Rapid Change to HMO Systems: Profile of the Dane County, Wisconsin, Experience

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Dane County (Madison), Wisconsin, has experienced a dramatic transformation of its health services into competing closed-panel health maintenance organizations (HMOs). The change occurred literally overnight after the state, as the dominant employer, implemented price competition. In 1983, 22 percent of the 24,000 state employees in Dane County were enrolled in closed-panel HMOs; in 1984 about 85 percent enrolled in one of seven major competing physician HMO plans. In 1985 state employees basically stayed with the HMO they had chosen in 1984, and the only major shift was continued movement away from the standard fee-for-service plan. The Dane County HMO plans were less costly than fee-for-service plans to the state and to the state employee. Fee-for-service state enrollees self-reported greater use of inpatient hospital services and self-reported poorer health than employees selecting HMOs when controlling for age between the two groups. This article describes these changes, why they occurred, and the initial impact on employees as an example relevant to HMO development that may occur elsewhere.

Health maintenance organizations are growing rapidly in the United States. By the end of 1984, 16,742,630 people in the United States were enrolled in 337 health maintenance organizations. The 3.1 million enrollment increase in 1984 over 1983 represented a growth of 22.4 percent.[1] Only about 7 percent of the population is served by HMOs, however, and many physicians have not yet been confronted with HMO developments. Physician interest in HMOs is clearly increasing, as exemplified by a recent edition of *The Internist,* which was devoted entirely to HMOs and prepaid plans.[2]

On December 31, 1983, 22 percent of the 24,000 state employees in Dane County, Wisconsin, were in closed-panel HMOs; the next morning, January 1, 1984, over 80 percent were enrolled. Why did this change occur, why did most subscribers select an HMO over a fee-for-service plan, and is such a change likely to be replicated elsewhere?

The purpose of this article is to present a case study of the impact of this rapid change from a fee-for-service and independent practice association organization of physician services in one county to a competitive HMO system. Patient reasons for choosing an HMO, satisfaction with that choice, and the health insurance cost consequences of the choice are presented. Differences between patients choosing HMOs and those choosing a fee-for-service insurance plan are described. The discussion focuses on a framework for understanding why the change occurred[3] and implications for similar changes in other communities.

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BACKGROUND

The Community

Dane County, Wisconsin (1985 population 338,827), approximately 100 miles from Milwaukee and Chicago, is the metropolitan area for Madison (1985 population 174,753), the state capital and home of the University of Wisconsin–Madison with 44,000 students. The state is by far the largest employer in Dane County, accounting for 20 percent of the work force. The majority of practicing physicians in Dane County practice in one of several large multisite, multispecialty clinics. Excluding residents and physicians who do not have at least some active hospital practice, there are about 850 physicians in the county.

Preexisting Prepaid Health Insurance Plan

In 1972, the Dane County Medical Society, in cooperation with the Wisconsin Physician Service, an independent Blue Shield insurer, developed an open-panel, prepaid, independent practice association called the Health Maintenance Plan (HMP). By October 1982 approximately 80,000 residents of Dane County were covered by HMP, including a majority of Dane County state and university employees. Groups and primary physicians were paid a monthly fee per patient that was calculated to approximate their normal fee-for-service rate, less 6 percent that was held back to cover administrative expenses. Hospitals and referral specialists outside the groups charged usual fee-for-service rates and were not at financial risk. In the three-year (1980 to 1983) period, as was true nationally, HMP and fee-for-service insurance rates for state employees increased substantially, averaging a rise of 18 percent per year.

State as Major Employer in Dane County

The state of Wisconsin Employee Health Insurance Program has been self-insured, providing comprehensive inpatient and outpatient physician, hospital, and prescription drug benefits, with employees paying up to 10 percent of premium costs. It offers an annual open-enrollment period each October. Because of a budget crisis in 1982, similar to that in other state governments, Wisconsin could no longer tolerate double-digit increases in employee health benefits. It explored different patient-incentive approaches to containing health benefit costs, such as reducing benefits and raising deductibles and co-payments. The state employee union, however, signaled strong opposition to such moves. Given the already competitive medical environment in Dane County, fostered by a relatively high supply of physicians, a growing staff model HMO, and several large multispecialty group practices, the State Group Insurance Board and the Department of Employee Trust Funds, which administers health benefits, opted to place the burden of cost containment on providers through price competition. Consequently, in 1983 the state switched the way it established its contribution rate for employee health plans from paying a flat 90 percent of the standard fee-for-service premium to paying the lower of 90 percent of the fee-for-service premium or up to 105 percent of the lowest HMO premium in the area.

