Targeting Progress in Health

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It is not enough to take steps which may some day lead to a goal; each step must be itself a goal and a step likewise. Goethe

CAN MANAGEMENT BY OBJECTIVES accelerate progress toward better health for Americans? This question is at the heart of a broad-based national effort to set measurable targets to be achieved by 1990 in key areas of disease prevention and health promotion.

The term "management by objectives" was first introduced in 1954 by Peter Drucker in his book "The Practice of Management" (*1*). The term refers to a set of directed efforts to identify the individual steps and targets necessary to achieve common goals. The underlying assumption is that it is possible to specify common goals, which when explicitly identified will yield more focused and efficient efforts that are consonant with the prevailing consensus about desired outcomes. This concept has been applied widely to a number of management enterprises, public and private, in which the intent is to reach some quantifiable or measurable goal (*2*).

Although the most prominent proponents of management by objectives have come from the corporate world, efforts to apply the concept to health have been made. These efforts generally have been undertaken to gauge the productivity of health care institutions in terms of bed utilization rates, laboratory capacity, or patient visits per unit of time. In some cases, objectives have been more explicitly relevant to health gains. The World Health Organization's smallpox eradication program, especially in its later phases, provides perhaps the best example of an effort deploying locally derived objectives on both process and outcome to assist in the global elimination of the disease. The National Childhood Immunization initiative, spearheaded from 1977 to 1979 by the Department of Health, Education, and Welfare (now the Department of Health and Human Services), provides a good example of successful application of the concept on a national basis.

Now the management by objective concept is being applied to a broader range of health problems and activities. In this effort, objectives have been established by the Department of Health and Human Services to target progress in addressing a comprehensive set of preventable health problems. Although the objectives established are national objectives, they are intended to be adapted to the needs of States and localities. This effort is a challenge to the notion that advances in health must depend largely on unstructured responses to sometimes serendipitous additions to the scientific knowledge base.

Progress to Date

The health of Americans has improved steadily even without a system to explicitly identify health objectives. Vital statistics kept by several Western countries—for example, Sweden's records of births and deaths beginning in the middle 1700s and England's records of cause of death dating back to 1838 with the work of Dr. William Farr in the Office of the Registrar General for England and Wales—suggest that the last two or three centuries have been times of considerable health advances for the Western world (*3a*). More recent records from the United States show similar health gains (table 1).

The provisional age-adjusted death rate for all Americans in 1980 was approximately one-third the rate in 1900. Most of the improvement in health status is assigned to gains against infectious diseases. The nature of factors contributing to this gain remains debatable. Certainly the tools made available by Edward Jenner's 1798 report on the application of the cowpox virus in the prevention of smallpox (*4*), by John Snow's 1854 indictment of the Broad Street pump in a London cholera outbreak (*5*), and by the announcement of Fleming in 1929 of the antibiotic action of penicillin (*6*)—all contributed to control of

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infectious diseases. However, given the progress that apparently occurred well before widespread application of any of these interventions, a good case also has been made for the contribution of fundamental improvements in socioeconomic status with concomitant improvements in nutrition and sanitary conditions (*3b*).

Perhaps most remarkable have been gains in the survival of infants and children. Indeed, as the following table shows, by 1980, the provisional death rate for infants had dropped to less than one-tenth of the level at the turn of the century, and for children up to age 15, to one-twentieth of the level in 1900.

	Deaths per 100,000 population	
Age group	*1900*	*1980*[1]
Infants	16,244.8	1,310.7
Children (ages 1–14)	866.3	40.7
Adolescents and young adults (ages 15–24)	585.5	118.8
Adults (ages 25–64)	1,270.2	506.9
Older adults (ages 65 and over)	8,225.8	5,290.8

SOURCE: National Center for Health Statistics.
[1] Provisional data.

During the decade 1970-80, life expectancy at birth has increased by some 2.8 years, an increase greater than that for the previous two decades combined (table 2). Overall life expectancy at birth has increased by 24 years since 1900 (from 49.2 years in 1900 to 73.6 years in 1980). During the same period, however, the life expectancy gain for a 45-year-old American was only 7.3 years (from 24.8 years in 1900 to 32.1 years in 1980).

Impressive health gains for the adult population however, have been realized in recent years, at least as measured by mortality figures. The expected additional years of life for a 45-year-old person have amounted to about 2.0 years during the last decade, a striking 6.6 percent increase. This gain for adults is proportionately greater than the 4.0 percent increase in life expectancy at birth for the same period.

