NATIONAL
HIGH BLOOD
PRESSURE
EDUCATION
PROGRAM

National High Blood Pressure Education Program
P.O. Box 30105
Bethesda, MD 20824-0105
(301) 592-8573
Fax (301) 592-8563
www.nhlbi.nih.gov

Statement from the National High Blood Pressure Education Program

Coordinating Committee

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Cardiovascular disease is the primary cause of death in the United States. A major contributor to the development of cardiovascular disease is blood pressure above the optimal level of less than 120/less than 80 mm Hg. This includes blood pressures in the hypertensive range of 140 to 159 mm Hg systolic or 90 to 99 mm Hg diastolic.

Over the past several decades, there have been impressive declines in the rates of coronary heart disease and stroke in the United States. The declines were related, in part, to the increasing use of antihypertensive therapy. However, the majority of Americans with hypertension still do not have their condition under control, and nearly half of those with hypertension are not being treated.

In addition, an even larger proportion of Americans have blood pressures at the high end of the normal range (130 to 139 mm Hg systolic or 85 to 89 mm Hg diastolic), which places them at an above-average risk for developing cardiovascular disease. These persons can benefit from a primary prevention approach that would keep them from developing hypertension. One part of this approach is to lower dietary sodium intake.

There is a clear causal link between habitual sodium intake and blood pressure. The evidence taken as a whole is sufficiently strong to warrant a specific recommendation about reducing dietary salt intake. For instance, experimental data with animals have consistently shown that diets high in salt raise blood pressure in a linear dose-response relationship. The findings include data from a study of chimpanzees, the animal species genetically closest to humans. Cross-population studies also have confirmed the salt-blood pressure relationship. Additionally, within-population studies, including the large INTERSALT study, have shown that lowering sodium intake by 100 mmol (about 2,300 mg) a day—from 170 mmol (about 3,800 mg) to 70 mmol (about 1,500 mg)—is associated with a 3 to 6 mm Hg reduction in systolic blood pressure. A 3 mm Hg reduction in systolic blood pressure for the general U.S. population would result in 11 percent fewer strokes, 7 percent fewer coronary events, and 5 percent fewer deaths.

Data from the 1988–91 National Health and Nutrition Examination Survey (NHANES III) give an estimated average dietary sodium intake for U.S. adults ages 20 years and older of 3,400 mg per day. The estimated average intake is similar for all race and ethnic groups. The estimated average of 3,400 mg per day does not include discretionary sodium use, such as salt added in cooking or at the table. It

is estimated that adding in discretionary sodium use would increase the average daily intake by about 15 percent. Thus, the average American adult ingests nearly 4,000 mg of sodium daily. This level is far above the current National Research Council recommendation that the general U.S. population consume no more than 2,400 mg of sodium (or 6 grams of salt) per day.

Studies over the past decade indicate that there has been little change during that period in the average U.S. dietary sodium intake. However, during that period, there have been important qualitative changes in the average U.S. diet, particularly in the proportion of calories derived from total fat and saturated fat. The lack of change in dietary sodium intake may be partly due to the lack of a consistent health message about the importance of reducing dietary sodium. This view is supported by data that show a continuing decline in the percentage of Americans who think dietary sodium is important.

Approximately 75 percent of dietary sodium is added to food during its processing and manufacturing. Only 10 percent of dietary salt comes from foods' natural content. Therefore, a high dietary salt intake is associated with diets in which a large portion of the daily calories consists of processed foods. Conversely, diets that have a higher proportion of fruits, vegetables, and legumes are associated with lower blood pressures. They also are consistent with current public health recommendations for diets, including the 1990 Federal Government's Dietary Guidelines for Americans. By following recommendations for lower sodium intake, consumers will encourage manufacturers of processed foods to expand the types and availability of lower sodium products. This should gradually reduce the sodium content of the U.S. food supply. Until then, consumers must be careful to select lower sodium products, especially among ready-to-eat cereals and certain other grain products.

Evidence of the efficacy and safety of a dietary sodium intake of about 2,400 mg per day was reviewed and affirmed in 1989 by the National Academy of Sciences and in 1993 by the National High Blood Pressure Education Program Working Group on Primary Prevention. The evidence was reaffirmed both in the *Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure* (JNC VI) and by a National Heart, Lung, and Blood Institute-sponsored workshop on sodium and blood pressure, which was held in January 1999.

These reviews concurred that lowering Americans' daily dietary sodium intake to 2,400 mg will reduce the U.S. population's mean blood pressure. They also concurred that 2,400 mg is a safe level of daily sodium intake and is not associated with adverse effects. Healthy adults living in a temperate climate can maintain a normal sodium balance with as little as 115 mg of dietary sodium per day. In consideration of the wide variation in Americans' physical activity and climatic exposure, a safe minimum of 500 mg of sodium per day has been recommended. Data from animal experiments, epidemiologic studies, and randomized clinical trials have found no long-term adverse effects associated with habitual sodium intake in the ranges cited (500 to 2,400 mg per day). Findings from epidemiologic studies published in the past few years that suggested there were adverse effects from such an intake had methodological limitations. Such findings have not been independently confirmed.

We believe that gradually reducing the sodium content of food—thus making available more lower sodium foods—is a prudent and safe public health intervention. Such an action also will meet a growing

consumer demand for lower sodium products. Consumer education and product availability must go hand in hand. If they do, the benefits reaped will be very large.

Therefore, be it resolved that the National High Blood Pressure Education Program Coordinating Committee reconfirms its 1995 recommendations that the Dietary Guidelines Committee should emphasize moderation in Americans' consumption of salt and sodium and that a daily intake of no more than 2,400 mg of sodium should be a national goal.

Information regarding the National High Blood Pressure Education Program can be found on the Web site www.nhlbi.nih.gov. The member organizations of the Coordinating Committee are

American Academy of Family Physicians
American Academy of Insurance Medicine
American Academy of Neurology
American Academy of Ophthalmology
American Academy of Physician Assistants
American Association of Occupational Health Nurses
American College of Cardiology
American College of Chest Physicians
American College of Occupational and Environmental Medicine
American College of Physicians
American College of Preventive Medicine
American Dental Association
American Diabetes Association
American Dietetic Association
American Heart Association
American Hospital Association
American Medical Association
American Nurses Association
American Optometric Association
American Osteopathic Association
American Pharmaceutical Association
American Podiatric Medical Association
American Public Health Association
American Red Cross
American Society of Health-System Pharmacists
American Society of Hypertension
Association of Black Cardiologists
Citizens for Public Action on High Blood Pressure and Cholesterol, Inc.
Council on Geriatric Cardiology
International Society on Hypertension in Blacks
National Black Nurses Association, Inc.
National High Blood Pressure Education Program
National Hypertension Association, Inc.
National Kidney Foundation, Inc.
National Medical Association
National Optometric Association

National Stroke Association
NHLBI Ad Hoc Committee on Minority Populations
Society for Nutrition Education
Agency for Health Care Policy and Research
Department of Veterans Affairs
Health Care Financing Administration
Health Resources and Services Administration
National Center for Health Statistics
National Institute of Diabetes and Digestive and Kidney Diseases