METHODS

The study to evaluate this change began in July of 1983. Two basic approaches were used. The first was a descriptive study of what was happening and why it had happened. The second was a prospective study of a random sample of Dane County state employees who were surveyed before and during the first years of the health maintenance organization initiative. Neither approach was designed as a controlled intervention.

The state made available all records on state employee health insurance coverage by plan and county and on bid prices and specifications for health insurance for the years of interest. Officials from the state, the Dane County medical community, and the Dane County hospitals were interviewed concerning their perceptions of the change and their predictions concerning the impact of competition on health care.

The longitudinal survey of a random sample of state employees living in Dane County was designed to prospectively define employee and dependent self-reported health status, reasons for plan selection, satisfaction with their plan, and health care utilization.

The University of Wisconsin—Extension Wisconsin Survey Research Laboratory was contracted to draw a random sample of 1,456 employees from the 24,000 state and University of Wisconsin workers living in Dane County. The randomization process was based on the last two digits of the employees' Social Security numbers. Graduate student assistants were excluded from the entire selection process. Four-page questionnaires were sent to the initial random sample of employees in September of 1983, before the change occurred, and again in January of 1984, after the change to health maintenance organization provider offerings was made. All those responding to both the first and second questionnaires were resurveyed in March of 1985 to learn of any further plan selection changes after one year's experience with HMOs. Questions were related to the above issues, based on existing studies of patient satisfaction,[4–7] selection bias,[8,9] and advice from the Wisconsin Survey Research Laboratory. The questionnaires were coded by number to allow identification of follow-up mailings to nonresponders and to allow for follow-up matching with subsequent surveys. The responses were otherwise kept anonymous. A minimum response rate of 70 percent of the population surveyed was identified as the goal of the project and the level that would obviate the need for concern about nonresponders.[10]

Because state employees cover a broad section of blue collar, white collar, and professional job categories, a random sample of this work force was assumed to be reasonably representative of the county work force as a whole. The representative nature of each of the groups responding to the questionnaires was assessed by comparing the entire Dane County state employee group to each of the three respondent groups by age, sex, single vs family plan, and distribution of specific insurance plans. Selected results

TABLE 1. WISCONSIN HEALTH MAINTENANCE ORGANIZATION (HMO) GROWTH WITH ENROLLMENT OF ACTIVE STATE EMPLOYEES*

	Active State Employee Health Contracts								
Date of Data	Individual Number	WPS** (%)	HMO (%)	Family Number	WPS** (%)	HMO (%)	Total Number	WPS** (%)	HMO (%)
November 1982	13,631	83	17	31,607	87	13	45,238	86	14
December 1983	13,417	76	24	31,934	78	22	45,351	77	23
January 1984	13,702	38	62	32,583	38	62	46,285	38	62
December 1985	14,549	36	64	33,786	34	66	48,335	34	66
January 1986	14,395	34	66	33,895	31	69	48,290	32	68

From the Wisconsin State Employee Trust Funds
** Excludes graduate assistant and retired employee contracts*
*** Wisconsin Physicians Service, includes standard plan and Health Maintenance Plan contracts*

of the survey are reported in this article and are analyzed by chi-square, Student's *t* tests, linear regression analysis, and single-frequency tabulations to specific questions. Survey content validity was furthered by the use of satisfaction, health status, and demographic variables used previously in the literature.[4–9,11,12]

RESULTS

The impact of the state initiative is shown for all state employees in Table 1. The percentage of state employees covered by HMOs increased from 23 percent in December of 1983 to 62 percent in January of 1984. By 1986, 68 percent of all state employees were HMO members in 22 different HMO plans in the state. Several of these plans were offered in multiple counties. A substantial portion of this change occurred in Dane County. In December of 1983, 22 percent of Dane County state employees were in closed-panel HMOs. As of January 1, 1984, 82 percent were in closed-panel HMOs and another 3 percent were in a new rural independent practice association.

