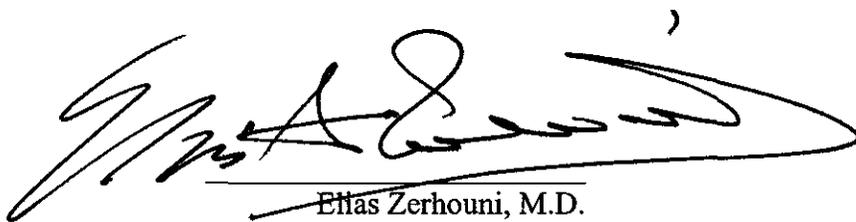


DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

**Population-Based Prevention Research:**

**Reducing Disease Risk through  
Behavioral, Social and Environmental Change**

A handwritten signature in black ink, appearing to read 'Elias Zerhouni', is written over a horizontal line. The signature is fluid and cursive.

Elias Zerhouni, M.D.  
Director, NIH

May 2005

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## **Behavioral, Social & Environmental Population-Based Prevention Research**

### Executive Summary

In Senate report No. 108-345, the Committee on Appropriations requested that the National Institutes of Health (NIH) prepare and submit a report on population-based prevention research focused on reducing disease risk through behavioral, social and environmental change (p. 172).

Research on disease prevention is an integral part of the NIH mission. The Institutes and Centers have a broad portfolio of prevention research and training, as well as programs to disseminate the findings to scientists, health professionals, communities, and the public. Approximately one-quarter of the overall NIH budget is devoted to research on disease prevention. Ultimately, knowledge gained from NIH supported prevention research enables the application of sound science into clinical practice, health policy, and community health programs, thereby improving the health of the public.

The NIH provides substantial support for prevention research studies that are population-based. This research encompasses clinical studies of specific groups, of populations at increased risk for the condition studied, and of groups of people that are representative of the general population or a defined population segment. The determination of disease risks and testing of interventions on these risks provides information that can be generalized to the populations and subsequently applied in a real world setting to improve health and reduce disease burden.

This report provides examples of NIH population-based prevention activities of particular interest to the Senate Committee on Appropriations; i.e., prevention research among *human populations* that focuses on reducing disease risk through *behavioral, social and environmental change*. To be responsive to this request, animal studies as well as research that is considered to be biological in nature (e.g., biochemical, molecular, cellular) have been excluded. The summaries include a broad spectrum of programs supported by the NIH; however, they do not represent the entire scope of such activities.

In FY2004, the NIH spent approximately \$1.65 billion on *behavioral, social and environmental* population-based prevention research programs. This represents about 23 percent of the total NIH prevention budget (\$7.18 billion in FY 2004), albeit with wide variation between the institutes and centers due to different missions and state of the science within their respective fields. In FY2002, the NIH submitted to the Senate Committee a report on the broader population-based prevention research portfolio. Because this year's report excludes animal, biochemical, molecular, and cellular studies, these funding levels are not comparable to the figures in the FY2002 report.

## **Behavioral, Social & Environmental Population-Based Prevention Research**

### Introduction

In its report on the Fiscal Year 2005 budget for the Department of Health and Human Services, the Senate Committee on Appropriations stated:

“The Committee commends NIH for its efforts to support research in humans that examines factors associated with preventing disease and promoting health. The Committee urges the NIH to seek ways to remove barriers that prevent research findings from being translated into population-wide health improvements and to expand its support for studies that include examination in human populations of biological, behavioral and environmental factors associated with disease and means to ameliorate them. As part of these efforts, the Committee requests the NIH to submit a report by April 1, 2005, that indicates total funding by institute, and where applicable by disease, for prevention research among human populations that reduces disease risk through social, behavioral and environmental change.” (Senate report No. 108-345, page 172)

The following report has been prepared by the NIH of the Department of Health and Human Services in response to this request.

### Background on Prevention Research

Research on disease prevention is an integral part of the NIH mission. The Institutes and Centers have a broad portfolio of prevention research and training, as well as programs to disseminate the findings to scientists, health professionals, communities, and the public. Approximately one-quarter of the overall NIH budget is devoted to research on disease prevention. Disease prevention research includes studies that develop and test interventions that prevent the occurrence or progression of disease, disability and injury, as well as studies designed to identify avoidable or modifiable risks for these conditions. Ultimately, knowledge gained from NIH-supported prevention studies makes possible the application of sound science into clinical practice, health policy, and community health programs, thereby reducing disease burden and improving the health of the public. To target preventive interventions where they are most needed, the NIH continues to focus on research to examine the health needs of racial and ethnic minorities and to reduce health disparities among these groups. In addition, many research projects include study designs and methods that accommodate cultural differences of acceptability, effectiveness, and community participation.

## Overview on Population-Based Prevention Research

Studies of large and generally representative populations are required to permit valid public health inferences about effect on human health. The NIH provides substantial support for prevention research studies that are population-based. These studies encompass a broad interdisciplinary portfolio of research, research training, information dissemination, and public education programs that address health issues across population subgroups and over the entire life span. Population-based research encompasses studies of specific groups, of populations at increased risk for the condition being studied, and of groups of people that are representative of the general population or a defined segment of the population. The determination of disease risks and testing of interventions on these risks provides information that can be generalized to those populations and subsequently applied in a real world setting to improve health and reduce disease burden. Often, these studies include health education activities that form the foundation for community-wide prevention strategies.

Population-based prevention research selects representative participants from defined populations or subpopulations. The orientation of these projects is toward identifying specific avoidable or modifiable risk factors for disease and testing interventions on risk factors in order to prevent disease development or progression. Such research seeks to understand the biologic, behavioral, social or environmental determinants of disease in human populations defined by geographic, cultural, or psychosocial characteristics. - e.g., geography, community attributes, race and ethnicity, gender, age, health status, or high-risk groups. Knowledge gained from these studies is used to develop and test interventions designed to improve the health status of these populations, such as through changes in lifestyle habits or through improvements in the social and physical environment. The outcomes of this research provide an evidence base for recognition of risks to health and for interventions to reduce these risks.

Behavioral, social and environmental factors often have broad impact on the occurrence of disease and poor health, and interventions that target these factors and related health processes can be successful at reducing risks across large segments of the population. In fact, some research studies have shown that multi-component strategies that incorporate preventive interventions at several of these levels of influence may actually be the most effective.

## Examples of NIH-Supported Projects and Programs

Population-based prevention activities supported by the NIH include research grants and contracts, training awards, education programs, and communication and outreach activities. Summaries of representative examples are provided in this section of the report, grouped by type of program. The Senate Committee has

indicated a particular interest in population-based studies in *human populations* that focus on reducing disease risk through *behavioral, social and environmental change*. Thus, animal studies as well as research that is considered to be biological in nature (e.g., biochemical, molecular, cellular) have been excluded. A broad spectrum of programs supported by the NIH are included; however, they do not represent the entire scope of such activities.

