
The Role of Physicians in a Community-Wide Program for Prevention of Cardiovascular Disease: the Minnesota Heart Health Program

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Synopsis

The Minnesota Heart Health Program (MHHP) aims to reduce cardiovascular disease (CVD) mor-

bidity and mortality by reducing risk factors among the mass of residents in three midwestern communities. A major aspect of the program is the involvement of community physicians because they have high credibility as citizen leaders, especially on health issues.

In the MHHP, physicians contributed in a number of ways. The initial contacts with physicians resulted in their providing support and introductions to other community leaders, whose active support was also gained. Physicians sit as members of the central Community Advisory Boards of MHHP and serve on the executive committees of these boards. All MHHP issues related to medical practice are brought before Physicians' Advisory Groups in each community for resolution. Primary care physicians attend MHHP continuing education programs.

In a survey of 109 physicians in one of the MHHP communities, 95 percent of respondents believed cigarette smoking to be an important risk factor for CVD, but only 15 percent judged themselves to be effective in dealing with patients who smoked. Forty-one percent of respondents said that elevated blood cholesterol is an important risk factor, but only 20 percent felt effective in treating the condition. Only 18 percent of the physicians in the sample believed that a poor eating pattern plays a substantial role in CVD, and 9 percent felt effective in counseling patients about eating habits. This pattern of results indicates the need not only for continuing education about risk factors for CVD, but also for training to improve patient counseling skills.

THE MINNESOTA HEART HEALTH PROGRAM (MHHP) is a community-based primary prevention trial of the major cardiovascular diseases (CVD) (1,2). As part of the MHHP, multiple strategies have been developed, tested, and implemented to (a) gain community-wide awareness of CVD, (b) generate wide participation in health programs, and (c) stimulate behavior changes likely to reduce the risk factors for CVD. The MHHP staff also works with citizen leaders to plan the continuation of risk reduction programs after the conclusion of the scientific project. The aim is to establish,

permanently, CVD prevention strategies in communities.

The rationale for the MHHP's population-wide strategy for CVD prevention has emerged from epidemiologic studies, from the experience of laboratory and clinical studies, and from trials of risk factor reduction in high-risk groups (3). Many of the contributing research developments are recent, and only a few public health trials of any magnitude have been undertaken to test the feasibility of the mass reduction of CVD risks (4-10).

Presented in this article is a brief overview of

the MHHP study design with the details of its strategies to involve physicians, the results of surveys of physicians concerning preventive practices, and the data on participation by physicians in the various education activities of the MHHP.

Method

The design of the MHHP study has been described in detail (11). Briefly, surveys of risk factors and assessments of behavior changes among persons 25 to 74 years old are conducted annually in six study communities for a period of 10 years. The six communities were paired according to similarity of the key characteristics of income, education, health care systems, and media resources. One community of each pair was designated to participate in long-term, intensive community-based education. The other community of each pair served as a reference community.

Measurement components. Before the education activities were begun, an analysis was conducted to study the leadership patterns, organizational structure, and economic and social conditions of each of the three communities (12). The health care industry in each of these communities was specifically studied, and medical and health care services were catalogued. The analysis included a survey of physicians' behaviors and attitudes toward preventive practices.

Population-based samples. Population-based samples of each community's residents were asked to name their personal physician, and all physicians named were requested to participate in a mail survey. Questions sought information about (a) knowledge, beliefs, and attitudes related to CVD and risk factors and (b) pharmacological and nonpharmacological approaches used to treat patients with elevated risk. In two of the education areas, Mankato, MN, and the twin border cities of Fargo, ND, and Moorhead, MN, this evaluation was less formal; no special efforts to maximize participation rates were undertaken. In the third education area, Bloomington, MN, a postcard was sent 1 week after mailing the questionnaire as a reminder. Nonrespondents received a duplicate questionnaire 1 month later, followed by a postcard 1 week later.

Education component. The three communities designated for education were sequentially introduced to the program at approximately 1-year

intervals, beginning in the fall of 1981. The MHHP education program will continue intensively in each community for 5 years, with a gradual shifting of responsibility to community resources for staffing and funding. Seven education strategies are used to engage all segments of the community in risk reduction activities: involvement of community leaders (13); use of mass media (14); systematic CVD risk factor screening and education (15); courses, seminars, and workshops for the general population (14); school-based programs for youth and their parents (16); projects for changing the environment—for example, informational displays in grocery stores—to build a community supportive of healthful behavior (17); and involvement of health professionals. The education approach of MHHP and the theoretical framework that guides it have been published previously (14). This article presents the first detailed description of physicians' involvement in the study.