The most prominent source of this improvement lies in the decline in the cardiovascular disease death rate during the last decade. Between 1968 and 1978, the age-adjusted death rate for strokes dropped by 36.5 percent, and for heart disease, by 23.7 percent—an improvement greater than for the two decades between 1950 and 1970 (*7*).

Multiple factors are involved in these gains in ways not yet fully understood. Certainly the growth in the knowledge base has provided considerable impetus. The improvement in our understanding of the factors involved in various diseases also has been impressive, as has been our increased ability to influence these factors or to manage acute disease sequelae.

Furthermore, people clearly have responded as new scientific discoveries of the factors that contribute to disease have been publicized. Changes in the risk factors for heart disease provide examples. Over the last 15 years, the United States has experienced marked improvements in the control of high blood pressure. The proportion of smokers in the adult population has declined by more than 20 percent (*8,9*). The aggregate consumption of foods high in total fat, saturated fat, and cholesterol has decreased by 10 to 15 percent or more between 1968 and 1978. The proportion of the

Table 1. Age-adjusted death rates per 100,000 population for leading causes, 1900 and 1980

1900			*1980*[1]		
Cause	*Rate*	*Percent of total*[2]	*Cause*	*Rate*	*Percent of total*[2]
Influenza and pneumonia	210	12	Heart disease	205.3	34.6
Tuberculosis	199	11	Cancer	134.2	22.6
Heart disease	167	9	Stroke	41.5	7.0
Stroke	134	8	Accidents	43.4	7.3
Diarrhea and related diseases	113	6	Influenza and pneumonia	12.6	2.1
Cancer	81	5	Cirrhosis/chronic liver disease	12.6	2.1
Accidents	76	4	Suicide	12.2	2.1
Diabetes	13	2	Diabetes	10.1	1.9
Suicide	11	1	Homicide	11.4	1.9
Homicide	1	1	Tuberculosis	.5	.1
All other causes	775	44	Diarrhea	[3].7	[3].1
			All other causes	109.6	18.4
All causes	1,779	100	All causes	594.1	100.0

SOURCES: Annual Summary of Births, Deaths, Marriages, and Divorces: United States, 1930; Monthly Vital Statistics Report, Vol. 29, No. 13, Sept. 17, 1981; and unpublished data. National Center for Health Statistics.

[1] Provisional data.
[2] Percentages do not add to 100 or 100.0 because of rounding.
[3] Figure is for 1978. Not available for 1980.

Table 2. Changes in life expectancy in this country

Year [1]	Life expectancy at birth in years	Percentage gain in decade	Life expectancy at age 45 in years	Percentage gain in decade
1900	49.2	...	24.8	...
1910	51.5	4.7	24.5	—1.2
1920	56.4	9.5	26.3	7.3
1930	59.2	5.0	25.8	—1.9
1940	63.6	7.4	26.9	4.3
1950	68.1	7.1	28.5	5.9
1960	69.9	2.6	29.5	3.5
1970	70.8	1.3	30.1	2.0
1980 [2]	73.6	4.0	32.1	6.6

SOURCE: National Center for Health Statistics.
[1] Except for 1980, the numbers given are based on data for 3-year periods. For example, figures for 1970 are based on data for 1969–71.
[2] Provisional data.

population reporting regular exercise has increased by as much as 100 percent (*10*).

These developments raise a number of issues related to our public health agenda. Although the recent trends cited certainly offer cause for encouragement, questions must be answered about the extent to which health gains have occurred "at the margin"—among the persons most easy to convert to a more healthful lifestyle rather than among the highest cost users of health care (*11*). Could more carefully targeted and monitored efforts help facilitate gains for the most vulnerable groups?

Questions also must be raised about the nature of the nation's emerging health problems. The dominant causes of premature death in this country are related to trauma (table 3). In terms of years of potential life lost, accidents provide the leading health threat to Americans ages 1 to 65. Traumatic deaths—accidents, suicide, and homicide—account for three of the five leading causes of years of potential life lost for Americans ages 1 to 75. As a result, the nation's health community is confronted with a set of problems requiring nontraditional approaches for their solution. This circumstance introduces an additional degree of complexity into the agenda for improving health.

The Surgeon General's Report

Shaping an agenda to improve the health of the American people has been the focus of considerable interest and attention in recent years. Periodic reviews of the charge to the public health community date back to the work in New England of the Reverend Edward Wigglesworth in 1789, who provided the first American mortality tables, and the 1850 "Report of a General Plan for the Promotion of Public and Personal Health," presented to the Massachusetts Legislature by Lemuel Shattuck (*12*).

