Testimony before the

House Appropriations Subcommittee on

Labor, Health and Human Services, Education and Related Agencies

Senior Programs

March 17, 2004

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Mr. Chairman and Members of the Subcommittee:

Thank you for this opportunity to join today's hearing on senior programs. I am Dr. Richard Hodes, Director of the NIA, and I am pleased to be here today to tell you about our progress in making and communicating scientific discoveries that will improve the health and well-being of older Americans.

There are today approximately 35 million Americans ages 65 and over, according to the U.S. Bureau of the Census. Thanks to improvements in health care, nutrition, and the overall standard of living, these men and women are more likely than ever before to be healthy, vigorous, and productive. Studies confirm that disability among America's elders has declined steadily over the past decade. More older Americans are able to participate in "instrumental activities of daily living," such as performing household chores and managing their own medications, while fewer are experiencing limitations in basic physical tasks such as walking or climbing stairs.

At the same time, diseases of aging continue to affect many older men and women, seriously compromising the quality of their lives. For example, more than half of all Americans over age 65 show evidence of osteoarthritis in at least one joint. Over half of Americans over age 50 have osteoporosis or low bone mass. Cardiovascular disease, cancer, and diabetes remain common among older Americans. And as many as 4.5 million Americans suffer from Alzheimer's disease (AD), the most common cause of dementia among older persons.

The mission of the National Institute on Aging is to improve the health and well-being of older Americans through research. In support of this mission, the Institute

conducts and supports an extensive program of research on all aspects of aging, from the basic cellular and molecular changes that occur as we age, to the prevention and treatment of common age-related conditions, to the behavioral and social aspects of growing older, including the demographic and economic implications of an aging society. In addition, the NIA is the lead federal agency on Alzheimer's disease research; our activities in that area encompass prevention, detection, clinical trials, and caregiver issues. Finally, our education and outreach programs provide vital information to older people across the United States on a wide variety of topics, including living with chronic conditions such as arthritis or diabetes, caring for a loved one with Alzheimer's disease, and maintaining optimal health through exercise.

The NIA works to rapidly translate research findings into practical interventions and information that will benefit older Americans. This may involve enhancing our methods of communicating important research findings to physicians or the public; creating opportunities for patients to benefit from groundbreaking research through participation in clinical trials; or even recognizing the potential of a very basic finding in a mouse, a worm, or a molecule to eventually have a powerful impact on the public health.

For example, recent findings in *C. elegans*, a tiny worm that is frequently used for genetic studies, are providing important insights about fat regulation and storage that may lead to improved understanding of overweight and obesity in humans. NIH-supported researchers used RNA interference (RNAi), a technique in which genes are inactivated one at a time to determine their function, to screen the worm's genome, and they found some 417 genes involved with fat regulation and storage. Many of the genes they found

have human counterparts, a number of which had not been previously implicated in the regulation of fat storage. Overweight and obesity are widespread in the United States and are associated with an array of health problems, including heart disease, stroke, osteoarthritis, adult-onset diabetes, and certain types of cancer; the genes identified in *C. elegans* may ultimately suggest new targets for treating human obesity and its associated diseases.

NIA-supported investigators in all fifty states are conducting research that is changing the way we prevent, diagnose, and treat the diseases of aging. NIA also supports networks of centers that focus on specific topics, including demography and the basic biology of aging. There are currently 29 NIA-supported Alzheimer's Disease Centers (ADCs), at which investigators are working to translate research advances into improved care and diagnosis for AD patients while focusing on the program's long-term goal - finding ways to treat and possibly prevent AD. Many ADCs have satellite facilities that offer diagnostic and treatment services and collect research data in underserved, rural, and minority communities. Another type of Center, the Edward R. Roybal Centers for Research on Applied Gerontology, translates behavioral and social research findings into practical outcomes for older adults. Each of the six Roybal Centers addresses one or more central themes (e.g., cognitive influences on physician/patient interaction affecting medical compliance; safe driving behavior; and social role adjustment upon retirement).

The NIA also supports a variety of clinical trials, frequently in collaboration with one or more NIH Institutes or other organizations. For example, NIA is currently supporting 18 AD clinical trials, seven of which are large-scale prevention studies.

These trials are testing agents such as anti-inflammatory drugs and anti-oxidants for their effects on slowing progress of the disease, delaying AD's onset, or preventing the disease altogether. Other intervention trials are assessing the effects of various compounds on the behavioral symptoms (agitation, aggression, and sleep disorders) of people with AD. In addition to AD, NIA supports clinical trials for a number of other conditions, including cardiovascular disease, Parkinson's disease, and certain types of cancer.

