Report of the New England Task Force on Reducing Heart Disease and Stroke Risk

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Synopsis

Five years ago, a task force on reducing risk for heart disease and stroke was established by the six New England States. The task force included representatives from State public health departments, academia, the corporate sector, and voluntary organizations. This article is the final report of the task force.

Heart disease and cerebrovascular disease are major causes of mortality in the New England region. Heart disease causes nearly 40 percent of all deaths in each of the six States and cerebrovascular disease, 7 percent of the deaths. Major risk factors for ischemic heart disease that have been identified—elevated serum cholesterol, high blood pressure, and cigarette smoking—are caused largely by lifestyle behaviors. Similarly, cerebrovascular disease results largely from uncontrolled high blood pressure, much of which is attributable to unhealthy lifestyle behaviors. In a series of studies evidence has accumulated that the reduction or elimination of these risk factors results in a decline in mortality rates. Many intervention programs have been mounted in the region, but there has been no population-wide effort to attack these risk factors.

The task force proposed a broad range of activities for New Englanders at sites in the community and in health facilities. These activities would promote not smoking, exercising regularly, and maintaining desirable levels of serum cholesterol and blood pressure.

BEGINNING IN 1984, the six New England States created task forces to address the leading causes of death and disability in the region. The task forces were convened under the auspices of the six State health departments from the region and the Erna Yaffe Foundation. Each department selected representatives to the task forces; additional representatives were chosen from academia, the insurance industry, the corporate sector, and voluntary organizations.

Seven task forces were established: reducing heart disease and stroke risk, reducing cancer risk, injury prevention, primary prevention and environmental epidemiology, towards a smoke free society, identifying the costs and benefits of health promotion and illness prevention strategies, and incentives for health promotion. The task forces were charged with reviewing the scientific literature on their topic, assessing the level of activity in the region for addressing the topic, and making recommendations for change. Initial reports were presented in 1985 to public health professionals, legislators, and other interested parties at a 2-day meeting cosponsored by the Harvard School of Public Health. Final reports were prepared in late 1987.

The process of developing the task force reports

appears to be unique. It represents a model for regional collaboration on health issues and for combining the expertise of the public, private, and academic sectors to solve such issues.

This report of the Task Force on Reducing Heart Disease and Stroke Risk in New England is the first of the task force reports. We review the evidence that these diseases can be prevented, the current status of cardiovascular disease prevention activities within New England, what remains to be accomplished, and recommendations for further action.

Extent of the Problem

Heart disease and cerebrovascular disease are major causes of mortality in the United States and in the New England region. Heart disease was ranked as the leading cause of death in the United States in 1984, accounting for 37.5 percent of all deaths; cerebrovascular disease ranked third, accounting for 7 percent of all deaths (*1*).

Heart disease causes nearly 40 percent of the deaths in each New England State, and cerebrovascular disease causes approximately 7 percent of deaths (see table). Almost one out of two New Englanders dies as a result of one of these diseases. Age-adjusted death rates per 100,000 population vary by about 5 percent among the New England States and are similar to the overall rate in the United States. The rates in all of the New England States, however, are higher than in most Western countries.

Almost one-half of these deaths in New England occur before age 75 and thus must be considered premature. This situation is tragic for two reasons. First, the majority of premature deaths from these two causes are preventable. Second, a large number of such deaths that occur after age 75 could either be prevented or substantially delayed.

The cost of these diseases to New England is enormous. Total economic costs to the region from lost wages, lost productivity, disability, and health care equal approximately $4 billion each year. The health care costs alone are $1.25 billion.

Major Risk Factors

Mass diseases such as heart disease and cerebrovascular disease do not occur because of mere chance or old age. They are a result of very powerful environmental influences on a susceptible population (*2*). An unfavorable environment maximizes risk and influences the subsequent development of disease; in contrast, a favorable environment minimizes risk and the subsequent development of disease.

Deaths from heart disease and cerebrovascular disease in New England, 1984

Location	*Number of deaths*	*Percent of all deaths*	*Age-adjusted death rate per 100,000 population*[1]
	Heart disease		
Connecticut	10,518	37.8	313.7
Maine	4,251	39.1	334.0
Massachusetts	21,432	38.7	320.5
New Hampshire	3,072	38.2	332.2
Rhode Island	3,743	39.7	329.1
Vermont	1,696	37.4	319.9
New England	44,712	38.5	321.3
United States	765,114	37.5	337.7
	Cerebrovascular disease		
Connecticut	1,867	6.7	55.5
Maine	790	7.3	60.3
Massachusetts	3,861	7.0	56.8
New Hampshire	564	7.0	60.3
Rhode Island	624	6.6	54.3
Vermont	289	6.4	53.0
New England	7,995	6.9	56.7
United States	154,327	7.6	68.1

[1]Death rate per 100,000, adjusted to the 1980 U.S. population.

