

Approaches to Primary Prevention of Disease

LEONARD M. SCHUMAN, M.D.

Representatives of the U.S. Congress, the Public Health Service, schools of public health, schools of medicine, labor, and industry met on February 27, 1968, to discuss the need for study of the total problem of disease prevention. The outcome of this meeting was the establishment of the Advisory Committee on Health Protection and Disease Prevention to the Secretary of Health, Education, and Welfare. The paper presented here is based on a talk which Dr. Schuman gave at the meeting and which served as the base of a position paper presented to President Lyndon B. Johnson.

MAN INSTINCTIVELY mends cracked foundations, repairs broken fences, plugs holes in leaky roofs, binds cracked and drooping tree limbs, and, in turn, palliates pain, dialyzes blood for malfunctioning kidneys, and replaces heart valves or even hearts ravaged by disease. Equally instinctively man flinches from a threatened blow, runs from a burning building, turns from a dangerous precipice, and shies from persons with the defacing lesions of an infectious disease. Each act is one of preservation. Each is directed toward avoidance of an uncomfortable and even disastrous outcome. Each is prevention, yet with distinct and grossly understressed differences in goals and efficiency of attainment.

In the health field, the excision of a tumorous lung is an attempt to cure or arrest the disease

Dr. Schuman is professor and head, division of epidemiology, School of Public Health, University of Minnesota, Minneapolis.

or postpone death, and physical therapy and physical rehabilitative procedures for the stroke victim are attempts to minimize disability. The erection of barriers between radiative sources and man is designed to obviate the occurrence of radiation sickness and leukemia, and administration of a specific vaccine will obviate the occurrence of poliomyelitis. Although each approach shares the common characteristics of man's striving for a measure of immortality, there are obvious, distinct differences in the philosophy of its attainment. In secondary prevention, remedial actions cannot compensate for the mental anguish, physical pain, pretreatment disability, and the loss of productivity and contribution to the community thereby engendered. With primary prevention—the avoidance of disease itself—and the maintenance of health, however, none of these deleterious and impoverishing situations are encountered.

Paradoxically, the readily recognized advantages of primary prevention over arrest or cure

of disease have not been fully exploited. Generations have passed since mankind's observations and experiences led to the aphorism that "an ounce of prevention is worth a pound of cure," yet only lipservice has been given to this imperative in social behavior. It is deplorable that so much human waste has been tolerated when alternatives have been available. We cannot countenance the continuance of such dereliction in the face of evolving knowledge in primary prevention.

An exploration of some of the reasons for such dereliction could provide not rationalizations but understanding for correction of our deficiency in and support of primary prevention. The historical emergence of curative medicine for the immediacy of the need is readily apparent. The desperately ill, the dying man, the agonized victim, and the distraught in mind commanded and continue to command our attention and compassion; those who are not yet ill must wait, for we physicians are few and the emergent need is great. We have been trained, classically, to a practice of clinical triage and too little prevention. Remedial action constitutes almost the sole content of the physician's training and armamentarium. Related to, if not an integral part of, this continuing concept is the commonly held belief that our knowledge of primary prevention is grossly deficient, particularly in chronic diseases. This again is generated by the educational neglect in our schools of curative medicine.

Communicable Diseases

The individual accomplishments of primary prevention are well known, particularly in communicable diseases; for instance, the eradication of smallpox in the United States, the virtual eradication of bone tuberculosis and cholera, and the major declines in typhoid, diphtheria, plague, poliomyelitis, and pulmonary tuberculosis. Rarely recognized, however, is that even for some of these and other preventable infectious diseases there is a high residual incidence. Table 1 presents the reported incidence of selected communicable diseases for 1966; a large number of these are totally preventable and others can be reduced to much lower levels with means presently available.

Another disease entity which is totally pre-

ventable by the proper handling of streptococcal infections is rheumatic fever and its frequent sequel of chronic rheumatic heart disease. Yet in 1965, 4,998 cases of acute rheumatic fever were reported nationally. In addition to these new cases, 15,471 deaths from rheumatic fever and chronic rheumatic heart disease were reported. In fact, authorities frequently say that if all we know about rheumatic fever, diphtheria, and other infectious diseases were adequately applied, cardiovascular disease would virtually disappear as a cause of disability and death in the first 40 years of life.

