The Surgeon General's report on nutrition and health: policy implications and implementation strategies[1-3]

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ABSTRACT *The Surgeon General's Report on Nutrition and Health* was developed primarily as an authoritative source of information on which to base nutrition policy decisions. It presents a comprehensive review of the evidence that links diet to chronic disease, states the consensus of the Public Health Service on the policy implications of that evidence, and recommends specific dietary changes to reduce disease risk. It identifies reduction of fat consumption as the primary dietary priority and distinguishes recommendations appropriate for the general public from those for special populations. Its consensus on the scientific basis of diet-disease relationships establishes a foundation from which to develop policies and programs to implement the report's recommendations. The federal role in implementation is necessary and desirable but not sufficient. Leadership and commitment from the state, local, private, and voluntary sectors are also essential for creation of an environment that promotes improved food choices by individuals. *Am J Clin Nutr* 1989;49:23–8.

KEY WORDS Nutrition policy, dietary recommendations, nutrition programs, policy implementation

Introduction

The release in July 1988 of *The Surgeon General's Report on Nutrition and Health* (1) represents an important achievement. In this report, the Public Health Service (PHS) presents its first comprehensive review of the scientific evidence that links diet to chronic disease, its consensus on the implications of that evidence for public health policies, and dietary recommendations developed on the basis of that consensus.

The report examines a wide range of dietary issues related to many different disease conditions. In doing so it demonstrates how the same set of dietary recommendations applies to promotion of general health as well as to prevention of a broad spectrum of chronic diseases. Most important, the report establishes that an overall reduction in fat consumption, especially saturated fatty acids, is the primary dietary priority for improving the health of Americans.

This paper reviews the rationale for the report and presents its major conclusions, recommendations, and implications. It also describes the federal and private sector actions that will be needed to implement the report's recommendations.

Rationale for the report

The Surgeon General's Report on Nutrition and Health originated in response to the increasing recognition that the most prevalent nutritional problems among Americans are due to overconsumption and imbalances in dietary intake rather than to deficiencies of single nutrients. Over the years federal dietary recommendations have reflected this shift in focus. **Table 1** illustrates the changes in these recommendations that have occurred since the government first issued dietary advice in 1917. In the early years of this century, dietary recommendations specifically encouraged consumption of foods containing fat and sugar and the establishment of four, five, seven, or eight food groups was designed to promote a greater variety of intake to avoid nutritional deficiencies (2). Dietary recommendations based on food groups made little distinction between foods of high and low fat content, however, nor did they encourage limitations on quantities to be consumed.

By the mid-1970s it had become evident that many of the leading causes of death in the United States were

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TABLE 1
Federal dietary recommendations for the general public, 1917–1988

Year	Agency*	Publication	Recommendation†							
			Variety	Maintain ideal body weight	Include starch and fiber	Limit sugar	Limit fat	Limit cholesterol	Limit salt	Limit alcohol
1917	USDA	What the Body Needs—Five Food Groups	+		+	‡	‡			
1942	USDA	Food for Freedom—Daily Eight	+		+		‡			
1943	USDA	National Wartime Nutrition Guide—Basic Seven	+		+		‡			
1946	USDA	National Food Guide—Basic Seven	+		+		‡			
1946	USDA	Food for Growth—Four Food Groups	+		+					
1958	USDA	Food for Fitness—Four Food Groups	+		+					
1977	US Senate	Dietary Goals for the US		+	+	+	+	+	+	
1979	USDA	Building a Better Diet—Five Food Groups	+	+	+	+	+	+	+	+
1979	DHEW	Healthy People—The Surgeon General's Report on Health Promotion and Disease Prevention	+	+	+	+	+	+	+	+
1979	NCI, DHEW	Statement on Diet, Nutrition, and Cancer—Prudent Interim Principles	+	+	+		+			+
1980	DHHS, USDA	Dietary Guidelines for Americans	+	+	+	+	+	+	+	+
1980	DHHS	National 1990 Nutrition Objectives	+	+	+	+	+	+	+	+
1984	DHHS, NHLBI	Recommendations for Control of High Blood Pressure		+			+		+	+
1985	DHHS, USDA	Dietary Guidelines for Americans, 2nd Edition	+	+	+	+	+	+	+	+
1986	DHHS, NCI	Cancer Control Nutrition Objectives for the Nation—1985–2000		+	+		+			+
1987	DHHS, NHLBI	National Cholesterol Education Program Guidelines	+	+	+		+	+		+
1988	DHHS, NCI	Dietary Guidelines for Cancer Prevention	+	+	+		+		+	+
1988	DHHS	Surgeon General's Report on Nutrition and Health	+	+	+	+	+	+	+	+

* USDA (US Department of Agriculture), US Senate (US Senate Select Committee on Nutrition and Human Needs), DHEW (Department of Health, Education and Welfare), DHHS (Department of Health and Human Services), NCI (National Cancer Institute), NHLBI (National Heart, Lung and Blood Institute), NIH (National Institutes of Health).

