract with fee-for-service medical groups. OPHC recognizes only the three original model types, primarily to implement the dual option requirement under the HMO Act of 1973. No single source of information on HMO model type exists that is universally recognized as accurately depicting the current HMO organizational structure.

The importance of the model type in assessing HMO performance rests with several issues:

- The HMO's ability to expand flexibly and to increase its market share is considerably greater for HMOs that do not need to invest in building or in purchasing new facilities prior to expansion. Thus, IPA, Network, Group HMOs that contract with fee-for-service medical groups, and Mixed Model HMOs are better able to compete within a wider market area and to respond more flexibly to geographic shifts in patient populations.
- The nature of the interaction between the medical group and physician providers and the HMO organization differs substantially by the kind of HMO model type. A Staff Model or a Prepaid-Only Group Model HMO indicates an exclusive HMO-medical group arrangement. The close involvement of HMO

management and the medical group and the fact that the medical group has no fee-for-service practice suggest that the medical group's practice style will be more consistent with the approach developed and monitored by the HMO. Conversely, fee-for-service medical groups that contract with the Group Model and Network Model HMOs have fee-for-service patients as well as prepaid patients and, therefore, may have a different practice style that is less likely to be consistent with the HMO's approach. However, as the total proportion of patients under prepayment increases, it is more likely that the medical group's practice style will more closely resemble the HMO's preferred approach.

- If the HMO owns the facilities in which the medical group practices and/or a hospital, it is likely that the HMO will have greater control over the medical practice styles of its providers.

In addition, there is a correlation between HMO model type and the nature of financial incentives offered to physicians and between HMO model type and the types of utilization controls in place. Even though it is seldom possible to obtain information on detailed financial incentives or specific utilization controls in place in every HMO, the HMO model type often is a reasonable proxy for these arrangements. Consequently, understanding the nature of the organizational structure of the HMO through classification into models can provide valuable information on the expected performance of the HMO.

### **Profit status and chain affiliation**

One of the strongest trends in recent years has been the conversion of nonprofit HMOs to for-profit status. The rapid growth of HMO market penetration and a more favorable legal environment for for-profit health care organizations have spurred the shift toward for-profit status in the HMO industry. Although a substantial number of nonprofit HMOs have converted to for-profit status, it also is the case that the majority of new HMOs entering the market are for-profit plans. The result of these trends is that for-profit HMOs are now the majority in the industry.

A number of reasons account for the conversion of nonprofit plans to for-profit status. Houck and Mueller (1988) suggest that the historical prevalence of nonprofit HMOs was attributable to legal prohibitions against the corporate practice of medicine and the availability of Federal grants and loans only to nonprofit HMOs. By the early 1980s, most State prohibitions against for-profit HMOs had been lifted and Federal loan funds had become generally unavailable. The principal reasons for choosing nonprofit arrangements had declined, and competitive pressures to seek for-profit status had increased substantially during the 1980s. For-profit entities had greater access to equity capital markets and were able to use existing equity interests to expand, engage in joint ventures with other organizations, and to diversify into related fields.

Larkin (1989) recognizes that despite the decline in HMO profitability in the late 1980s, conversions of nonprofit HMOs to for-profit status have continued. He

further notes, however, that the reasons for these conversions have changed over time. Even though most early conversions were caused by the desire of investors for profits, more recent conversions have often been the result of the need for capital for expansion purposes (which is more easily obtained by for-profit entities) or to meet the State statutory net worth requirements that apply to both nonprofit and for-profit HMOs. Furthermore, the Internal Revenue Service has held that HMOs cannot act as insurers (as opposed to deliverers of health services) and retain their tax exempt status. All of these reasons combined have led the profit status of the industry to change so that a majority of HMOs are now for-profit entities.

To the extent that for-profit organizations have greater incentives to be efficient in their management of health services provision and to operate in a manner that will yield positive profits, there may well be differences in the financial and operational performances between nonprofit and for-profit HMOs. Even nonprofit organizations, however, must break even in the long run and, therefore, may not be infinitely inefficient.

