BREAKING THE BARRIERS TO PREVENTION: LEGISLATIVE APPROACHES*

MILTON TERRIS, M.D.
Professor and Chairman, Department of Community and Preventive Medicine
New York Medical College
New York, N. Y.

A LITTLE over 30 years ago, as an apprentice epidemiologist with the New York State Department of Health, I was assigned to the Glens Falls district office for a period of six months. During that time I carried out a number of investigations, of which two have remained with me as unforgettable examples of the need for effective legislation to protect the health of the public.

The first was of an epidemic of streptococcal sore throat and scarlet fever transmitted by unpasteurized milk. Outbreaks of this nature were possible in those days because the New York State Sanitary Code still permitted the sale of unpasteurized milk in small communities. I remember how, during the investigation, my partner and I were very careful to avoid drinking milk when we stopped at roadside restaurants for lunch. Such precautions are no longer necessary, and similar outbreaks are no longer possible because the sale of unpasteurized milk was eventually prohibited in all parts of the state.

The second investigation was of a case of typhoid fever occurring in a young woman whose husband, a farm worker, brought home a pail of raw milk every day. We found the typhoid carrier, an elderly itinerant worker at the farm who helped milk the cows. We also discovered that this farm supplied about 300 quarts of milk a day to a local pasteurizing plant. I shuddered then—and I shudder now—at the thought of what would have happened if pasteurization had not been required in this community: 300 quarts of raw milk a day, 300 bottles of excellent culture medium for the typhoid bacillus capped and sold to the unsuspecting residents of the area.

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The Heritage of Hermann M. Biggs

During the six months I worked in Glens Falls I also read C.-E.A. Winslow's *The Life of Hermann M. Biggs,** that remarkable biography which should be required reading for all students, not only in schools of public health but in medical schools as well.

We have much to learn from Hermann Biggs in breaking the barriers to prevention today. This is particularly true of his first campaign against a major disease which took place in the five-year period from 1893 to 1897, when he placed the New York City Department of Health in the forefront of the fight against tuberculosis.

With the full backing of the Board of Health, Biggs achieved passage of a series of ordinances which made possible a comprehensive tuberculosis-control program based on the epidemiologic strategy of placing barriers between agent and host. It is interesting that Biggs' first recommendation to the Board of Health was "that there be systematically disseminated among the people by means of circulars, publications, etc., the knowledge that every tubercular person may be a source of actual danger to his associates, and his own chances of recovery diminished, if the discharges from the lungs are not immediately destroyed or rendered harmless."† The Board accepted this recommendation and provided immediately for the preparation of a popular circular.

It is curious, therefore, that at the present time there is so little done by health departments—federal, state, or local—to provide "that there be systematically disseminated among the people by means of circulars, publications, etc., the knowledge" that every cigarette smoker runs heavy risks of disease and death from cancer of the lung, larynx, mouth, pharynx, and urinary bladder, from chronic bronchitis and pulmonary emphysema, and from coronary heart disease. It is well known that the tobacco companies at one time spent at least 300 million dollars a year for cigarette advertising. How much, we may ask, is in the federal health budget to educate the public on the dangers of cigarette smoking? How much is in the state and local health-department budgets? Let us come closer to home: how much do the New York State and New York City health departments spend on this life-saving work?

*Philadelphia, Lea and Febiger, 1929.
†Winslow, op. cit., p. 132.

The Problem of Professional Opposition

Biggs insisted on the need for compulsory reporting of tuberculosis by physicians and hospitals in order that proper surveillance could be instituted to prevent spread of the disease. When the Board of Health legislated such compulsory reporting, a storm of opposition arose from the medical profession, including the New York County Medical Society, the Kings County Medical Society and, I regret to state, the New York Academy of Medicine. The New York County Society editorialized in the *Medical Record* that "the only basis of a proper understanding in this matter is the guarantee of the board that in case the returns of pulmonary cases are faithfully made, for statistical purposes only, there shall be on its part no direct or indirect interference between patient and physician, either in the way of official inspections, bacteriological diagnosis, forced isolation, suggestions for treatment, or presumptuous instructions to the patient regarding hygienic precaution."* Biggs, with the support of the Board of Health and the public, stood firm, and this requirement, which placed the interests of the health of the public above the narrow interests of practitioners, remained in the Sanitary Code. Along with the rest of Biggs' program, it became a model for other cities and nations to follow in their campaigns against tuberculosis.