## IDENTIFICATION AND EXAMINATION OF RISK FACTORS

### **Healthy Aging in Neighborhoods of Diversity across the Life Span**

**(HANDLS):** The need to understand the factors behind persistent black-white health disparities in overall longevity, cardiovascular disease, and cerebrovascular disease, and to develop effective interventions, has led to the development of the National Institute on Aging (NIA) Healthy Aging in Neighborhoods of Diversity across the Life Span (HANDLS) study. The community-based research effort is designed to focus on evaluating health disparities in socioeconomically diverse African Americans and whites in Baltimore. This intramural study is unique because it is a multidisciplinary project, which assesses physical, genetic, biologic, demographic, psychosocial, and psychophysiological measures in Black and White participants, in higher and lower socioeconomic status (SES), over a 20-year period. The baseline HANDLS sample will consist of approximately 4,000 community-dwelling African American and white adults aged 30-64. Participants will be drawn from 12 predetermined census tracts in Baltimore City, MD, sampling representatively across a wide range of socioeconomic and income circumstances. Using mobile medical research vehicles, each census tract will be visited for three months and every census tract will be revisited on a 3-year cycle. The study has completed a pilot that was conducted in two waves; the epidemiologic phase of the study began in August 2004, and recruitment for the full study began in November 2004.

**Risk Factors for Cognitive Impairment:** NIA is funding an epidemiological study using a large dataset (The Nurses Health Study) to study risk factors for cognitive impairment with age. The research is aimed at studying the earliest stages of cognitive decline in healthy women, which might be most susceptible to intervention. A major focus is to look at the interactions between environmental and genetic factors in relation to cognition. Research on this dataset provides a highly cost-efficient setting to examine lifestyle and genetic influences which may be instrumental in preventing or delaying early decline in cognitive function. The investigators are taking advantage of extensive data collected longitudinally (over 22 years) on a large cohort of women (121,700) to examine prospectively how estrogen use, antioxidant intake, and anti-inflammatory drugs influence cognitive decline in non-demented women, the duration and dose of these agents, and the interactions with genetic factors. For the genetic studies, blood samples

have been collected from 33,000; for those without blood samples, cheek brushings are being obtained for DNA. The current study will conduct repeated tests of cognitive function by telephone, at two-year intervals, to 20,000 women aged 70-80 to assess cognitive function and its change over time.

**Reasons for Geographic and Racial Differences in Stroke (REGARDS):** The National Institute of Neurological Disorders and Stroke (NINDS) supports a large study to investigate the epidemiology of stroke. The five-year REGARDS study will address the wide range of hypothesized causes of excess stroke mortality among African Americans in the southeastern United States. Approximately 30,000 African Americans and whites from the Stroke Belt, the Stroke Buckle (an area within the Stroke Belt with exceptionally high rates of stroke), and elsewhere in the nation will be enrolled in the study and followed for three years for the onset of new stroke events. The resulting information will be useful for designing interventions to reduce excess stroke mortality.

**Brain Attack Surveillance In Corpus Christi (BASIC):** In order to better estimate the stroke rate and key stroke risk factors in the Mexican American population, the NINDS supports the BASIC Project, a population-based stroke surveillance program in southeastern Texas. The BASIC Project has two goals. The first goal is to provide accurate rates of transient ischemic attack, first ever and total ischemic stroke, intercerebral hemorrhage and subarachnoid hemorrhage in Mexican Americans. The second goal is to reveal the relationship between access to care, acculturation, stroke risk factors and social determinants of health as these factors interact with ethnicity with regard to stroke. The information gained from this study will contribute to a growing body of knowledge about health disparities in the rate of stroke in various populations - knowledge that is essential for the development of evidence-based stroke prevention efforts in minority populations.

**Cooperative Psychiatric Epidemiology Studies:** The National Institute of Mental Health (NIMH) recently concluded a series of large-scale psychiatric epidemiology surveys to ascertain the prevalence of mental disorders in the United States. Over 30,000 adolescents and adults were interviewed to improve our knowledge of population and geographic variations in mental health, co-occurring alcohol, drug and substance abuse problems, mental health service use patterns, and barriers to treatment. Early findings indicate that almost half of Americans will meet criteria for a mental disorder at some point in their lives, with first onset usually occurring in childhood or adolescence. Very serious cases of mental illness are concentrated among a smaller number of individuals, most of whom have several mental disorder diagnoses that have accumulated over time. These findings emphasize the public health importance of mental disorders to the nation, and argue for increased attention to prevention initiatives that focus on youth, as well as those at risk for multiple disorders.

**Collaborative Study of Prodromal Schizophrenia:** Approximately three million persons in the United States suffer from schizophrenia, a profoundly disabling mental illness that typically emerges in late adolescence and results in severe impairments in thinking, feeling, and behavior. Since 2000, the NIMH has funded seven investigations designed to identify high-risk individuals before psychotic symptoms emerge. In 2004 NIMH provided funds to integrate these studies methodologically, with the goal of creating the world's largest dataset for exploring the behavioral, social, and environmental factors associated with the onset of schizophrenia. The collaborative effort now underway will compare the longitudinal course of approximately 400 high-risk adolescents and young adults with that of 400 control subjects. Results from this project promise to identify reliable predictors of illness onset, to detect risk factors related to functional impairment, and to specify targets for indicated prevention.

**Environmental Factors in Young Adult Physical Activity:** Researchers funded by the National Institute of Child Health and Human Development (NICHD) are studying how community characteristics influence physical activity, inactivity, and overweight status in American youths as they make the transition from adolescence to adulthood. The researchers are developing a database that will link information on environmental factors that may affect obesity to the rich body of information on youths' characteristics and health behaviors collected in the National Longitudinal Study of Adolescent Health (Add Health). Relevant environmental measures include access to recreation facilities (e.g., private and public facilities, parks, recreation centers, green spaces, and shopping centers), transportation options (sidewalks, bike paths, public transportation, road network, and transportation density), proximity of road safety hazards and air pollution, community safety, and price data (e.g., cost of certain types of food). The researchers will be examining how these environmental factors interact with race/ethnicity and other key socioeconomic factors to influence health disparities in obesity and overweight.

**HIV in Young Adulthood - Pathways and Prevention:** This study links two key areas of importance to the prevention of adolescent HIV infection - risky sexual behavior and substance use - incorporating perspectives from both basic and applied science. Long-term effectiveness for most HIV/AIDS prevention programs has not been well established nor have there been conclusive demonstrations of a common etiology underlying the co-varying risky sexual activity and substance abuse behaviors. This failure is in part due to the inability to derive theoretically driven prevention models based on solid empirical evidence. This National Institute on Drug Abuse (NIDA) funded study will draw on data from the first two waves of the National Longitudinal Study of Adolescent Health (Add Health). The major goal of this study is to understand underlying causes and consequences of patterns of drug use and risky sexual behavior among identified groups of adolescents, so that preventive intervention strategies can be developed and appropriately targeted.

**Environmental Factors in Asthma Intervention and Prevention:** Asthma disproportionately affects children, minorities, and persons of lower socioeconomic status. It is the most frequent cause of pediatric emergency room use and hospital admissions and is the leading cause of school absences. The National Institute of Environmental Health Sciences (NIEHS) - in collaboration with NIAID, CDC, HUD, and other agencies - has employed both intramural and extramural studies to identify allergens in U.S. residences that trigger asthma episodes and to identify effective means to reduce and eliminate those agents in the home. Agents most common in the home that have been associated with asthma are allergens that derive from dust mites, cockroaches, and pets. Intervention and prevention strategies that have proven to be effective are aggressive cleaning, protective bedding covers, limited appropriate use of household-approved pesticides applied outside the reach of children and pets, and counseling on these measures. One striking conclusion of these efforts is that significant health benefits can be attained with relatively low-tech, inexpensive means. These studies provide a successful strategy for prevention and intervention for asthma related to common household allergens.