Entities That Are Frequently Fatal

Concerning the control of chronic diseases, physicians, by omission, have been taught pessimism. True, that for many of these diseases our knowledge in regard to etiology is meager. The surface has barely been scratched, but these scratches have already released a torrent of new information applicable for primary prevention if we include not only those observations with etiological inference but also those of strong associative character.

Too frequently overlooked is that a number of chronic diseases, particularly those associated with certain occupations, have been preventable for some time and, relatively more recently, several occupational situations have been shown to contribute to the incidence of certain chronic diseases. Cancer of the lung among chromate workers, of the scrotum among chimney sweeps, of the bladder in workers with aniline dyes, and of the skin in outdoor workers under intense solar radiation are instances in point. Even more recently the etiological relationships between radionuclides and cancer of the lung in uranium miners and X-radiation and leukemia among radiologists have been demonstrated. These examples are valid as illustrations of the preventability of chronic diseases, but as health problems they are of relatively small magnitude.

For one disease, cancer of the lung, occupational risks contribute but a small portion of the total caseload. However, considering that the mortality rate from primary respiratory tract cancer, particularly lung cancer, almost doubled from 1950 to 1965, that by 1965 there were more than 52,000 deaths per year, and that more than 90 percent of the cases were due to ciga-

Table 1. Residual incidence of selected reported communicable diseases, 1966

Disease	Reported number of cases
Streptococcal sore throat and scarlet fever.....	427, 752
Gonorrhoea.....	351, 738
Measles.....	204, 136
Syphilis.....	126, 573
Tuberculosis (newly reported active).....	47, 767
Rubella.....	46, 975
Hepatitis (infectious and serum).....	34, 356
Salmonellosis.....	16, 841
Shigellosis.....	11, 888
Pertussis.....	7, 717
Meningococcal infections.....	3, 381
Aseptic meningitis.....	3, 058
Amebiasis.....	2, 921
Encephalitis, primary.....	2, 121
Malaria.....	565
Typhoid fever.....	378
Rocky Mountain spotted fever.....	268
Brucellosis.....	262
Tetanus.....	235
Diphtheria.....	209
Tularemia.....	208
Trichinosis.....	115
Polioomyelitis.....	113
Leprosy.....	109

SOURCE: reference 1.

rette smoking, not only the direction but the feasibility of primary prevention becomes clear.

The same etiological agent or group of agents is also the most important of the causes of chronic bronchopulmonary disease and increases the risk of dying from chronic bronchitis and pulmonary emphysema. The growing importance of the problem and the dimension of the contribution to the nation's health which primary prevention could make can readily be seen from the increase in and magnitude of the mortality from these causes. In 15 years there was an eightfold increase in the number of deaths—from slightly more than 3,000 in 1950 to almost 24,000 in 1965—and a sixfold increase in the mortality rate from these causes (2.1 to 12.1 per 100,000).

When to lung, laryngeal, and lip cancer, chronic bronchitis and pulmonary emphysema are added the deaths from diseases strongly associated with tobacco smoking and for which the biomechanisms necessary for support of causal hypotheses seem to be emerging, the magnitude of the potential for primary prevention

is encouraging. The diseases associated with tobacco use are shown in table 2. Mortality from these diseases comprised 47 percent of the total U.S. mortality in 1965.

If we consider only those diseases for which a causal relationship with tobacco use has been established or considered highly probable, they still account for 36 percent of the total. These are unrefined figures; they do not take into account the smoking segment of the population nor the contribution smoking makes to specific mortality. Thus, an examination of the data for the excess deaths among smokers over non-smokers would be a better measure of the public health significance of this factor. From the prospective studies reviewed in the "Report of the Advisory Committee on Smoking and Health" in 1964 (2) and in the "Health Consequences of Smoking" in 1967 (3), approximately one-third of all deaths for men aged 35 to 60 would not have occurred if cigarette smokers had the same death rates as nonsmokers.

One could say facetiously, "but we all have to die sometime and from something." Irrespective of the mode of death, excess deaths are premature deaths—the excesses are primarily an earlier mortality—and, for the prime years of productivity, ages 45–49, they may reach an excess as high as 44 percent.