The trend toward greater chain affiliation of HMOs also has been documented by the HMO industry. GHAA (1989) reports that 50 percent of the surveyed HMOs<sup>1</sup> in 1988 were affiliated with a national chain or another insurer, and that these affiliated HMOs accounted for 55 percent of the enrollees of respondent HMOs. The trend toward greater affiliation with chains may be related to the trend toward increasing for-profit status since a number of the major national chains are for-profit entities. The relationship between chain affiliation and HMO financial and operational performance has not been examined in detail. A positive relationship between chain affiliation and performance may be expected because of the affiliated HMO's greater access to capital for expansion. In addition, national chains may have developed strategies for expansion and operations that facilitate more efficient HMO management. HMOs affiliated with national HMO chains were more likely to have been profitable in 1986 than were all HMOs, on average (GHAA, 1988). However, it is unclear whether the association with profitability is caused by chain affiliation or by other correlated organizational characteristics.

### **Federal qualification status**

The HMO Act of 1973 (Public Law 93-222) offered financial support for the development of new HMOs and required employers who offered traditional health insurance plans to also offer an HMO alternative if a federally qualified HMO was available in the area. To become federally qualified, HMOs were required to meet a number of provisions and standards, which included offering a mandatory minimum benefit package, establishing premiums based on a community rating system rather than on an experience rating, and offering

<sup>1</sup>GHAA surveyed all HMOs. Because of response bias and the elimination of new HMOs from the data base, GHAA cautions against generalization of its results.

an open enrollment period during which anyone could join. A number of amendments have been made to the HMO Act of 1973, the most important of which are the elimination of the specific list of optional supplemental health care services that must be offered and the modification of the community rating system to allow HMOs to community rate by class.<sup>2</sup>

The availability of Federal loan funds and the dual choice requirement provided significant incentives for HMOs to seek Federal qualification in the 1970s and early 1980s. In 1983, 59 percent of all HMOs had obtained Federal qualification. However, the decline in funding for HMO start-up loans from the Federal Government and the competitive disadvantage of community rating and mandatory benefit packages have caused Federal qualification to be perceived as less desirable over time. GHAA (1989) reports that even though 72 percent of respondent HMOs with over 3 years experience were federally qualified, only 44 percent of HMOs that had been operational for less than 3 years reported Federal qualification.

The relationship between Federal qualification and HMO performance has not been explored extensively. In the 1970s, Federal qualification provided access to funds for expansion and development and ensured that HMOs would be offered to employees by larger numbers of employers. By the mid-1980s, however, the limitations of competitive flexibility imposed by community rating requirements and mandatory benefit packages may have offset the advantages of the Federal "seal of approval" in negotiating contracts with employers. GHAA (1989) reports higher average premiums in federally qualified plans but somewhat lower rates of increase in premiums from 1987 to 1988. GHAA's analysis of HMO profitability in 1986 shows that 46 percent of federally qualified HMOs were profitable compared with 24 percent of non-qualified HMOs. It is, again, unclear whether these simple descriptive data capture the interrelationships of organizational characteristics that contribute to profitability.

## Public program participation

Rapid changes in the HMO industry have occurred in response to competitive pressures and changes in the legal and regulatory environment within which HMOs are operating. The shift toward less centralized HMO models, increased for-profit status and chain affiliation, and the shift away from Federal qualification may be associated with attempts by HMO management to increase the competitiveness of the HMO, improve efficiency, and expand more rapidly. The overall decline in HMO profitability during the mid-to-late 1980s may have been a factor pushing the rapid organizational changes rather than a consequence of organizational change. To the extent that the observed patterns of change point in the direction that the HMO industry perceives will lead to greater efficiency and improved financial performance, it is worthwhile to examine the organizational

characteristics of HMOs that are participating in the Medicare and Medicaid programs.

Medicare risk contracting HMOs are different in characteristics from all HMOs currently operating in the United States (perhaps because older, more established HMOs are more likely to participate). As of early 1990, 97 HMOs had the Tax Equity and Fiscal Responsibility Act (TEFRA) risk contracts and had enrolled 1,109,000 Medicare beneficiaries. TEFRA risk contracting HMOs were reported by Brown et al. (1989) more likely to be: federally qualified (85 percent compared with 52 percent of all HMOs), Staff Model or Group Model HMOs (49 percent compared with 20 percent of all HMOs), and nonprofit (65 percent compared with 40 percent of all HMOs).