**Early Identification of Hearing Loss:** Results from research supported by the National Institute on Deafness and Other Communication Disorders (NIDCD) show that if children are identified with a hearing impairment by 6 months of age and then receive appropriate intervention, they have significantly better language scores than children whose impairment was identified after 6 months of age. Without appropriate and timely intervention, early childhood hearing impairment interferes with the development of oral/aural communication, impedes academic performance, and results in long-term vocational consequences. NIDCD supports a research portfolio on early identification strategies and interventions as well as research in language acquisition, both spoken and signed, the development of cochlear implants, hearing aids and other assistive devices. NIDCD encourages research that will assist clinicians as they characterize auditory performance in a newborn who fails hearing screening, as well as research that designs intervention strategies to optimize communication success.

**Los Angeles Latino Eye Study (LALES):** The National Eye Institute (NEI) is supporting a major research project in Los Angeles County, California, the Los Angeles Latino Eye Study, to gain a greater understanding of the prevalence and incidence of eye disease among Latinos. Researchers have conducted in-depth interviews with study participants on their medical and ophthalmic histories, use of medications, tobacco and alcohol consumption, and utilization of health care services. Because so little is known about the visual health needs of this segment of the population, the data collected from this study will be instrumental in determining the prevalence of cataract, glaucoma, age-related macular degeneration, and diabetic retinopathy among Latinos in this community. The study will also determine the proportion of blindness and visual impairment that is caused by these diseases, and will explore the association of various risk

factors, such as smoking or sun exposure with ocular disease. The study will also examine the effect of eye disease and disorders on quality of life and will assess the cost/benefit of eye care services and the utilization of those services in the Los Angeles Latino community. Results from the various components of this study are just beginning to appear in the medical literature. The first series of reports confirms a high rate of visual impairment in this population compared to other racial or ethnic groups, particularly in female and older Latinos. Future reports may help clarify the reasons for this increased prevalence of visual impairment in urban Latinos.

**Dietary Supplement Use by U.S. Population Groups:** The Office of Dietary Supplements (ODS) has several coordinated activities to enhance the collection, analysis, and dissemination of information on dietary supplement use by U.S. populations and for relating these findings to health outcomes of supplement users. These include: a) an interagency agreement (IAA) with the CDC to collect information on dietary supplement use, related biomarkers of nutritional status, and supplement product composition in their National Health and Nutrition Examination Surveys (NHANES), b) an IAA with the U.S. Department of Agriculture (USDA) to develop an analytical database of the composition of products commonly used by NHANES participants and US consumers, c) a contract with the National Marketing Institute (NMI) to identify and develop improved measures of consumer motivations for supplement use, and d) a contract with the Research Triangle Institute to develop a publicly available, user-friendly Web-based database of the NHANES dietary supplement-related survey results to allow any interested stakeholder to query the database. As a total package, these initiatives address identified needs for improved information on supplement use patterns among U.S. population groups and for relating these behaviors to factors influencing use and to health outcomes. The beneficiaries of these coordinated activities represent a wide range of stakeholders, including researchers who need the population and product data to better design and evaluate human studies, policy makers who need to understand current status and trends over time to better inform their decision making, industry stakeholders who wish to improve the quality and healthfulness of their marketed products, and public health educators to develop appropriate educational materials for consumers and health professionals.

## STUDIES TO DEVELOP AND TEST PREVENTIVE INTERVENTIONS

**Long-Term Behavioral Health Maintenance Consortium (HMC):** This ongoing five-year initiative is responsive to the need for increased research on maintenance of health promoting and disease preventing behaviors. Past research has typically focused on short-term behavioral change, yielding little information on how change, once achieved, can be maintained for longer periods of time.

Several NIH institutes, centers and offices are funding 19 research studies to examine and test “what works” for maintenance of long-term behavioral change. The goal of the HMC initiative is to examine biopsychosocial processes and test interventions designed to achieve long-term health behavior change in important health-related behaviors already demonstrated amenable to short-term change, such as tobacco use, exercise, eating habits, alcohol and drug use, violent behavior, disease screening, stress reduction, and adherence to health care regimens. Of the 19 research grants, 16 are intervention studies and 3 are process studies. Several of the studies are also exploring interpersonal or social contexts that may interfere with maintenance of behavior change. Collaboration across studies through cross-site analysis and sharing of protocols, methods and data is being facilitated through a resource coordinating center.

**Environmental Approaches to the Prevention of Obesity:** This trans-NIH grant program was designed to solicit and support primary and secondary prevention approaches, targeting environmental factors that contribute to inappropriate weight gain. The program goal is to support research projects that develop and test approaches to modify external surroundings in the environment to prevent weight gain, without exclusive reliance on an individual’s knowledge or motivation. The main objectives are to prevent inappropriate weight gain and enhance metabolic and cardiovascular fitness by improving diets (e.g., decreasing energy and mineral intake; increasing intake of high-fiber, water-dense foods such as fruits and vegetables), increasing physical activity, and decreasing sedentary behaviors. A unique feature is that applicants are required to collaborate with one or more groups or organizations that will participate in the development and/or the implementation of the environmental modifications (e.g., schools, worksites, religious or community organizations, restaurants, food markets, health care settings, parks and recreational facilities, and state public health departments.)

**Look AHEAD:** Action for Health in Diabetes (AHEAD) is a multi-center randomized clinical trial to examine the long term effects of a lifestyle intervention designed to achieve and maintain weight loss through decreased caloric intake and exercise. The study has exceeded its target goal of 5,000 obese participants with type 2 diabetes, with 5,145 participants enrolled by May 2004. The aim is to determine if lifestyle interventions can prevent heart attacks, stroke and cardiovascular death in this population. Participants are randomly assigned to one of two interventions, the Lifestyle Intervention or Diabetes Support and Education, and will be followed for a total period of up to 11.5 years. Sixteen Look AHEAD Clinical Centers around the U.S. have recruited volunteers from a diverse range of populations and will examine health disparities across a number of minority groups. The study will also investigate diabetes control and complications, fitness, general health, health-related quality of life and psychological outcomes, as well as the cost and cost effectiveness of the Lifestyle Intervention relative to Diabetes Support and Education. The study is co-funded

by several NIH institutes, including the Office of Research on Women's Health (ORWH), and the Centers for Disease Control and Prevention.

**Weight Loss Maintenance (WLM) Trial:** The purpose of this National Heart, Lung, and Blood Institute (NHLBI) funded study is to examine effects of two innovative behavioral interventions, each designed to maintain frequent contacts, compared to a self-directed usual care control group on maintenance of weight lost from an initial program. About 1600 overweight and obese individuals taking medication for hypertension or dyslipidemia will enter a weight-loss program, and 800 of those who lose at least 4 kg will then be randomized to one of three maintenance interventions: (1) a Personal Contact with a trained interventionist, primarily via telephone; (2) Interactive Technology using interactive Web and other communication technologies; or (3) Self-Directed Usual Care. The primary outcome is weight change from the end of the initial weight-loss program to the end of the weight maintenance intervention. Other outcomes include weight change in subgroups, control of heart disease risk factors, measures of behavior change, and costs. Effective approaches to reduce overweight/obesity will reduce risk for coronary heart disease and heart attack.

