

# 1. The Contribution of Group- and Staff-Model HMOs to American Medicine

HAROLD S. LUFT  
MERWYN R. GREENLICK

*University of California, San Francisco;  
Kaiser Permanente Northwest Region*

AS THE UNITED STATES ENTERS THE LAST HALF OF the 1990s, health policy is increasingly focusing, either by design or by default, on managed care as a means of controlling costs. Some hope, however, that managed care is more than just cost control and that it offers a means to higher-quality, more coordinated services to enrollees. Some have even greater expectations that managed care could lead to a shift from episodic, patient-oriented interventions to more of a public health focus. With the failure of broad-based health reform and the increasing pressures of competition, either market-based or managed, it is useful to consider how well various types of managed care plans will fare and how well they will be able to meet these expectations within the new environment.

The delivery models that are currently referred to as “managed care” derived historically from two very different forms of organizations: the county medical society-sponsored medical care foundations and the group- and staff-model prepaid group practice organizations. Group- and staff-model HMOs had their roots in the 1930s, while the foundation form came a bit later. The medical care foundations, such as the San

Joaquin (California) Medical Care Foundation, the Windsor (Ontario) Medical Service, and the Physicians' Association of Clackamas County (Oregon), were the basis of what came to be known as the individual practice association, or IPA HMO. Organizations like Kaiser Permanente, the Group Health Cooperative of Puget Sound, the Health Insurance Plan of Greater New York, Group Health, Incorporated, in Minneapolis, and the Group Health Association of Washington, D.C., were the pioneers of the managed care organizations referred to as "group- and staff-model HMOs."

We focus in this article on the group- and staff-model HMOs, particularly those that are nonprofit organizations, in order to speculate on their possible special contributions to the delivery of health care in the United States. We will concentrate on the broader contributions of group- and staff-model HMOs to our medical care system rather than attempting to review the evidence on the performance of HMOs and managed care plans with respect to cost, utilization, quality, or other dimensions; assessments of these factors can be found elsewhere (Saward and Greenlick 1972; Luft 1987; Miller and Luft 1994; Freeborn and Pope 1994). Instead, we will describe contributions that might be considered "public benefits," such as research and education, rather than the "private benefits" that will be captured by enrollees and premium payers.

Our focus, on the contribution of group- and staff-model HMOs, is driven only in part by the almost complete absence of information on the newer types of managed care organizations. Our decision to explore these more highly structured types of HMOs was based on the likelihood of their illustrating some unique, desirable features of managed care. By examining their contributions, we may be able to speculate on the potential benefits of other types of organizations.

The first section outlines the critical characteristics of group- and staff-model HMOs and discusses how these characteristics may be used to distinguish them from other types of health care delivery systems. The second section proposes public benefit contributions one might hope for from this particular type of HMO. The third section identifies the limitations of this review and some of the unanswered questions, particularly the potential role of other characteristics of HMOs and their environment. A final section offers some reflections on the discussion and conclusions.

## Characteristics of Group- and Staff-Model HMOs

The organization of the group- and staff-model HMOs we are focusing upon is conceptually simple: a health plan is developed that is responsible for marketing the plan. (In most instances the health plan in group- and staff-model HMOs is not-for-profit. Because few such plans are for-profit, it is impossible to determine the special contribution of not-for-profit status on plan performance.) The plan promises to deliver medical care services within the context of the HMO. In a group-model HMO, the health plan contracts with a medical group (or groups) to arrange and deliver all of the physician services to the enrolled population. In the classic group practice plans like Kaiser Permanente, the group serves only members of the plan, although that is not a requirement of the model. In a staff-model HMO, the physicians are employees of the HMO, and the medical director, who is the manager of the employee physicians, reports either to the plan CEO or directly to the board of directors. In both cases, the HMO also contracts for hospital services, generally, but not always, on a capitation basis. In hospital-based plans, the hospitals that serve the members are either owned by the plan or are a part of a hospital corporation formed to provide hospital services to the plan membership on a contractual basis.

We have been assessing the impact of prepaid group practice on American medical care for more than 20 years (Greenlick 1972). Luft (1978) pointed out five major characteristics distinguishing HMOs generally from other types of health care delivery systems:

1. an enrolled population
2. responsibility for delivering necessary medical care within a fixed budget
3. low or no financial barriers to enrollee use
4. risk sharing by the providers, not just the insurer
5. voluntary choice of plan

The principal characteristics that distinguish most group- and staff-model plans from other HMOs are group practice and the identification of their health care providers with the "plan." For example, it is not uncommon for medical groups in California to have contracts, often on

a capitation basis, with many competing network-model health plans. Therefore, we will also consider a sixth characteristic: the common identity of providers and health plan.

