Health Promotion Roles of the Federal Government and Food Industry in Nutrition and Blood Pressure

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Some principal activities of government that pertain to nutrition and blood pressure are education, information, dietary guidance, food regulatory practices, health and nutrition monitoring, biomedical research and training, and legislation. The food industry, in turn, influences the marketplace and food consumption by its response to government activities and policies. Dietary guidance recommendations call for moderation of dietary intake, improved nutrition, and greater availability in food choices in the marketplace that are consistent with dietary recommendations to reduce chronic disease risk. Health and nutrition monitoring allows measurement of the effectiveness of moderating dietary intake and controlling hypertension. Adequate support of education, nutrition and health monitoring, and biomedical research and training is necessary to control and prevent hypertension. Cooperation between government and industry can contribute to the decline in cardiovascular disease, which in 1987 cost this nation in excess of $135 billion. (Hypertension 1991;17[Suppl 1]:I-196–I-200)

This article, based on my work in the area of cardiovascular nutrition over the past 20 years, discusses the role of government in the promotion of nutrition and health, particularly nutrition and blood pressure, and the role of the food industry, namely, how it relates to, links with, occasionally impedes, but potentially works cooperatively with and reinforces the role of government. The comments are supported by a review of the relevant literature.1–3

Salt and blood pressure initiatives, or plans for action, are a part of many government activities and thus are encompassed in the role of government. These initiatives include education, information, and dietary guidance, which are influenced by regulatory practices such as standards for food labeling and health claim messages, health and nutrition monitoring, biomedical research and training, technology transfer, and finally, federal legislation, the factor that most influences all of these. Selected examples in each of these areas will be mentioned below. My major emphasis will be on the topic areas of education, information, and dietary guidance. Regulatory practices, specifically food labeling as they relate to these areas, will also be discussed.

Education, Information, and Dietary Guidance

In health promotion/disease prevention activities there is a two-pronged approach. The first, the high-risk approach, is aimed at those persons in whom the disease is most likely to develop. The second, the “population” approach, is targeted at the general population. Many of the nutrition policy statements calling for the reduction of chronic disease through dietary change might be labeled as the population approach to disease prevention.

Changing the focus of nutrition guidance from the prevention of deficiency disease to the reduction of chronic disease premiered in government nutrition education activities with the publication in 1980 of the Dietary Guidelines for Americans.4 A second edition was published without substantial change in 1985.5 The third edition, published in 1990,6 contains two major changes that pertain to cardiovascular disease. The first change is the introduction of quantitative information in the guidelines, that is, a recommendation to limit total fat intake to 30% or less and saturated fatty acids to less than 10% of total caloric intake. These quantitative guidelines are the same as the recommendations published by several expert committees7,8; the second change is the introduction of a not previously published weight table that identifies “healthy weights” for men and women aged 19–34 years and (somewhat heavier) healthy weights for those aged 35 years and older. Federal dietary guidelines now also include the concept that the health risk of obesity is determined by a weight...
that does not fall within the range in the table, a high waist-to-hip ratio, and a medical problem for which a physician has advised weight change.\textsuperscript{6} This document serves as the basis for food guidance policy for the federal government. Eventually food guidance policy to establish dietary patterns that are aimed at reducing the risk of chronic diseases will involve such programs as the US Department of Agriculture food stamp and school lunch programs and food service in institutional settings such as the Armed Forces.\textsuperscript{2}