The precedent established by this incident is important because, in developing programs to combat our current plagues, it may be necessary for health departments to secure laws or regulations which indeed interfere with the proprietary interests of practitioners in their patients, but which are nevertheless essential to prevent disease and save lives. When this occurs it will be well for health departments to emulate Biggs, to learn from his patient explanations to the professions and the public, his courage and steadfastness in the face of opposition, and his reliance on the support of the citizens whom he served with such devotion.

Public Places and Conveyances

One of the items in Biggs' campaign was an ordinance forbidding spitting "upon the floors of public buildings and of railroad cars and ferry-boats" which was incorporated in the city's Sanitary Code in

*Winslow, op. cit., p. 146.

1896. This action followed a report to the Board of Health by Biggs and his colleague, T. Mitchell Prudden, which called attention "anew to the continual transmission of infectious disease in public places through the expectoration of persons suffering with different forms of infectious diseases of the throat and lungs." The report goes on to state that

> Aside from these real and, as we believe, important dangers from a sanitary standpoint, the filthy habit of spitting in such public places and conveyances is frequently an intolerable nuisance and should not be permitted in a well regulated and intelligently governed community. This should be abated, as is any other public nuisance which is brought to the attention of this Department. That it is simply a habit, and not a necessity is clearly shown by the large number of men who are free from it and the insignificant proportion of women who practice it. There seems to be no good reason for the longer sufferance by the mass of people of the carelessness and neglect of the few.*

If we now apply this statement to an important current health problem, we may paraphrase it as follows:

> Aside from these real and, as we believe, important dangers from a public health standpoint, the filthy habit of smoking in such public places and conveyances is frequently an intolerable nuisance and should not be permitted in a well regulated and intelligently governed community. This should be abated, as is any other public nuisance which is brought to the attention of the Department of Health. That it is simply a habit and not a necessity is clearly shown by the large number of men who are free from it and the insignificant proportion of women who practiced it formerly. There seems to be no good reason for the longer sufferance by the mass of people of the carelessness and neglect of the few.

Biggs and the Board of Health forbade spitting in public places and conveyances; they did not institutionalize it. The Sanitary Code did not establish a spitters' section of a railroad car or a public building, where the spitters could indulge their habit to their hearts' content. Similarly, the current version given above would forbid smoking in all public places and conveyances; it would not institutionalize smoking

*Winslow, op. cit., p. 141.

by segregating it. Just as the tubercle bacilli are transported by air currents from one section of a railroad car to the other, so cigarette smoke is transmitted from one section of an airplane to another, and from one part of a public place to another.

The prohibition of spitting in public places and conveyances was eminently justified from an epidemiologic standpoint. Such action with regard to smoking would likewise be consistent with epidemiologic knowledge; it would not only save others from the irritation caused by cigarette smoke and reduce their exposure to this noxious agent, but it would cause a reduction in the total amount of exposure of the persons most at risk, the smokers themselves. However, in neither instance—spitting or smoking—is this the most important of the recommended public health measures. For Biggs it was only one of a comprehensive series of legislative actions necessary for tuberculosis control. For us it is only one element of a total program to prevent the diseases caused by cigarette smoking.

The First Epidemiologic Revolution

One cannot fully understand the role which Biggs played unless one appreciates the fact that he was among the earliest to be trained in the disciplines of the first epidemiologic revolution. In his baccalaureate thesis at Cornell, written in 1882 on the subject "Sanitary Regulations and the Duty of the State in Regard to Public Hygiene," Biggs had stated: "Even now within the last month there has come to us across the waters from Germany the announcement of what promises to be the grandest discovery of the age—the discovery of a parasite as the cause of tuberculosis by Dr. Koch of Berlin. . . . No one can fail to be deeply impressed by the transcendent importance and far-reaching consequences of this discovery." Only a decade later, Biggs was unfolding a wide-ranging program to defeat tuberculosis on the basis of Koch's discovery.*

As a medical student at Bellevue Hospital Medical College, Biggs was an eager disciple of William Henry Welch, who quickly mastered the technique of staining tubercle bacilli developed by Koch and demonstrated it to Biggs. Welch described the spirit of that period as follows:

At the end of that wonderful decade, 1880-1890, perhaps the

*Winslow, op. cit., p. 43.