### *An Enrolled Population*

The notion of an enrolled population is important because it means that an HMO knows for whom it is responsible. Although one might think that the classic insurance-based plan had to have similar information in order to quote premiums, this was not really the case. In many instances, a carrier merely processed claims and checked for eligibility when a claim was received. Eligibility files were sometimes held by the employer, rather than the carrier, and information was often known only at the subscriber level. Particularly because premiums are generally experience rated, to establish premiums the carrier needs only an estimate of future costs based on prior experience adjusted for trends and major shifts in overall enrollment.

The logic of HMOs, whose payments are capitated and independent of whether services are used, necessitates keeping track of the number and mix of enrollees. They all require individually based enrollment data with complete names and addresses. This makes it possible to focus on the total population for certain questions, even if some of the members of the population at risk have not used the services.

### *Responsibility for Delivering Services within a Fixed Budget*

The salient point of this criterion is contained in the phrase "responsibility for delivering services," not in the words "within a fixed budget." This distinction seems to have been lost in some of the recent discussion and criticism of HMOs and managed care plans more generally. The criterion was originally intended to distinguish HMOs from conventional insurers that merely had the obligation to *reimburse* the patient for all or part of the expenses incurred. In conventional plans, it is the job of the patient to find a health care practitioner and obtain necessary services and, at least in theory, to negotiate price and respond to the financial incentives of copayments and deductibles in deciding how much care to use.

Since the late 1970s, new types of payment structures and organizations have developed. Preferred provider organizations (PPOs) and a variety of network-managed care programs usually have contracts with various providers that include a negotiated fee schedule or a discount from fees in exchange for the promise of additional patients. Although agreed-upon fee schedules were not uncommon in the classic Blue Cross and Blue Shield plans, which offered service benefits rather than indemnity payments, the new organizations use a variety of mechanisms, including differential copayments, to channel patients toward selected providers. PPOs, however, are not organized to take on the responsibility for assuring the delivery of services, and other network forms of managed care organizations only have weak mechanisms for assuring quality and continuity. For example, although a primary care "gatekeeper" in a network can constrain utilization, he or she has few "levers" to make sure a specialist follows through appropriately.

The notion of responsibility for assuring the delivery of needed services, however, is complex, even in an integrated program like a group- or staff-model HMO. It includes questions of what services should be covered by the plan. As the availability of new treatments and technologies has increased, these coverage decisions have become important for all types of plans because, unless an intervention is explicitly excluded, patients may demand it as a covered benefit even if the plan views it as "not medically indicated." More important, the concept of responsibility for assuring services extends to issues of quality of care and competencies of providers. Thus, whereas a conventional insurer might be held liable for failure to pay for a service, it is unlikely to be held responsible for not having "high quality" physicians on its panel or for using hospitals with quality-of-care deficiencies. In a group- or staff-model plan, the issues of benefit coverage and quality of care are inextricably linked.

### *Low Financial Barriers for Enrollees*

A critical aspect of all HMOs, but particularly the group- or staff-model HMO concept, is that the locus of cost-containment efforts should be the delivery system, achieved by means of a fixed budget, rather than the patient (or enrollee), as enforced by financial barriers like copayments and deductibles. Some HMOs, however, have been following the lead of more conventional plans in increasing the use of copayments,

often in the range of five to ten dollars, or more, to reduce the level of premiums and to help constrain the use of ambulatory services. This modest level of copayment, however, does not actually represent much of a financial barrier. In the typical group- or staff-model plan, there is an identifiable site of care where most or all the patients seen are part of the plan. Thus, issues of nonfinancial barriers to access are more prominent in such plans.

More problematic, however, for the assessment of plans in the future is the growth of point-of-service (POS) options that allow enrollees to use the services of nonplan providers with some degree of coverage. These POS plans include more substantial financial barriers to the use of services and will muddy the assessments of responsibility for the delivery of services, particularly regarding who is responsible for the quality and continuity of care provided when a significant component is received outside the HMO delivery system.