Only 14 percent of all HMOs had Medicaid enrollees as of December 1985 and these HMOs were concentrated in 21 States and the District of Columbia. Of the 92 plans enrolling Medicaid beneficiaries in 1986 (Oberg and Polich, 1987):

- 65 percent were federally qualified compared with 57 percent of all HMOs.
- 71 percent were nonprofit compared with 48 percent of all HMOs.
- 26 percent were IPA Model HMOs compared with 51 percent of all HMOs.
- 25 percent had been operational for less than 3 years compared with 47 percent of all HMOs.<sup>3</sup>

Differences exist between the organizational characteristics of HMOs that participate in Medicare and Medicaid risk contracting and those that choose not to enter these public program markets. The interesting issue from a research and policy perspective is the extent to which financial performance in the Medicare and Medicaid markets reflects the experience of HMOs overall or is consistent with the financial performance of HMOs with the particular set of characteristics of HMOs participating in public programs. If, for example, Medicare risk contracting HMOs are losing money only on their Medicare line of business, then this fact may suggest a problem with the terms of the risk contract arrangements. If, however, HMOs with the same characteristics as predominate among Medicare risk contracting HMOs also experience poor financial performance in the private sector, then there may be no reason to consider changing the terms of Medicare risk contracting. Under these conditions, a change in the program that resulted in increased revenues to the HMO might only be subsidizing less efficient HMOs.

## Utilization controls and financial incentives

A principal characteristic of HMO organizations is the provision of managed care services to enrolled populations. Even though managed care includes the

<sup>3</sup>The data results used in this study include Medicaid participation only for existing HMOs that have added a Medicaid line of business. Medicaid-only HMOs are not included in this data base.

<sup>2</sup>The HMO Act Amendments of 1988 allow federally qualified plans to adjust rates prospectively for the experience of particular groups, with some restrictions.

choice of provider mix and selection of providers who are expected to be responsive to HMO requirements, HMOs also manage care through formally structured utilization controls and financial incentives to physicians. These utilization controls and financial incentives may be, to some extent, substitutes. In addition, the specific utilization controls and financial incentives mix are dependent on the organizational structure of the HMO. For example, Staff Model HMOs that pay physicians on a salary basis may be expected to rely more heavily on formal utilization controls since they have limited flexibility with respect to financial incentives.

Utilization management is not limited to HMOs; both traditional insurers and PPOs apply utilization management and review methods (e.g., prior authorization for elective surgery and second surgical opinions) to health services provided to their members. In addition, PPOs recruit and offer a network of preferred providers who are selected on the basis of practice style and willingness to follow the utilization management and review requirements of PPOs. HMOs are, however, the only organizations that combine utilization management, provider selection, and financial incentives to control provider behavior. The many diverse HMO structures and the mixture of these elements of managed care systems make it exceedingly difficult to disentangle the effects of utilization management methods, provider selection, and financial incentives to determine which specific mechanisms are most effective.

To date, limited information is available on utilization management systems within managed care systems and their effectiveness in controlling the use and costs of services. Reviewed in the section are the utilization management methods used by HMOs, the financial incentives offered to providers, and a discussion of the evidence available on the effectiveness of specific mechanisms.

### Utilization management methods

A number of studies have identified a range of utilization management methods that are used to control unnecessary use and costs of health care. GHAA (1988) reports that among all HMOs that responded to their 1987 annual survey, the distribution of utilization management activities included:

- Primary care gatekeepers (93 percent).
- Concurrent utilization review (94 percent).
- Retrospective utilization review (89 percent).
- Prior authorization for inpatient care (88 percent).
- Primary care physician practice profiles (44 percent).

By contrast, Langwell, Carlton, and Swearingen (1989) report that PPOs responding to a survey of interest in Medicare contracting indicated that PPO utilization management activities included:

- Preadmission certification (78 percent).
- Concurrent utilization review (51 percent).
- Retrospective utilization review (55 percent).
- Mandatory second surgical opinion (44 percent).
- Discharge planning (31 percent).
- Physician practice profiles (23 percent).