> most wonderful decade in the history of medicine, there had been a revolution in medical thought through the discovery of agents causing infectious disease—such discoveries as the bacillus of tuberculosis, of Asiatic cholera, of diphtheria, of typhoid fever and other infectious diseases. Those living today can hardly realize the enthusiasm and youthful spirit which was stirred not only among medical men, but in the general public by these discoveries.*

In 1885 Biggs was placed in charge of the work in the newly established Carnegie Laboratory of Bellevue Hospital Medical College. In his own words: "There was practically no bacteriological work being done in this country, and while I knew very little about bacteriology . . . I was obliged to commence giving instruction in it". Very rapidly he developed his skills, studying typhoid fever, cholera and other infectious diseases. During the epidemic of cholera at the New York Quarantine Station in 1887, he became the first after Koch to apply bacteriological examinations for the diagnosis and exclusion of this disease. In 1892 he was appointed Chief Inspector of the newly created Division of Pathology, Bacteriology and Disinfection of the New York City Department of Health, an event which, in Charles V. Chapin's words, "was, perhaps, the most important step in modernizing public health practice in the United States."†

Biggs was the primary agent in bringing the new science of bacteriology into the service of public health practice in the United States. In so doing he repeatedly encountered the discrepancy between his own advanced knowledge and the lack of scientific understanding among many members of the medical profession. For example, at a meeting of the New York County Medical Society in March 1897, it was maintained that "there was high authority against the positive statement that tuberculosis was infectious and communicable."‡ Similarly, the medical board of the West Side German Dispensary adopted resolutions to the effect that the statement that tuberculosis is a communicable disease "is not entirely correct and is not the opinion of many distinguished clinicians."‡

*Winslow, op. cit., p. 78.
†Winslow, op. cit., p. 97.
‡Winslow, op. cit., pp. 146-47.
‡Winslow, op. cit., p. 147.

The Second Epidemiologic Revolution

In our own day as well, many physicians have been slow to accept the new epidemiologic discoveries. The relation between cigarette smoking and lung cancer was ridiculed as being "merely statistical" long after the evidence had become incontrovertible. Indeed, the American Medical Association accepted a grant of 10 million dollars from the tobacco industry to study the relation of tobacco and disease at the very time that the Surgeon General's Advisory Report on *Smoking and Health* was being published.

Similarly, the solid epidemiologic evidence linking serum cholesterol level to the incidence of coronary heart disease is still, after all these years, not accepted by many physicians. Clearly we need to be more active in educating the professions as well as the public in the facts and significance of the new discoveries.

We are the generation of the second epidemiologic revolution. In our lifetime we have seen far-reaching discoveries in the epidemiology of noninfectious diseases which may eventually have an impact comparable to that achieved for infectious diseases. There is a spirit among epidemiologists today—and among the clinicians, pathologists, biochemists and statisticians who have joined our ranks—which is remarkable for its elan, excitement, and vitality. Undoubtedly, some 30 to 40 years hence there will be a new William Henry Welch from among our colleagues who will write of the 1950s and 1960s that "Those living today can hardly realize the enthusiasm and youthful spirit which was stirred not only among medical men, but in the general public by these discoveries."

Great scientific discoveries, however, are not ends in themselves. The enthusiasm and youthful spirit, the optimism and vitality, need to be transferred to the realm of public health practice. The humanist philosophy which is at the heart of public health requires that the new discoveries be applied as rapidly as possible to the prevention of disease, death and human suffering.