Unfortunately, the populations of the United States and New England live in an unfavorable environment. That environment has resulted in heart disease and stroke becoming mass diseases. The underlying environmental problem is not simple but multifactorial in nature, and it requires multiple answers.

More than 80 percent of deaths from heart disease are due to ischemic heart disease. Ischemic heart disease is a result of the build-up of fatty plaques in the coronary arteries that feed the heart. Three major risk factors for ischemic heart disease have been identified: elevated serum cholesterol, high blood pressure, and cigarette smoking (*3–7*).

The higher the level of each major risk factor, the greater the risk. For example, a serum cholesterol level of 220 mg per dl increases the risk of developing heart disease twofold as compared to a serum cholesterol level below 180 mg per dl; a level of 300 mg per dl increases the risk fivefold. The higher a person's blood pressure, the higher the risk of developing heart disease. This risk increases substantially at blood pressure levels greater than or equal to 140 mmHg systolic or 90 mmHg diastolic. The more cigarettes an individual smokes, the greater the risk of developing heart disease.

Each major risk factor independently increases

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the risk of developing ischemic heart disease. On the average, the presence of any one of the three major risk factors for heart disease increases the risk about twofold. When all three are present to a moderate degree, for example, one pack-per-day cigarette smoking, a serum cholesterol level of 220 mg per dl, and blood pressure of 160 over 95 mmHg, the risk increases eightfold. When the levels of these three risk factors are higher, the risk increases proportionately, rising as high as twenty-fold.

The three major risk factors for heart disease are largely caused by lifestyle behaviors. For example, elevated serum cholesterol is primarily a result of consuming a diet high in fat, particularly saturated fat. Almost 40 percent of the calories in the average American diet are derived from fat; approximately two-fifths of these are from saturated fat. These percentages considerably exceed those in countries with lower rates of heart disease.

Blood pressure is also strongly influenced by several lifestyle habits. The most important of these factors is dietary salt intake; the more salt a person habitually eats, the greater the risk of developing high blood pressure (*8*). The more a person is overweight, the greater the likelihood of developing high blood pressure (*9*). The greater the alcohol intake, the higher the average blood pressure (*10*). A physically inactive person tends to have a higher blood pressure than a physically active person (*11*). Finally, there is increasing evidence that a diet high in fat can lead to an increase in blood pressure (*12*).

Cigarette smoking is a lifestyle behavior by its very nature and represents one of the most potent and pervasive drug addictions in the United States today. The smoking habit is generally initiated in the teenage years or even earlier. Because of cigarettes' strong addictive properties, this habit once initiated often persists into adulthood.

In addition to these three major risk factors, several minor risk factors for heart disease have been identified. The most important of these is physical inactivity (*13–15*). As with other risk factors, the risk is graded; the more inactive the person, the greater the risk. Conversely, the more active, the lower the risk. On the average, physical inactivity increases the risk of developing heart disease almost twofold.

The approximate percentage of ischemic heart disease attributable to the most important risk factors (*16*) is as follows:

Risk factor	*Percent of heart disease*
Elevated serum cholesterol	30–40
High blood pressure	20–25
Smoking	20–25
Physical inactivity	10–20

Most heart disease is caused by these four risk factors. It is highly unusual for a person who possesses none of them to develop ischemic heart disease.

Almost all deaths from cerebrovascular disease are caused by strokes. Approximately 90 percent of strokes are attributable to uncontrolled high blood pressure (*17*). As in the case with heart disease, the higher a person's blood pressure, the higher the risk of stroke. This increasing risk holds for elevated systolic as well as elevated diastolic blood pressure. The risk increases substantially as the systolic pressure rises above 140 mmHg or the diastolic pressure rises above 90 mmHg.

The risk factors responsible for these two diseases are commonplace in our society. The problem begins in childhood and continues through old age. Estimates of the prevalence of the most important risk factors for these diseases in U.S. adults follow. The prevalence of these risk factors is similar throughout New England.