At the Federal level, the last decade has been marked by an increasing emphasis on disease prevention and the promotion of good health as a focus of public policy. Several national committees, conferences, and working papers have been devoted to assessing the extent of death, unnecessary disease, and disability in this country, as well as to fashioning suggestions for intervening in these problems (*13-16*). These initiatives have been followed in recent years by the work of various prevention-related task forces and two reports that provide the primary focus for this paper: the 1979 Surgeon General's report on health promotion and disease prevention and the 1980 report on health objectives for the nation.

Table 3. Years of potential life lost in 1977 from five causes

Causes	Potential life lost ages 1–64		Potential life lost ages 1–74	
	Total years	Percent of total from all causes	Total years	Percent of total from all causes
All accidents	2,624,704	26.2	3,448,214	18.8
Cancer	1,810,245	18.1	3,931,209	21.4
Diseases of heart	1,687,593	16.8	4,295,603	23.4
Suicide	644,683	6.4	898,388	4.9
Homicide	591,240	5.9	780,710	4.3

SOURCE: Centers for Disease Control, 1980.

In July 1979 "Healthy People—the Surgeon General's Report on Health Promotion and Disease Prevention" was issued (*17*). The report was designed to review and highlight the principal preventable health problems facing the American people, as well as the various strategies that might be used to address those problems. Its central themes are simply stated:

1. The health of the American people has never been better.
2. Each life stage poses unique problems that must be effectively addressed if further gains are to be attained.
3. Many of the emerging problems are not traditionally characterized as public health problems, but they must nonetheless be adopted as concerns of the public health sector.

As noted in the report, specific quantified goals to be attained by 1990 have been established for improvements in the health of people at each of the five life stages.

Life stage	*1990 goal*[1]
Infants	35 percent lower death rate (less than 9 deaths per 1,000 live births).
Children (ages 1–14)	20 percent lower death rate (less than 34 deaths per 100,000 population).
Adolescents and young adults (ages 15–24)	20 percent lower death rate (less than 93 deaths per 100,000 population).
Adults (ages 25–64)	25 percent lower death rate (less than 400 per 100,000 population).
Older adults (ages 65 and over)	20 percent lower rate of days of restricted activity (less than 30 days per year).

[1] "Lower" means in relation to 1977 rates.

The prominent health challenges that people face at each of these life stages vary. For infants, the priorities include reducing the number of low-birth-weight infants and the number of birth defects; for children, enhancing childhood growth and development and reducing childhood accidents and injuries; for adolescents and young adults, reducing fatal motor vehicle accidents and alcohol and drug misuse; for adults, reducing heart attacks and strokes and deaths from cancer; and for older adults, increasing the proportion who can function independently and reducing premature deaths from influenza and pneumonia.

Most of the goals are derived from the leading causes of unnecessary death. However, there are exceptions. For children, who have the lowest death rate among the five groups, habits and patterns developed in early life that will affect them later are paramount. Therefore, enhancing childhood growth and development is a priority. Likewise, to lessen motor vehicle accidents among adolescents and young adults, misuse of alcohol and drugs needs to be reduced. At every stage of life, there are sources of illness that are not necessarily reflected in the mortality tables, but which represent important targets for goals directed at improved health.

Specification of quantified goals of the sort contained in the Surgeon General's report would be a vain gesture in the absence of a more thorough assessment of how such goals are to be achieved. As a result of the last generation of health research, data collection, and epidemiologic analysis, specific risk factors are identifiable for the major health problems confronting Americans, and knowledge of how to address these risks provides insight on how to reach our goals. Following are prominent controllable risk factors for 10 current leading causes of death.

Heart disease—smoking, high blood pressure, elevated serum cholesterol, diabetes, obesity, lack of exercise, coronary-prone behavior.

Cancers—smoking, alcohol, solar radiation, ionizing radiation, worksite hazards, environmental contaminants, certain medications, infectious agents, diet.

Stroke—high blood pressure.

Accidents other than motor vehicle—alcohol, smoking (fires), product design, home hazards, handgun availability.

Influenza and pneumonia—vaccination status, smoking.

Motor vehicle accidents—alcohol, no safety restraints, speed, automobile design, roadway design.

Diabetes—obesity (for adult-onset disease).

Cirrhosis of liver—alcohol.

Suicide—handgun availability, alcohol or drug misuse, stress.

Homicide—handgun availability, alcohol, stress

(For the most recent research and analysis related to each cause, see Bibliography on Prevention, pages 304-307.)

Several of the risk factors are implicated in more than one cause of death. Smoking provides a notable example, with its implication in premature mortality from heart disease, cancers, respiratory disease, and even accidents (from smoking-related fires).