Initially, a key physician in each MHHP education community was identified and asked to serve as one of several principal advisors to the MHHP investigators. The physician-leader was briefed on the overall project goals and asked to help identify and to recruit other community leaders as advisors early in the project.

With the use of data from the analysis of the community, other physicians with special interest in CVD prevention were identified and asked to serve in one of three groups: (a) the Community Advisory Board in each community, (b) "citizen task forces" of MHHP, responsible for coordinating risk factor education activities, and (c) the Physicians' Advisory Group charged with advising the MHHP on medical matters.

Beyond these initiatives with physicians, MHHP provides continuing medical education concerning CVD preventive practices. A range of methods is used, including (a) continuing medical education presentations to medical societies, hospital staffs, and clinic groups, (b) multidisciplinary workshops that include role-play exercises with patient management prevention protocols, (c) individual consultations with medical practitioners on incorporating prevention services into their practices, (d) involvement of physicians serving on city health advisory boards and in health departments, and (e) distribution of professional newsletters and other materials, such as educational brochures for patients. These strategies emphasize a preventive approach, including the reduction of the average levels of risk in the whole population (18–20).

Table 1. The Minnesota Heart Health Program: Responses of 109 physicians in Bloomington, MN, to "How much do you think that the following factors may diminish CVD incidence?" (percent)

Factor	Uncertain	No effect	Small effect	Substantial effect	No response
Cigarette smoking	0	0	4.6	95.4	0
Elevated blood pressure	0	0	15.6	84.4	0
Elevated blood cholesterol	3.7	5.6	49.5	41.1	1.9
Overweight	3.7	1.8	54.1	40.4	0
Sedentary lifestyle	2.8	1.8	57.8	37.6	0
High stress levels	5.5	1.8	60.6	32.1	0
Type A behavior pattern	9.3	8.4	57.0	25.2	1.9
Poor eating pattern	11.9	11.0	58.7	18.3	0

Education about methods to develop a preventive practice is pragmatic. It stresses that an efficient and effective preventive practice has tasks not only for the physician but for other staff as well. The physician's tasks are

- to summarize, objectively, findings from physical examinations and clinical and laboratory findings,
- to link these findings to a person's risk status,
- to identify the relevant risk behavior,
- to relate these behaviors to the social influences causing or enhancing them,
- to seek a firm, personal commitment to change,
- to suggest reasonable behavioral goals and offer alternatives to reach them,
- to defuse patient rationalizations and defenses for not changing,
- to encourage, motivate, and inspire the patient's confidence in his or her ability to change,
- to urge the patient to seek professional counseling for lifestyle changes in eating patterns, physical activity, and tobacco use.

These messages, delivered in a few minutes by the physician, are made salient by the physician's credibility and authority. Other preventive efforts that require extended contact with a patient are undertaken by health counselors skilled in health education and behavior change techniques. The functions of these health counselors are

- to clarify the physician's message,
- to amplify the educational message,
- to outline the patient's education and skills training program,
- to confirm the patient's personal commitment previously made to the physician,
- to systematically follow the patient and provide feedback and reinforcement,
- to introduce new strategies, materials, and techniques,

- to encourage the patient when difficulties arise and reinforce the goals achieved.

Results

The MHHP is in the sixth year of education in Bloomington, the last community to enter the program, and in the eighth year of the 10-year project, overall. At this stage, the goals of the community leadership and of continuing medical education participation set for physicians have largely been met. A MHHP physician liaison has been established with physicians in all three MHHP communities. All advisory boards, their executive committees, and many of their task forces include members who are physicians. The results we present are from data obtained from the survey of physicians and from data concerning participation by physicians.

As described in the methods section, a survey of physicians' medical practice attitudes and behaviors was made in all MHHP communities prior to launching the education program. The results were used to help make decisions about what areas to emphasize in the physician education program. Tables 1-3 show data collected among physicians in Bloomington and surrounding areas, where substantial effort was made to enhance participation (data from the surveys in Mankato and Fargo-Moorhead communities were used only for program development).