### *Risk Sharing by Providers, Not Just the Insurer*

One controversial aspect of the structure of some of the early group- or staff-model HMOs was the requirement that the providers be linked to the economic performance of the HMO. Sometimes this link was at the level of the physician group, and sometimes it was at the level of the individual provider. This aspect of the definition allowed physicians and other health professionals to be salaried, as long as there was some long-term linkage of their incentives to those of the organization, either through bonuses, profit sharing, or even just job security. We believe that risk sharing per se is less of an issue than the notion of a commonality of interest, and we will discuss this below. In fact, we currently know little about either the optimal level and structure of risk-sharing arrangements or whether other organizational characteristics and governance features may be effective substitutes for the simple economic incentives of risk sharing.

### *Voluntary Choice of Plan*

Voluntary choice was a feature of the settings in which most of the early group- or staff-model HMOs were offered. The HMOs promoted this feature in order to obtain access to markets through multiple choice arrangements and to counter the arguments that beneficiaries should

not be forced into group- and staff-model HMOs because the style of organization and practice restricted their freedom to choose a provider. (This argument continues today in the rhetoric in favor of "any willing provider" laws.) By assuring that people had the choice of a fee-for-service (FFS) plan as an alternative to the HMO, the choice issue with respect to individual providers could be finessed.

The nature of choice is currently changing as the marketplace is being transformed. In the past, it was usually a choice between an HMO and the conventional FFS plan that offered access to all licensed practitioners and hospitals. It is now the case, however, that many employers offer only HMOs to their employees, and sometimes just a single HMO is available, although often with a POS option.

### *Common Identity of the Providers and the Health Plan*

Although not one of the defining characteristics of an HMO, the common identity of the providers (largely the physicians) and the health plan in a group- or staff-model HMO may well be an important aspect of its special contribution. If one reflects on the components of an HMO, the financial arrangements might be seen as either driving or facilitating the performance of the physicians. For example, in a purely financially driven model of physician behavior, FFS incentives drive physicians to order more tests, procedures, and interventions in order to maximize their income, whereas in a capitated environment, the reverse economic incentives lead physicians to underprescribe, again to maximize their income. In the classic FFS versus group- and staff-model comparison, these incentive differences would exist in relatively pure form, and physicians could develop practice patterns consistent with those incentives. In the current real-world environment, for most physicians not in group- and staff-model plans, some patients are capitated, some are classic FFS, and others have mixed payment incentives. Hence, one would expect it to be far more difficult to have a consistent practice style in terms of "usual modes of clinical intervention." In the extreme case, a clinician would not know what treatment or test to order for a given patient until the patient's health plan coverage and risk incentives were examined.

Similar issues are present from the perspective of the health plan. For example, suppose the plan's medical directorate developed a new pro-

tol for the more effective management of patients with diabetes. In a group- and staff-model plan, it would be to the plan's benefit to teach this new protocol to its physicians because all the gains would be captured within the medical group and by the plan's patients. On the other hand, a network-model plan contracting with multiple provider groups, all of whom are also contracting with the competitors of the health plan, has much less of an incentive to develop and implement such a protocol; its competitors would capture the benefits without bearing the cost of its development.

It is not reasonable to assume, however, that physician decisions are driven only by simple economic incentives. Here again, common identity between providers and plan is likely to have an impact on performance. One of the greatest concerns about HMO performance has to do with the incentives for quality and innovation in practice. Potential malpractice liability is a countervailing force to poor quality of care by individual providers, but it has little impact on the performance of systems. On the other hand, if physicians are closely identified with a specific health plan, as is the case in a group- or staff-model HMO, then the performance of the HMO per se has a more direct impact on the identity (and long-term job security) of the providers. The ability of health care providers to develop new and creative approaches to organizational and clinical performance is probably also enhanced when all the players are on the same team.

### Areas of Potential Public Benefit Contribution

We consider four areas of potential benefit among the several that could be considered within the context of broad, "public benefit" contributions by group- or staff-model HMOs. First, we look at the "demonstration effect" of the existence of financing alternatives to the classic FFS and salaried public delivery systems and the provision of a setting for exploration of alternative *modes of practice*, in contrast to *financing of care*. Included in this section are studies of delivery of care to populations through the use of designed clinical interventions, including population-based prevention efforts. Second, we consider the availability of critical epidemiological data drawn from a set of population-based studies of disease. Third, we review the possible contributions from



studies of the natural history of medical care utilization that can be conducted in the nearly cost-free environment of group- and staff-model HMOs. Finally, we look at group- or staff-model HMOs that have contributed by facilitating a range of research efforts and variations in medical practice.