A recent study by Nelson et al. (1989) shows a somewhat different mix of utilization management techniques reported by 41 Medicare risk contracting HMOs than was reported by GHAA for all HMOs. The Medicare risk HMOs were less likely to report using primary care gatekeepers (81 percent versus 93 percent of GHAA respondents) and retrospective inpatient review (56 percent versus 89 percent of GHAA respondents) and were more likely to report using physician practice profiles as a management tool (59 percent versus 44 percent of GHAA respondents). These differences appear to be related to the differences in organizational characteristics and years in operation between Medicare risk contracting HMOs and all HMOs.

Within the HMO industry, the direction is clearly toward improving data reporting capabilities in order to better manage health care delivery. Neal (1986) and Prussin (1987) describe the critical need for data and the role of a management information system (MIS) to ensure that HMO administrators and practicing physicians have the data necessary to manage the HMO. The MIS fulfills a number of roles within an HMO (and interacts with the data systems of the medical group(s) contracting with the HMO). The role of the MIS in generating ongoing utilization reports by patient, physician specialty, service, procedure, and individual physician is particularly essential. The reports generated permit HMO management to identify areas where greater (or less) management control is necessary and to compare utilization rates with those experienced by other insurers and HMOs in their market areas. Data requirements and the MIS structure will vary, however, by type of HMO (Neal, 1986). Cerne and Traska (1988) report that HMO data capabilities are becoming extremely sophisticated and, as a result, HMOs may be in stronger negotiating positions with hospitals over capitation arrangements and per diem contract agreements. The report indicates that data from a recent GHAA survey shows that HMOs with Medicare risk contracts had developed comprehensive MISs with capabilities for reporting hospital use and costs on a routine basis, in response to more extensive Government reporting requirements. Carlton and Swearingen (1989) report, however, that although hospital data were generally available in the 41 Medicare risk contract HMOs they studied, ambulatory data were seldom available or were erratically reported. Because of their financial arrangements with providers, IPA Model HMOs were found to have a higher level of data availability, overall, than were other HMOs.

When the type of utilization review mechanisms is examined by the characteristics of HMOs, there appears to be an interaction of organizational type and utilization controls. Langwell et al. (1985) found that among Medicare risk contract HMOs:

- Older plans were more likely to conduct ambulatory utilization review.
- For-profit HMOs were more likely to require prior authorization for hospital and referral physician services and to use physician practice profiles as a management tool.

- IPA Model HMOs were more likely to report using gatekeepers, to require prior authorization for hospitalization, and to use physician practice profiles.
- Chain-affiliated HMOs were more likely than were independent HMOs to use each of the utilization control methods.

Thus, utilization management methods vary with the organizational characteristics of the HMO. To the extent that Medicare and Medicaid risk contract HMOs represent a different distribution of organizational characteristics than is found in all of the United States HMOs, it is likely that public program beneficiaries in HMOs are exposed to a different mix of utilization management methods than are all HMO enrollees. Because public program participation is voluntary on the part of the HMO, there is a possibility that self-selection among HMOs related to organizational characteristics and to existing utilization management structures may account for these differences. If HMOs' expected performance in the Medicare and Medicaid markets is related to organizational characteristics, including utilization management strategy, then self-selection may be related to the HMO management's assessments of the feasibility of successfully serving these public program beneficiaries.

### Financial incentives to physicians

Physicians are the central decisionmakers in HMOs, as well as in fee-for-service settings. Consequently, the practice patterns of physicians may make the difference in a prepaid setting between satisfactory financial performance and financial losses. The role of the HMO manager in managing physician practice patterns is central to the success of the HMO. A number of ways in which this kind of management may occur are:

- HMOs may select physicians with characteristics and experience that suggest their practice styles will be consistent with the HMOs' objectives. Jacobs and Mott (1987) report that HMO managers indicate a preference for increased emphasis in medical and residency programs on cost-effective use of diagnostic and treatment services, utilization review and quality assurance, gatekeeping, and financing of health services. HMOs and PPOs rely on physician credentials and years of experience, previous practice and utilization patterns, and prior disciplinary and malpractice experience as criteria for selection of physicians for managed care contracts (Langwell, Carlton, and Swearingen, 1989; Langwell et al., 1985). Similarly, retention of physicians within the HMO or PPO is dependent on compliance with utilization review and practice pattern profiles, with a majority of Medicare risk contract HMOs reporting termination of physician contracts because of excessive use of services, over referrals, or failure to comply with utilization management requirements (Langwell et al., 1985).
- Physician education and feedback on practice patterns compared with those of other physicians in the HMO and market area are ongoing activities in many HMOs (Kongstvedt, 1989; Mann and Reineke, 1989; Oshiro et al., 1988; Giannelli, 1988; Barr et al., 1987 and