Also notable is the dominance of behavior as a characteristic of these cross-cutting risk factors. Indeed, personal behaviors are involved in each of the leading causes of death; three are particularly prominent—smoking, alcohol use, and diet.

These controllable risk factors linked to the leading causes of mortality, when combined with those for the leading causes of morbidity, can provide important targets for the development of national improvement strategies. Such strategies may be distributed in three general groups—health promotion, health protection, and preventive health services (see box).

The preventive health services category includes services traditionally associated with clinical medicine—those obtained in clinical settings from physicians and other health providers. Health protection activities include services that are largely environmentally related, or at least whose control depends substantially upon manipulation of the environment. The health promotion group includes services related to lifestyle and can be thought of as both the oldest and the newest of the national health strategies—the oldest in the sense that folk wisdom has had much to say over the centuries about this group, and the newest in that it is a set of strategies with a foundation in recent social trends, government concern, and epidemiologic data studies.

The central themes of the Surgeon General's report reflect a rosier view of the potential to prevent various infirmities than earlier assessments have. The less optimistic views of this potential in earlier estimates may have been due to several factors—uncertainty about the scientific basis for the prevention programs, the unclear results of efforts directed against chronic disease, difficulties in assessing the effectiveness of prevention programs, and the broad (even diffuse) programs and priorities involved.

Until recently the scientific basis for prevention programs directed at many of our leading health problems has not been clear, particularly the basis for those programs related to lifestyle and environmental interventions. Moreover, the results of prevention programs have been subtle—they cannot be dramatically portrayed as a multi-colored double helix emblazoned on magazine covers or as newspaper accounts of life snatched from death through an ingenious new clinical intervention. Dissemination of the results has been further complicated by the fact that given the lag time for chronic diseases, our data system has not always been adequate to capture fully those results.

Additionally, it is frequently difficult to isolate the effect of a prevention program from other elements of the environment in which it is conducted. However, attempts to measure the effectiveness of prevention programs are becoming increasingly more rigorous in their design, and therefore the results are being reviewed with new respect for their reliability.

Finally, the broad scope of prevention activities and the variety of the interventions used has lent a diffuse quality to prevention programs and priorities. The prevention umbrella brings together both time-tested environmental interventions designed to eliminate water and food contamination and emerging efforts at community education directed at reducing behavior-related risk. This combination results in a number of conceptual problems.

However, as the science base has grown, as data systems have improved, as the public has become more sophisticated in its grasp of the relative importance of various factors in health, and with the passage of time, both the charge and the accomplishments of prevention programs are becoming better understood. There is now a need to capture the growth in knowledge and understanding and use them in drawing up a more specific agenda for better health.

Measurable Objectives for the Nation

Preparation of such an agenda is the task addressed in "Promoting Health/Preventing Disease: Objectives for the Nation" (*18*). Following the analytic framework set forth in the Surgeon General's report, this document proposes 226 specific and measurable objectives distributed across the 15 priority action areas noted in the health strategy targets (see box). These objectives are designed to facilitate progress toward the goals broadly stated in the Surgeon General's report by specifying quantifiable targets that can enhance our efforts to prevent and manage disease.

However, once established, such targets will not be easily attained. If the assumptions underlying each objective are not realized, meeting the stated objective will be difficult. The strength of the targeting process derives more from its ability to guide program decisions and provide monitoring of results than in its potential to achieve a specific number.

Nor do the foregoing recommendations imply that more broadly focused and less specifically quantified efforts have not been successful in the past. Quite the contrary is true. The national reduction in infant mor-

Health Strategy Targets

Preventive health services for individuals:
- Family planning
- Pregnancy and infant care
- Immunizations
- Sexually transmissible diseases services
- High blood pressure control

Health protection for population groups:
- Toxic agent control
- Occupational safety and health
- Accidental injury control
- Community water supply fluoridation
- Infectious agent control

Health promotion for population groups:
- Smoking cessation
- Alcohol and drug abuse reduction
- Improved nutrition
- Exercise and fitness
- Stress control

SOURCE: Reference 17.

tality has already been noted. High blood pressure control and smoking cessation are also good illustrations of the success of programs with a broad focus.