**Overweight and Obesity Control at Worksites:** This NHLBI program supports multiple randomized controlled interventions delivered at worksites to test whether worksite environmental interventions, in combination with individual lifestyle behavior modifications, could prevent or control overweight or obesity in adults. Seven applications were funded, targeting a total of 23,250 employees across various worksites {hospitals, schools (teachers), garages (bus drivers), hotels (hotel employees) and companies (manufacturing, transportation and personnel services)}. The interventions emphasize combinations of worksite environmental changes (e.g., fitness equipment, flex time for physical activity, changes in cafeteria and vending machine food offerings, and employee wellness counselors), and individual or family approaches (e.g., on-site diet and physical activity counseling) to obesity prevention. The primary outcome measures are BMI and change in body weight. Secondary outcome measures include energy and nutrient intakes, physical activity and fitness, worker productivity, changes in worksite policies, cost effectiveness, and health care utilization.

**Obesity and Weight Loss:** The purpose of this group of National Center for Complimentary and Alternative Medicine (NCCAM) funded studies is to examine the effects of complementary and alternative (CAM) approaches to weight loss and weight loss maintenance in obese individuals. One study is investigating the use of a unique mindfulness-based therapy designed specifically to intervene on eating behaviors on obese individuals, and to further examine effects on biomarkers that will inform disease risk prevention. Another trial is studying the efficacy of two CAM therapies, qigong and acupuncture, on long-term weight loss maintenance in obese individuals. Primary outcomes include weight loss, maintenance of weight loss, and several postulated mediators

of the intervention. Effective approaches to weight loss that also ensure maintenance of the loss will reduce the risk for cardiovascular diseases, diabetes, and other chronic diseases.

**Culture and Health in Alaska Natives:** Through the Institutional Development Award Program, the National Center for Research Resources (NCRR) is supporting researchers at the University of Alaska Fairbanks who are studying the impact that cultural attitudes and beliefs have on health behavior in the Alaska Native population. In the phase I study, investigators developed a measurement tool that can be used to explore the relationships between cultural-behavioral health, weight, and nutrition. This tool is currently being tested with participants from seven communities in the Yukon-Kuskokwim Delta. In Phase II, researchers will conduct a health promotion intervention in one of the participating villages aimed at involving community participation in efforts focused on reducing health risks related to increased weight. The results of the health promotion will be evaluated by comparing pre- and post-intervention data in the intervention village. Overall, this research will provide a base of knowledge and expertise in examining the role of culture in health for the Alaska Native population.

**Diabetes Prevention Program Outcome Study (DPPOS):** The National Institute of Diabetes and Digestive & Kidney Diseases (NIDDK) launched the DPPOS as a follow-up study to a major NIH-supported, multicenter Diabetes Prevention Program (DPP) trial. In 2001, the DPP demonstrated that the risk for developing type 2 diabetes could be reduced by 58% in high-risk individuals through relatively modest lifestyle changes and by 31% with the drug metformin. The effects of the therapies applied similarly to men and women and across all of the ethnic-racial groups included in the study cohort. The primary goal of the DPP was to prevent the development of diabetes, but an important secondary goal was to decrease the rate of cardiovascular disease and its risk factors. Ongoing analyses of the DPP data suggest that there are significant differences between the groups with regard to some cardiovascular risk factors. All of the participants being followed at the end of the DPP study were offered the opportunity to participate in the DPPOS, and 85% of the DPP cohort is now enrolled. The DPPOS is a long-term followup study designed to evaluate through a further 6-11 years of followup the long-term effects of the interventions on the development of diabetes and of microvascular and cardiovascular complications of diabetes. In addition, the study will evaluate the long-term effects of DPP interventions on the established and putative risk factors for diabetes and its complications, and the cost-utility associated with delay or prevention of diabetes. The study population provides a unique opportunity to examine health outcomes in participants with new-onset diabetes and impaired glucose tolerance, and assessing participant subgroups in order to evaluate the effect of race/ethnicity, age and gender on health outcomes. It will also provide insights regarding the clinical course of these metabolic disorders and information on the persistence of prevention or

delay of type 2 diabetes. The Office of Research on Women's Health (ORWH) has provided funding to support this study.

**Preventing Type 2 Diabetes in At-Risk Youth:** This study, funded by the National Institute of Nursing Research (NINR), uses a prospective, randomized clinical trial design to determine the effect of a school-based, multifaceted intervention of nutrition and exercise education, coping skills training, Advanced Practice Nurse (APN) coaching, and infrastructure change on Body Mass Index (BMI), insulin resistance, blood lipids, health behaviors, depression, and self-efficacy in inner city children at high risk for type 2 diabetes (T2DM). Researchers will also examine the effects of baseline characteristics of age, gender, health behaviors, depression, and family behaviors on the response to the intervention, and explore the experience of youth and family in management of obesity and insulin resistance in the prevention of T2DM. This study will provide valuable information to help youth manage obesity, and potentially prevent T2DM and its long-term physical and psychosocial complications.

**Cognitive Training Improves Cognitive Abilities:** Interventions that delay or prevent the need for nursing homes, home care, and hospital stays can save health care costs, while also ensuring the independence and dignity of the aging population. Recent research indicates that cognitive stimulation is an important predictor of enhancement and maintenance of cognitive functioning. The National Institute on Aging (NIA) has funded the ACTIVE (Advanced Cognitive Training for Independent and Vital Elderly) trial to test the effectiveness and durability of three distinct cognitive interventions in improving the performance of elderly persons on basic measures of cognition and measures of cognitively demanding daily activities (e.g., food preparation, driving, medication use, financial management). Each intervention group received an intervention for one of three cognitive abilities -- memory (mnemonic strategies), inductive reasoning (ability to solve problems), or speed of processing (visual search skills). Overall, this study demonstrated that cognitive interventions helped normal elderly individuals perform better on multiple measures of the specific cognitive ability for which they were trained, although it did not demonstrate the generalizability of such interventions to everyday performance, perhaps because the subjects were not yet impaired in daily function. To date, ACTIVE is the largest trial of cognitive interventions for the improvement of older adults' performance on specific cognitive and perceptual abilities, enrolling more than 2800 persons.

**Nurse Home Visitation Program (NHV):** Previous research supported by the National Institute of Mental Health (NIMH) demonstrated that nurse home visits offered to first time, high-risk mothers during and after pregnancy significantly reduced risks for child abuse, as well as delinquency, antisocial behavior, and substance abuse in offspring. Economic analysis of NHV with high-risk Caucasian, African American, and Latina mothers showed reduced welfare and juvenile justice expenditures, especially for the highest risk families. Offspring

from the initial study, now 27 years of age, are being reassessed to evaluate the enduring impact of early intervention on adult behavioral and mental health outcomes, as well as the long-term economic benefit of early preventive efforts. Importantly, the follow-up study funded by NIMH incorporates the methods of molecular genetics research in an effort to determine whether specific genetic vulnerabilities or particular gene/environment interactions explain NHV effects on adult aggression, second-generation child abuse, and the prevalence of anxiety disorders, depression, and schizophrenia.

**Comparison of Women's Health Empowerment Programs:** Through the Research Centers in Minority Institutions Program, the National Center for Research Resources (NCRR) is supporting investigators at the University of Puerto Rico to study the impact of a Women's Empowerment Intervention Model in both Puerto Rican women with breast cancer and in Hispanic women living with HIV. This multidimensional model includes a series of six full-day workshops in which multiple biopsychosocial dimensions are explored within the two separate groups. For women with breast cancer, the impact of this model is measured by comparing short and long-term psychosocial, immune function, and lifestyles variables between the intervention and control group. For the other cohort of women living with HIV, researchers are determining how the model impacts adherence, empowerment levels, and virologic control and progression of disease. Comparisons will be established between both population groups as more data become available.