1988). Several studies provide evidence on physicians' abilities to change practice patterns when provided with information on differences in hospital use for selected diagnoses and procedures (Dyck et al., 1977; Wennberg et al., 1977). However, little evidence is available on the effectiveness of physician education and feedback in changing physician practice patterns to more closely conform with the HMO approach.

- Physicians are offered financial incentives that are intended to increase their awareness of the impact of their practice patterns on costs of care.

Because of the growth of HMO involvement in public program contracting, there has been substantial interest during the past 2 years in the nature of financial incentives provided to physicians by HMOs and in the impact of those financial incentives on physicians' decisionmaking. Under the Omnibus Budget Reconciliation Act (OBRA) of 1986, Congress required the Department of Health and Human Services to study these financial arrangements in order to develop regulations specifying acceptable financial incentives.

Four studies of HMO financial incentives to physicians were initiated during 1986 and 1987 in response to the OBRA 1986 directive. GHAA (1988) surveyed its membership and reported that 73 percent of all HMOs have capitation arrangements with physicians, and nearly 40 percent withhold a proportion of the physicians' fees or capitation, putting them at financial risk for poor financial or utilization performance of the HMO.<sup>4</sup> A survey of Blue Cross-affiliated HMOs, conducted by the Blue Cross and Blue Shield Association (BC/BS, 1988), produced results indicating that 78 percent of reporting plans capitate primary care physicians and 66 percent also use withhold arrangements that place HMO physicians at risk for their utilization performance. Ninety-two percent of BC/BS-affiliated HMOs provide capitated physicians with stop loss protection. ICF, Inc., (1988) surveyed 215 HMOs (145 TEFRA risk contract plans and 70 non-Medicare HMOs) and reported that 59 percent capitate physicians, 21 percent pay on a fee-for-service basis, and 20 percent employ physicians on salary. The ICF study focused on the placement of financial risk on the individual physician, rather than on a larger group of physicians. Data showed that 22 percent of IPAs put individual physicians directly at risk, whereas only 5 percent of Staff, Group, and Network Model HMOs do. The U.S. General Accounting Office (1988) surveyed 19 Medicare risk HMOs and reported that 58 percent used capitation arrangements, 21 percent paid on a fee-for-service basis, and 21 percent retained physicians on salary.

The differences in the proportion of HMOs reporting capitation arrangements with primary care physicians are evidently owing to the different HMO populations surveyed. Those HMOs that have Medicare risk contracts exhibit different patterns of financial incentive arrangements than are reported by all HMOs. The Nelson et al. (1989) study of 41 Medicare risk contract HMOs

<sup>4</sup>GHAA conducted a special survey of its members. In addition, the National Blue Cross and Blue Shield Association sent the GHAA survey to its HMO members. The GHAA results incorporate the BC/BS HMO data.

shows a similar pattern to those reported by ICF, Inc. and the U.S. General Accounting Office (GAO), both of which concentrated on HMOs with Medicare risk contracts:

- 61 percent capitated primary care physicians.
- 17 percent employed physicians on salary.
- 7 percent paid physicians on a fee-for-service basis.
- 15 percent were mixed in their payment methods, owing to mergers of different types of HMO physician structures.
- 46 percent used withholds, in combination with salary, fee-for-service, or capitation payments.

The 61 percent capitation rate for these plans is lower than the 73 percent rate of all HMOs reported by GHAA (1988) or the 78 percent rate of BC/BS HMOs reported by BC/BS (1988), but is similar to the proportion of TEFRA risk contract HMOs that capitate as reported by ICF, Inc., and by GAO.