Information is gradually accumulating on the adjunctive and probably even synergistic role

Table 2. Mortality from selected chronic diseases related to tobacco smoking, 1965

Disease	Number of deaths
Causally related:	
Cancer of lung, bronchus, trachea.....	48, 483
Chronic bronchitis and emphysema....	23, 432
Cancer of larynx.....	2, 629
Cancer of lip.....	172
Probably causally related:	
Coronary heart disease.....	559, 293
Cancer of bladder.....	8, 267
Cancer of buccal cavity and pharynx..	6, 501
Cancer of esophagus.....	5, 542
Possibly causally related:	
Cerebrovascular disease.....	201, 057
Aortic aneurysm.....	10, 964
Total.....	866, 340
Total mortality, all causes.....	1, 828, 136

SOURCE: reference 4.

of community air pollution in the production of even greater excesses of mortality from respiratory cancer and chronic bronchopulmonary disease and of alcohol in the production of greater excesses of mouth, pharyngeal, and esophageal cancer and cirrhosis of the liver.

Lest we be too pre-occupied with death and forget the impact of illness on life's productivity and spiritual values, the revealing data on excess morbidity among smokers must be cited. These data were derived from special surveys within the framework of the National Health Survey of the National Center for Health Statistics. A summary of these findings (table 3) reveals that an appreciable excess of productivity loss occurs among smokers. This excess of significant morbidity among smokers, which diminishes their activity and hence productivity, peaks in the age group 45-64 and amounts to a 28 percent excess for each type of disability measured.

In other areas of potential primary prevention there are factors other than cigarette smoking in relation to the largest single disease problem in our country—coronary heart disease. Deaths from this entity contributed a minimum of 30.6 percent to the total mortality in 1965. Although cigarette smoking may be causally related, other risk factors besides smoking and age have been elicited epidemiologically which may be causes of coronary atherosclerosis.

High serum cholesterol levels and high blood pressure increase the risk for coronary artery disease manyfold. The relationship of serum cholesterol levels to dietary intake of saturated fatty acids has been well established. Evidence has been presented for the influence of dietary manipulation on the risk of coronary heart disease. We will have to be prepared for the early implementation of this finding as soon as larger scale studies confirm the initial observations. The impact of prevention of this increasingly occurring disease in our nation could be enormous.

Cerebrovascular disease which accounted for more than 200,000 deaths in 1965 (table 2) may well be amenable to the same primary prevention approaches as for coronary heart disease. Similar risk factors are involved—serum cholesterol (in persons under 50), hypertension,

obesity, and cigarette smoking. A Public Health Service report stated that a number of the risk factors for stroke "are subject to correction or amelioration. Although direct evidence in the support of this contention is lacking, it seems altogether reasonable that many strokes could be postponed or averted by currently available countermeasures against salient risk factors particularly if the stroke-prone individual is identified early and preventive measures initiated promptly" (6).

Regarding infant mortality, a paradox exists in that this health index, which has been used as a measure of the progressiveness of health services in terms of availability and quality and of environmental control in a nation, is at a less-favorable level in the United States than in a number of other countries. At least 10 countries of Western Europe have better infant mortality experiences than ours. That other nations have achieved more favorable levels of infant health and survival automatically and forcefully implies a preventive potential which we have not yet tapped.

Disability

As I indicated previously, the prevention of early mortality and thus the prolongation of life is not the only goal of primary prevention—prevention of morbidity and thus provision for a well-adjusted and useful life is an even more important goal.

I have thus far dealt with disease entities for which death is a frequent and common sequel or for which the magnitude of the problem may be more or less derived from existing compulsory records such as reports of notifiable communicable diseases or death certificates. I must also mention acute conditions which are poorly or not at all reported and rarely lead to death, but which affect millions of persons and cause even more days of lost activity and pain or discomfort.

Through the National Health Survey, data are available on the common cold and other acute respiratory conditions including influenza. The estimated annual frequency of these conditions, for which a physician was consulted or which led to at least 1 day of activity restriction, was more than 240 million in 1966 and rep-

Table 3. Types of disability due to illness with excesses among smokers, aged 17 years and over, expressed as a percentage of the whole, United States, 1965

Type of disability	Total days lost	Excess days lost among smokers	Per- cent of total
Restricted activity.....	2, 369, 000, 000	306, 000, 000	13
Bed days.....	853, 000, 000	88, 000, 000	10
Work days lost..	399, 000, 000	77, 000, 000	19

SOURCE: reference 5.

resented more than 332 million days of bed disability. These entities constituted 59 percent of all the acute illnesses or conditions and 48 percent of the bed-disability days. When the acute infectious and parasitic diseases are added, many of which are listed in table 1 and which actually equaled the number of accidental injuries sustained (48 million), these percentages rise to 71 and 69 respectively. The bed-disability days for the acute infectious diseases constituted approximately 40 percent of the bed-disability for all illness including chronic conditions. Again, the implications for prevention are clear.