**Prevention of Osteoporosis in Breast Cancer Survivors:** Breast cancer survivors are at particular risk for osteoporosis, or bone loss, and this can be a major debilitating, expensive, long term, and irreversible condition. As a result of some chemotherapy agents, many of these women who survive breast cancer experience premature ovarian failure, and without estrogen, bone loss occurs rapidly the first five years of menopause, and continues over time. This study, funded by the National Institute of Nursing Research (NINR), will test whether strength/weight training exercises enhance the effectiveness of calcium, vitamin D, and risedronate (a medication to prevent bone loss) in improving bone mineral density (BMD) in post-menopausal breast cancer survivors. Differences in tamoxifen, smoking, intake of calcium, and body mass index (BMI) between the two groups at baseline will also be examined. The primary outcome measures will be changes in BMD and incidence of fractures, along with muscle strength. This study will provide evidence of a preventive and therapeutic alternative to hormone therapy (HT) for treatment of osteoporosis in breast cancer survivors who are not candidates for HT.

**Improving Bone Mass in Prepubescent Children:** Developing a strong skeleton in childhood is an important mechanism to prevent osteoporosis in later life. Exercises that produce an impact on bone have been shown to be more effective in increasing bone mass than other types of low-impact activity. The

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) is supporting a randomized controlled study investigating the effects of a specific high-impact jumping program on hip and spine bone mass in prepubescent children (ages 6-10 years). The exercise program consists of high-impact loading by making 100 two-footed jumps off of a 61-cm high box, 3 times per week. It has been shown to be both safe and effective in an initial 7-month trial. Also, the simple exercise program is practical and low cost and could be incorporated into elementary school education curricula. This ongoing follow-up study will test: 1) if two sequential 7-month high-impact interventions can be used to increase bone mass even further; 2) if the increases in bone mass are maintained after detraining; and 3) if the increases in bone mass observed in the subjects of these studies continue through puberty and into adolescence.

**Interventions to Promote Oral Cancer Awareness and Early Detection:** The National Institute of Dental and Craniofacial Research (NIDCR) funded five states (NY, FL, MI, NC & IL) to conduct an epidemiological needs assessment of oral cancer. The assessment determined the burden of oral cancer in these states and also obtained information on the knowledge, opinions and practices of the public and health professionals about this cancer. Of those states, two received funding to continue the work related to prevention and early detection of oral cancer. Based on the needs assessment these two states are conducting health promotion activities that would impact oral cancer screening patterns. Both projects are designed to promote oral cancer awareness and to increase the proportion of comprehensive oral cancer examinations conducted for early detection in a high-risk population. The major health promotion efforts will be through a mass-media campaign and at faith-based organizations that are part of a network of primarily African-American churches. Effectiveness of these interventions will be measured through population-based surveys, utilization of a hotline, referral clinics and changes in five-year survival rates.

**Smokeless Tobacco Use and Cessation in Rural Appalachia:** An ongoing NIDCR study is comparing the oral health status of rural adult Appalachian smokeless tobacco (ST) users and never-users, identifying patterns of ST use among users, and testing the feasibility and acceptability of low-cost interventions that can be delivered to reduce ST use in this rural population. Preliminary analyses indicate a markedly higher prevalence of oral lesions and tooth loss in ST users. County Extension Agents and County Nurses, working with trained lay educators, conduct participant recruitment and retention and intervention delivery. Participants in the intervention county receive nicotine replacement therapy and lay-delivered behavioral/educational counseling. ST quit rates at the end of treatment and at 6 and 12 months post-treatment are being assessed using self-report measures confirmed biologically with salivary cotinine measures. Overall ST quit rates in the intervention and control counties will be compared. Since state and local health agencies and rural extension services exist throughout

the United States, the investigators ultimately seek to develop practical, community-based ST cessation approaches applicable within other rural regions.

**HIV Prevention Trials Network (HPTN):** In FY2004, follow-up was completed for Project Explore, a six-site study funded by the National Institute on Allergy and Infectious Diseases (NIAID) to determine the efficacy of an intensive behavioral counseling intervention among men who have sex with men. The primary study results were published in the July 2004 issue of Lancet. Additionally, enrollment was initiated for an HIV Prevention Trials Network (HPTN) Phase III study of the efficacy of social network-oriented peer education intervention for prevention of HIV transmission among injection drug users. In FY2004, a clinical trial was started to evaluate the efficacy of a community level prevention intervention involving access to voluntary counseling and testing in developing country settings.

**Complementary and Alternative Medicine Approaches for HIV/AIDS:** The National Center for Complementary and Alternative Medicine (NCCAM) supports several investigations to investigate complementary and alternative approaches to prevent the incidence and progression of HIV/AIDS. In one funded Center for Excellence in Research on Complementary and Alternative Medicine (CERC), mindfulness-based stress reduction (MBSR) in people with early stage HIV disease is being examined as an intervention to slow disease progression and extend the period during which antiretroviral treatment is not indicated. Projects will examine the efficacy of the intervention in preventing or reducing the need for antiretroviral therapy, as well as examine several postulated immune pathways through which the intervention might affect HIV replication and immune functioning. Preventing the need for antiretroviral therapy will decrease the opportunity for drug resistance, and increase the time in which good health is maintained. In addition, NCCAM funds work to build a program designed to facilitate innovative complementary and alternative medicine research that will identify behavioral, cultural, social and psychosocial factors that influence HIV/AIDS prevention, and that will identify the role of traditional health practices in HIV/AIDS prevention in Africa.

**Rapid Response to College Drinking Problems:** The consequences of excessive and underage drinking affect virtually all college campuses and all college students, whether or not they choose to drink. Drunk driving, unsafe sex, and vandalism are among the serious alcohol-related problems that college campuses face. The National Institute on Alcohol Abuse and Alcoholism (NIAAA) has a current request for applications, "Research Partnership Awards for Rapid Response to College Drinking Problems," aimed at established alcohol researchers who have expertise in research on drinking by college students and can serve as resources for college and university administrators. A companion program announcement, "Rapid Response to College Drinking Problems," was also issued to provide a rapid-funding mechanism for timely research on

interventions to prevent or reduce alcohol-related problems among college students. It capitalizes on natural experiments (e.g., unanticipated adverse events, policy changes, new media campaigns, campus-community coalitions) to support rapidly-developed, high-quality evaluations of services or interventions. The two sets of awardees are being paired up to work with NIAAA to form individual steering committees to collaboratively develop study protocols.

**Urban Northland Trial:** An NIAAA-funded project is adapting for urban and ethnically diverse youth, a community intervention for prevention of underage drinking that resulted in positive study outcomes for rural, white, low- to middle-income youth. The adapted intervention, Urban Northland, is evaluating a randomized community trial of 10 study units and 10 control units (schools and surrounding neighborhoods) with sizable African- American and Hispanic populations. The trial includes three years of behavioral curricula, family interventions, youth-planned extracurricular activities, and community organizing in racially diverse and economically disadvantaged urban neighborhoods. Project Northland, the prototype for the adapted intervention, was recommended as a model program by the Center for Substance Abuse Prevention and the U.S. Department of Education and has been rigorously evaluated in a 10-year randomized trial in 28 rural, largely white communities. The design of Urban Northland builds on progress in prevention research that has occurred since the time the prototype intervention was tested, such as results of other large-scale, randomized trials on alcohol-, tobacco-, and other drug-use by youth.