### *The Demonstration Effect*

A group practice pioneer, Ernest W. Saward, M.D., presented a paper, "The Relevance of Prepaid Group Practice to the Effective Delivery of Health Services," at the 18th Annual Meeting of the Group Health Institute in Sault Ste. Marie, Ontario, on June 18, 1969. The Public Health Service distributed that paper widely in one of the first national moves to foster the spread of managed care in American medicine. In a foreword attached to the reprinted paper, John Cashman, M.D., who was at that time the Assistant Surgeon General of the U.S. Public Health Service, wrote:

There is great need for innovation and experimentation in the process of providing access to adequate health care for all the people of this nation. In a country as diverse as ours there is obviously no one approach, no one solution in seeking to improve the organization, delivery and financing of health care. We plan in the future to issue other examples of the ways in which group practice, through its potential for efficient organization and continual peer review of quality, can offer acceptable health care to the people who need it. (Saward 1969)

Over 25 years ago group- or staff-model HMOs were serving as demonstration sites to allow consideration of alternatives to the FFS medical care system of the United States.

There is a wide range of possible ways of financing and organizing medical care, yet in practice societies use but a few. In most industrial countries, people are guaranteed coverage through their employers or the government, and this single responsible source then pays physicians on an FFS basis, often with a set fee schedule, while hospitals are given fixed budgets. Variations abound, especially through the use of multiple, but generally noncompeting, intermediaries based on occupation or employer. Another common option is for the physicians to be salaried employees of the public health system. The National Health Service in

Great Britain has traditionally used capitation payment for primary care physicians, but the capitation pool was used only to cover part of the services offered by the general practitioner and was not linked to the use of inpatient or consultant services.

The HMO offers a markedly different model in that its financing links the costs of physician and hospital services in a single global budget for which the organization is responsible. Although conventional commercial insurance plans typically cover both physician and hospital costs, they have few contractual levers to negotiate prices, although the Blue Cross plans historically have had some leverage over hospital charges. But none of the plans, even the Blues, have had mechanisms to create economic or organizational incentives for physicians to reduce the use of expensive hospital and consultant services. Because of an historical (or political) accident, even Medicare, a federally run single payer program, has separate funds for inpatient care (Part A) and physician and other services (Part B), with no formal linkage between the two.

Economic theory suggests that the combined global budget of the HMO will allow the redeployment of resources to the most effective use, particularly the shifting of patient care from inpatient to outpatient settings and the development of guidelines for the appropriateness of various interventions. Klarman (1970) pointed out that the expected savings from group practice medicine might include two major components: economies of scale in the production of services and a lower rate of hospital utilization that had even at that time been identified with group- or staff-model HMOs.

Theory, however, does not indicate exactly how these shifts will be accomplished, especially when embedded in a professional environment that has traditionally valued the independence of physician decision making. Furthermore, profit-maximizing incentives in a capitated model might lead to an underprovision of services. A plan that experiences relatively high turnover among its enrollees could skimp on quality in the hope that the most expensive users of services, who are likely the most quality sensitive, will disenroll (Hirschman 1970).

In situations like this, especially when there are strong ideological reasons for supporting or opposing the concept, theory does not help much because there is no clear answer as to the feasibility or desirability of alternative financing systems. Instead, the demonstration of the viability of an option in a real-world setting is of crucial importance.

Although the Wright brothers' airplane at Kitty Hawk was far from a safe or comfortable mode of transport, it proved the feasibility of heavier-than-air flight and made possible the development of considerably more functional aircraft. Likewise, while the current group- and staff-model HMOs are not necessarily the Kitty Hawk version of transportation, they have proved the feasibility of organizing medical care in an alternative mode to FFS private practice.

Therefore, the mere presence of HMOs and their survival in a relatively hostile medical and political environment with good cost-containment results and quality comparable to that of FFS is a major accomplishment (Luft 1987). It has shown that FFS is not the only mechanism that could produce high-quality medical care and that capitation incentives need not lead to rampant profit maximization and reductions in quality. There are now numerous examples of capitation arrangements being applied in settings somewhat different from the classic group- or staff-model HMO in that they capitate only certain services or providers or they do not involve the one-to-one linkage of group practices to specific health plans. Perhaps more important, one might argue that the prospective payment system for hospitals under Medicare recognized that economic incentives might be used to influence clinical practice, and the willingness to experiment in such a fashion grew out of the HMO experience. We are rapidly moving toward a health care system in which population-based, managed care models will be the dominant form of care. Certainly the demonstration effect of group- and staff-model HMOs has played a significant role in that transformation, and it is possible that they will continue to figure prominently in the improvement of the medical care system as the current generation of these systems responds to demands for reform.