Risk factor	*Percent of population*
Elevated serum cholesterol	80
High blood pressure	33
Smoking	28
Physical inactivity	70

At least 80 percent of the population has a serum cholesterol level sufficiently high to place them at increased risk of developing heart disease (*18*). One-third of all adults, including more than 60 percent of persons over age 65, have high blood pressure (*19*). More than one-fourth of adults smoke (*20*). More than two-thirds of the population are physically inactive (*21*).

Because of the high prevalence of these risk factors, most residents of New England must be

considered as being at increased risk for developing heart disease and cerebrovascular disease. Less than 20 percent of them are at low risk of developing these diseases.

Previous Efforts at Prevention

The epidemiology of the leading causes of death has been recognized for several decades. However, evidence that the reduction or elimination of these risk factors results in declines in mortality rates has emerged only in the last decade. Although it would seem logical that such reductions in mortality would occur, some researchers insisted that such proof was necessary before advocating widespread intervention programs. A number of clinical trials and community risk reduction trials now have provided such proof.

Three large clinical trials investigating the effects of treatment of high blood pressure showed reductions in mortality from heart disease and cerebrovascular disease of up to 75 percent among groups of patients appropriately treated (*22–25*). Data from the Hypertension, Detection, and Follow-up Study showed that reductions in mortality experienced by the intervention group began within 1 year of the inception of this trial. The differences in mortality between the intervention group and the control group widened throughout the 5-year trial. Mortality from heart disease and cerebrovascular disease was more than 20 percent lower in the vigorously treated group by the end of the trial. What was especially noteworthy was that even participants with very mild high blood pressure benefited from treatment.

Several studies have shown that within 1 year of quitting smoking, a person's risk of developing heart disease falls by almost 50 percent (*26*). Subsequently, the risk continues to decrease slightly, and by 10 years is equal to that of a nonsmoker.

A large clinical trial of the effectiveness of lowering cholesterol alone on mortality rates for heart disease has recently been completed (*27,28*). In the Lipid Research Clinics Coronary Primary Prevention Trial, men on cholesterol-lowering medication and diet experienced a 2 percent reduction in heart disease mortality for each 1 percent drop in cholesterol. They experienced a 64 percent lower mortality rate when their serum cholesterol level fell more than 25 percent.

Two large clinical trials of the effect of multiple risk factor reduction programs on mortality from heart disease have been conducted. The Oslo Study focused on lowering serum cholesterol through diet and on smoking cessation. By the end of 5 years, the mortality rate for heart disease was almost 50 percent lower in the intervention group than in the control group (*29*).

The Multiple Risk Factor Intervention Trial focused on the effect of control of high blood pressure, smoking, and elevated serum cholesterol on heart disease mortality (*30*). The trial, however, has been seriously criticized for its design. The study findings showed reductions in risk factors and mortality rates that were similar in the treatment and control groups. Nonetheless, despite its flaws, the trial showed greater reductions in smoking in the intervention group and a subsequent lower mortality rate in that group as compared with controls.

Three successful large-scale community risk reduction trials have been completed. The most successful one for high blood pressure control was the Connecticut High Blood Pressure Control Program that ended in 1982 (*31*). This was a federally funded, statewide endeavor begun in 1978 to show the effects of a coordinated program of screening, education, and referral of persons with high blood pressure. By 1983, age-adjusted mortality rates for heart disease had dropped 18 percent in Connecticut, as compared with 10 percent in the United States as a whole. The declines in age-adjusted mortality rates for cerebrovascular disease were even more impressive: 39 percent in Connecticut as compared to 26 percent in the United States as a whole. At the beginning of the project, the mortality rates were almost identical for Connecticut and the United States.

The most successful community-based intervention trial for multiple risk factor control took place in North Karelia, Finland, beginning in 1972 (*32,33*). This trial involved a comprehensive community program to prevent heart disease through a reduction in the prevalence of smoking, elevated serum cholesterol, and high blood pressure. There was an annual decline in mortality rates for heart disease of 3.7 percent for North Karelian men and 2.2 percent for North Karelian women, as compared with 1.7 percent for men and 1.2 percent for women in Finland as a whole.