The consequences of competitive bidding on the cost of fee-for-service (standard plan) and HMO health insurance premiums are depicted graphically in Figure 1. The insurance rates for a given year are compared with the consumer price index for the previous year. Although the percentage increase for HMOs was greater for 1984 premiums than the fee-for-service plan that year, the absolute cost difference between the fee-for-service plan and the lowest cost HMO was firmly established in 1982 premiums and has been maintained since then.

In Dane County, a state employee selecting a fee-for-service plan paid $19.33 per month, in addition to the state contribution, for family coverage fee-for-service health insurance in 1985 and paid $26.00 per month for such coverage in 1986. On the other hand, a state employee had no contribution to make for the lowest priced HMO plans in 1985 and 1986. Four of the five HMO plans in 1986 had virtually no cost to the employee, and the fifth had a premium of $11.30 per month, primarily because of expanded dental and pharmacy benefits compared with the other plans. Otherwise, the range of benefits was virtually identical among all plans. As noted before, by law, the state pays 90 percent of the fee-for-service plan or 105 percent of the lowest priced HMO, whichever is lowest, and the employee pays the balance. Thus, there is financial incentive for the employee to select a plan for which they will have no personal expense. The data presented are for family coverage, but the same basic facts apply to single-person coverage as well.

Three of the prospective Dane County state employee questionnaires (EQ1, EQ2, EQ3) were used for this study. The purposes of the initial September 1983 (EQ1) employee survey were to obtain base line health status, demographic, and satisfaction data before changes occurred. The January 1984 employee survey (EQ2) was to learn what choices were made, why, and subscriber acceptance of the change. The third survey, in March 1985 (EQ3), was to learn subscriber satisfaction with the change after one year's experience. Response rates for EQ1 were 1,062 of 1,456 (73 percent), for EQ2, 1,036 of 1,433 (72 percent), and for EQ3, 723 of 907 (80 percent).

Because of the confidential nature of this mailed questionnaire, nonresponders could not be demographically characterized. Data from responders are therefore compared with the appropriate data from the entire county state employee population to validate the representativeness of respondents. Employee respondents are comparable to the total employee population in demographics and plan selection in the following ways: Respondents to EQ1, EQ2, and EQ3 were compared by each 15-year age category from years 20 to 65, with all Dane County state