† Other recommendations include increased consumption of foods containing vitamins and minerals (USDA 1917–1958; NCI 1986), increased physical activity (USDA/DHEW 1980, 1985; DHHS 1980), and reduced intake of salt-cured or smoked foods (NCI 1988).

‡ Recommended for inclusion in the daily diet as opposed to subsequent recommendations to limit intake.

TABLE 2
Estimated total deaths and percent of total deaths for the 10 leading causes of death: United States, 1987*

Rank	Cause of death	Number	Percent of total deaths
1†	Heart diseases	759 400	35.7
	Coronary heart disease	511 700	24.1
	Other heart disease	247 700	11.6
2†	Cancers	476 700	22.4
3†	Strokes	148 700	7.0
4‡	Unintentional injuries	92 500	4.4
	Motor vehicle	46 800	2.2
	All others	45 700	2.2
5	Chronic obstructive lung diseases	78 000	3.7
6	Pneumonia and influenza	68 600	3.2
7†	Diabetes mellitus	37 800	1.8
8‡	Suicide	29 600	1.4
9‡	Chronic liver disease and cirrhosis	26 000	1.2
10†	Atherosclerosis	23 100	1.1
	All causes	2 125 100	100.0

* From reference 6.
† Causes of death associated with diet.
‡ Causes of death associated with excessive alcohol consumption.

linked at least in part to consumption of diets too high in fat, calories, salt, and alcohol and too low in fiber and other potentially protective dietary factors. With publication of the US Senate report *Dietary Goals for the United States* in 1977 (3), *Healthy People: the Surgeon General's Report on Health Promotion and Disease Prevention* in 1979 (4), and the first edition of the *Dietary Guidelines for Americans* in 1980 (5), federal dietary recommendations began to focus on reduction of risk for the major chronic diseases.

Magnitude of the problem

A major impetus for this shift in focus was—and remains—the magnitude of the impact of diet-related disease on the nation's health. As shown in **Table 2,** among the 10 leading causes of death in the United States in 1987 are five—coronary heart disease, certain types of cancers, strokes, diabetes mellitus, and atherosclerosis—that have been associated with dietary excesses and imbalances and three others—unintentional injuries (especially those involving motor vehicles), suicides, and chronic liver disease and cirrhosis—that have been associated with excessive consumption of alcohol. Together these conditions account for nearly two-thirds of the > 2 million annual deaths in this country (6).

Dietary excesses and imbalances also contribute to conditions such as high blood pressure, obesity, dental diseases, osteoporosis, and gastrointestinal diseases that inflict a substantial burden of illness on society. As documented in the report, more than 1.25 million heart attacks occur each year in the United States and more than 500 000 people die as a result. More than 475 000 Americans die of cancer and 900 000 new cases are recorded annually. Approximately 2 million Americans suffer from stroke-related disabilities, nearly 60 million have high blood pressure, and ~11 million have diabetes. Nearly one-fourth of the population—about 34 million people—are overweight. Illness and deaths from coronary heart disease alone cost Americans an estimated $49 billion in direct health-care costs and lost productivity in 1985, and the costs of cancer for that year were estimated at $72 billion (1).

It must be emphasized that the proportion of this burden that can be attributed directly to dietary factors is uncertain. Chronic diseases result from multiple causes, only some of which are dietary. Because the magnitude of these problems is so great, however, even a small decrease in risk as a result of dietary change should be expected to produce substantial improvements in the overall health of Americans.

TABLE 3
Surgeon General's report on nutrition and health: recommendations

Issues for most people

Fats and cholesterol: Reduce consumption of fat (especially saturated fatty acids) and cholesterol. Choose foods relatively low in these substances, such as vegetables, fruits, whole grain foods, fish, poultry, lean meats, and low-fat dairy products. Use food preparation methods that add little or no fat.

Energy and weight control: Achieve and maintain a desirable body weight. To do so, choose a dietary pattern in which energy (caloric) intake is consistent with energy expenditure. To reduce energy intake, limit consumption of foods relatively high in calories, fats, and sugars and minimize alcohol consumption. Increase energy expenditure through regular and sustained physical activity.

Complex carbohydrates and fiber: Increase consumption of whole-grain foods and cereal products, vegetables (including dried beans and peas), and fruits.

Sodium: Reduce intake of sodium by choosing foods relatively low in sodium and limiting the amount of salt added in food preparation and at the table.