**Early Family-Centered Prevention of Drug Use Risk:** The National Institute on Drug Abuse (NIDA) is funding a 5-year, multi-site prevention outcome study that targets parenting practices in early childhood to reduce the risk for early-onset substance use and abuse. The family-centered intervention is designed for implementation within the service delivery system of Women, Infants, and Children (WIC) programs. The intervention is tailored to engage high-risk families and to maximize the public health impact on risk for early-onset drug use and related risk. Families were assigned randomly to WIC, as usual, or a family-enhanced WIC service that provides direct support for parenting practices from ages 2 through 7. Children are being followed from age 2 to 7 to evaluate the impact of the family service on school entry adjustment and the emergence of behavior problems at home and school, all precursors to onset use and substance abuse. Additionally, the intervention, assessment and evaluation procedures will be refined to promote relevance and diffusion of the family-centered intervention to WIC sites across the nation.

**Information Technology-based Intervention - Diabetes Health Disparities Collaborative:** The National Library of Medicine (NLM) is actively exploring the use of new information technologies to enable diabetes patients to manage their disease and avoid or delay the onset of costly and debilitating complications, especially patients from minority and medically underserved populations. The

latest initiative in collaboration with the Upper Cardozo Health Center in Washington, DC and George Washington University, undertakes a controlled field experiment with patients enrolled in the Diabetes Health Disparities Collaborative wherein diabetes patients will receive an information technology-based intervention to complement their regular patient education program. Education and training will be given to (a) physicians on how to incorporate the Information Prescription Project into their daily office practice routine; (b) medical assistants to show patients how to access and use MedlinePlus in English and Spanish; and (c) clerks on how to instruct patients to use MedlinePlus in waiting rooms during clinic hours. A wealth of routinely collected clinical patient data (e.g., A1c, cholesterol) will give NLM a unique opportunity to provide objective evidence of the impact of MedlinePlus use on patient health outcomes.

**X-CD Personal Device for Self-Management of Asthma:** The National Institute of Biomedical Imaging and Bioengineering (NIBIB) supports research projects using telehealth technology to improve targeted group behavior in disease management. In one study, improved asthma outcomes among low-income urban adolescents are being tested by delivering self-management asthma related health messages using a novel messaging platform called “X-CD.” This Walkman-type personal device was developed through an earlier NIDA grant and does not require a PC or Internet connection. The X-CD player is being adapted to a personal music player that can tune into commercial radio stations and receive, store and play MP3 music tracks that are transmitted to the player. The asthma related health messages regarding use of inhaled steroids and the importance of regular doctor visits are delivered regularly over an extended period via the X-CD player.

**Internet-Based Weight Loss Program:** This NIBIB-funded a project uses a home-based Telehealth system – the Healthium interactive platform – which has been modified to deliver an Internet-based weight loss program for patients with Type 2 diabetes. Internet-based weight loss programs have shown some positive results; however, computer-aided health is often too technically challenging and too expensive for the elderly and low-income populations. This project delivers an Internet weight-loss program to patients in their home via a television set and a TV remote control, and demonstrates how a diet and exercise program can be conducted with patients in the home, conveniently, intuitively and inexpensively. This project shows promise as a viable public health care initiative for prevention of obesity-associated chronic diseases.

## TRANSLATION AND DISSEMINATION OF RESEARCH FINDINGS

**Cancer Control PLANET:** As part of a public-private partnership, in 2003, the National Cancer Institute (NCI) and several partners launched a state-of-the-art

Web portal for comprehensive cancer control planning, implementation, and evaluation. The Cancer Control PLANET (Plan, Link, Act, Network with Evidence-based Tools) and the tools on the Website, were developed collaboratively with the American Cancer Society, AHRQ, CDC, and SAMHSA. PLANET takes the guesswork out of state and community program planning and implementation by providing easy access to user-friendly state and local data, state-based cancer control research and program contacts, evidence-based information and research-tested tools. The goal is to remove barriers and speed the translation of science into practice, thus closing the research discovery to program delivery gap. To date, approximately 1,000 public health practitioners from all 50 states have completed a 3-hour training program on how to use the PLANET for comprehensive cancer control. Visits to the PLANET increased 40% in its first year of operation and continue to grow.

**HMO Cancer Research Network (CRN):** The CRN consists of the research programs, enrolled populations, and data systems of 11 health maintenance organizations nationwide. The CRN was initiated by the National Cancer Institute (NCI) in Fiscal Year 1999 and funded again in Fiscal Year 2003 for a second cycle. The overall goal of the CRN is to use a consortium of delivery systems to conduct research on cancer prevention, early detection, treatment, long-term care, and surveillance. Together, the 11 participating health plans have nearly nine million enrollees, or three percent of the U.S. population. This facilitates population-based prevention and early detection research, large studies of common tumors, as well as research on rare cancers. The current portfolio of CRN research studies encompasses cancer control topics ranging from modification of behavioral risk factors, such as diet and smoking, to end-of-life care for patients with prostate or ovarian cancer. Through collaborative research program, the CRN seeks to improve the effectiveness of preventive, curative, and supportive interventions for major cancers - such as breast, colon, and lung cancers - as well as rare tumors. The CRN is also uniquely positioned to study the quality of cancer care in community-based settings. The CRN is cooperatively supported by the Agency for Healthcare Research and Quality.

**Cardiovascular Disease Enhanced Dissemination and Utilization Centers (EDUCs):** The National Heart, Lung and Blood Institute (NHLBI) has established a partnership with community-based organizations (EDUCs) as part of a nationwide strategy to develop partnerships to reduce racial, ethnic, and geographic disparities to promote community-based cardiovascular health in high-risk populations, primarily low-income, underserved populations. The EDUCs are located in urban and rural communities with heart disease and stroke death rates far in excess of the national average. These projects' primary purpose is to plan, develop, implement, and evaluate well-defined, focused education intervention strategies aimed at reducing the burden of cardiovascular disease (CVD) through changes in health care provider practice behavior, patient behavior, and general public behavior. The key implementation strategies are

partnership efforts among local partners to get science-based information on cardiovascular disease and asthma utilized. The projects are part of a national network of initiatives established in response to Healthy People 2010.

**Center of Vulnerable Populations Research (CVPR):** The CVPR, sponsored by the National Institute of Nursing Research (NINR), brings together scholars with common interests in improving health disparities and promoting translational research of preventive interventions. The focus of the CVPR is on two groups: low-income people and ethnic minorities. The CVPR has established partnerships with communities of vulnerable populations to assess needs, strengths, and resources. Based on these assessments, CVPR scientists, research participants, and community collaborators have implemented prevention research to address infectious diseases (e.g., HIV/AIDS, hepatitis, tuberculosis), chronic illnesses (cardiovascular disease, diabetes, asthma), substance use, and environmental quality. By involving research participants in the development and implementation of studies, and disseminating the results to communities, clinicians and policy makers, the CVPR is addressing important health and nursing issues. The CVPR is particularly timely and significant given national health priorities, the changing demographics of our nation, and the continuing disparities in health status affecting ethnic groups and people living in poverty, and those exposed to toxic environments.