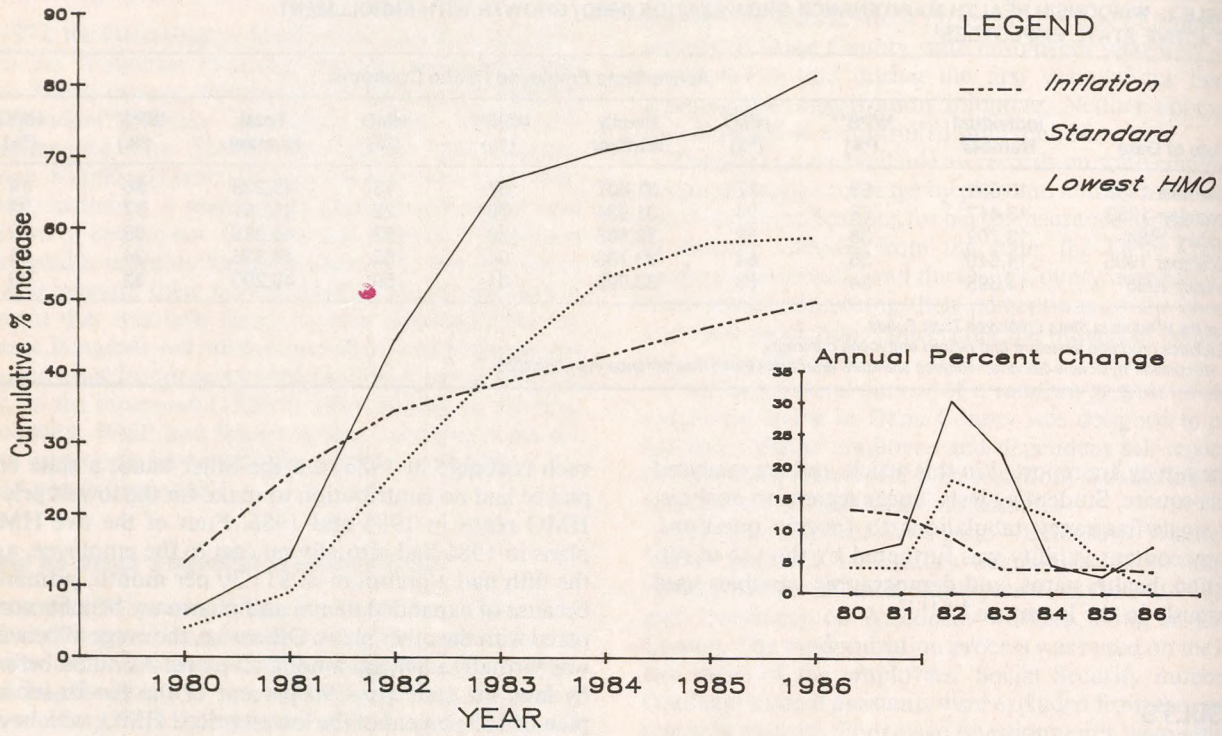

Figure 1. Cumulative annual percentage of change in health insurance premiums for state employees, Dane County, Wisconsin (base year, 1979)

employees in the same 15-year groupings for the same year. There was no statistically significant difference (chi-square, $P > .10$) in any of these comparisons. Similarly, there were no statistically significant differences in the respondents by sex compared with all county employees (chi-square, $P > .10$). Respondent groups from EQ2 and EQ3 were also compared with the overall Dane County state employee group according to fee-for-service vs any HMO plan, and if HMO plan, which one. The proportion of fee-for-service vs any HMO was identical for the respondents and the overall population. The selection of a specific HMO plan was not statistically significantly different (chi-square, $P > .10$) comparing the two respondent groups and the county group for the appropriate year. Those choosing family plans were also no more frequent in the respondent group than the county group as a whole (74 percent vs 73 percent). Other demographic variables, such as salary and family size, were not available for the county group, so further comparisons were not possible.

Why did employees surveyed change to an HMO or retain fee-for-service insurance? First, over 67 percent had participated in the prepaid open-panel Health Maintenance Plan, which no longer was an option for them. Because most physicians joined one of the closed-panel HMOs, however, most subscribers could retain the physician of their choice while joining an HMO. On the other hand, for 21 percent of subscribers joining an HMO, one or more members of their family changed their primary care physician. In the Health Maintenance Plan, individual family members could have primary physicians from different physician groups. With closed-panel HMO plans, all family members had to have physicians from the same HMO.

In the January 1984 employee survey, subscribers were asked: "How important were each of the factors listed below in selecting the plan you did?" The responses and scales are illustrated in Figure 2, which shows that medical competence, availability of care when needed, and treatment as a person were most important considerations whether HMO or fee-for-service plans were selected. As might be expected, "freedom to select whichever doctor I wish" was most important to those selecting fee-for-service plans. On the other hand, "range of benefits available" and "cost to me" ranked only seventh and eighth