For the past 8 years, five European countries (Great Britain, Belgium, Italy, Poland, and Spain) have conducted worksite-based cardiovascular disease prevention programs as part of a large-scale community trial (*34*). Each program has attempted to reduce elevated serum cholesterol and excess dietary fat intake, to control high blood pressure,

and to promote not smoking and vigorous exercise. After 6 years, the three most successful programs achieved reductions in heart disease mortality of 30, 21, and 20 percent.

Finally, the United States as a whole has been undergoing a natural experiment in risk factor reduction over the past two decades (*35*). Smoking rates have decreased by about 10 percent since 1964. As people have lowered their dietary fat intake during that same period, average serum cholesterol has decreased by approximately 10 mg per dl. The percent of persons with controlled high blood pressure has increased considerably, especially during the past 10 years. A large number of people have begun exercising regularly. Concomitant with these changes in risk factors, the age-adjusted mortality rate for heart disease has declined approximately 30 percent; simultaneously the age-adjusted mortality rate for cerebrovascular disease has declined approximately 50 percent.

There has been some debate about the importance of risk factor reduction in the declining heart disease mortality rate. It is important to note, however, that a multiple logistic risk function, developed by the Framingham Heart Study, predicted a decline in the mortality rate for heart disease very similar to that which actually has occurred on the basis of the nationwide changes in smoking rates, average serum cholesterol, and average blood pressure (*36*). If changes in exercise patterns also had been included, the prediction would have been even closer.

On the basis of these and other data, we can safely conclude that heart disease and stroke can be prevented. Especially noteworthy about all of the intervention trials is that reductions in death rates began within 2 years of the start of each program.

Prevention Efforts in New England

Given the strong evidence that these diseases can be prevented, one would expect that a multitude of health promotion programs would exist in each of the New England States. One would assume that there would be high-level leadership and financial support for such programs in health departments and schools of public health, medicine, and allied health professions. One would anticipate that most schools, worksites, and communities would have programs in place. These expectations are largely unfulfilled.

Although most of the six New England States are involved to some degree in disease prevention activities, little is being done aggressively on a population-wide basis to conquer the mass diseases that cause the deaths of so many. Little State and Federal funding is available in most New England States for such programs.

Nonetheless, programmatic activity has been stepped up in New England in recent years, and awareness of the importance of the major risk factors for cardiovascular disease has increased. This understanding is reflected in activities undertaken by State departments of public health, voluntary agencies, and providers of health care such as hospitals and visiting nurse associations.

Examples of intervention programs mounted within the New England region follow.

Connecticut. In fiscal year 1986, the Connecticut High Blood Pressure Program, a cooperative effort of the Connecticut Department of Health Services and the Connecticut affiliate of the American Heart Association, funded seven sites throughout the State and screened approximately 17,000 persons for high blood pressure. In addition, 22 full-time local and district health departments, 3 public health nursing agencies, and 1 hospital received Federal funds to conduct more than 700 health education risk reduction programs addressing the four risk factors of excess dietary fats and sodium, cigarette smoking, physical inactivity, and high blood pressure. These programs served more than 15,000 persons.

Maine. The Division of Health Promotion and Education of the Maine Bureau of Health addresses health problems and conditions for which prevention through education is a major strategy. The division has lead responsibility for implementing the Workplace Smoking Act of 1985 and has provided training to service organizations that have assisted hundreds of businesses throughout the State to implement smoking policies and offer "quit smoking" classes.

The Community High Blood Pressure Program is a good example of the statewide intervention under way in Maine. This program funds local agencies throughout the State to provide high blood pressure screening, education, referral, and followup services at worksites and in communities. This program screened more than 28,000 clients in fiscal year 1986. Of these, 70 percent were seen for the first time.

Massachusetts. The Center for Health Promotion and Environmental Disease Prevention represents

the central focus of chronic disease prevention programs within the Massachusetts Department of Public Health. The overall goal of the center is to reduce the morbidity and mortality from heart disease, cancer, and cerebrovascular disease (*16*).

The center has six regional coordinators (RCs) placed throughout the six Massachusetts Health Service Areas (HSAs) to work with local communities, worksites, schools, and other sites in establishing health education-risk reduction programs. The RCs were placed in their HSAs in 1986; four are located at the regional offices of the Department of Public Health and two are at the main office of the department in Boston.

The center also has created an innovative mass media public education campaign entitled, "Great Little Decisions," that provides consumers with information concerning the major risk factors for heart disease, cancer, and stroke and with simple, practical strategies to lower their risk of these diseases.