A list of 206 physicians was compiled from the records of MHHP risk factor survey participants who lived in Bloomington, and all physicians on the list were mailed a survey questionnaire. Completed forms were received from 109 physicians, a 53.5 percent rate of return. Of responses categorized by medical specialty, 38 percent came from internal medicine, 34 percent from family practice, 15 percent from obstetrics-gynecology, and 5 percent or less from each of the following: general practice, surgery, and pediatrics. The average

Table 2. The Minnesota Heart Health Program: Responses of 109 physicians in Bloomington, MN, to "How effective do you feel you are in dealing with persons with the following problems?" (percent)

Factor	Not effective	Somewhat effective	Very effective	Extremely effective	No response
Hypertension	0	11.0	58.7	26.6	3.7
Excess sodium in diet	1.8	61.5	27.5	5.5	3.7
Elevated blood cholesterol	9.2	66.1	19.3	0.9	4.6
Cigarette smoking	15.6	67.0	11.0	3.7	2.8
Sedentary lifestyle	11.0	70.6	11.9	2.8	3.7
Poor eating patterns	26.6	59.6	8.3	0.9	4.6
Overweight	24.8	63.3	8.3	0.9	2.8
High stress levels	26.6	63.3	8.3	0.9	1.8

Table 3. The Minnesota Heart Health Program: Responses of 109 physicians in Bloomington, MN, to "For the usual patient, how often do you estimate that you assess the following factors?" (percent)

Factor	Never	Less than every 5 years	Every 3-4 years	Every other year	At least once a year	Attempt at every visit	No response
Blood pressure .....	.9	0	0	2.8	22.0	69.7	4.6
Weight-fatness .....	.9	0	.9	5.5	37.6	50.5	4.6
Smoking status .....	.9	1.8	1.8	3.7	53.2	33.9	4.7
Exercise level	1.8	.9	11.9	11.0	55.1	12.8	6.5
Stress levels	4.6	4.6	11.9	17.4	41.3	12.8	7.4
Eating pattern	4.6	4.6	15.6	13.8	43.1	10.1	8.3
Serum cholesterol	3.6	8.3	23.9	20.2	36.7	.9	6.4

number of years the physicians had practiced was 21.6, and 85 percent of physicians reported that they worked in a group practice. Data on the sex of the physicians were not collected.

Respondents were asked to rate the degree to which reduction in various risk factors might also reduce CVD incidence and to indicate how effective they believed they were in dealing with high-risk patients. Tables 1 and 2 show that the physicians in this sample held widely varying perceptions about their effectiveness. Among major risk factors, cigarette smoking was ranked first in its effect on CVD incidence, yet only 15 percent of the physicians indicated they felt very or extremely effective in helping patients to stop smoking. The risk factor ranked next for CVD incidence was elevated blood pressure. In contrast to cigarette smoking, the majority of respondents (85 percent) felt effective in dealing with hypertensive patients, and 33 percent believed themselves to be very or extremely effective in counseling patients about sodium restriction. Other factors perceived to have substantial influence on CVD incidence, in rank order, were elevated blood cholesterol, overweight, sedentary lifestyle, high stress levels, Type A behavior patterns, and poor eating patterns. Of the physicians, 18 percent believed that a poor eating pattern plays a substan-

tial role in CVD, and 9 percent felt effective in counseling patients about eating habits.

Other data from the survey of physicians (not in the table) revealed that almost 90 percent of respondents perceived that their patients were interested in making lifestyle changes to reduce the risk of CVD. In rank order from greatest to least, interest among patients (as judged by the physician) were exercise, weight loss, cigarette smoking, blood cholesterol, and hypertension. Respondents were also asked to estimate the number of hours a week spent advising patients on ways to help prevent a first heart attack or vascular disease event. The average was 4.13 hours (standard error of the mean = .41).

Data were also obtained on respondents' estimates of how often they assessed risk factors in their patients. Table 3 shows that 92 percent of the physicians in this survey reported having measured their patients' blood pressure at least once a year. The majority of respondents indicated they attempted to assess all other factors listed in table 3 at least once a year, except blood cholesterol (approximately 38 percent said they assessed blood cholesterol at least once a year).