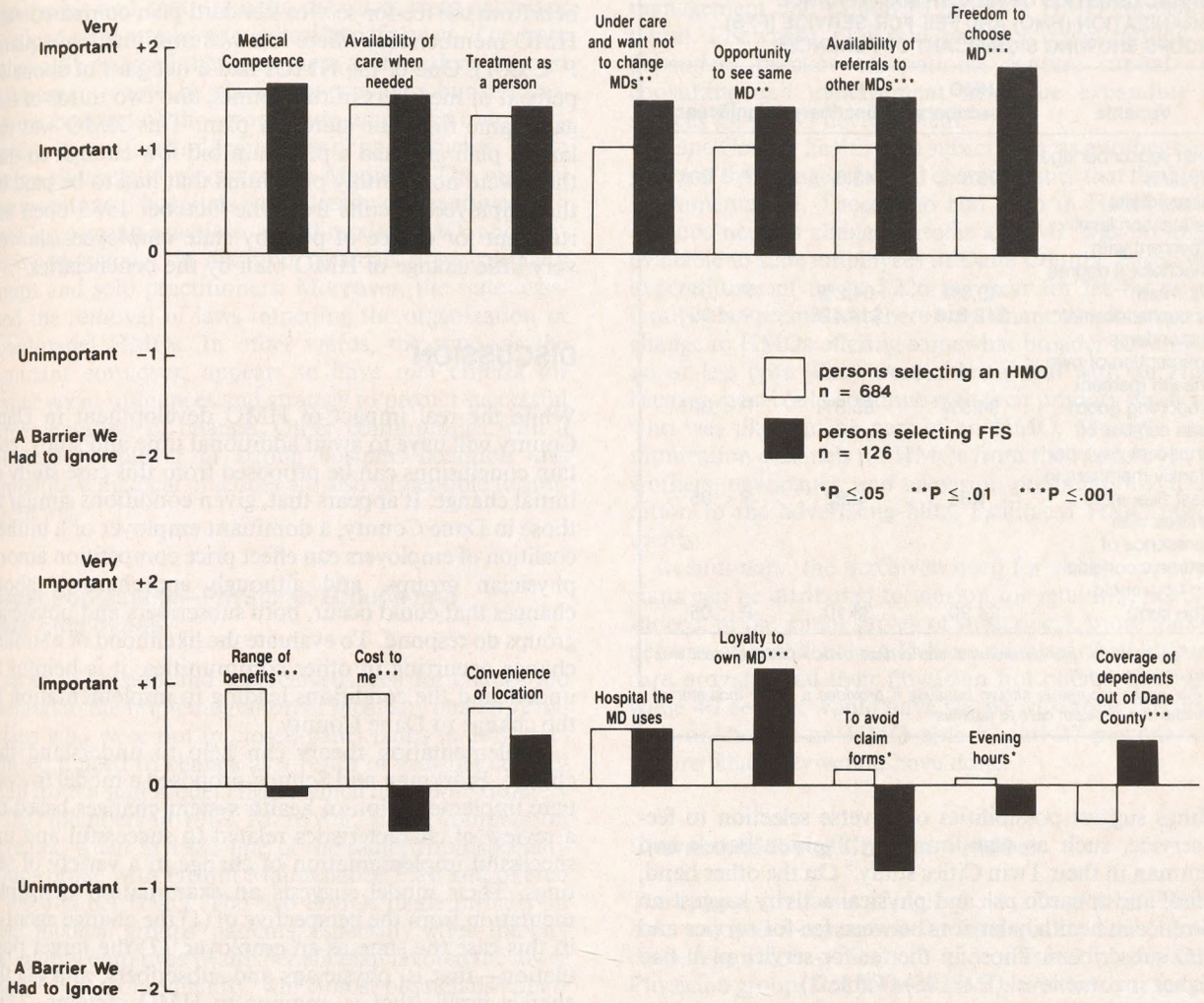

Figure 2. Mean rankings of importance of reasons for selecting a health maintenance organization (HMO) or a fee-for-service (FFS) plan

for those selecting HMOs. Only 31 percent of persons selecting HMOs said that cost was a very important reason for their choice of HMO. Apparently, the difference in out-of-pocket employee costs, which was at most $226 per year for family plan fee-for-service over the lowest, ie, no-cost HMO, was less important than other factors. The fee-for-service plan is comprehensive; consequently, there was little difference in benefits between fee-for-service and the lowest cost HMO.

Health status characteristics that differed significantly between fee-for-service and HMO subscribers are listed in Table 2. Employees selecting fee-for-service plans reported higher age levels ($P < .001$), and more inpatient days in the last five years ($P < .05$), higher presence of chronic conditions ($P < .05$); a smaller proportion reported their health status to be good ($P < .001$). Regression analysis shows that after controlling for age, presence of chronic conditions is no longer significantly different, but respondents' perceptions of their own health and previous inpatient days remain significantly different between fee-for-service and HMO subscribers. Data related to selection bias are currently being analyzed, but these preliminary

TABLE 2. SOCIODEMOGRAPHIC AND NEED-RELATED CHARACTERISTICS OF HEALTH MAINTENANCE ORGANIZATION (HMO) AND FEE-FOR-SERVICE (FFS) GROUPS SHOWING SIGNIFICANT DIFFERENCES

Variable	HMO Subscribers	FFS Subscribers	Significance*
Mean subscriber age (years)	39.5	43.8	P < .001
Respondents' education level (percent with bachelor's degree or more)	49.8%	64.2%	P < .01
Per capita income**	$12,816	$14,425	P < .05
Respondents perception of own health (percent reporting good)	94.5%	85.8%	P < .001
Mean number of inpatient days per family members in last five years	1.86	2.93	P < .05
Families with presence of chronic condition in household (percent)	24.90	38.10	P < .05