The center funds 10 community-based multiple risk factor reduction programs at a variety of health care settings. These programs address life style risk factors for heart disease, cancer, and stroke. They will be evaluated through the collection of standardized information on all program participants. In fiscal year 1987, a total of 2,850 persons participated in these programs. In addition, the department funds 10 community high blood pressure screening programs that screened approximately 57,000 persons in fiscal 1987.

The Massachusetts Nutrition Resource Center (MNRC) also is funded by the department of public health and operated by nutritionists from the Frances Stern Nutrition Center of the New England Medical Center Hospital. MNRC provides information to consumers on nutrition topics via a toll-free hotline and in response to mail requests. During fiscal year 1987, MNRC provided services to approximately 20,000 contacts.

New Hampshire. The New Hampshire Division of Public Health Services, Bureau of Health Promotion, works primarily in three major areas: worksite health promotion, comprehensive school health education, and senior health promotion. The major risk factors addressed are smoking, physical inactivity, stress, unhealthy diet, and high blood pressure. The primary functions of the bureau in all these areas are training, technical assistance, a print and audiovisual resource center, clearinghouse activities, promotion and coordination of health promotion efforts statewide, overseeing compliance with appropriate New Hampshire laws, and funding demonstration grants.

'Statewide health promotion programs can be developed for less than one dollar per citizen. Many groups in the New England States can provide assistance or materials for establishing health promotion programs. These groups range from health care institutions to high blood pressure councils to voluntary agencies.'

Rhode Island. The Rhode Island Department of Health has pioneered the development and release of the Wellness Check, a computerized health risk assessment program. To date, 51,000 adults and 39,000 teenagers have received this health risk appraisal. A new version of Wellness Check for college students recently has been developed, and a "life assessment" program for the elderly will be available in the future.

The Pawtucket Heart Health Program is a major federally funded community-based intervention program that specifically targets cardiovascular morbidity and mortality. Conducted under the auspices of the Brown University Program in Medicine and the Memorial Hospital of Rhode Island, it is one of only three such projects nationwide. During the past 5 years, more than 1,400 volunteers have been trained to provide programs in blood pressure screening, weight reduction, cholesterol screening, smoking cessation, and exercise. Self-help kits have been produced and an extensive referral network has been formulated.

Vermont. The Vermont Department of Health's primary effort to address risk factors associated with cardiovascular disease is the Heart Healthy Vermonter Program. Its goal is to reduce premature death and disability from heart disease and stroke.

The methods for achieving this goal have been three-pronged: increasing public awareness of the problem through media events, enhancing skills of health professionals through educational conferences and training, and finding persons at risk through health screening. Interventions for those at risk include individual counseling, educational classes, referrals to physicians, and promotion of

Goals of the Cardiovascular Disease Prevention Programs for New Englanders

1. For all residents to become nonsmokers
2. For their serum cholesterol levels to be less than 200 mg per dl, with a mean level of 160 mg per dl for the population and for the percentage of calories derived from fat to be less than 30 percent
3. For their blood pressure readings to be less than 140 mmHg systolic and 90 mmHg diastolic
4. For them to exercise vigorously for a minimum of 20 minutes three or more times per week

healthier environments within the community. Since 1980, about 50,000 Vermonters have been screened for high blood pressure and, in 1986, 7,000 were screened for elevated cholesterol levels.

Future Needs and Approaches

All six New England States would benefit from large-scale health promotion programs to reduce deaths from heart disease and stroke. The critical elements of such programs and suggestions for a variety of approaches for each State and New England now will be discussed. These approaches are modeled after the program in Massachusetts. Although in this paper we concentrate on the prevention of heart disease and stroke, many of the approaches also have direct relevance to cancer prevention, since many of the risk factors are the same. Our task force recommends that each State adopt the strategy of targeting all three diseases at once.

The task force also recommends the goals shown in the box for the population of each New England State. Massachusetts already has adopted these goals as official State policy; the other New England States we hope will do so. These goals also are consistent with ones set by the Federal Government in recent years (*37,38*). To achieve them, a multifactorial approach involving the entire population is necessary.

Given the magnitude of the problem and the importance of this public health issue, each New England State health department must play a major role. Scientific leadership, support, and advocacy for these programs should permeate the health departments at all levels. State health departments should provide technical assistance and support to health promotion programs in a number of key settings in the community—in schools, worksites, restaurants, supermarkets, and senior centers—and in health care facilities—in hospitals, health maintenance organizations, neighborhood health centers, and physicians' offices.