This will require no fundamental changes in concepts or methodology. The new discoveries fall largely into the pattern of agent-host-environment relationships with which public health workers are thoroughly familiar from their work with infectious diseases. What difference there is consists in a change from agents which are primarily microbiological, living organisms to agents which appear to be pre-

dominantly chemical or physical in nature. The fundamental strategy of public health, to change the social and physical environment in order to erect effective barriers between agent and host, remains the same regardless of the nature of the specific agent. Other strategies which have been found to be effective in the infectious diseases, such as increasing the resistance of the host, through immunization for example, or destroying the agent within the host through chemotherapy or other means, have so far not appeared to be applicable in any significant way in the noninfectious diseases.

Cigarette Smoking

The difficulties involved in placing effective environmental barriers between agent and host are well illustrated by the case of cigarette smoking, in which powerful lobbies—the tobacco industry, the newspaper and magazine publishers and the tobacco farmers—have succeeded in reducing public health action to various forms of shadow-boxing. One of these is the modest and hardly-noticed warning that appears on each pack of cigarettes. Another is the establishment of smokers' sections of airplanes and other public places. Still another is the pitifully small amount of funds available for health education of the public.

Nevertheless, cigarette smoking is the single most important known agent of disease in terms of impact on morbidity and mortality, and effective action is therefore imperative. Of necessity, this action will be legislative in nature and should include the following:

1) Prohibit all cigarette advertising, not just that on television and radio. It is incomprehensible that a civilized nation continues to permit the advertising of lethal substances.

2) Appropriate federal, state and local funds to institute and maintain a massive campaign of health education on the dangers of cigarette smoking. The amount should be equivalent to the advertising budget of the tobacco companies, that is, at least 300 million dollars a year.

This money should be used for education through the mass media—television, radio, newspapers and magazines—not only because of their effectiveness but also because it will help turn them from opponents to allies. In all fairness, if one prohibits many millions of dollars of advertising for cigarettes in the mass media, then one has the duty to replace it, at least in part, with advertising for health.

In addition to the use of the mass media, large sums will be needed

for more direct, person-to-person education by health educators and public health nurses, organized in cooperation with health facilities, schools and community groups.

3) Erect an economic barrier to cigarette smoking by taxation which will raise the price from the current level of 60 cents to about three dollars a pack.

The first question that is usually asked about this proposal is: will it reduce cigarette consumption? There is no direct evidence that it will. There is very good indirect evidence, however, based on the remarkable success of the United Kingdom in drastically lowering the consumption of alcohol through the tax mechanism.

There are several caveats, however. One is that addicts to cigarettes—primarily the smokers of two packs or more a day—will probably not respond to such economic incentives. Individuals who will respond are likely to be the young, the relatively new smokers, and those who smoke less than a pack or even a pack a day. Another caveat is that the tax program to increase the price to a level five or more times the current one should not be legislated all at once; the British experience with alcohol taxation indicates that a five- or 10-year period of price increments to reach the desired level is probably desirable. Finally, American experience warns us that joint action would have to be taken with our immediate neighbors, Canada and Mexico, to assure comparable levels of cigarette prices in order that financial incentives to smuggling are not created.

Another question regarding this proposal relates to the use of the tax funds which are collected. In no case should they go to the general treasury, for this would give the government a vested interest in the tobacco industry. There must be mandatory provision for the funds to go only to federal, state and local health departments for educational and other programs to prevent cigarette smoking.

The Issue of Freedom

Perhaps the most frequent and important question asked about this proposal concerns its effect on civil liberties. Is this not another example of Big Brother, of governmental interference with personal liberty and the freedom of individuals to do as they wish with their lives?

The reply to this question has a number of facets. One is that the

individual will still have freedom of choice; if he really wants to smoke, no one will stop him from doing so. He may think twice about spending three dollars for a pack of cigarettes, but whether he buys it or not is really up to him.

Another aspect relates to the fact that when the oil companies increased the price of gasoline by 50% in one week, nobody raised the question of civil liberties or the palpable interference with the freedom of individuals to do as they wish with their cars, their weekends and their lives. Even more serious is the current unprecedented increase in the price of food, which threatens the freedom of choice as well as the health of the people of this country—if not all the people, then certainly those in poor or moderate circumstances. Yet there was no outcry against this increase on the basis of interference with the freedom of choice of individuals, even though it was caused in large measure by the policy of the federal government, which has been unwilling to take effective action against inflation.