The advice related to nutrition and blood pressure in the 1990 Dietary Guidelines for Americans\textsuperscript{8} incorporates several guidelines that relate to nutrition and blood pressure: eat a variety of foods; maintain healthy weight; if you drink alcoholic beverages, do so only in moderation; and use salt and sodium only in moderation. The first guideline forms the framework of a good diet; eat a variety of foods to obtain the essential nutrients. Variety also helps ensure adequacy of nutrients linked to blood pressure such as potassium, calcium, and magnesium. The guidelines that have a more direct relation to blood pressure are those that provide suggestions about alcohol intake, body weight, and salt/sodium intake. Both the dietary guidelines\textsuperscript{9} and the 1988 Surgeon General's report\textsuperscript{9} acknowledge the direct association between blood pressure and alcohol intake. These documents also acknowledge the link between body weight and hypertension: "The strong association between obesity and hypertension and the demonstrated reduction in blood pressure that occurs with weight loss suggest that maintenance of desirable weight should be a goal for the population."\textsuperscript{9} Nevertheless, it may be argued that sodium and blood pressure education has been the major health promotion/disease prevention education activity promoted through both dietary guidance practices and food labeling regulation. The 1988 Surgeon General's report\textsuperscript{9} states that the reduction of sodium intake is a relevant issue for most people. The health objectives for the nation for 1990\textsuperscript{10} and for 2000\textsuperscript{11} advise moderation in salt/sodium intake. The National Research Council's Diet and Health: Implications for the Reduction in Chronic Disease Risk\textsuperscript{9} states this recommendation in quantitative terms: reduce daily salt intake to 6 g (2.4 g sodium) or less. Although acknowledging that not all persons are susceptible to the effects of sodium, all of these documents nonetheless encourage the entire population to practice moderation in sodium/salt intake. The reasons for this stance include the lack of a practical indicator for determining an individual's sodium sensitivity, the potential benefit to persons whose blood pressures are affected by sodium, and the lack of harm from moderate sodium restriction.\textsuperscript{9}

The Food and Nutrition Board's Recommended Dietary Allowances\textsuperscript{12} defines estimates of requirements for sodium intake: "A minimum average requirement for adults can be estimated under conditions of maximal adaptation and without active sweating as no more than 3 meq/day, which corresponds to 115 mg of sodium or approximately 300 mg of sodium chloride per day." Considering the variation in physical activity and climatic exposure, the committee recommended that a safe minimum intake might be 500 mg/day. This group stated that there is no known advantage in consuming large amounts of sodium but that there are clear disadvantages for those susceptible to hypertension. Whether recommendations speak in terms of salt (NaCl) or sodium is not a practical issue for dietary guidance since it is estimated that sources other than table salt, such as NaHCO\textsubscript{3} and monosodium glutamate, account for less than 10\% of daily sodium intake.\textsuperscript{12}

\textbf{Food Labeling as Nutrition Education}

Current food-labeling regulations are based on the 1938 Federal Food, Drug, and Cosmetic Act, which defined requirements for basic information on food labels and for the nutrient content of special dietary foods regulated by the US Food and Drug Administration (FDA).\textsuperscript{13} The US Department of Agriculture has responsibility for meat, poultry, and egg products, and the FDA has responsibility for all other food products. The Federal Trade Commission has responsibility for food advertisements.

Prompted by recommendations of the 1969 final report on the White House Conference on Food, Nutrition and Health,\textsuperscript{14} the FDA initiated a policy to provide more information on food labels.

Nutrition labeling is voluntary unless the manufacturer either fortifies a food with vitamins, minerals, or a protein or makes a claim about the nutritional value of the food. It is estimated that at present, about 60\% of food regulated by the FDA has nutrition labeling. The 1990 proposed food-labeling program will revise current regulations and increase food labeling.

The 1972 implementation of food-labeling regulation\textsuperscript{15,16} by the FDA might be considered as a nutrition education population approach. This view is evident in a recent review\textsuperscript{17} of the history of food labeling, particularly current labeling as it pertains to chronic disease issues. To the average consumer, functions of food regulation other than education and information, such as food safety and accuracy between label statement and food components, are implicit assumptions. In contrast, nutrition labeling has directly influenced the marketplace and consumer choices. Consumers are said to use food labeling information extensively. About 70--80\% indicate that they read or pay attention to ingredient or nutrition information on food packages.\textsuperscript{18} Furthermore, an increasing proportion of consumers use label information to avoid excessive intakes of salt/sodium, fats/oil, and cholesterol.\textsuperscript{19}

It is interesting to briefly review in parallel the nutrition-labeling regulations that pertain to dietary fats and blood cholesterol and those for sodium and hypertension. The current regulations for labeling cholesterol and fatty acids, which date from 1973, state that cholesterol or fatty acid content must be...
included in nutrition labeling only if a specific claim is made. A claim about the fatty acid content does not require the labeling of cholesterol; it does necessitate full labeling about nutritional content, including the percentage of the total calories that are derived from fat and a breakdown of the saturated and polyunsaturated fatty acids. Similarly, a claim about cholesterol content does not require the labeling of fatty acids. Thus, products advertised as "cholesterol free" can be high in saturated fats without providing fatty acid information on the label.