The overall definition of HMOs focuses almost exclusively on the economic incentives of the organization, not the actual mode of delivery. This narrow focus was intended to include a wide range of organizational forms and delivery options under the HMO umbrella. Thus, while the prepaid group- and staff-model plans were considered the prototypical HMO in 1970, there is now a wide range of independent practice association (IPA), network, mixed, and open-ended HMOs. Equally important, there has been substantial experimentation by HMOs in the actual organization and delivery of medical care. One form of experimentation in delivery of care within group- and staff-model HMOs in the 1970s was the substitution of nonphysician for physician man-

power (Record 1979; Record and Cohen 1972; Record et al. 1980). Because group- and staff-model plans have a fixed budget for medical services and providers are paid on an FFS basis, it makes sense to substitute nonphysician personnel for physicians. Thus, HMOs have often been the leaders in the use of nurse practitioners and physician assistants.

Those same incentives have facilitated innovations within HMOs that foster the independence of patients and the role of self-care within the medical care system. In an FFS environment, patient self-care reduces revenue, and there are no mechanisms to help pay for educational services; in a prepaid group- and staff-model environment, cost savings can be redeployed to develop integrated educational and delivery systems. A classic study of this HMO effort evaluated the effect on quality and cost of service of training patients to monitor their own blood pressure at home (Soghikian et al. 1992). Again, the demonstration effect is important because it makes possible the spread of innovation to settings outside of HMOs.

### *Population-Based Studies of Disease*

One of the most problematic aspects of undertaking clinical research is finding and tracking the relevant patient population. In general clinical research this is done through a prospective clinical trial, which involves patient intake and periodic tracking to monitor outcomes and treatment. Randomization for the assessment of the comparative effectiveness of alternative treatments is sometimes desirable, but prior to the development of expensive, large-scale studies, less tightly controlled studies are often needed to indicate which questions are worth exploring.

The presence of an enrolled population within an HMO, combined with patient incentives to obtain all or most of their care from the plan, makes the HMO a very attractive site for such initial studies (Glass and Greenlick 1989). In contrast to many clinical trials that rely on patients who have initially been identified by coming to major medical centers, and thus are likely to be a skewed sample of the relevant clinical population, HMOs are more likely to approximate a cross-section of the populace. Furthermore, the low copayments required by the HMO mean that patients are not likely to be deterred from seeking ambulatory care treatment at the HMO. As HMOs have developed computerized encounter and claims information systems, it has become easier for them

to link the enrollment information with data on the services used. In fact, it is the development of organized, reliable information systems that has made HMOs both a natural place to do research and demonstration and an outstanding site for clinical research on specific conditions that require follow-up over time.

Applying this notion to prevention strategies builds on the HMO's advantages in terms of both enrollment and incentives. The enrollment aspect means that the HMO can provide a "denominator" for the population at risk of contracting a particular illness. It is then possible to determine whether those who have been offered the intervention actually benefit from it (Greenlick et al. 1979). The economic incentives of the HMO enable it to pursue interventions that can potentially lower overall costs. HMOs have been at the forefront in assessing prevention strategies.

There have been several examples of this: from the early randomized controlled trials by HIP of Greater New York of routine mammography to detect breast cancer (Shapiro 1977) to the comprehensive assessments of efforts to encourage the use of bicycle helmets to reduce the incidence of head injuries (Rivara et al. 1994). There was the classic work in Northern California Kaiser Permanente that measured the impact of automated multiphasic examinations (Dales, Friedman, and Collen 1979). Another article in this issue, by Robert S. Thompson, describes an historic, comprehensive program in the development of preventive services in the Group Health Cooperative of Puget Sound (see also Thompson, McAfee, et al. 1995; Thompson, Taplin, et al. 1995; and Thompson, Woolf, et al. 1995). As is apparent from the range of these examples, prevention can be broadly construed by HMOs to include efforts usually considered in the realm of public health, rather than just medical care. It is difficult to imagine a conventional health insurance program with such a focus (Stevens and Greenlick 1989). In contrasting group- and staff-model plans with others, the more tightly integrated provider system of the former makes it somewhat more difficult to attract enrollees, but once people become members, their disenrollment rate is probably lower than that of plans with overlapping provider groups. This would lead one to expect the group- and staff-model plans to take a longer-term perspective on their ability to recapture the benefits of prevention.