High blood pressure control. Cardiovascular diseases collectively are clearly the leading cause of death in this country, and high blood pressure represents one of the dominant risk factors for both stroke and heart attack deaths. In 1972, the National High Blood Pressure Education Program (NHBPEP), coordinated by the National Heart, Lung, and Blood Institute at the National Institutes of Health, was begun as a government and private sector partnership to reduce cardiovascular deaths by detecting and controlling high blood pressure. The NHBPEP is a coalition of about 15 Federal agencies, 150 major national organizations, 50 State health departments, 2,000 organized community control programs, and a variety of other facilitating groups. The Federal role in the process is that of a catalyst—helping in the design of intervention methods, identifying target groups, and stimulating the activities of a number of resourceful participants around the country. As the following table shows, the results of the NHBPEP have been dramatic. Between 1971-72 and 1974-75, the share of people with diastolic blood pressure greater than or equal to 105, but whose hypertension was never diagnosed, declined 30 percent for the population as a whole. The decline was greater for blacks (43.8 percent) than for whites (17.2 percent).

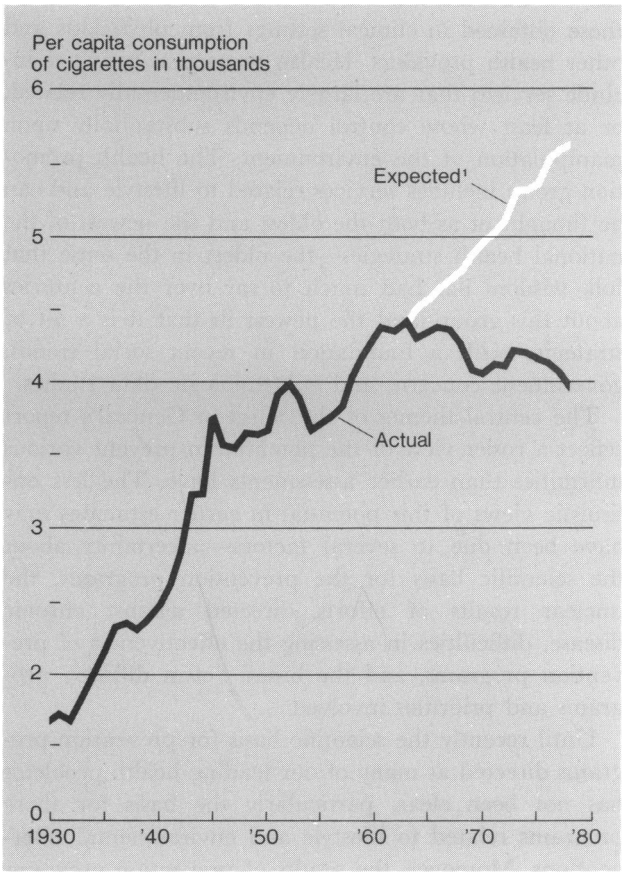
	Percent with diastolic blood pressure 105 or more but never diagnosed		
Group	*1971–72*	*1974–75*	*Percent change*
General population	45.6	31.9	—30.0
Whites	48.8	35.0	—17.2
Blacks	40.4	22.7	—43.8

SOURCE: National Health and Nutrition Examination Survey I, 1971–75, National Center for Health Statistics.

Surveys also indicate that public knowledge about high blood pressure has substantially improved over the last 8 years, that first visits to physicians for hypertensive disease (not including referrals) increased by 45 percent between 1971 and 1976, and as noted earlier, that stroke deaths have declined markedly (*19*).

Smoking cessation. National efforts targeted at reducing cigarette smoking have also had notable successes. Reports about the health hazards of cigarette smoking began making their way into the public press in the early 1950s. In response to these reports, there were occasional transient downturns in smoking behavior. But it was in 1964, with the publication of

Figure 1. Trends in cigarette consumption



¹Consumption predicted in the absence of antismoking campaign and with assumed price constancy.

SOURCE: Adapted from figure in reference 21, p. 730, copyrighted 1981 by the American Association for the Advancement of Science.

"Smoking and Health," the report of the Advisory Committee to the Surgeon General, and the initiation of a vigorous anti-smoking program, that the increase in per capita cigarette consumption began to be checked over a sustained period (*20*). A recent regression analysis of cigarette demand has suggested that in the absence of an anti-smoking campaign, consumption of cigarettes today would have been about 41.5 percent greater than that which actually occurred (fig. 1). Per capita consumption of cigarettes has fallen approximately 1 percent per year since 1973 (*21*). The proportion of all males who smoked in 1979 was about 37 percent versus 53 percent in 1964; in females, the proportion was about 28 percent compared with 42 percent in 1964 (*22*). Even for teenagers, among whom the problems have been the greatest recently, current trends are encouraging. Though there was an increase in smoking by teenagers from about 12 percent in 1968 to 16 percent in 1974, the proportion of persons between the ages of 12 and 18 who smoked had dropped again by 1979 to below 12 percent (*23*).)