Alcohol: To reduce the risk for chronic disease, take alcohol only in moderation (no more than two drinks a day) if at all. Avoid drinking any alcohol before or while driving, operating machinery, taking medications, or engaging in any other activity requiring judgment. Avoid drinking alcohol while pregnant.

Other issues for some people

Fluoride: Community water systems should contain fluoride at optimal levels for prevention of tooth decay. If such water is not available, use other appropriate sources of Fl.

Sugars: Those who are particularly vulnerable to dental caries (cavities), especially children, should limit their consumption and frequency of use of foods high in sugars.

Calcium: Adolescent girls and adult women should increase consumption of foods high in calcium, including low-fat dairy products.

Iron: Children, adolescents, and women of childbearing age should be sure to consume foods that are good sources of iron, such as lean meats, fish, certain beans, and Fe-enriched cereals and whole-grain products. This issue is of special concern for low-income families.

Change diet →	Reduce fats	Control calories	Increase starch & fiber	Reduce sodium	Control alcohol
Reduce risk ↓					
Heart Disease	●	●		●	
Cancer	●	●	●		●
Stroke	●	●		●	●
Diabetes	●	●	●		
Gastrointestinal Diseases	●	●	●		●

FIG 1. Consistency of recommendations to reduce the risk of chronic diseases or their complications. Starch refers to complex carbohydrates provided by fruits, vegetables, and whole-grain products. Gastrointestinal diseases affected by dietary factors are primarily gallbladder disease (fat and energy), diverticular disease (fiber), and cirrhosis of the liver (alcohol).

Development of the report

In response to the need for a scientific consensus on the role of diet in health as the basis for nutrition policy decisions, Assistant Secretary for Health Dr Edward N Brandt, Jr, authorized the Nutrition Policy Board of DHHS to develop a comprehensive report on this subject. The report was designed to identify key research issues in diet-disease relationships, to document the current state of understanding of these issues, and to assess the implications of this information for public health policies in three areas—dietary guidance, nutrition programs and services, and nutrition research and surveillance.

Responsibility for initial preparation of the report's chapters was assigned to PHS agencies. Because the principal focus of the report was on research, 14 of the 19 chapters were developed by various units of NIH. Others were prepared by the Food and Drug Administration (FDA) and the Alcohol, Drug Abuse and Mental Health Administration. Introductory chapters were drafted by the PHS Office of Disease Prevention and Health Promotion, which coordinated the project.

The extensive collaborative interaction required to develop the report is illustrated by its 21 pages of acknowledgments; during 4 years of preparation, more than 50 scientists contributed to writing the report and more than 200 were involved in its extensive review process. To achieve consensus on the policy implications and recommendations, each chapter was subjected to six stages of critical review and revision. Scientists within PHS were responsible for three of these stages. The other three were conducted by scientists and professionals in the private sector who had been nominated by national nutrition professional organizations. In addition, three separate committees, including one at NIH, provided technical comments on the entire report at several stages of preparation. The final consensus was forged by representatives of PHS agencies during a series of conferences in which chapters were reviewed line by line.

Conclusions and recommendations

This lengthy and complex preparation and review process resulted in consensus on a series of conclusions, recommendations, and suggestions for needed policy actions. Its comprehensive research review led PHS to reach four principal conclusions: Dietary changes can improve the health prospects of many Americans; excesses and imbalances in intake of dietary factors can increase the risk of chronic diseases; the primary dietary

TABLE 4
Implications for public health policy

Dietary guidance
Improved education of the public about dietary choices most conducive to good health, especially for groups at greatest risk—the poor, mothers and infants, and older Americans.
Improved use of nutrition labels to help consumers identify foods that meet dietary recommendations.
Improved nutrition education for physicians and other health professionals who counsel the public about diet and health.
Nutrition programs and services
Identification and removal of the barriers to optimal health and nutritional status among the population groups most at risk of chronic disease.
Incorporation of nutrition services into health-care programs for Americans of all ages.
Increased availability of foods and food products that are low in fat yet of content consistent with the other dietary principles stated in this report.
Access to an appropriate diet for all Americans.
Adherence of all food service and assistance programs to the principles of good nutrition stated in this report.
Research and surveillance
Improved monitoring of nutritional status, especially among high-risk groups.
Expanded research investigations into the relationships between specific dietary factors and the etiology of chronic diseases.
Identification of the childhood dietary pattern that will best prevent later development of chronic diseases.
Elucidation of the nutrient and energy requirements of older adults.
Identification of effective educational methods to help the public translate dietary recommendations into appropriate food choices.

priority is reduced consumption of fat, especially saturated fatty acids; and similar dietary recommendations apply to prevention of virtually all diet-related chronic diseases.