We must then ask the question: Whose freedom, and to what purpose? Our freedom as a sovereign people to defend ourselves from lung and other cancers, from chronic bronchitis, pulmonary emphysema, and coronary heart disease, and from having literally millions of lives wasted by illness, disability and death? Or the freedom of the tobacco companies to continue to make their profits over the corpses of their victims? These victims are not an abstraction; I daresay there is not a single person in this audience who has not had a close relative or friend who died unnecessarily and too soon, often in the prime of life, as a result of cigarette smoking.

If we allow the present situation to continue, giving freedom to the tobacco companies to spread their message while refusing to interfere on the grounds of freedom, then we shall be accomplices in the lethal consequences. Further, we shall betray the great tradition of public health, a tradition which destroyed the freedom of water companies to sell polluted water, which prohibited farmers and distributors from selling unpasteurized milk—yes, which even made it compulsory for children to be vaccinated against smallpox.

Our predecessors in public health took away the individual's freedom not only to have smallpox, but also to become ill with cholera, typhoid fever and other diseases spread by water and milk. They did so by depriving individuals of the freedom to drink polluted water

and to enjoy raw milk which, as everyone knew in those days, was much tastier than the pasteurized product. Let us act in our own time with the vision and courage which earlier public health workers demonstrated when they established a greater freedom, the freedom to enjoy health and life, as a major concern of government.

4) Subsidize farmers to plow under tobacco and grow other crops instead. Such substitution is feasible, and can, with a strong program of government encouragement, technical assistance and financial subsidy, result in a sharp decline in tobacco acreage. Prevention of economic hardship for tobacco farmers is not only necessary as a matter of justice and humanity, but is indicated to prevent their not inconsiderable political weight from being used in opposition to the program as a whole.

Similar subsidies should also be given, where necessary, to prevent undue economic hardship for the tobacco companies as they diversify their activities, moving away from tobacco to other products which are not lethal. The government should give them every reasonable assistance to get as far as they can out of the tobacco business. Such aid to the tobacco industry is clearly in the interest of the public health.

Alcohol and Other Addictions

The second most important known agent of disease is alcohol. It causes cirrhosis of the liver, now the seventh leading cause of death in the United States, as well as gastritis, pancreatitis, cardiomyopathy, peripheral neuropathy, and toxic psychoses. Alcohol is definitely related to cancer of the mouth, pharynx, larynx, esophagus and liver, and is a major factor in suicide, assault, and automobile, home and occupational accidents. Only tobacco is more deadly.

The control of this agent is very difficult to achieve for a number of reasons. One is the great power of the three alcoholic beverage industries. Another is the cordial relation they have developed with the established alcoholism control movement, which considers them to have a significant role in both regulatory approaches and in subsidizing and participating in alcohol education. This is not as surprising as it sounds, because the educational program espoused by these leaders is designed to "assist young people to adapt themselves realistically to a predominantly 'drinking' society." The aim is to introduce individuals to alcohol early, in the bosom of the family, where they can learn to drink

in moderation and sobriety. Of course, these leaders forget or perhaps are not acquainted with the disturbing fact that nations like France and Chile which introduce children to alcohol at an early age, within the family setting, are precisely the countries with the highest death rates in the world for cirrhosis of the liver.

An associated difficulty is that many of these leaders of the established alcoholism movement refuse to accept the epidemiologic approach to control in terms of agent, host and environment. Indeed, they refuse outright to accept the concept that alcohol is an agent of disease.