With the stimulus provided by the 1964 report, a broad range of contributors have pooled their scientific, legal, and marketing talent to establish programs successfully targeted to specific populations. The impressive results obtained reflect an effective partnership between public programs and private efforts such as those of the American Cancer Society, American Lung Association, and American Heart Association.

Yet even these general national efforts to reduce smoking and high blood pressure encompass important elements of targeting and monitoring. Each has fostered directed efforts to identify and target vulnerable population groups, to enroll a wide variety of service agencies, and to stimulate the monitoring of programs not only at the national level, but at the local level as well. The local focus of activities has in fact been a prominent feature of the work.

Childhood immunization. Perhaps the most dramatic example of a successful application of targeting and, more specifically, quantifiable targeting, is the childhood immunization initiative that operated between 1977 and 1979. That initiative was undertaken in response to the fact that in 1977 less than two-thirds of the children under the age of 15 in this country were adequately immunized against the childhood vaccine-preventable diseases—measles, mumps rubella, diphtheria, pertussis, tetanus, and poliomyelitis. To close this gap, a measurable goal was established by the President: 90 percent adequate immunization to be achieved by October of 1979. The Federal Government, in cooperation with State and local governments, then formulated a sophisticated implementation plan to ensure that available resources were levered effectively to achieve that goal. Interim objectives were set for various target groups, such as clients of Head Start programs, community health centers, and Indian health facilities. Regular reports were made of progress, and to improve operations, programs were reviewed quarterly.

By the fall of 1979, the goal was largely attained for children entering school, with immunization rates of 94 percent for measles, 93 percent for rubella, 93 percent for DPT (diphtheria, pertussis, and tetanus), 93 percent for poliomyletitis, and 86 percent for mumps. More importantly, in 1980 the number of cases of measles, mumps, rubella, tetanus, and diphtheria was at an all-time low (fig. 2). Indeed the nation has now achieved a level of control sufficient to warrant the expectation that measles can be eliminated as an indigenous problem in this country within 2 years. This success is attributable to a program that sought to achieve a specific objective in a very structured way. There are limitations to the transferability of that model to other areas, but the setting of specific targets can help to focus program activities more effectively.

Extension of these kinds of targeting efforts in order to establish national objectives in a number of key prevention areas has been the goal of the recent exercise reported in "Promoting health/preventing disease —objectives for the Nation" (*18*). The development of the objectives, which took place throughout 1979 and 1980, involved more than 500 professionals from the public and private sectors. An elaborate process was used, beginning with the participation of about 200 invited experts at a conference in Atlanta in June 1979. These experts prepared the initial drafts of the objectives in work groups established for each of the 15 identified action areas. A notice of the availability of the drafts was published in the Federal Register, and the drafts themselves were circulated widely to interested groups and individuals around the country. Based on suggestions received, the drafts were revised and circulated in early 1980 for review and comment by the relevant Federal agencies and the work group chairpersons. After final revisions, the document was issued in the fall of 1980 (*18a*).

The stated objectives were drawn up to meet certain criteria:

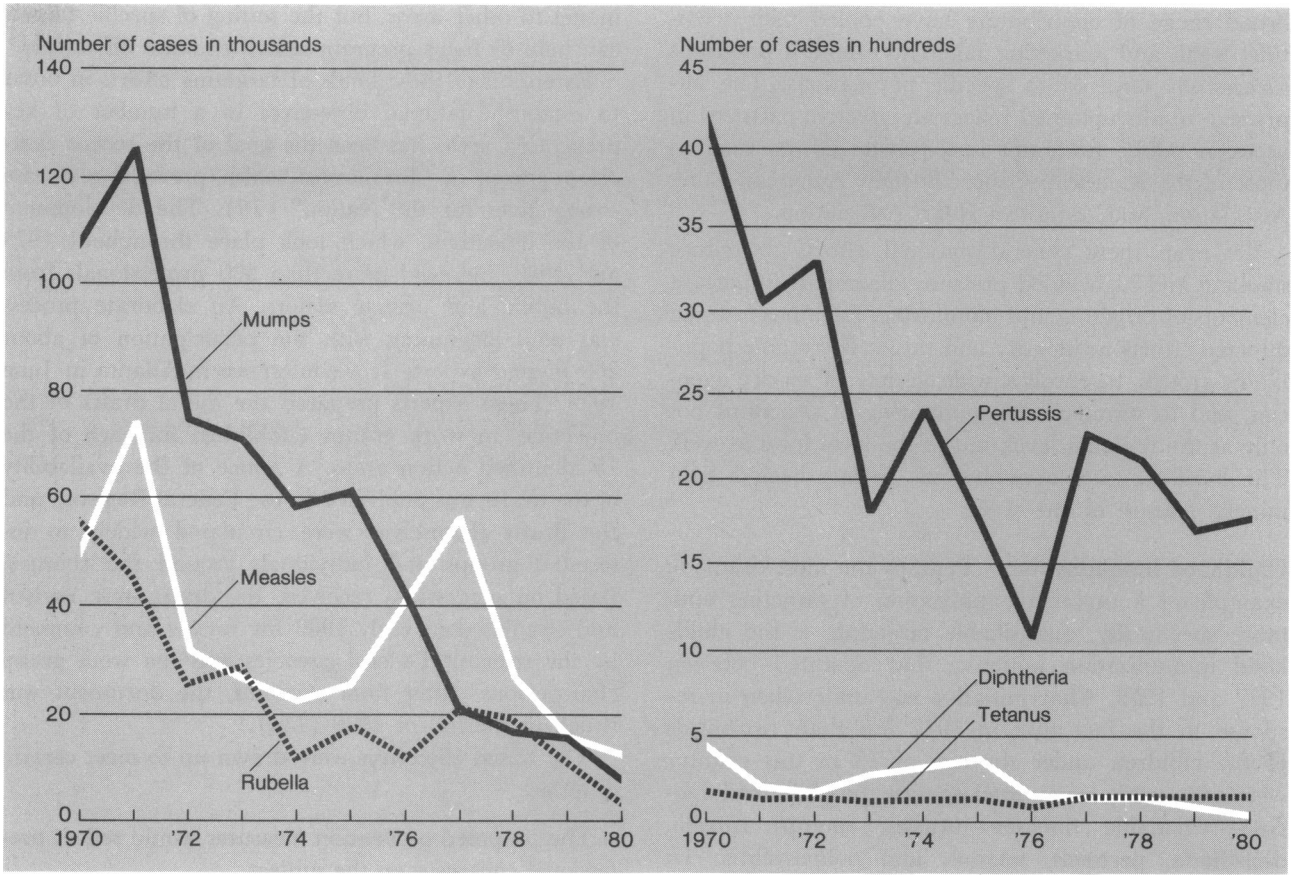
- The proposed prevention measures would reflect professional consensus on the subject.
- The measures would be limited to what might practically be attained by 1990 if no major research breakthroughs or large-scale increases in Federal spending occurred.
- The potential for benefit from the measures proposed would be weighed against their potential for harm.
- Improvements could be made in the objectives as additional research and evaluation offered additional insights (*18b*).

For each of the 15 priority prevention areas, objectives were established in the following five categories, listed here with the number of objectives to be sought in each category:

Category	*Number of objectives*
Improved health status	58
Reduced risk factors	47
Increased public and professional awareness	38
Improved services and protection	51
Improved surveillance and evaluation systems	32
Total	226

Following are three objectives, among the nine related to high blood pressure, which illustrate the format:

Figure 2. Reported cases of measles, mumps, rubella, diphtheria, pertussis, and tetanus, 1970-80



SOURCE: Centers for Disease Control.

• By 1990, at least 60 percent of the estimated population having definite high blood pressure should have attained successful long-term blood pressure control—a blood pressure at or below 140/90 for 2 or more years. (High blood pressure control rates vary among communities and States, with the range generally being from 25 to 60 percent based on current data.)

• By 1990, the average daily sodium ingestion (as measured by excretion) for adults should be reduced at least to the 3 to 6 gm range. (In 1979, estimates ranged between averages of 4 to 10 gm sodium. One gm salt provides approximately 0.4 gm sodium.)

• By 1990, at least 90 percent of adults should be able to state whether their current blood pressure is normal (below 140/90) or elevated, based on a reading taken at the most recent visit to a medical or dental professional or other trained reader. (In the period 1971-74, 55 percent of the people with high blood pressure greater than 160/95 were not aware of their condition.)

In some cases, the stated objectives were arrived at by essentially linear extrapolation of the trends. An example is infant mortality, for which a stated objective is less than 9 infant deaths per 1,000 live births nationally by 1990. In fact, based on the knowledge that certain areas in this country and some parts of Western Europe have already achieved levels of 5 per 1,000, even greater improvement might be expected. But given the special problems experienced by some ethnic groups, a less ambitious goal was deemed realistic (*18c*).

In other cases, the stated objectives represent an exponential rate of improvement. For example, though influenza vaccine has been licensed for use since 1945, only about 20 percent of the high-risk population in the United States was immunized in 1979. It is expected, however, that routine improvements in delivery programs will allow the nation to achieve the objective of 60 percent annual immunization of the high-risk population against influenza by 1990 (*18d*).