Mental Health

The assessment of mental and emotional health is difficult, however, for neuroses and psychoses are not reportable and seldom lead to death. Furthermore, assessment of the problem by a count of beds occupied for mental illness is grossly misleading since any recent decline in such a count is probably the result of the use of ataraxic drugs rather than of a decline of illness. Yet, approximately half the hospital beds in the country are occupied by mentally ill persons.

Public mental institutions contain about a half million patients, and the National Health Survey estimated that 1,767,000 persons had mental and nervous conditions during the samplings of the population between July 1963 and June 1965. At best, this may well be an extremely minimal estimate because the counts were made only if major activities were limited and did not include persons in institutions,

sanitariums, nursing homes, or homes for the aged. Furthermore, people tend to withhold information on mental conditions, and many cases are not diagnosed. This is admittedly an area of primitive understanding in terms of etiology, but it is highly probable that services for the emotionally disturbed could provide large returns in the prevention of more serious disturbances leading to mental illness.

Although death rates for homicide have declined by more than 35 percent in the past 30 years, our justifiable concern over the increasing rates of nonfatal criminal activity in our communities far exceeds concern for the phenomenon of suicide. Deaths by suicide have shown little tendency to decline in the past 30 years and certainly not at all in the past 20. The suicide rate is twice that of death by homicide. As a further comparison, in 1965 the suicide rate was as high—11.1 per 100,000—as the death rate for pulmonary emphysema—11.2 per 100,000 (International Statistical Classification 502.0, 527.1). Persons who commit suicide, however, are generally much younger than those who die of emphysema. Adequate psychiatric and social approaches are certainly indicated for primary prevention.

Much remains to be done for mental retardation also, but glimmers of hope for primary prevention appear in the demonstration of the role of dietary control in phenylketonuria.

Dental Caries

More than 25 years have passed since the demonstration of the inverse relationship between dental caries and the amount of fluorides in the water supply. Shortly thereafter, the experiment in Newburgh-Kingston, N.Y., proved that dental caries could be reduced 50 percent or more in the permanent teeth of children if their water supply were fluoridated. It is a sad commentary on the approaches that have been made in the prevention of this disease that more than two-thirds of the U.S. children are not being protected against caries through this simple means.

Child Health and Accidents

The gains in the life expectancy at birth or longevity during the past 50 years which we point to with pride were achieved primarily by

saving children's lives, and this in turn by the reduction in the incidence of the great epidemic diseases. Little gains have occurred in the oldest age groups; proportionately, these have been far smaller. It is reasonable to assume therefore that rapid and telling gains in life expectancy can be achieved by increased efforts to protect the young against health hazards. One facet of the problem which I mentioned before is the far too high infant mortality rate.

The increased survival of infants into childhood and children into productive adulthood depends not only on vast improvement in infant mortality experience, but in the prevention of disability and death from accidents. It cannot be repeated often enough that accidents continue to be the principal cause of death in the United States for all age groups from 1 to 44 years. Table 4 illustrates the magnitude of mortality from accidents and reveals the contribution of motor vehicle accidents to the total, particularly in young adults. Although such accidents as falls and poisonings contribute to the bulk of childhood accident mortality, in the entire age range from 1 through 44 years deaths from motor vehicle accidents constituted 58 percent of the total deaths from all accidents in 1965.

The National Health Survey's statistics for July 1959 through June 1961 reveal an estimated 45 million injuries sustained each year, and approximately 3 million of these were due to moving motor vehicles. Whereas 41.9 percent of the persons with injuries from moving motor vehicles required 1 or more days of bed rest, only 21.4 percent of those injured in all other

accidents required 1 or more days of bed rest. These data merely point up the reporting of many more less-serious accidents in the non-motor vehicle group and attest to the lethality of the motor vehicle accident. Thus, the data on nonfatal injuries do not diminish, by any means, the importance of motor vehicle accidents. No one has thus far suggested that these are not totally preventable.