A central goal of the MHHP is to achieve the physicians' participation in MHHP continuing medical education programs. Table 4 shows the

Table 4. The Minnesota Heart Health Program: Kinds of education initiatives for physicians and levels of participation

Program initiative	Number of events	Number of physicians participating
<i>Mankato</i> ¹		
Total	7	194
Health department and board	...	...
Intensive CVD risk reduction workshops	1	37
Medical society presentations	1	38
Clinical staff presentations	...	...
Hospital staff presentations	5	119
<i>Fargo-Moorhead</i> ²		
Total	7	393
Health department and board	...	...
Intensive CVD risk reduction workshops	...	...
Medical society presentations	4	325
Clinical staff presentations	2	46
Hospital staff presentations	1	22
<i>Bloomington</i> ³		
Total	16	169
Health department and board	6	9
Intensive CVD risk reduction workshops	3	21
Medical society presentations	...	...
Clinical staff presentations	4	16
Hospital staff presentations	3	123

¹ Of 88 physicians, 42 are in primary care fields.
² Of 359 physicians, 121 are in primary care fields.
³ Of 73 physicians, all are in primary care fields.
NOTE: ... means none was conducted.

extent of involvement of physicians in the various education initiatives of MHHP. In Mankato, with approximately 37,000 inhabitants, 37 of 42 primary care providers (88 percent) attended a day-long MHHP workshop that included an evening program attended by spouses. Presentations to hospital medical staff generated the largest total attendance (119). A total of 194 direct contacts was made with physicians who participated in education activities in Mankato during a 4 1/2-year period, beginning in the fall of 1981.

In Fargo-Moorhead (with a population of 101,000 and with 121 primary care providers), MHHP was most effective in engaging physicians through presentations at medical society meetings, with an attendance of 325 at 4 meetings. A total of 393 contacts with physicians was made in Fargo-Moorhead during a 3-year period, beginning in the spring of 1983.

In suburban Bloomington, a wider range of education options has been used, including more

frequent meetings with smaller groups of physicians. The city health department and health board have been centrally involved; Bloomington was the only one of the three MHHP education areas to undertake programs with these public groups. A large hospital adjacent to Bloomington, where most of the Bloomington physicians attend staff meetings, was the site of 73 percent of the contacts made during the program's education activities.

Discussion

In this study, the differences in the three communities targeted for education appear to be reflected in the data concerning the physicians' participation. The MHHP used essentially the same approach in each town; however, our experience was that methods useful in one community were relatively ineffective in the next. The data in table 4 illustrate this point. In Mankato, half of the physicians were in primary care and easily reached through presentations to hospital staff; the majority were attracted to the intensive CVD workshop conducted by MHHP.

In contrast, in Fargo-Moorhead, where approximately one-third of the physicians were in primary care, the majority of contacts were made through two area medical societies, reflecting the strength of these associations in the region. In Bloomington, two strategies were especially useful to attract physicians: (a) presentations to the staffs of eight group clinics (including three health maintenance organizations), and (b) involvement of physicians in the city health department.

The finding that physicians, although well-informed about CVD risk factors and capable of recognizing the behavior patterns that contribute to elevated risk, feel unable to help patients achieve behavior change has been observed elsewhere (21-23). The MHHP takes into account the difficulties related to medical practice, including the inability of most physicians to give substantial time to counseling patients. In response, the program emphasizes to physicians that by briefly giving straightforward advice they can effectively motivate patients to change their lifestyle. The MHHP has made its message to physicians clear: their responsibility is to screen for elevated risk, give advice on making changes in behavior, prescribe pharmacological and hygienic actions to lower risk, and refer patients to experts for counseling in lifestyle change. We believe that in this way the physician's time with the patient is used to the greatest benefit.

Because the MHHP is a trial of community-wide health education aimed at all segments of the population, the many components of the education program cannot be tested separately to determine their independent and interactive effects. As a consequence, the MHHP will not be able to attribute parts of any ultimate risk factor change, or morbidity and mortality change, specifically to its education program for physicians. Nonetheless, studies on the effects of the program on medical practice are underway. They entail (a) repeated surveys of physicians' self-reported changes in medical practice and (b) surveys of population-based cohorts of citizens from each MHHP community to examine perceptions about changes in medical care and preventive practices.

In summary, the MHHP experience demonstrates the feasibility of fully involving primary care physicians in community-wide disease prevention-health promotion initiatives. Physicians in the MHHP communities have been willing to serve the project not only as advisors about medical matters but have assumed key leadership roles on the community advisory boards and their executive committees.

Our experience also demonstrates the potential for continuing medical education to teach physicians about practical intervention strategies for lifestyle changes to reduce the risk of CVD. Most primary care physicians expressed interest in providing effective counseling for patients with elevated risk factors, but felt they lacked the necessary skills. Thus, MHHP's current efforts with physicians focus on helping them to develop practice skills that incorporate prevention counseling into everyday medical practice.

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