The PHS also achieved consensus on the nine dietary recommendations that are presented in **Table 3.** Among these recommendations, five apply to the general public and four apply to specific population groups. This distinction in target groups expands the focus of previous federal recommendations (Table 1), as does the indication of dietary fat reduction as the primary dietary priority. The report establishes that these recommendations, taken together, constitute a common set of dietary strategies for general disease prevention and health promotion. This consistency of dietary principles is illustrated in **Figure 1**, which indicates, for example, that a reduction in intake of foods containing fat accompanied by an increase in foods containing complex carbohydrates and fiber should reduce risk not only for coronary heart disease but also for certain types of cancers, stroke, diabetes, and, perhaps, some gastrointestinal conditions. The report further emphasizes that its recommendations can be readily accomplished by an overall increase in dietary intake of vegetables, fruits, beans, and grains and a choice of lean meats, poultry without skin, fish, and low-fat dairy foods.

Policy implications and implementation agenda

The Surgeon General's Report on Nutrition and Health was developed primarily as an authoritative source of information on which to base nutrition policy decisions. Thus, policymakers are its major target audience although the ultimate beneficiaries are, of course, the American people. The evidence presented in the report, the overall consistency of this evidence, and the public health importance of diet-disease relationships are compelling arguments for developing a wide range of policies and programs that address the need for dietary change. The report's chapters contain numerous suggestions for disease-specific education and research initiatives. In addition, the report states the PHS consensus on the implications of its recommendations for a broader range of public health policies in dietary guidance, programs and services, and research and surveillance. These are presented in **Table 4.**

The policy implications of Table 4 comprise an action plan for implementation of the recommendations of the Surgeon General's report. This plan is predicated on the assumption that there is no longer any doubt about the importance of diet to the health of Americans and that it is now time to mount a major national campaign to put these recommendations into action. DHHS has already begun this task. Its Nutrition Policy Board has mandated wide dissemination of the report and is seeking ways to incorporate the recommendations into DHHS education, service, and research programs. The board has also initiated studies to determine criteria for issue of quantitative targets for fat, fiber, and other dietary factors.

To facilitate identification of groups most at risk of chronic disease, the department recently completed a review of its capability to assess the nutritional status of low-income populations. The results of that review will be disseminated shortly and programs will be developed to fill whatever gaps are evident.

Ongoing efforts of DHHS agencies are also relevant. The National Heart, Lung and Blood Institute's (NHLBI) National Cholesterol Education Program encourages Americans to have their blood cholesterol levels measured and to reduce dietary fat intake if the levels are too high (7). This program is developing menus to facilitate efforts to make these changes. NCI's Cancer Awareness Program is educating the public to consume low-fat, high-fiber diets. A forthcoming NHLBI-NCI publication will emphasize the similarity of dietary recommendations for prevention of both coronary heart disease and cancer. The FDA is developing a proposal for health messages on food labels (8) that will be based on the science reviewed in the report.

DHHS has undertaken several initiatives in conjunction with USDA. Cooperative ventures between the two agencies have been established to review food labels and to develop proposals to make them more useful to consumers, to review and update the dietary guidelines within the context of the recommendations of this report, and to discuss ways in which food assistance programs can contribute to implementation of these recommendations. Joint efforts to improve federal monitoring of the nutritional status of Americans and coordination of nutrition research are coordinated through shared responsibility for two administration-wide committees—the Interagency Committee on Nutrition Monitoring and the Interagency Committee on Human Nutrition Research.

Government can, must, and will contribute to implementation of the findings and recommendations of the Surgeon General's report. However, leadership and responsibility from the private sector are also essential factors in implementation. DHHS will involve members of the food industry in discussions of ways in which they can bring products in line with the recommendations. DHHS also supports efforts of the Henry J Kaiser Family Foundation to form a public-private partnership of more than 20 national organizations in a national campaign to reduce dietary fat consumption by Americans. This campaign will supplement, unite, and enhance the separate efforts of organizations such as the American Heart Association, the American Cancer Society, representatives from the food industry, and federal agencies such as NHLBI, NCI, and USDA.

The ultimate decisions targeted by the report are the private food choices made by individuals. Individuals make such choices, however, within the context of the society in which they live and work. Factors such as food advertising, food availability, point-of-purchase information, advice from clinicians, and availability of new research information all form part of the culture of food choice. To alter this culture so that individuals will select healthier diets will require the energy and the commitment of every sector of society.

Although this ultimate challenge is to individuals, the Surgeon General's report poses a challenge to government and to the private sector as well. If its purposes are to be achieved, the report will need to inspire scientists, educators, clinicians, and policymakers—in schools, businesses, and labor and community organizations—to work together to implement its recommendations and in so doing to achieve improved health for the nation.

Copies of the full report (1) or its summary and recommendations (9) may be obtained from the Superintendent of Documents, US Government Printing Office, Washington DC 20402-9325.

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