When Nelson et al. (1989) examined the HMO-physician financial arrangements by other organizational characteristics of Medicare risk contract HMOs, they found that IPAs, chain-affiliated HMOs, and for-profit HMOs were slightly more likely to capitate physicians than were other types of HMOs, and that IPAs were much more likely to use withholds as a component of their physician incentive packages. Capitation payments may cover a wide variety of services. Of the 25 plans in the study that capitated their physicians, the scope of the services included in that capitation payment (and therefore the services that physicians are directly at risk for) ranged widely from physicians' office-based services only to all physician services, laboratory services, and hospital services. Thus, the impact of capitation on physician decisionmaking may vary significantly depending on the total package of services for which the physician is at risk.

## Utilization management and performance

Although a number of industry case studies of the effectiveness of specific utilization management techniques has been undertaken (e.g., Curtis and Tichon, 1988; McDade and Clark, 1988; Morrison et al., 1989), these studies are of limited generalizability because of the unique characteristics of the HMO studied and the small number of observations examined. A relatively small number of studies have been done that attempt to examine the relationship between utilization controls and HMO performance and/or financial incentives and HMO performance.

Hillman et al. (1989) use data from a survey of 283 HMOs to examine the relationship between financial incentives and hospitalization rates of HMO members and other measures of HMO performance. Their results indicate that HMOs that capitate or pay salaries to physicians and those that are Group Model HMOs or for-profit HMOs experienced lower rates of hospital utilization. Similar results emerged for the analysis of the relationship between financial incentives and outpatient primary care visits per HMO enrollee: lower rates were found in HMOs that put physicians at risk for deficits in the physician referral and hospital pools and for

outpatient diagnostic tests. Hillman and his colleagues examined the relationship between financial incentives and the financial performance of the HMO, as measured by whether the HMO reached the break even point or lost money. Two incentive-related variables were significantly and positively associated with positive HMO financial performance: whether the individual physician was at risk for the cost of outpatient testing; and the percentage of the average physician's patients that were enrolled in the HMO. These results suggest that financial incentives are related to physician decisionmaking and to overall HMO performance. The study was not able, however, to take into account a number of factors that may be expected to influence both the rate of service use and overall financial performance of the HMO. In particular, no data were available on the health status of the enrollees and the extent to which selection of enrollees into the HMO may vary by type of HMO.

The focus of Nelson et al. (1989) analysis was on the relationship between HMO organizational characteristics (including financial incentives and utilization controls) and hospital use rates in 41 Medicare risk contracting HMOs. To examine the association of specific organizational characteristics and use of hospital services by Medicare beneficiaries, the ratio of HMO hospital days per 1,000 Medicare beneficiaries and market area hospital days per 1,000 Medicare beneficiaries was constructed for each HMO. The organizational characteristics that were associated with a particularly low ratio of HMO hospital-use-to-market-area-hospital-use were:

- HMOs in which physicians serve only prepaid patients.
- HMOs in which physicians practice in group settings.
- HMOs that capitate primary care physicians.

Group Model HMOs were found to have the lowest hospital use ratios, IPA Model HMOs had the second lowest ratios, and Staff Model HMOs had the highest utilization relative to area rates. In earlier studies of HMO experience, IPA Model HMOs were consistently found to experience higher hospital utilization rates than did other types of HMOs (Luft and Trauner, 1981). These early IPAs were loosely organized arrangements that paid physicians on a fee-for-service basis. The results of the Nelson et al. study indicate that these IPAs were more likely to capitate their physicians and most reported utilization controls that are similar to those reported by other HMOs.

It is evident from this brief examination of research on utilization management, financial incentives, and HMO performance that much additional analysis, requiring data on a larger number of HMOs and on the characteristics of HMO enrollees, will be needed if the impact of utilization management techniques and financial incentives on utilization patterns and on HMO performance are to be determined. The differences between HMOs that have Medicare and Medicaid risk contracts and all HMOs in terms of utilization management methods and financial incentives offered to physicians may be useful to explore further, in order to assess whether there is HMO self-selection in public program markets and the implications of this self-selection for expansion of public program contracting over time.