A major clinical trial in which NIA-supported researchers took part is the Diabetes Prevention Program, a multi-institutional study that was initiated by the National Institute on Diabetes and Digestive and Kidney Diseases and was designed to identify interventions that could prevent or delay the development of type 2 diabetes. The researchers found that people who are at high risk for diabetes can sharply reduce their risk by adopting a low-fat diet and moderate exercise regimen. This effect was most pronounced among study participants age 60 and over. Treatment with the drug metformin (Glucophage®) also reduced diabetes risk among study participants, but for unknown reasons was less effective among older participants. With other participating NIH Institutes, we are continuing to follow the study participants to determine long-term effectiveness of these interventions.

The NIA also has a number of ongoing or planned special initiatives on diverse research topics. These include:

Health Disparities. The NIA's Healthy Aging in Neighborhoods of Diversity Across the Lifespan (HANDLS) project is a community-based study of health disparities among different racial, ethnic, and socioeconomic groups in Baltimore. The purpose of HANDLS is to disentangle the effects of race and socioeconomic status on risk factors

for morbidity and mortality, incidence and progression of pre-clinical disease, development and persistence of health disparities, longitudinal health status, and health risks. The pilot phase of the study was completed in December 2001, and the full-scope study is now being planned for implementation in 2004-2005. Unique to the HANDLS study is the use of two fully-equipped mobile research laboratories that enable investigators to collect data directly in the neighborhoods under study, establishing links with the community and increasing both the interest of potential participants and the retention rate.

Neuroimaging. The NIA is developing an Alzheimer's Disease Neuroimaging Initiative, a longitudinal, prospective, natural history study of normal aging, mild cognitive impairment, and early AD to evaluate neuroimaging techniques such as magnetic resonance imaging (MRI) and positron emission tomography (PET). The study objectives are to:

- Identify the best markers for early diagnosis of AD
- Identify markers for following disease progression and monitoring treatment response
- Develop surrogate endpoints for clinical trials
- Decrease time and expense of drug development
- Establish methods for the collection, processing, and distribution of neuroimaging data in conjunction with other biological, clinical, and neuropsychological data

The initiative is planned as a partnership among the NIA/NIH, academic investigators, the pharmaceutical and imaging equipment industries, the Food and Drug Administration, the Centers for Medicare and Medicaid Services, and the NIH

Foundation, with participation from the Alzheimer's Association and the Institute for the Study of Aging. The clinical, imaging, and biological data and samples will be made available, with appropriate safeguards to ensure participant privacy, to all scientific investigators in the academic and industrial research communities.

Testosterone replacement in men. Levels of circulating testosterone decline as men age, and this decline may be related to decrements in physical and cognitive functioning – for example, recent research suggests that older men with lower levels of free, or unbound, testosterone circulating in their bloodstreams could be at increased risk of developing Alzheimer's disease (AD). Increasingly, middle-aged and older men are turning to testosterone replacement therapy (TRT) to forestall these symptoms: In 2002, over 800,000 men received some form of testosterone replacement. However, as with the use of hormone replacement therapy among women prior to the release of the Women's Health Initiative results demonstrating serious HRT-related risks, men are using TRT in the absence of clear scientific data supporting its use. A multi-disciplinary panel, led by the Institute of Medicine and supported by the NIA and the National Cancer Institute, recently evaluated the pros and cons of conducting clinical trials of testosterone replacement therapy in older men to answer many of the lingering questions about the effects of this hormone in the aging body. The NIA is considering the IOM recommendations very carefully and will act on the recommendations to begin clinical trials to determine the efficacy of testosterone in treating symptomatic older men with low testosterone levels.

Longevity. The NIA has formed a Longevity Consortium to help identify and understand genetic and other factors that predispose to human longevity or protect

against multiple age-related conditions, a major goal in aging research. The Consortium is an innovative system for expeditious generation, review, and funding of new projects as opportunities arise, and includes epidemiologists, geneticists, population biologists, statisticians, and others with an interest in the genetic and molecular basis for longevity. Participants can draw on the study populations of 15 of the largest human aging studies, including the Cardiovascular Health Study, the Women's Health Initiative, Health ABC, the Study of Osteoporotic Fractures, the Rotterdam Study, the Honolulu Heart Study, and the New England Centenarian Study. Altogether, Consortium researchers will have access to data on some 200,000 study subjects.

Demography. As the percentage of Americans over age 65 increases, profound societal changes will likely occur. NIA-supported researchers are exploring the changing demographic, social, and economic characteristics of the older population. Research embraces topics such as: trends in the age-structure of populations; changes in levels of disease and disability; economic costs of disability; cost-effectiveness of interventions; migration and geographic concentrations of the elderly; decision-making about retirement, pensions and savings; relationship between health and economic status, health disparities by gender and race. The results of this research often have important implications for public policy. Such research often involves large datasets that are frequently co-sponsored by NIA and other government agencies in the U.S. and overseas. These include:

- *Health and Retirement Study*, a biennial survey of more than 22,000 Americans over age 50, which provides data for researchers, policy analysts, and program planners who

are making major policy decisions that affect retirement, health insurance, saving and economic well-being.