Potentials of Prevention

The examples I have cited not only constitute the bulk of the health problems besetting us today, but for most of these the hope of primary prevention is quite high. For several of these problems, existing preventive measures could be applied with great confidence for reduction of incidence if we but had the national will and the cooperation to do so. For others, certain strong associations have been demonstrated which are either modifying factors or determinants of the disease, and so they are worth manipulating before there is no longer any uncertainty as to their causal implications.

I have deliberately set forth disease problems for which primary prevention is a distinct reality or is highly probable. My appeal for primary prevention in no way disparages the continuing efforts which have recently led to regional medical programming and comprehensive health services planning.

I take no issue with the continuing fulfillment of the need for therapeutic medicine—for secondary prevention—which does indeed seek to alleviate pain, arrest or cure disease, and prevent disability and death. However, I do take

Table 4. Mortality from accidents, by type and rate per 100,000 population for selected ages, United States, 1965

Age group (years)	Type of accident					
	All accidents		Motor vehicle		All other	
	Number	Rate	Number	Rate	Number	Rate
1-4.....	5, 270	31. 8	1, 733	10. 5	3, 537	21. 3
5-14.....	7, 391	18. 7	3, 526	8. 9	3, 865	9. 8
15-24.....	18, 688	61. 7	13, 395	44. 2	5, 293	17. 5
25-44.....	22, 228	47. 8	12, 595	27. 1	9, 633	20. 7
Total, 1-44.....	53, 577	40. 3	31, 249	23. 5	22, 328	16. 8
All ages.....	108, 004	55. 7	49, 163	25. 4	58, 841	30. 4

SOURCE: reference 4.

issue with a way of life—a system—which minimizes, if not ignores, the potential for basic prevention of disease and suffering. I take no issue with the need to extend high-quality medical care to every citizen, although the methods proposed may be subject to criticism depending on our social viewpoint, but I do take issue with any system that ignores the preventive potential in its contact with society. I take no issue with the long overdue concept of integrating health services in the community so that there shall be as little waste through duplication as possible and no hiatus shall remain unfilled, but I do take issue with the minimal roles allotted to primary preventive procedures in such plans.

I firmly believe that in the long run human health, happiness, and useful longevity will be achieved at far less expense and with less suffering through primary prevention than through methods which seek to prolong the life of the ill. The ounce of prevention is figurative, for the cost of disability and death can be shown to far exceed a 16 to 1 ratio. We can never catch up with the problem until we begin to make inroads into the basic load of disease itself. Nor is the specter of a human population walking about with artificial hearts, kidneys, lungs, digestive tracts, and reproductive organs, and even computerized brain units, so wondrous to behold. The moral issues of these procedures may be far more profound than the addition of fluorides to a water supply which all will drink.

The psychosocial impact of a strictly curative or therapeutic philosophy also is not to be ignored. Through this philosophy's constant and demanded search for that elusive mistress—the cure—which is daily promised but rarely realized, a permissiveness is bred for our continuing transgressions on biology. It may even contribute to the behavior of our society which insists on perpetuating the paradox of "profits at any cost!"

Approaches to Primary Prevention

What, then, are the approaches to primary prevention? We may consider these to be operative in three areas of health activity: (a) personal health services, (b) environmental control, and (c) health education of the population.

Personal health services. An urgent need is the total reorganization of our thinking on the position and role of preventive medicine in the curriculums of our medical schools. So long as preventive medicine remains departmentalized instructionally as well as administratively, in my opinion the role and obligation of the American physician in true prevention of disease will neither be understood nor achieved. So long as preventive medicine remains only the tolerated partner, if that, in the medical school curriculum, the medical profession will not be indoctrinated with the concepts of preventive health services. This is an area of much needed experimentation and evaluation.

Some innovations via curriculum changes have been instituted in some schools recently, but these have been few and have come about as the result of the information explosion and not at all from a conceptualization of need for expansion of preventive health services. Innovations could readily include integration of prevention concepts and applications in phase-structured or track systems, or both, which envision a measure of specialization before the completion of the medical curriculum. In this latter regard, the development of cadres of physicians whose specialty is preventive health supervision within the structures of group, institutional, or community agency practice is certainly worthy of trial—a notion that is not new. Industrial medical programs have already adopted the concept of health supervision for prevention of disease. This concept needs to be extended to the total population so that medical care may truly become health care. A proper stimulus for the initiation of these innovations would be increased financial grants for their implementation.