Television, radio, and newspapers should be employed in health promotion activities since surveys show that fewer than 1 percent of the U.S. population can name all three major risk factors for heart disease (*39*). The information must be presented in simple, understandable terms with the desired behavior clearly shown. Different messages are needed to appeal to various groups. Billions of dollars currently are spent portraying unhealthy habits. That advertising can be countered; why not market good nutrition and physical fitness?

Schools should set the stage for a lifetime of healthy habits via strong health education programs at all grade levels. The theoretical learning should be complemented by appropriate school health policies such as serving low fat-low salt foods; scheduling regular exercise for all students with an emphasis on vigorous, noncompetitive activities that children can continue into adulthood; and prohibiting smoking on school grounds by students and staff. Educational sessions for parents should promote healthy family lifestyles and reinforcement of information taught in school.

Employers have an opportunity to undertake health promotion programs for adults. Such programs can result in improved employee health and morale, reduced health care costs, and decreased absenteeism. The support of fellow-workers and modifications in the working environment are key elements in stimulating and reinforcing the adoption of healthy habits in the workplace. Programs to reduce each of the lifestyle risk factors for heart disease and stroke are needed. Numerous studies have shown the effectiveness of high blood pressure control programs conducted at the worksite. Such inexpensive programs not only allow the detection of undiagnosed high blood pressure, but improve long-term control through onsite monitoring of blood pressure.

In smoking prevention, a number of policies and programs can be instituted, including restricting the sale of cigarettes, providing self-help materials for smoking cessation, providing financial incentives to nonsmoking employees, and establishing policies to limit smoking throughout the worksite.

Healthy nutrition programs also can be introduced. Foods that are low in fat, salt, and calories should be readily available in the cafeteria and in vending machines. Labeling the fat or calorie content of food selections can help promote the

sale of the healthier food items. Finally, group and individual fitness programs emphasizing cardiovascular conditioning activities such as walking or running can be established if showers are made available.

Other community-based settings are also appropriate targets for health promotion activities. For example, restaurants and supermarkets can ensure the availability of healthful food selections. Labeling of heart-healthy food choices on restaurant menus and on supermarket shelves can be implemented to influence consumer preference at the point of purchase.

Senior centers can also offer programs. Health promotion is important for the elderly also. This age group has the highest risk factor levels as well as the highest mortality rates from heart disease and stroke in the population. Control of these risk factors is both appropriate and achievable for the elderly.

Health professionals and health professions schools can support health promotion during undergraduate and postgraduate training, and through continuing education courses and role modeling. Directors and other administrators in health facilities also have a role to play, especially in community screening and education efforts for risk factor reduction. Within their facilities, rigorous standards and monitoring mechanisms can be implemented to control these risk factors. Model smoking policies and nutrition programs which are consistent with these standards should be established.

Legislative initiatives are important adjuncts to all of these activities. These initiatives range from ensuring adequate funding for State and community health promotion programs to establishing policies to restrict smoking in public places. Although the programs we describe in this paper are relatively inexpensive, they do require some level of funding. Statewide health promotion programs can be developed for less than one dollar per citizen. Many groups in the New England States can provide assistance or materials for establishing health promotion programs. These groups range from health care institutions to high blood pressure councils to voluntary agencies.

Task Force Recommendations

The task force urges that strong leadership and support be forthcoming from each of the New England governors, legislators, and health departments. Any programs developed must be comprehensive, ambitious, scientifically sound, and consider the entire population in the region. Approaches should be consistent, with professionals sharing resources during development of mass media programs, educational materials, and legislative initiatives. A cooperative working relationship among the public sector, the private sector, and the nonprofit sector is essential to solve these important problems.

The task force recommends the following regional initiatives:

1. Each State should adopt legislation that (*a*) requires smoking restriction policies initially for work sites and ultimately for all public places and (*b*) increases taxes on cigarettes.
2. Each State health department should provide technical assistance to work sites to help implement multiple risk factor reduction programs.
3. Each State should provide funding and technical assistance to communities to implement multiple risk factor reduction programs.
4. Effective materials and approaches should be shared among the New England States.

Conclusion

The time for this new movement in public health has come and, in fact, is overdue. The residents of New England will be well served if these initiatives are undertaken. In the process, thousands of lives can be saved annually, and the health of all improved.

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