** Chi-square was used on nominal and ordinal data, while the t test was used on interval data*

*** Per capita income is shown because it provides a better indicator of financial risk of health care to families*

findings suggest possibilities of adverse selection to fee-for-service, such as was found by Jackson-Beeck and Kleinman in their Twin Cities study.[9] On the other hand, alcohol and tobacco use and physical activity suggest no difference in health behaviors between fee-for-service and HMO subscribers. Those in the fee-for-service plan had a higher income level (P < .05) (Table 2).

The satisfaction of the employees with these changes was initially analyzed in January 1984. Even though employees who changed from the Health Maintenance Plan to the lowest priced HMO saved up to $226 over the previous year's employee contribution, only 39 percent were pleased with the change, 17 percent were unhappy, while the rest were neutral. Of those who selected fee-for-service, 54 percent were unhappy or very unhappy, even though the fee-for-service premiums the employee had to pay did not increase over the previous year. Preliminary analysis of the March 1985 survey suggests, however, that after one year's experience with the change, dissatisfaction for the entire employee sample declined from 22 percent being unhappy in January 1984 to 14 percent being unhappy with the change by January 1985.

The 1985 employee survey, EQ3, demonstrated satisfaction with current HMO plans after one year's experience. Based on an evaluable sample of 705 employees, the only statistically significant change was a loss of members from the fee-for-service standard plan compared with HMO membership, where loss was minimal (chi-square, P < .001). One of the HMOs had a net gain of about 10 percent of members in the sample, and two thirds of this gain came from the standard plan. This HMO was the largest plan and had a premium bid low enough so that there were no monthly premiums that had to be paid by the employee. Results from the October 1985 open enrollment for choice of plan by state employees showed very little change of HMO plan by the beneficiaries.

DISCUSSION

While the real impact of HMO development in Dane County will have to await additional time and study, certain conclusions can be proposed from this case study of initial change. It appears that, given conditions similar to those in Dane County, a dominant employer or a unified coalition of employers can effect price competition among physician groups, and although apprehensive about changes that could occur, both subscribers and physician groups do respond. To evaluate the likelihood of a similar change occurring in other communities, it is helpful to understand the conditions leading to implementation of the change in Dane County.

Implementation theory can help to understand this change. Björkman and Schulz[3] proposed a model to evaluate implementation of health system changes based on a review of characteristics related to successful and unsuccessful implementation of change in a variety of settings. Their model suggests an examination of implementation from the perspective of (1) the change agent—in this case the state as an employer, (2) the target population—that is, physicians and subscribers, and (3) the change itself—that is, moving to HMO systems. They found that (1) the change agent's influence, reputation, strategy, and approach related to the success or failure in implementing change; (2) the target groups' sense of tension and recognition of the need for change, their perceived ability to deal with changes, a positive attitude toward the change, and multiple communication channels related to successful implementation; and (3) the quality of the change itself, its simplicity and ease of understanding and administration, and its being nonradical, nonthreatening, and having a low demand on resources were important characteristics for implementing change.

The Change Agent—State as Employer

The state of Wisconsin, by far the dominant employer and payer of medical services in Dane County, has sub-

stantial power through its control of resources to fund medical services. The state also felt that it was in a budgetary crisis and that dramatic measures were necessary to reduce state employee medical benefit costs. The state realistically assessed that incentives and burdens for cost containment could be placed on providers but not employees because of the strong state employee union opposition to any form of deductibles or co-payments. There was no shortage of physicians in Madison. The medical community and hospitals were already competitive, with three large group practices, a staff model HMO, and university physicians, in addition to small single-specialty groups and solo practitioners. Moreover, the state legislated the removal of laws impeding the organization of closed-panel HMOs. In other words, the state, as the dominant employer, appears to have met criteria for change agent influences and strategy to predict successful implementation of change. Other communities with a dominant employer or strong business coalition and competitive medical practices are also susceptible to similar efforts.