Another compelling need in the medical curriculum is the exposure of all students to the concepts and contributions of the behavioral and social sciences to health care before they are rudely confronted with these problems and needs in practice and react, to the detriment of the patient, with antagonism. The role of these sciences in primary prevention as well as in disease supervision cannot be overestimated.

The concept of the proposed community health center, which should coordinate and integrate the activities of all health agencies in

the community, certainly should embrace the services and practice of preventive health supervision. Through this mechanism, comprehensive health care as opposed to solely medical care can be achieved. It seems a logical place for the profession, community government, and the citizenry to come together for this goal.

Almost a generation ago the concept of multiphasic screening for chronic disease emerged—an outgrowth of experiences with casefinding for syphilis and tuberculosis. Its purpose was early detection of chronic disease, hopefully before symptoms appeared, so that arrest or cure could be more readily accomplished. Its applicational experiences during the past two decades have been good, although multiphasic screening was limited to diseases for which suitable and efficient tests were available.

Although directed toward existing but unknown disease, the elements of the screening approach can be directed readily toward elicitation of certain risk factors which may be the precursors of certain diseases and thus toward primary prevention also. The determination of blood pressure, smoking history, dietary pattern, and serum cholesterol and the simple determination of height and weight can provide enough information to screen the persons at high risk for coronary artery and cerebrovascular disease and provide them with preventive supervision and guidance. As research continues, screening tests for many other diseases will be developed, and it is not unreasonable to expect that many of them will elicit precursor abnormalities for further preventive applications.

Only modest funds have been expended for multiphasic screening activities, and these were primarily for demonstrations in too few areas. This failure of dissemination of an approach probably has been due to a combination of reasons—mainly apathy by official health agencies and the ignorance of its benefits and suspicion among the practicing profession. I suggest that every community health center incorporate a multiphasic screening program to attract apparently well persons in addition to sick ones and that every medical school incorporate student experience in such a screening program in its curriculum.

Although pediatricians and, to a somewhat smaller extent, obstetricians have applied more

primary prevention in their practices than other medical specialists, benefits from their approaches have obviously accrued only to the patients who sought their services. Only through an extension of preventive practices to the entire population can we hope to expect some inroads on infant mortality, even though it is expected that universal application of certain environmental controls will contribute greatly to the reduction of the problem as it did in the first part of this century. In general, the problem of infant mortality is highly susceptible to preventive health supervision. The same basic concept which involves our rethinking of medical care as only part of health care would, for example, encompass the problem of emotional and mental health as well.

Environmental control. The basic concepts of eradication or isolation of environmental hazards were laid down long ago, and, for the most part, innovations in methods of application have stemmed from the peculiar characteristics of the newly emerging hazards as well as from technological developments in areas of old problems. Though not entirely synonymous, environmental control has implied community governmental control of a hazard which threatens most, if not always all, members of the community. Our historical governmental regulations of water supplies, sewage disposal, milk supplies, and, to an inadequate extent, other food sources are instances in point. Recent governmental regulatory intervention in environmental hazards, long standing or newly emerging, include the as yet embryonic control of water pollution, air pollution, and radiological hazards. Drug control, although also historic, only recently has been given new directions toward its goals of prevention of therapeutic misadventure and economic waste from the application of useless drugs.

Although normally taking the pattern, both in the community as a whole or in industry as a segment, of removal or isolation of the specific hazard, innovations in basic philosophy, however, have occurred at times. The addition of iodine to table salt for prevention of colloid goiter, the addition of fluorides to water for prevention of dental caries, and the fortification of foods are certainly departures from the

basic pattern. These, however, are precedents for the future.

Thus, as a second, but certainly not secondary approach to primary prevention, environmental control provides a vast promise. Hopefully, self-regulation is not a totally dead issue, but the experiences of the past, and particularly the immediate past, with the tobacco industry engenders impatience with self-regulation for the control of hazards. We turn instead to the only alternative—governmental regulation—for it is our lives and health which are at stake and which should not be bargained for.

Governmental control of the environment may take on prohibitive or regulatory functions (including setting of standards) or both. In water and air pollution, including the discharge of radioactive wastes into both media, continued and even more aggressive control by prohibition of some and regulation of other effluent practices is indicated. Continued aggressive action is certainly needed in drug control, including the control of addictive and psychedelic drugs. Standard setting and engineering control for the safety of motor vehicles will have to be expanded, and serious consideration must be given in the immediate future to either mass public transit to cut down the needs for private vehicle use or to truly automated control of private vehicles.