It is also important to recognize that the fixed budget and responsibility for care by an HMO more closely approximates the social per-

spective in the assessment of interventions than is the case for conventional insurers. That is, because HMOs typically cover preventive services and ambulatory care without significant copayments, it may make sense for them to encourage certain types of preventive care for relatively minor illnesses like chicken pox, which might not be cost-effective for an insurer that relies heavily on deductibles. While this broader perspective has been limited in that it does not typically take into account patient and other assessments of the direct and indirect costs of the illness and care (Luft 1978), there are studies where this has been done (see, for example, Selby, Fireman, and Swain 1996).

### *Medical Care Use in a Nearly Cost-Free Environment*

The clinical model of treatment decisions typically ignores the role of economic incentives. Particularly as more care shifts to the outpatient sector, the patient's willingness to seek treatment and adhere to recommendations becomes an important component of care. Only a small fraction of medical care use is totally price inelastic in the sense that the amount demanded is independent of the price. For example, we would assume that admission for a heart attack is relatively price inelastic. The belief that price *does* matter in most instances is why conventional insurance plans incorporate deductibles and copayments—they are effective in reducing overall medical care use by more than just the copayments per se. HMOs, with their minimal copayments and deductibles, offer an approximation of patient demand in the context of a cost-free environment. (In fact, it cannot really be cost free, and the HMO is likely to have established various formal and informal mechanisms to contain costs within its prepaid structure. However, from the patient's perspective, the initial contact with the system brings little in the way of out-of-pocket financial costs.) Time costs may be a significant factor for some enrollees, as are transportation costs and access.

With the cost of care abstracted from the HMO economic environment (or controlled for by the nature of the coverage, rather than statistically), the role of various geographic and cultural factors in the demand for care can be examined. Thus, Lieu, Black, and Ray (1994) could examine the factors influencing parents' willingness to bring their

children in for recommended immunization. And some group- and staff-model HMOs have been able to mount a coordinated program of utilization research in this zero-cost environment (Greenlick et al. 1988).

Significantly, comparisons of HMO and non-HMO enrollees permit us in some instances to challenge assumptions about price elasticity. For example, Braveman et al. (1994) found that the proportion of appendicitis patients with perforated appendices was higher among those with conventional insurance than among those with HMO coverage, suggesting that the typical copayment and deductible leads to a delay in seeking care for symptoms of conditions as serious as appendicitis, even though other studies have found a lower appendectomy rate in group- and staff-model HMOs.

### *Variations in Medical Practice*

One of the important lessons of the last two decades has been the recognition of substantial unexplained variability in medical practice across various settings. Wennberg and Gittelsohn (1973) brought these variations to the attention of policy makers. Subsequent studies have focused on variations in the use of hospitals, procedures, and tests, especially among the Medicare population. The focus on the elderly arises largely from the availability of large claims files among people having a uniform benefits package. (This is actually a misperception, since few such studies take account of the differential availability of MediGap coverage, which reduces copayments for Medicare beneficiaries.)

HMOs offer an even better opportunity for the study of practice variations because the coverage is more nearly uniform, the data systems are often more complete and frequently include more clinical information from encounter forms, lab tests, and prescription files, and the physician incentives are usually the same within an organization. While this level of homogeneity is unlike what occurs in the "real world," the effort to eliminate confounding factors is similar to that applied in clinical trials with very strict entry criteria and clinical protocols. By holding constant almost everything else, one can focus on the role of patient preferences, physician uncertainty, information transfer, and other factors (see, for example, Freeborn et al. 1972; Pineault 1976, 1977). One can also explore how to implement policies to reduce unwarranted variation (for example, due to physician ignorance about appropriate

treatment options) and recognize desirable variation (for example, variation in response to well-informed patient preferences) (see, for example, Brown, Shye, and McFarland 1995).