Attainment of the national objectives in prevention will clearly require action by a variety of sectors at a variety of levels and adaptation of the targets to different circumstances. Indeed, one of the fundamental intents in setting up these national guideposts has been

to stimulate efforts by States and localities to tailor the objectives to accommodate the needs and capabilities of diverse local or special populations. Broad participation of this sort is necessary if the process is to enhance health-related program decisions.

Prospects for Achieving Targets

The prospects of achieving the targets set forth in "Promoting health/preventing disease—objectives for the nation" are as disparate as are the objectives themselves. The Secretary and the Assistant Secretary for Health of the Department of Health and Human Services have set a high priority on the work, but there are certainly constraints.

The targets with the best prospects are probably those that depend more on technical interventions and less on behavioral change, those that offer the potential for greater economic returns or at least fewer economic losses to industry or society, and those that appear to be most socially neutral. Accordingly, a few important caveats must be considered.

First, the amount of support that can be drawn from the science base for use in the formulation of objectives varies considerably in the five categories. For example, among the health status objectives, a specific objective for reduction of caries can feasibly be established based on the anticipated provision of fluoridated water supplies, because the protective nature of fluoride against dental caries is well defined. On the other hand, our understanding of the relationship between a number of toxic agents and various disease outcomes is still emerging, so that qualitative—not to mention quantitative—estimation of the potential for improved health status is difficult. Among the objectives related to reducing risk factors, setting up a target on exposure to the risks of smoking is much easier than setting up one on exposure to atmospheric sulfates, or even one on the adoption of certain exercise levels (levels that people frequently misreport). We are nonetheless obliged to take action based on the information available.

Second, even when quantified objectives are established, State and local interest in, and the capacity for, such evaluative efforts vary substantially. Yet, since the purpose of the objectives is to encourage program evaluation and adaptation of the objectives at the local level, progress depends on that interest and those efforts. This link between Federal and State and local efforts is particularly needed as the distribution of Federal funds emphasizes the mechanism of block grants, which provide for greater State and local discretion in setting priorities and allocating resources.

Third, our progress depends upon the continued development of our data systems. Yet at this time data collection efforts are especially vulnerable because of financial constraints. Although this nation's data-gathering capabilities surpass those of most other countries, some prominent geographic and substantive deficiencies still exist in our data sets. Possibly, the most limiting is the paucity of data available at the State and local levels. Beyond these geographic constraints are the limits in information related to certain categories of objectives, especially those related to improving public and professional awareness of the various prevention areas. Our apparent lack of interest in assessing such awareness suggests that we may indeed have become accustomed to treating people as passive participants in the protection of their own health—an attitude that presents a compelling program challenge. The gains that will be most difficult to achieve will be in health promotion and behavior enhancement; facilitation of the gains made in those areas will depend upon our having adequate data to track progress.

Fourth, though much of our progress in the future will depend upon how effectively we motivate people, our understanding of both the potential and the constraints of the behavioral and communications sciences remains limited. Although considerable numbers of people apparently have been improving their lifestyles as better information has become available about the links of poor lifestyle to ill health, there is still scant evidence to offer tested ways of accelerating societal response to this information.

Fifth, if this goal-oriented approach is to succeed, a social will must exist to support its various components. Though uniform agreement is not required on the priorities to be assigned to activities, some commitment is needed to the process of establishing targets, measuring progress, and realigning activities. This commitment requires not only consensus, but a considerable amount of will at a variety of levels.

Caveats notwithstanding, the establishment of measurable health objectives holds promise for enhancing the health of Americans. One of the more significant features of this process is the extent to which the effort reflects progress in the development of consensus about our health goals and about some of the means for attaining them. The broad and elaborate review that was undertaken in the course of drafting and revising the objectives for the nation has ensured a thorough discussion of the issues. Consensus, however, does not denote unanimity. Diversity and compromise are prominent components of consensus development, and the product that emerges is inevitably more conservative than many participants would have urged. But the

degree of consensus about what our course in prevention should be is considerable, given the scope of the objectives and the number of participants in the process.

Setting objectives is in effect only a starting point. This process reveals the need also for a commitment, which must be met by realigning activities and resources—tasks that can be onerous, particularly for those at the State and local level. Although difficult, a deliberate review of priorities and the targeting of activities can improve the allocation of resources—chores that are even more critical during times of fiscal constraint. If targeting our progress in health helps us set our sights more specifically, we should be better able to register our successes and detect our failures—and perhaps even, in time, correct our course. The potential for gain seems well worth the effort.

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