Another example of environmental control by government, both Federal and local, is the necessary extension and strengthening of regulatory control of the food processing industries, particularly meat and poultry.

Since prohibition applied to a person's habits is doomed to failure, as was evidenced by alcohol prohibition, indirect forms of prohibition or regulation became necessary. In the consideration of either tobacco or alcohol, I believe control on a national basis will have to include prohibition of all advertisement of either of these environmental hazards; for tobacco, rigid local enforcement of sales to minors, as conducted to a greater extent for alcohol, is needed.

In the event that dietary manipulation is proved practical as a preventive of coronary heart disease and possibly even cerebrovascular disease, changes in food fat composition by industry would no more be out of order than the

iodizing of salt or the fluoridation of water supplies.

For years, public health proponents have recognized the impact of poverty, housing, and other social factors on health. The role of crowding and socioeconomic status in the production of rheumatic fever, as one example among many, was established many years ago. These social factors must be considered as much a part of the environment as chemical, physical, and biological hazards. Recently, certain sociological concepts of the community, such as anomie, have emerged and these too will have to be considered in terms of primary prevention of disease or better still the promotion of health, particularly emotional and mental health.

Health education. As an approach to primary prevention, health education is probably among the most difficult. Education for health has a twofold purpose: (a) education for personal health which is necessary to bring the individual to preventive health services of any type and (b) education for community action in health which is the only way to guarantee that the community will safeguard itself against environmental hazards by legal regulatory actions and will provide personal health services. As an educator, I have faith in the process which must go on inexorably, if slowly.

Conclusion

The illustrations of health problems for primary prevention I have presented do constitute the important areas of ill health in our society today. The suggestions for their solution are but fragmentary and representative of a variety of methods and modalities which could be applied. Throughout this commentary are not-so-veiled suggestions of necessary research, epidemiologic in character, not only on further etiological relationships and determinants of disease, but on program and educational applications. Furthermore, a careful and deliberate assessment of the problems in specific detail for practical priorities in the achievement of prevention must be undertaken.

For these reasons, I would urge the establishment of a commission to study the total problem of prevention, its perspectives, the pragmatical areas of preventive capabilities of our society, the ways and means of their application, the

augmentation of teaching in this field, and the delineation of the areas of necessary and immediate intensification of research. The justification for such study is simply that prevention of disease is the ethical imperative of our social order.

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Tearsheet Requests

Leonard M. Schuman, M.D., Division of Epidemiology, University of Minnesota School of Public Health, 1325 Mayo Memorial Building, Minneapolis, Minn. 55455

Reorganization of DHEW Programs for Mothers and Children

Recent organizational changes which will strengthen Department of Health, Education, and Welfare programs affecting child welfare, social services, and maternal and child health care are as follows.

- The Children's Bureau has been moved from the Social and Rehabilitation Service (SRS) to the Office of the Secretary, where it becomes part of the new Office of Child Development (OCD). The Bureau will maintain its role of leadership and coordination of child and parent programs throughout the Department. It will also continue to investigate and report on all matters pertaining to the welfare of children, under the 1912 act which created it. The OCD will report to the Secretary through Assistant Secretary for Administration James Farmer.

With the move, OCD now consists of three major elements: the Children's Bureau, Bureau of Head Start and Child Development, and Bureau of Program Development and Resources.

- A Community Services Administration has been established in SRS to consolidate the administration of social service programs from children and adults. These include programs located previously in the Children's Bu-

reau and in other SRS agencies. It will operate as a single point of responsibility at the Federal level for social services offered through State and local welfare agencies. Stephen P. Simonds has been designated as acting commissioner of the Community Services Administration.

- Health programs administered by the Children's Bureau have been transferred to the Health Services and Mental Health Administration (HSMHA) where they will comprise a new organizational unit, the Maternal and Child Health Service. Dr. Arthur J. Lesser has been named acting director. Programs included are for maternal and child health services, crippled children, maternity and infant care, and health of school and preschool children.

The National Center for Family Planning Services, whose acting director is Dr. Stanley C. Scheyer, has been established within HSMHA. The Center will develop family planning programs for DHEW, mesh them together with other Federal efforts, and administer family planning project grant activities for HSMHA. It will also function as a clearinghouse for the collection, organization, and dissemination of family planning information.