**National Cooperative Inner-City Asthma Study (NCICAS):** This study was initiated by the National Institute of Allergy and Infectious Diseases (NIAID) to identify multiple factors associated with asthma severity, especially among African American and Hispanic inner-city children. The program demonstrated that home-based remediation practices resulted in a long-lasting reduction in asthma morbidity in children, correlated with diminished cockroach and house dust mite allergen levels. The results of the NCICAS led the Centers for Disease Control and Prevention to implement a comprehensive educational, behavioral, and environmental intervention program in 23 community-based health organizations nationwide to benefit more than 60,000 disadvantaged children.

**Adapting HIV Prevention Programs to New Populations:** Since 1999, six grantees funded by the National Institute of Child Health and Human Development (NICHD) and the National Institute of Mental Health (NIMH) have worked to identify both challenges and “what works” in transferring proven HIV prevention programs for youth to new populations. At each site, researchers selected an HIV intervention program that had been demonstrated to be effective in one adolescent population and adapted it for implementation in a different community or population. During the replication, researchers assessed changes in the program necessary to gain cooperation, implement a locally feasible and culturally sensitive intervention, and evaluate the outcomes in the new setting. The results of these projects are being compiled. Initial reports validate the utility of approaches such as “intervention mapping,” which identify those elements of a

program likely to be most important for behavior change and those elements that require adaptation for cultural sensitivity. They also point to substantial practical challenges that attend the transfer of a program from one site to another, many of which prompt changes that may undermine program effectiveness.

**A Population-Based Program to Improve Child Health:** NICHD-funded researchers have collaborated with the Mexican government to conduct a population-based evaluation of a large-scale prevention program aimed at improving the health of impoverished children. The PROGRESA program provides economic incentives for parents who obtain preventive child health care, including prenatal care, well-baby care and immunizations, nutrition monitoring and supplementation, regular physical checkups, and participation in educational programs regarding health, hygiene, and nutrition. This was the first such program implemented in a developing country. The NICHD-funded researchers helped Mexican officials design an experimental program that permitted valid assessment of the program's effects. Results showed that children in families eligible for the program had fewer illnesses, were less likely to be anemic, and grew taller than those in non-program families. Program impacts on cognitive development will be analyzed in future analyses. This program is now being replicated by the World Bank in other developing nations.

**SIDS Outreach Programs with American Indian and Alaska Native Communities:** The NICHD has continued its outreach to African Americans, and is now working to identify and develop outreach programs that increase the awareness and reduce the risk of Sudden Infant Death Syndrome (SIDS) among American Indian and Alaska Native infants. The outreach programs will provide a vehicle for health care professionals and other outreach workers to interact with community leaders, including small group discussions with public health nurses, community health representatives, elders, and other caregivers of infants. Some of the issues and strategies to be discussed include: Developing a community-owned project; incorporating the indigenous culture and traditions (such as encouraging the use of cradle boards and using talking circles); using elders to educate young parents; using public health nurses, community health representatives, and home visiting programs such as Healthy Start; focusing education on women's health pre- and post-pregnancy; and focusing on alcohol and smoking issues. The NICHD plans to use information gleaned from previous meetings with community leaders to develop materials, coalitions, and an infrastructure that the communities can use when developing and conducting outreach programs. As a result of these interactions, representatives from the tribes and individual communities may tailor informative action plans for community-driven SIDS risk reduction strategies that meet the unique needs of their local community members.

**Enhancing State Capacity to Foster Adoption of Science-Based Practices:** This initiative was launched to give State Alcohol and Drug Abuse Agencies

(referred to as “State Agencies”) the information and tools they need to bridge the gap between science and services. This initiative is designed to strengthen State Agencies’ capacity to support and engage in research that will foster statewide adoption of meritorious science-based policies and practices. Specifically, the National Institute on Drug Abuse (NIDA), with support from the Substance Abuse and Mental Health Services Administration (SAMHSA), will provide grants to State Agencies to conduct preliminary or pilot research programs that help to create, implement, expand, and/or sustain a process of continuous science-based practice improvement in publicly supported drug abuse prevention and treatment programs. This initial research will serve as a foundation for more in-depth services research to be conducted subsequently by the State Agencies and collaborators to enhance continuous practice improvement and to foster implementation of proven therapeutic and management policies and practices. Investigators will use a variety of measures to assess provider performance and adherence to prevention and treatment guidelines in rural communities.

**Center to Prevent Alcohol-Related Problems Among Young People:** The National Institute on Alcohol Abuse and Alcoholism (NIAAA) is funding a center that is conducting three major research projects on underage drinking: (1) a comprehensive analysis of nationally representative data to investigate adverse outcomes in persons who begin drinking at younger ages. While analytically controlling for alcohol dependence and heavy drinking, this analysis will evaluate whether these “early starters” are more likely, as adults, to experience a variety of other alcohol-related health problems; (2) a randomized trial is evaluating whether alcohol impairs next-day academic performance of college students; and (3) a randomized trial of pediatric emergency-department patients is determining whether a brief motivational interview and referral reduce subsequent drinking, injury, and alcohol-related problems. This project also will facilitate development of campus/community partnerships among multiple segments of city government and college communities to identify and implement interventions for college students.

**Models of Infectious Disease Agent Study (MIDAS):** Preventing, detecting, and responding to new infectious diseases, either natural or human-made, is a national public health priority. The National Institute of General Medical Sciences (NIGMS) has responded by initiating the MIDAS program to develop computational models that improve the detection, control, and prevention of emerging infectious diseases, including those relevant to biodefense. MIDAS develops computational models of host-pathogen interactions, disease epidemiology, forecasting systems, and response strategies. These models will assist policy makers, public health workers, and other researchers to understand and respond to new infectious disease outbreaks. A group of scientists developing computer models to combat infectious diseases are currently focusing their attention on the H5N1 strain of the bird influenza virus. By simulating the

outbreak of this potentially deadly avian flu in a hypothetical human community, the researchers hope to answer key questions about how best to contain the virus.

## EDUCATION AND OUTREACH

**Heart Truth Health Education Campaign (Red Dress Campaign):** To make women more aware of the danger of heart disease, the National Heart, Lung, and Blood Institute (NHLBI) and partner organizations are sponsoring a national campaign called The Heart Truth. The campaign's goal is to give women a personal and urgent wake-up call about their risk of heart disease. The campaign tells women that "The Heart Truth starts with you. Talk to your doctor, find out your risk, and take action today to lower it." The campaign is aimed at women ages 40 to 60, the time when a woman's risk of heart disease starts to rise. But its messages are also important for younger women, since heart disease develops gradually and can start at a young age – even in the teenage years. Older women have an interest too-- it's never too late to take action to prevent and control the risk factors for heart disease. Women often fail to make the connection between risk factors, such as high blood pressure and high cholesterol, and their own chance of developing heart disease. This campaign is designed to address these issues by raising awareness in women and motivating them to take action.

**Cultural Competence and Health Disparities Academic Award:** The objective of this NHLBI-funded training program is to enhance the ability of physicians and other health care professionals, to address disparities in the occurrence, management, and outcomes of cardiovascular, pulmonary, hematological, and sleep disorders among various population groups in the U.S. in a culturally sensitive manner. This academic award provides support to U.S. medical institutions to develop core curricula and other educational materials that will increase the overall knowledge and skills of medical students, house staff, and other professionals, including practicing physicians on the ethnic, cultural, religious, socioeconomic, linguistic and other factors that contribute to health disparities, and on culturally competent approaches to mitigating these disparities.