### Limitations of the Review: Unanswered Questions

We argue that group- and staff-model HMOs have made important contributions to American medicine above and beyond the delivery of care to their enrollees. It is more difficult, however, to determine what specific aspects of these HMOs have resulted in these contributions and whether such public benefits are inherent in the nature of this kind of HMO. These questions are difficult to address in an empirical fashion because there is insufficient evidence from the range of HMOs and settings. Much like the Wright brothers' example mentioned above, which demonstrated the feasibility of flight but not the air worthiness of all types of aircraft, the demonstration of various public benefits by group- and staff-model HMOs is valuable evidence of their potential contribution. But it is not proof either that such contributions will always be forthcoming or that they can be ascribed wholly to the basic nature of this form of medical care organization.

Several key issues need to be explored in understanding why the evidence on the broader contributions of HMOs is so sparse. In part, the very way in which we frame the question structures our access to information. Much of what we know about public benefits is through the publication of research, yet this is a single window on what is actually happening in a particular setting. For example, teaching hospitals are the sites of patient care, teaching, and research. If one were to focus on the peer-reviewed literature, there would be innumerable examples of clinical trials and observational studies documenting the research under way in such institutions. In some instances, it would be apparent that patient care was also under way, if only because the patients entered into the trial or observed in the hospital must have been there for treatment. The vast majority of the patient care would be unreported, as would nearly all the teaching activity, little of which is described in the published literature. If this is the situation for teaching hospitals, which have research and publication among their primary missions, is it any wonder that the published evidence for group- and staff-model HMOs is limited?



One might argue that for an innovation to have broad public benefits, it must be made public. While public access to information may be necessary, this may occur through trade publications and other means of information sharing, rather than through research. Assessing the contribution of an organizational form only through the peer-reviewed literature is like an archaeologist comparing the sophistication of two ancient civilizations when one used pottery and the other baskets. The former leaves much evidence and the latter little.

A second problem in assessing the limited evidence is that there is a broad range in the types of organizations that fall within the group- and staff-model HMO definition. They may be structured as staff, group, or sometimes mixed models; they may be investor owned, not-for-profit, professional corporation, or consumer owned; they may be single site or dispersed over many regions; linked to hospitals or separate; university affiliated, university owned, or unaffiliated; in relatively quiet or turbulent, highly competitive markets. An examination of all the potential combinations of characteristics would uncover more cells than HMOs. Thus, even if data were available from all existing plans, an empirical assessment of the relative importance of various characteristics would be highly complex and extremely difficult.

A third problem is that it is inappropriate to assume that the performance of this group of HMOs is independent of historical or environmental context. It is only recently that large commercial insurance carriers have developed group- and staff-model HMOs, so to say that there is little evidence of substantial public benefit from such organizations does not mean that such benefit might not occur in the future. Likewise, the medical care marketplace is far more competitive today than it was even a decade ago and is characterized by competition among a much greater variety of managed care organizations. Therefore, organizations with long histories have several advantages: they were able to incur their development costs in an era of relative "plenty"; their "corporate culture" probably reflects both that history and the more mature perspective of a "survivor"; and more time allows the accumulation of more evidence. Furthermore, if the environment is more competitive now, it may mean that plans are unable or unwilling to offer as many public benefits, either because there is less "surplus," or because such information is costly and, if freely disseminated, benefits their competitors.

Given these caveats, there remains the question of why there seems to be an outpouring of research from a handful of HMOs and relatively

little from the vast majority of HMOs. For example, Kaiser Permanente in the Northwest and in Northern California, Group Health Cooperative of Puget Sound, the Health Insurance Plan of Greater New York, and Harvard Community Health Plan have all been the site of, and have supported, major research efforts. These plans are group- or staff-model organizations and are not-for-profit, two characteristics not shared by the majority of new HMOs. This may suggest that not-for-profit group- or staff-model plans have special characteristics that make them uniquely able to offer such contributions.

On the other hand, a few other HMOs are beginning to be the sites for, and to support, research efforts. For example, Aetna, Prudential, and MetLife/Travelers are each supporting research units that have or will be presenting their findings in the research literature. Some network and IPA model plans, such as Park Nicollet/MedCenters and United Health Care, have made effective use of their networks to examine variations in practice patterns across sites.

Other instances raise critical questions about the importance of general organizational characteristics. For example, even though Kaiser Permanente has numerous sites throughout the nation, nearly all of its recent published research is either from the Center for Health Research in the Northwest or the Division of Research in Northern California. While one might argue that some of the East Coast and Midwest Kaiser Permanente sites are too new or too small to have developed major research efforts, this does not explain the relative absence of recent research from the Southern California region, comparable in size and age to Northern California. In fact, the Southern California region has a substantial in-house research program, but has published few reports in recent years.