## Discussion

Managed care was offered to a substantial proportion of employees in the United States in 1989. Over 34 million persons were enrolled in HMOs and another 20 million were covered by PPO arrangements. These managed care entities differ substantially among themselves in terms of organizational structure, utilization management, and financial incentives to providers. Even though some limited evidence exists that managed care, particularly HMOs, may have an impact on utilization of services and the overall level of costs, most of this evidence is based on data from older, well-established HMOs that were operating in the 1970s and earlier. These HMOs consisted of a well-integrated HMO-provider network and served a relatively small number of persons who may have selected HMOs because of their preference for managed care.

The rapid expansion of HMOs and PPOs in the health care market has resulted in the enrollment of a much larger number of persons into managed care organizations that are very different from the set of HMOs that were available in the 1960s and 1970s. However, the effectiveness of managed care in constraining the rise in health care costs has yet to be demonstrated when provided to a large proportion of the population through diverse organizational arrangements that include a variety of utilization management strategies.

A solidly based assessment of the potential of managed care to constrain future growth in health care utilization and costs requires that several aspects of the current managed care environment be examined. First, the performance of managed care organizations with respect to reducing utilization and costs of care, maintaining members' satisfaction with their health care arrangements, providing care of appropriate quality and effectiveness, and remaining financially viable should be assessed. Second, the nature of utilization management strategies and financial incentives to providers should be identified. It would then be possible to compare the utilization approach in successful HMOs with the approach used by less successful HMOs.

Of interest, too, is whether there are differences in the characteristics of managed care organizations that are able to achieve these outcomes for the population overall and those that are successful in the Medicare and Medicaid markets. The fact that the organizational characteristics of HMOs in the Medicare and Medicaid markets differ from those of all HMOs could suggest that these populations have different requirements and HMOs are selecting these markets on the basis of their assessment of potential success. On the other hand, the Federal requirements for risk contracting may determine the characteristics of participating HMOs. In either case, it would be useful to know whether current patterns in the HMO industry

suggest that more or fewer managed care options will be available to public program beneficiaries in the future, under the existing regulations. In addition, it would be useful to know whether managed care does have the potential to result in overall savings to Medicare and Medicaid, if it is extended more widely, or whether only certain forms of managed care, provided in a limited set of organizational settings, are effective. These issues have not yet been addressed.

## Acknowledgments

Comments and suggestions by members of the Technical Advisory Panel on Health Maintenance Organization Research and of Ronald Deacon and Sidney Trieger of the Health Care Financing Administration are gratefully acknowledged. Gary Swearingen provided excellent research assistance throughout the development of this article.

## References

- Barr, J. K., et al.: Physician decision making: Effects of HMO model type and characteristics of medical practice on utilization. *GHA Journal*, 43-51, Winter 1987/1988.
- Blue Cross and Blue Shield Association: A survey of physician payment arrangements in Blue Cross and Blue Shield Plan HMOs. Unpublished paper. Chicago. Jan. 1988.
- Brown, R., et al.: Draft evaluation design report-TEFRA HMO/CMP Evaluation. Contract No. 500-88-0006. Prepared for Health Care Financing Administration. Princeton, N.J. Mathematica Policy Research, Inc., 1989.
- Carlton, N., and Swearingen, G.: The availability of HMO/CMP data on the service utilization and cost of Medicare members. Contract No. 500-88-0006. Prepared for Health Care Financing Administration. Washington, D.C. Mathematica Policy Research, Inc., May 1989.
- Cerne, F., and Traska, M. R.: Managed care: Whoever has the data wins the game. *Hospitals*, 62(7):50-55, Apr. 5, 1988.
- Curtis, F. R., and Tichon, M. T.: Cost and utilization management in prescription drug benefits. *Proceedings of the 38th Annual Group Health Institute*. Chicago. Group Health Association of America, 1988.
- Dyck, F. J., et al.: Effect of surveillance on the number of hysterectomies in the province of Saskatchewan. *The New England Journal of Medicine*, 296:1326-1328, 1977.
- Giannelli, A. P.: Physician involvement in strategic planning. *Proceedings of the 38th Annual Group Health Institute*. Chicago. Group Health Association of America, 1988.
- Group Health Association of America: *HMO Industry Profile*. Washington, D.C. June 1989.
- Group Health Association of America: *HMO Industry Profile*. Washington, D.C. Sept. 1988.
- Gruber, L., Shadle, M., and Glaser, D., et al.: The InterStudy edge, 1989: Volume 2. Excelsior, Minn. *InterStudy*, Mar. 1989.
- Hillman, A. L., et al.: How do financial incentives affect physicians' clinical decisions and the financial performance of health maintenance organizations? *The New England Journal of Medicine*, 321(2):86-92, July 13, 1989.
- Houck, J. B., and Mueller, T. R.: Conversion of charitable HMOs to for-profit status, *GHA Journal*. 43-56, Winter 1988.