**National Public Education Campaign on Stroke - Know Stroke in the Community:** The National Institute of Neurological Disorders and Stroke (NINDS) is working in partnership with the Centers for Disease Control and Prevention (CDC) to disseminate a new education campaign launched in May 2004. This initiative is intended to expand on the NINDS well-established "Know Stroke, Know the Signs, Act in Time" public education campaign, with materials and programs specifically targeted to racial and ethnic communities who are at a higher stroke risk. The materials have information about stroke awareness, stroke prevention and the importance of time in acute stroke care. "Know Stroke in the Community" has been introduced in five pilot cities:

Houston, Richmond, Chicago, Birmingham and New Orleans. The NIH and CDC are partnering to conduct Stroke Champion Training in each of these cities, in which a dozen "Stroke Champions" are identified and asked to conduct stroke education at the local level, particularly in communities with high numbers of African Americans, Hispanics and seniors. The Champions are committed to conducting at least four "Know Stoke" educational events in their cities.

**Strengthening the Heartbeat of American Indian and Alaska Native**

**Communities:** The first phase of the project has developed culturally appropriate materials to encourage behavior changes that will improve cardiovascular health in Native American populations, working collaboratively with the Indian Health Service (IHS) and local tribal communities, villages, and pueblos. The second phase is now focused on working in partnership with the Indian Health Service (IHS) and tribal communities to use the materials to implement national and regional cardiovascular health training and outreach programs to reduce health disparities. Specifically, the NHLBI and IHS implemented a national train-the-trainer program for Tribal leaders and tribal health professionals to create the first wave of advocates, trainers, and implementers of heart health programs around the country. During 2004, in eleven of the twelve health service areas, (covering all tribes in the lower 48 states), the tribal leaders and health administrators have been trained to be advocates for national and local CVD prevention efforts. Additionally, over the next several years, up to 300 additional tribal community educators will be trained to implement CVD prevention within their own tribes, as well as reach out to include nearby tribes in local train-the-trainer workshops. The regional sessions provide an opportunity to further disseminate the AI/AN CVD teaching tools and supporting materials and train other interested federally and non-federally recognized tribes, as well as urban Indian programs throughout the country.

**Salud para su Corazón (For the Health of your Heart):** NHLBI is partnering with the Health Resources and Services Administration (HRSA) to expand the use of lay health educators (promotores) to implement community-based heart health education and outreach program to Hispanics/Latinos in low income U.S.-Mexico border communities. This coordinated partnership will maximize resources to bring heart health education, information, and skills training, as well as information on interventions for program planners, community leaders, lay health workers, and consumers in the U.S. Mexico border area. The core strategy of the program relies on promotores to train, equip, and empower new Latino lay health educators. These educators are responsible for delivering preventive interventions to individuals and families and promoting healthy lifestyle behaviors. They are effective in overcoming communication barriers because they share the language, cultural beliefs, and social and ethnic characteristics of the members of their community. They serve as role models, community leaders, and advocates for change.

**WISE EARS! Campaign:** A national health education campaign to prevent noise-induced hearing loss (NIHL) was developed by the National Institute on Deafness and Other Communication Disorders (NIDCD) in collaboration with the National Institute of Occupational Safety and Health (NIOSH). The campaign consists of a coalition of more than 85 national, regional, and local organizations, voluntary groups, unions and industry groups, organizations that advocate for children, older Americans, African Americans, Native Americans, Hispanic/Latino Americans, and national, state, and local government agencies. The objectives of the campaign are: (1) to increase awareness about NIHL among all audiences; (2) motivate individuals to recognize situations that put them at risk for NIHL; and, (3) take action against NIHL. The coalition is accomplishing this goal by demonstrating to a variety of audiences, both workers and the public, how noise can damage hearing permanently. The education campaign fosters an understanding that everyone is at risk for NIHL and encourages individuals and employers to make hearing protection devices available and to make sure that the hearing protection is used. WISE EARS! has developed national and local hearing loss prevention programs for children and adults.

**Multiple Innovative Approaches Developed to Promote Pesticide Safety:**

U.S. agriculture depends on large scale growing operations using migrant farm workers for growing and harvesting crops, and pesticides to enhance and protect productivity, for the vast majority of the U.S. food supply and food for export as well. Much is known about pesticides and their health risks as well as safety measures that limit pesticide exposure, but the available knowledge is often not communicated to farm workers and their families nor applied in the workplace to protect the health of people working in agriculture and their families. The National Institute of Environmental Health Sciences (NIEHS), through its Environmental Justice and Community-Based Participatory Research programs, has funded a group of university-based research and outreach efforts to develop the means to communicate with, and educate workers, and facilitate workplace implementation of pesticide safety among workers and their families. Most studies use bilingual researchers and some have researchers who come from farm worker families. The researchers conduct outreach among workers and families, but also among farm worker organizations, the public health community, physicians who provide care to farm workers, growers and farm managers. Studies seek to learn the level of awareness of pesticide safety in farm worker camps and practices related to laundering and wearing work clothes and shoes into the home. In one study, a water-heating system was developed to be deployed in the fields to permit thorough hand-washing before eating, which is otherwise difficult under the time constraints workers face. Materials such as a cartoon video and a comic book were developed, carefully attuned to the language and culture of the workers, to present basic pesticide safety messages. The hallmarks of all of these efforts are cultural sensitivity, innovation, and adaptability, so that these efforts provide models and strategies for ongoing efforts for pesticide safety among U.S. farm workers and their families.

**“Tox Town” On-line Information:** The National Library of Medicine (NLM) devotes considerable attention and resources to improving access by health professionals, patients, families, community-based organizations, and the general public to information, with special emphasis on rural, minority, and other underserved populations. Tox Town was developed by the National Library of Medicine (NLM) in 2003 to help users learn about potential toxins in their homes, schools, and communities. The site uses simplified graphic images to help users navigate through various locations to find information. Initial reception of the site by consumers has been very positive and NLM has conducted focus group testing on the site as well. A text-based Spanish language version has also been developed. Future strategies include developing additional environmental scenes beyond the town and city currently available. These scenes would address populations located in other parts of the country including a desert southwestern scene and a farm scene.

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FY2004 NIH Budget Funding Levels

In FY2004, the NIH spent approximately \$1.65 billion on *behavioral, social and environmental* population-based prevention research programs. This represents about 23 percent of the total prevention budget (\$7.18 billion in FY2004), albeit with wide variation among the institutes and centers due to different missions and state of the science within their respective fields.

It is important to recognize that animal studies as well as research considered to be biological in nature (e.g., biochemical, molecular, cellular) have been excluded from the figures in the table below. **In FY2002, the Senate Committee requested that NIH prepare a report on the broader population-based prevention research portfolio. Because this year's report excludes several types of studies, these funding levels are not comparable to the figures in the FY2002 report.**

NATIONAL INSTITUTES OF HEALTH	
Behavioral, Social & Environmental Population-Based Prevention Research (Dollars in thousands)	
Participating ICs	FY 2004 Actual
NCI	97,301
NHLBI	456,100
NIDCR	3,659
NIDDK	107,247
NINDS	4,157
NIAID	56,112
NIGMS	5,046
NICHD	154,132
NEI	6,282
NIEHS	42,704
NIA	146,255
NIAMS	16,212
NIDCD	4,100
NIMH	230,819
NIDA	126,331
NIAAA	58,512
NINR	11,460
NHGRI	1,265
NIBIB	279
NCRR	24,979
NCCAM	3,538
NCMHD	27,529
FIC	17,418
NLM	45,812
OD*	1,769
NIH	1,649,018

\*OD includes ORWH, OBSSR, ODS