- *National Long-Term Care Study*, which explores trends in the prevalence of self-rated old age disability and physical, cognitive, and sensory limitations.
- *Longitudinal Study of Aging*, a long-term study in which the NIA participates with the National Center for Health Statistics.
- *Panel Study of Income Dynamics*, begun in 1968 and conducted by the National Science Foundation, is a nationally representative longitudinal study that collects information on U.S. households. Notably, the PSID contains information on approximately 5,000 heads of households and spouses who are baby boomers (born 1945-1964) – a cohort not yet represented in the Health and Retirement Study (HRS). Continued data from the PSID will shed light on individual household saving behavior of the baby boom generation and its neighboring age cohorts.

Health Communication. Communication of research-based health information is another key activity of the NIA, and the Institute uses both traditional and innovative means to disseminate information. In 2003, the Pew Internet and American Life survey found that 22 percent of Americans age 65 or older have access to the Internet, and that 58 percent of these "wired seniors" had used the Internet to look for information about a specific disease. However, NIA-supported research has demonstrated that with age come changes in cognition (such as working memory, perceptual speed, text comprehension) and vision (including loss of ability to detect fine details, less light reaching the retina, and loss of contrast sensitivity) that could hinder the older person's ability to use the Internet easily and effectively. To respond to the unique needs of Internet users over 60,

the NIH launched NIHSeniorHealth.gov on October 23, 2003. Developed by the NIA and the National Library of Medicine, and featuring content developed in collaboration with several other NIH Institutes, this web site is easy for older adults to read, understand, remember, and navigate. For example, the site features large print and short, easy-to-read segments of information repeated in a variety of formats -- such as open-captioned videos and short quizzes -- to increase the likelihood it will be remembered. Consistent page layout and prompts help users move from one place to another on the site without feeling lost or overwhelmed. The site also has a "talking" function, which allows users the option of reading the text or listening to it as it is read to them.

The risk of many diseases increases with age, so the site focuses on health topics or specific diseases that are of particular interest to older people, including Alzheimer's disease, Alzheimer's disease caregiving, arthritis, balance problems, breast cancer, colorectal cancer, exercise for older adults, hearing loss, lung cancer, and prostate cancer. Upcoming and planned topics include complementary and alternative medicine, diabetes, falls, shingles, vision changes, and others. Each topic provides general background information, quizzes, frequently asked questions (FAQs), open-captioned video clips, transcripts for the videos, and photos and illustrations with captions. From its launch in October 2003 through late January, NIHSeniorHealth.gov has received over a million page views and been visited by nearly 118,000 unique visitors.

The NIA also maintains a large selection of lay-language Age Pages, which cover an array of topics relevant to older people and include information on a number of diseases and conditions, suggestions for coping with these conditions, and information on other resources. Most of the Age Pages have been translated into Spanish.

At a March 2002 hearing of this Subcommittee entitled "Bench to Bedside," Chairman Regula recommended that NIA and the Administration on Aging (AoA) work together to disseminate research-based consumer education to the thousands of seniors who participate in the Meals-on-Wheels program across the Nation. In response, NIA staff, with the participation of AoA, have conducted focus groups of program managers from the Meals on Wheels Association of America (MOWAA) to determine the types of information of greatest interest to MOW's clients, as well as the best ways to deliver such information (e.g., meal tray liners printed with key health messages, articles for MOWAA newsletters, or specially crafted Age Pages.) Based on focus group feedback, NIA is currently revising Age Pages on diabetes, alcohol, and depression; these materials will be tested at the upcoming MOWAA meeting in September 2004**,** and we anticipate that distribution to MOWAA clients will begin shortly thereafter.

The Alzheimer's Disease Education and Referral (ADEAR) Center has been compiling and disseminating information about AD for health professionals, persons with AD and their families, and the public since 1990. NIA is also working to translate research findings into action through its highly successful campaign to encourage older people to exercise. In the last four years, NIA has distributed over 611,000 copies of its exercise guide and 93,000 copies of its companion video to the public. A Spanish-language version of the guide was published in January 2002, and over 33,500 copies have been distributed to date. The NIA's efforts to promote exercise and strength training are conducted in support of the President's "HealthierUS" and the Department of Health and Human Services' "Steps to a HealthierUS" initiatives.

To continue these and other activities, the NIA is requesting an FY 2005 budget

of $1,055,666,000, an increase of $31,068,000 and 3 percent over the FY 2004 enacted level.

Thank you for the opportunity to testify before this Subcommittee. I would be happy to answer any questions you may have.