On the other hand, the hard-headed industrialists and political leaders of the United Kingdom, acting like first-rate epidemiologists, have shown what can be done. During World War I, beset by production lags due to alcoholism, they took three measures: a sharp curtailment of the amount of alcohol available for consumption, drastic restriction of the hours of sale, and marked increases in taxes on alcoholic beverages. The result of this agent-host-environment approach was dramatic: consumption fell, and with it cirrhosis deaths from 10.3 per 100,000 in 1914 to 4.5 in 1920. After the war, the limitations on the available quantity of alcohol were removed, but the hours of sale were extended to only half the prewar time of opening, while taxation on alcoholic beverages was continued on an increasing scale. From 1918 to 1936, the price of spirits increased by four and one half times; during this period, the consumption of spirits declined by two thirds in England and by three fourths in Scotland. By 1936 the cirrhosis death rate was down to 3.1 per 100,000, and it has remained at about this level ever since (3.0 in 1970 and 3.3 in 1971). Thus, the United Kingdom achieved the remarkable record of a 70% decline in the cirrhosis mortality rate—a rate which is our best measure of the extent of alcoholism —primarily by using the tax mechanism to place financial barriers between agent and host.

The success in the United Kingdom is in sharp contrast to our failure in the United States. Here wartime prohibition brought the cirrhosis death rate down from 11.8 per 100,000 in 1916 to 7.1 in 1920. Prohibition was successful in keeping the rate at this level; it was only 7.2 in 1932, the year before prohibition was ended. Since then the consumption of alcohol from spirits and wine has more than doubled, while the cirrhosis mortality rate has risen steadily to the all-time high of 16.0 deaths per 100,000 population in 1973.

This utter failure to keep alcohol consumption from its continuing rise—and the consequences in disease and death from their inevitable increases—makes it essential to try another approach. This should be based on the remarkably successful experience of the United Kingdom, and should include basically the same governmental measures as those proposed for cigarettes: prohibit all alcohol advertising; mount a large-scale educational program on the hazards of alcohol; tax alcoholic beverages on the basis of alcohol content, to the point where the cost per ounce of alcohol is about five times what it is today; provide subsidies, technical assistance and other aid to farmers to prevent economic hardship and help them shift to other crops; and, where needed, provide similar assistance to help the alcoholic beverage companies diversify and change to other products.

These approaches cannot be followed as a formula for all addictions, although the basic principle of placing a barrier between agent and host remains the same. Barbiturate addiction, for example, will not be controlled without, on the one hand, a governmental education program directed at physicians, pharmacists and the general public and, on the other, more stringent regulation and limitation of the prescription and use of these drugs. Heroin addiction, because of its clandestine nature, is extremely difficult to control; an adequate barrier between agent and host will be achieved only when the heroin traffic is halted. This will require that effective action be directed not only at the lower and middle levels but at the highest levels of management of the heroin industry.

Heart Disease, Cancer and Stroke

A decade ago, the President's Commission on Heart Disease, Cancer and Stroke, noting that these were the three most important causes of death in the United States, issued a report which recommended the establishment of regional networks of research and treatment centers. There was little concern with prevention in the report, for the reason that the cardiac surgeons and cancer research scientists who dominated the commission do not think in these terms. Their action is consistent with the fact that one of the major barriers to prevention, and one that is very difficult to overcome, is the overwhelmingly therapeutic orientation of the medical profession.

Fortunately, the staff director for the commission was an outstand-

ing chronic disease epidemiologist who succeeded in persuading its members to recommend a program of federal grants for cytologic screening in hospitals for cervical cancer. And while the commission's basic recommendation was emasculated by Congress to become the Regional Medical Program, the cervical cytology proposal was in fact adopted and instituted in many communities. It was ended prematurely for reasons which are unclear; presumably the construction and support of massive cancer research and treatment centers leaves minimal funds for preventive services.

The emphasis in all public health programs must always be on primary prevention. In cancer, this means legislative action to minimize contact of the host with the many known carcinogenic agents, or vehicles of these agents, such as tobacco and alcohol; sunlight, x rays, and other forms of radiation; and chromates, aniline dyes, uranium, and other chemicals used in industry.

In addition, however, legislation to achieve full use of available and effective screening methods—such as cytologic screening for cervical cancer and mammography for breast cancer—is both indicated and essential. Such legislation may start by simply providing funds to institutions wishing to implement screening programs; sooner or later, if the program is to reach the entire population instead of only a small portion of those at risk, the screening will have to be made a required activity. When this is done, however, the legislation will also need to include adequate funding of the program to insure full coverage and a high quality of performance with regard not only to screening but to the crucial aspect of follow-up.