Target Population—Physician Groups and State Employees

A sense of tension and a perceived need for change are essential to the implementation of most any change. Physicians who were not in closed-panel plans in 1983 recognized a need to change as a result of growing competition from a staff model HMO, which had approximately 18,000 members in 1982. Moreover, HMO competition increased when in 1983 one of the major multispecialty groups broke with Health Maintenance Plan and offered a closed-panel HMO. The two HMOs made inroads on other medical groups' patients, especially when the city and county employee health benefit plan favored the lower cost HMOs. Consequently, while most physicians apparently did not favor closed-panel HMOs, they recognized a need to adopt that form of practice, accepting possible consequences of less autonomy and reduced earnings, to maintain their practices and their incomes. Moreover, by developing their own HMO, physician groups could obtain more control over the rate-setting process in a prepaid system environment. Many physicians in other communities appear to be experiencing similar anxieties from HMO developers who are making physicians more susceptible to change from traditional fee-for-service systems.

Other characteristics of the target group found to be conducive to change included a perceived ability of the large group practices to deal with the change. They had well-established patterns of group practices and employed consultants to assist them with the change to HMOs. The independent practitioners received management support from Blue Cross of Milwaukee, which attempted to protect and, if possible, expand its market. In other words, existing group practices and support from Blue Cross provided management and capital to facilitate HMO implementation. Elsewhere, preferred provider organizations, independent practice associations, venture capital, and consulting and management firms are expanding resources for HMO development.[2]

Dane County health plan subscribers, as another target group of the change, also had characteristics that facilitated implementation. Those who had been in HMP had an obvious need to change, insofar as HMP was no longer available to state employees in Dane County. Faced with expenditures of up to $226 per year for fee-for-service family plan premiums, there were financial advantages to change to HMOs offering somewhat broader coverage at no or less cost. They were able to deal with an HMO because most could continue with their primary physician, who was likely to be part of an HMO. Multiple communication channels for HMOs from their employer, coworkers, newspaper, and television presentations, in addition to the advertising blitz, facilitated HMO enrollments.

In summary, the perceived need for change by physicians can be attributed to tension for retaining patients. Indeed, in the initial survey of subscribers, more than 33 percent of enrollees would have changed their primary care provider had their physician not offered an HMO, while 40 percent would have stayed with their physician with or without an HMO option, and 27 percent were unsure what they would have done.

Characteristics of Change—HMOs

The change itself was of high quality. In general, HMOs have enjoyed a reputation for high-quality care,[13] lower costs,[14] satisfied patients,[15] and satisfied physicians.[16] Physician groups that formed HMOs are widely respected among consumers in Dane County and were expected to continue to provide high-quality service. The change, though dramatic, was relatively easy to administer, and it was understandable. The Health Maintenance Plan, the open-panel independent practice association sponsored by the County Medical Society since 1972, provided a familiarity with the concept of prepayment and HMOs. In 1983, over 67 percent of state employees belonged to this independent practice association. Even before the media blitz in October 1983, 75 percent of state employees surveyed reported they had had "some" or "good" understanding of HMOs. By January 1984, this figure increased to 86 percent with 45 percent of those saying they had a "good" understanding. Interestingly, 63 percent reported television advertising was either not helpful or was harmful to their understanding, while 86 percent said information mailed to them by their employer was helpful.

Regardless of whether a community has characteristics favorable for extensive changes to HMOs, physicians should prepare to respond to the issues involved. Preparations must include efforts to contain costs within an individual practice or group of practices. Preparation should mean watching evaluations from Dane County, the Twin Cities,[17,18] and other studies of HMO development to separate fact from fiction, to facilitate decisions to deal with HMO development. Preparation means forming medical and hospital coalitions for cost containment, quality controls, and marketing. Extensive implementation of HMOs does require adjustment. Intense marketing by hospitals and HMOs is now a familiar part of the medical scene in Dane County. The switch to HMOs in Dane County was swift and reached a high level of plan stability and employee satisfaction after one year of experience.

What does the Dane County experience mean to family physicians and other physicians elsewhere? The following questions are relevant to every community as predictors of similar change. Does the community have one large employer, group of employers, or a union as major purchaser of health insurance? Does the community already have groups of physicians in competition? Does the community have more than one acute care hospital? What is the pressure from the community population concerning cost and quality of care? All of these questions have been answered for Dane County, Wisconsin, and are the questions to ask in areas where HMO development has not yet started or has had minimal development.

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