- ICF, Inc.: Physician incentive arrangements used by HMOs and CMPs. Unpublished paper. ICF, Inc. Washington, D.C. 1988.
- Jacobs, M. O., and Mott, P. D.: Physician characteristics and training emphasis considered desirable by leaders of HMOs. *Journal of Medical Education*, 62:725-731, Sept. 1987.
- Kongstvedt, P. R.: Formal physician performance evaluations in closed and open panel plans. *Proceedings of the Group Health Institute*. Atlanta. Group Health Association of America, 1989.
- Langwell, K., Carlton, N., and Swearingen, G.: Industry profile: An in-depth look at the Medicare PPO applicants. Prepared for American Association of Preferred Provider Organizations. Washington, D.C. Mathematica Policy Research, Inc., 1989.
- Langwell, K., and Hadley, J.: National evaluation of the Medicare competition demonstrations: Summary report. Contract No. 500-83-0047 with the Health Care Financing Administration. Washington, D.C. Mathematica Policy Research, Inc., Jan. 1989.
- Langwell, K., et al.: First annual report: National evaluation of Medicare competition demonstrations. Contract No. 500-83-0047. Prepared for Health Care Financing Administration. Washington, D.C. Mathematica Policy Research, Inc., 1985.
- Larkin, H.: Law and money spur HMO profit status changes. *Hospitals*, 63(1):68-69, Jan. 5, 1989.
- Luft, H. S., and Trauner, J. B.: A Synthesis of research findings on the operations and performance of health maintenance organizations. Contract No. 233-79-3016. Prepared for National Center for Health Services Research. San Francisco. University of California, School of Medicine, Oct. 1981.
- Mann, C. F., and Reineke, D. A.: New physician orientation: Making the transition to HMO practice. *Proceedings of the Group Health Institute*. Atlanta. Group Health Association of America, 1989.
- McDade, J. A., and Clark, R. E.: Ambulatory utilization management—realistic cost-effectiveness in a physician office setting. *Proceedings of the 38th Annual Group Health Institute*. Chicago. Group Health Association of America, 1988.
- Morrison, J. C., et al.: Comprehensive case management of complicated pregnancies—resultant health and cost benefits. *Proceedings of the Group Health Institute*. Atlanta. Group Health Association of America, 1989.
- Neal, P. A.: *Management information systems for the fee-for-service/prepaid medical group*. Denver, CO. Center for Research in Ambulatory Health Care Administration, Medical Group Management Association, 1986.
- Nelson, S., et al.: Organizational and operational characteristics of TEFRA HMOs/CMPs—draft report. Contract No. 500-88-0006. Prepared for Health Care Financing Administration. Washington, D.C. Mathematica Policy Research, Inc., Aug. 1, 1989.
- Oberg, C. N., and Polich, C.: 1987 Medicaid and HMO Data Book: The expansion of capitated managed care systems. Excelsior, Minn. *InterStudy*, 1987.
- Oshiro, E. A., et al.: Practice management seminar for health care teams. *Proceedings of the 38th Annual Group Health Institute*. Chicago. Group Health Association of America, 1988.
- Prussin, J. A.: Automation: The competitive edge for HMOs and other alternative delivery systems. *Journal of Medical Systems*, 11(6):431-444, 1987.
- U.S. General Accounting Office: Medicare physician incentive payments by prepaid health plans could lower quality of care. GAO/HRD-89-29. Washington. U.S. Government Printing Office. 1988.
- Wennberg, J. E., et al.: Changes in tonsillectomy rates associated with feedback and review. *Pediatrics*, 59:821-826, 1977.