The rule proposed by the FDA in 1986 for the labeling of cholesterol and fatty acids would require that, if information on either fatty acid or cholesterol content is provided, both must be listed. On July 19, 1990, the FDA published four regulatory proposals that, if adopted, would significantly change food labels. One of these proposals provides for definitions of various food-labeling terms involving cholesterol content. There are also three other proposed regulations on nutrition labeling.

For several years, the FDA has required that sodium content be included in nutrition labeling. This concept was reflected in FDA policy when it launched, in 1981, a major nutrition/hypertension focus, called the "sodium initiatives." These initiatives were developed, according to the FDA staff, because a clear consensus had gradually emerged in the middle and late 1970s within the biomedical community that it would be reasonable to bring about a moderation of sodium intake by the American population. This consensus, which applied not only to hypertensive patients but also to the general population, was based on findings that there is a relation between sodium intake and the onset and pathogenesis of the disease itself.

The five aspects of the FDA initiatives included 1) labeling of packaged foods, 2) voluntary reduction of salt content by the food industry, 3) consumer education, 4) monitoring of marketplace and food consumption changes, and 5) consideration of new legislation to mandate sodium labeling if voluntary efforts fail.

In 1986, the FDA also issued regulations that define sodium terms used on food labels. These regulations define "sodium free" (≤35 mg/serving), "moderately low sodium" (≤140 mg/serving), and "reduced sodium" (>75% reduction). Currently, proposals are being drafted along similar lines to define terms related to the fat content of food (e.g., "low fat," "reduced fat," and "low saturated fat").

The decade after the publication of Dietary Guidelines for Americans and other general policies directed toward promotion of health and prevention of chronic disease has witnessed an increasing tendency of food labels and advertisements to link a particular food with a health issue or disease. In the proposal of 1987, the FDA outlined several criteria necessary for a food label to claim diet/health associations. The 1987 concept was reproposed in 1990, based on comments received on the proposal. The criteria that must be met to make a health claim are somewhat more stringent and define a process that includes scientific summaries, consumer health message summaries, model label statements, and a consumer guide to food labeling. The proposal also outlines the functions of a Public Health Service Advisory Committee, which would help to evaluate health messages. The six topic areas proposed as possible candidates for health messages are sodium and hypertension, lipids and cardiovascular disease, and dietary fiber and cardiovascular disease. The proposed regulations are specific for hypertension but not blood cholesterol; it is unclear whether high blood cholesterol and hypertension are included in the category of cardiovascular disease. The effect of the current proposal would be to limit health messages to statements based on the totality of publicly available scientific evidence.

**Are Government and Industry Fulfilling Their Roles in Food Labeling?**

Where are we today with the sodium initiatives, food labeling, and self-regulation by the food industry? There has been an increase in the number of packaged foods that are labeled, including those labeled with the sodium content of foods. In 1982, sodium labeling appeared on 19% of processed packaged foods regulated by the FDA. By 1986, about 60% of such products carried sodium labeling. There has been an increase in sodium-modified products, in particular soups, canned vegetables, and some meat products. However, there has not been a reduction in salt content in foods that are not generally recognized as being major contributors to sodium intake. Two particular examples are breads and cereals. A slice of whole wheat bread has about 200 mg sodium, and there are 300 mg or more sodium in a serving of many of the ready-to-eat cereals. The 1989 report of the National Research Council recommends that we include six or more daily servings of a combination of breads, cereals, and legumes, which contributes considerable sodium/salt to our daily eating pattern. Plain, low fat, or nonfat yogurt, often suggested as alternates to higher fat products such as sour cream, contain an average of 160–175 mg sodium/8 oz. The new convenience heat-and-serve, low fat dinners contain from 300 to 1,200 mg sodium. Thus, there is a real challenge in designing a healthy eating pattern. A particular challenge is to design diets for the population of young adult males that will have the required 2,700 calories or more but will have only the 6 g salt (2,400 mg sodium) recommended for everyone 2 years old and older in the general population. Perhaps the proposed improved food labeling will encourage further reduction in the sodium/salt content so that the marketplace will reflect greater choice in low fat, reduced salt/sodium foods.

The food label cannot be considered the major tool of nutrition education, particularly when, by necessity, the label is small and food chemistry/technology
terms are unfamiliar. However, labels do sell foods, and the information provided should be consistent with the scientific evidence as accepted in policy documents such as the Surgeon General’s report.