The Health Insurance Plan of Greater New York (HIP) was one of the leaders in HMO-based research in the 1950s, 1960s, and early 1970s. Yet little has been produced by HIP since then, even though the organization has not changed in structure, ownership, or setting. What did change was the departure of several key individuals who had maintained the research focus. Since the research efforts in the other group- or staff-model plans can also be identified with key individuals—on both the plan side and the research side—who have had the vision to stimulate and maintain research activities, there might be some reason to believe that particular research activities result from some fortunate intersection between personality, vision, and mission.

Although Harvard Community Health Plan carries the Harvard name, it has only recently developed formal ties with the university, and these are primarily for training. Several other university-sponsored HMOs, including those begun by George Washington University, Georgetown, Washington University, and Johns Hopkins, supported excellent research in their early years, but they have now either been spun off or have ceased their research efforts, even when first-rate health services researchers are on the university faculty. This raises questions about the importance, and even the viability, of university-HMO research efforts.

### Reflections and Conclusions

Even without an extensive empirical study, it is clear that group- and staff-model HMOs have made several important contributions to American medicine. Although some will debate whether their emergence has been for good or ill, HMOs have demonstrated the viability of an alternative to classic FFS or government provision of medical care. The lessons learned from this demonstration have been used to develop new types of organizations, some of which are managed care systems. These lessons have also helped in the design of new market environments, such as the managed competition strategy espoused by advocates ranging from President Clinton to the Jackson Hole Group. Other industrialized nations are adapting these American lessons to address their own problems in health care delivery and financing.

Some group- and staff-model HMOs have served as sites of important clinical and health services research. While most of these studies could have been undertaken in other settings, it has certainly been easier to accomplish some of the clinical studies using the enrolled populations in these HMOs. Some of the prevention interventions are unlikely to have been attempted without these HMOs, merely because of the difficulty in mounting the effort. Although group- and staff-model HMOs have been fruitful territory for health services research, especially in the context of environments with little cost sharing, one could argue that without such environments we would not have been asking the questions.

What is more problematic is whether there is something inherent in the nature of HMOs, or particular types of HMOs, that encourages such public benefits. The demonstration effect occurs "just by being," and thus is not really an issue for this type of benefit. Assessing the encour-

agement of research and its publication is more problematic. Most of the published literature appears to be from a handful of organizations that share certain characteristics: a defined population, good data systems, a clear social mission orientation, a high level of physician involvement in management, and a nonprofit status. However, many similarly structured organizations have no research track record. Likewise, some quite different HMOs, including loose network models sponsored by conventional insurers, have developed research units, but most are too new to expect a track record in the literature.

It is probably the case that a public benefit mission is important for major support of published research by an organization. It is useful to distinguish the analogs to basic and applied research in this discussion. An HMO may find it desirable to sponsor clinical and other "basic" research, especially if it is at least partially externally supported. On the other hand, assessments of internal production processes and quality of care are less likely to be made public because of the competitive environment. If an HMO is able to develop a better method of handling appointments, interpreting lab results, or improving enrollee satisfaction, it may be willing, and perhaps even eager, to demonstrate its successes, but it may be unwilling to share *how* it has achieved them. This could be especially true if the information was viewed as an important competitive asset of an investor-owned program.

It is difficult, however, to separate basic and applied research. Some HMOs may find it desirable to support active research and publication because the expertise gained from doing the basic work may spill over into the applied work and vice versa. They may also be able to attract more highly trained people to work on applied issues if they are able to publish some basic (noncompetitively sensitive) research. There are certainly enough unanswered questions about the effectiveness of various medical interventions to keep HMO-based researchers active for decades.

There is substantial public benefit to the publication and dissemination of new methods of organizing and delivering medical care. HMOs will have internal incentives to develop such new methods, but no private incentive to share them. This may well be an appropriate focus for a reconsideration of the benefits of not-for-profit status. Linking such status to the provision of public benefits, via publication and dissemination, might make more sense than attaching it to the simple subsidization of a certain amount of medical services. This idea, however, is beyond the scope of this article and needs to be explored in the larger context of discussions of nonprofits and public benefits.

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*Address correspondence to:* Harold S. Luft, PhD, Institute for Health Policy Studies, School of Medicine, University of California at San Francisco, 1388 Sutter Street, 11th floor, San Francisco, CA 94109.