Hypertension is a case in point. It is relatively easy to screen for high blood pressure, but very difficult to maintain preventive therapy. A genuine program to screen the adult population for hypertension and to insure continued and effective treatment will require a wide variety of public health measures funded by federal, state and local governments. These will include: health education of the public and the medical profession, requirements for screening by health institutions, and establishment of follow-up services for preventive therapy and supervision which include home visits by public health nurses and family health workers. In view of the large proportion of the adult population which develops hypertension, this will be an expensive program. Nevertheless, it will represent a very important contribution

to the health of the public because, as recent studies have shown, it will have considerable impact in reducing mortality from cerebral vascular disease.

The most important disease problem in the United States, coronary heart disease, is now on the agenda for preventive action as the result of epidemiologic research. It is interesting to note that the major studies in this country have been carried out through direct legislative appropriations: by the U.S. Public Health Service in Framingham, Mass., by the New York State Department of Health in Albany, and by local health departments in Los Angeles and New York City. Almost all of the rest have been heavily supported by government funds through federal grants and contracts.

These studies have provided convincing evidence that serum cholesterol, blood pressure and cigarette smoking are directly related to the incidence of coronary heart disease. The problems of controlling blood pressure and cigarette smoking have been discussed above. Lowering serum cholesterol has been shown to be feasible through dietary means which involve a change from saturated to unsaturated fats.

When the evidence becomes incontrovertible that an unsaturated fat diet will not only lower serum cholesterol but will reduce the incidence of coronary heart disease, then a series of legislative actions will be indicated, including a large-scale governmental education campaign directed at both the health professions and the public; an immediate requirement by local boards of health that all commercial bakery products be prepared with unsaturated fat; assistance to the food industries in their efforts to reduce the degree of saturation of fats contained in staple foods; use of the tax mechanism to reduce the relative prices of foods containing unsaturated fats in order to encourage their consumption; and financial support of screening programs to discover individuals with high serum cholesterol levels and provide the dietary counseling and continuing supervision needed to lower their levels and keep them low over long periods of time.

Conclusion

We are on the threshold of great new victories in the fight against disease, comparable in significance with those won earlier in this century against the infectious diseases. In both eras, the role of government is decisive.

We have an advantage over our predecessors in that the public today is more knowledgeable in matters of health. We have a major disadvantage in that the forces which will attempt to prevent effective governmental action—the tobacco, alcohol and other interests—are far more powerful than those with which health officers contended in their struggles for communicable disease control. Victory in the long and difficult campaigns that lie ahead will require the following:

First, emergence of a new generation of public health workers who are devoted to the proposition that the primary task of public health is to prevent disease. Current attempts to define the primary function of public health as standard setting, monitoring and evaluating the quality of medical care are far too restrictive. Such activities comprise a valid function of public health, but not its most important one. That has always been and must remain, not the relatively passive role of monitoring, evaluating, and setting standards, but the dynamic and far more challenging role of conquering illness, disability and death by the prevention of disease.

Second, increasing support of the work of the epidemiologists who have made possible much of the current potential for disease control. The further growth of epidemiologic research is essential to help unravel the many problems which remain unsolved, and to continue to provide a solid scientific basis for public health action.

Third, statesmanship and courage of a high order, and devotion to the ideals of the public health profession. Our generation needs to emulate the remarkable leadership of such individuals as Hermann Biggs, Charles V. Chapin and Stephen Smith at the local and state levels, and Martha Eliot, Joseph Mountin and Thomas Parran at the federal level.

Fourth, more intensive efforts to bring the new epidemiologic knowledge to the attention of the health professions, and to obtain support for the new programs from medical and other practitioners. They can and should become powerful allies in the campaigns that lie ahead.

And fifth, above all, understanding and support from our most important constituency, the people as a whole. Without this, the difficulties will be insurmountable. With it, the prognosis is guarded but optimistic that, regardless of mistakes, failures and temporary setbacks, we shall yet succeed in the battles for health.

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MARVIN LIEBERMAN, PH.D.
Executive Secretary
Committee on Medicine in Society