The opponents of food labeling say that it is not the role of government to tell people what to eat and not to eat and that government must not develop regulatory approaches that limit the food choices of the people. The arguments continue that food labels are too complex, can confuse the consumer, and suggest a negative image while failing to highlight positive characteristics—for example, by listing sodium content while failing to emphasize that the food is a good source of ascorbic acid, zinc, or iron. Yet the right to have adequate information is part of the risk–benefit equation, since the consumer also has the right to not choose a product. Providing label information allows the consumer to be more informed when making risk–benefit choices.

A review of federal food labeling policy has been undertaken by the Institute of Medicine’s Food and Nutrition Board. Its report, to be issued in 1991, is expected to influence labeling and will recommend consideration of changes in food labeling to facilitate consumer understanding of the nutritional content of food.

Legislation on many labeling issues was introduced during the 100th Congress with no final action. Similar bills have been reintroduced during the 101st Congress, including mandatory nutrition labeling for all packaged and processed foods. A statement by the American Dietetic Association reports that changes to labeling regulation are proceeding in a piecemeal fashion. It is time for the federal government, the food industry, health professionals, and consumer organizations to work together for comprehensive, coordinated labeling reform to achieve labeling regulation that will promote healthy food choices by the American people.

**Nutrition and Health Monitoring**

The US Department of Agriculture and the Department of Health and Human Services have been working since 1977 toward a National Nutrition Monitoring System to provide timely, accurate data on the nutritional status of Americans. This current system includes all data collection and analysis activities of the federal government associated with health and nutritional status measurements, food consumption measurements, food composition measurements, dietary knowledge, attitude assessment, and surveillance of the food supply. In relation to salt/sodium blood pressure initiatives, this system permits the measurement, over time, of changes in the salt/sodium content of the food supply and of typical diets, changes in sodium labeling, changes in practices, awareness, and concerns pertaining to salt/sodium intake, and changes in the prevalence and control of hypertension and related risk factors, such as obesity.

Information from the monitoring system may be used to make decisions about nutrition education and nutrition labeling. Information may be used by the research community in its development of hypotheses for the role of dietary and nutritional factors in disease causation and prevention.

It has been suggested that more sophisticated systems are needed to provide market surveillance of food products developed to meet recommendations to reduce the risk of chronic diseases. Such data would reflect how such foods are adopted into dietary patterns and whether changes in health status occur as a result of national dietary guidance policies.

The National Nutritional Monitoring System is not mandated by Congress. Legislation has been introduced in each Congress since 1984 to require the implementation of such a system. To date, no bills have been enacted.

**Biomedical Research and Training**

It is the role of government to explain complex scientific matters related to the health of Americans. That explanation can only be derived from biomedical research and training. Because of the funds obligated to hypertension research (reported by the National Heart, Lung, and Blood Institute as $96,416,000 in 1988 and $98,179,000 in 1989) we have available an impressive body of research data coming from a spectrum of studies ranging from intensive metabolic investigations that include fewer than a dozen individuals to perhaps the largest international study ever launched, the INTERSALT Study. These data stem from research of all types: large and small studies, human, animal, and cellular studies, and intervention. All these studies are necessary, because each can answer different questions. Biomedical research training needs have recently been assessed by a National Institutes of Health committee. Priority areas that are identified, such as training of epidemiologists, statisticians, and clinical trial personnel, will likely benefit hypertension research.

Because of federal support of biomedical research and training, research developments in hypertension and nutrition have been made available to the scientific community. Helpful exchanges can be shared that reflect different, but legitimate, research perspectives. Federal support of research enables scientists to share experiences, exchange information, and revise research biases and focuses. The world of biomedical research, specifically, hypertension and nutrition research, would suffer without such support.

Writing about nutrition research and training in 1988, Dr. Grace Ostensoe, a nutrition scientist and staff director for a congressional committee, suggested that the 1987 investment of $270 million in nutrition research (70% of which is obligated by the National Institutes of Health) is lost in the rounding error for national health care expenditure. What can be said about support for blood pressure research? In 1987, cardiovascular diseases cost the nation in excess of $135 billion. Perhaps government and indus-
try can share some of the responsibility for the funding of research and programs promoting public nutrition and health.

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