

DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH

Fiscal Year 2014 Budget Request

Statement for the Record

Senate Subcommittee on Labor-HHS-Education Appropriations

Richard J. Hodes, M.D.

Director, National Institute on Aging

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Mr. Chairman and Members of the Committee:

I am pleased to present the President's Budget request for the National Institute on Aging (NIA) of the National Institutes of Health (NIH). The fiscal year (FY) 2014 budget includes \$1,193,370,000, which is \$72,979,000 more than the comparable FY 2012 level of \$1,120,391,000.

More than 40 million people age 65 and older live in the United States, and data from the Federal Interagency Forum on Aging-Related Statistics indicate that their numbers will double by 2040. In less than 50 years, the number of "oldest old"—people ages 85 and older—may quadruple. As record numbers of Americans reach older age, profound changes will occur in our health care and social systems.

NIA leads the national effort to understand aging and to identify and develop interventions that will help older adults enjoy robust health and independence, remain physically active, and continue to make positive contributions to their families and communities. We support genetic, biological, clinical, behavioral, and social research related to the aging process, healthy aging, and diseases and conditions that often increase with age. We also carry out the crucial task of training the next generation of researchers who specialize in the issues of aging and old age. Finally, we support a vibrant program of basic, clinical, and translational research through our Intramural Research Program, which underwent a revision in 2013, to recognize new paradigms in the field of aging research and integrate laboratories and resources in a way that will more efficiently foster discovery.

IMPROVING THE HEALTH AND WELL-BEING OF OLDER AMERICANS

Life expectancy in the developed world has improved dramatically over the last century, and advances in public health and medicine are allowing people to stay healthier longer. But, since 1980, U.S. life expectancy, especially for women, has lagged behind other wealthy nations, and cross-national studies suggest that older Americans get sicker sooner than older Europeans. Similar disparities in health and longevity exist across geographical areas within the United States. NIA has established an initiative to identify and address the behaviors and social circumstances behind these differences.

NIA-supported investigators are continuing to work to identify the optimal means to address the unique health needs of older individuals. For example, studies have shown that regular physical activity can improve physical performance in older people, and with the U.S. Surgeon General, NIA has launched its nationwide *Go4Life* campaign to motivate older Americans to engage in physical activity and exercise. However, definitive evidence that physical activity can prevent mobility disability is lacking, and NIA supports the Lifestyle Interventions and Independence for Elders Study to assess whether a specific physical activity program can prevent disability in sedentary older individuals.

NIA-supported investigators are also testing interventions for health conditions common to old age. For example, the Centers for Disease Control and Prevention reports that fully half of older Americans have at least two chronic health conditions that compromise quality of life. NIA participates in a trans-NIH initiative to develop interventions to modify behavior and improve health outcomes among individuals with multiple chronic conditions. In addition, NIA supports research on rehabilitation from a number of acute and chronic conditions, including the development and pilot testing of a smart phone-based self-

management system for older patients with heart failure and development of a unique biomaterial that can act as a temporary replacement for both bone and cartilage. Other ongoing studies include the ASPirin in Reducing Events in the Elderly (ASPREE) trial to determine whether the benefits of aspirin outweigh the risks in people over 70; testosterone supplementation to delay or prevent frailty in older men; exercise for mood, health, and cognition; and several interventions for menopausal symptoms.

THE FIGHT AGAINST ALZHEIMER'S DISEASE

It is estimated that as many as 5 million people in the United States aged 65 and older currently have Alzheimer's disease (AD), and annual costs of care for dementia, of which Alzheimer's is the most common cause, have been calculated using data from the Health and Retirement Study at between \$157 billion and \$215 billion among people 70 and older. Unless effective treatment or preventive interventions are identified, these numbers will rise significantly as the number of older Americans continues to increase. NIA has been a leader in the implementation of the National Alzheimer's Project Act and the development of the National Plan to Address Alzheimer's Disease. Recent initiatives have boosted support for AD research, including the NIH Director's allocation of an additional \$50 million in FY 2012 and \$40 million in FY 2013 for the disease. In the FY 2014 President's Budget request for NIA, \$80 million of the increase planned for competing research project grants will be devoted to Alzheimer's disease projects, in response to recommendations of the Alzheimer's Disease Research Summit held in May 2012. The recent launch of the International Alzheimer's Disease Research Portfolio (IADRP), a publicly available database to capture the full spectrum of current AD research investments and resources throughout the world, will facilitate coordination of these efforts.

One active and highly promising area of research is the identification and elucidation of risk and protective genes for AD. For example, a variation in TREM2, a gene involved in inflammation and immune response, was recently identified as a moderate risk factor for late-onset AD, and a variant of the BCHE gene has been associated with deposition of beta-amyloid in the brain—a pathologic hallmark of the disease. Other investigators found that in mice, ApoE-4, the best-known genetic risk factor for late-onset AD, is associated with inflammation of the blood vessels that feed the brain involving a molecule called cyclophilin A, suggesting that cyclophilin A may be a viable drug target. Finally, investigators with the NIH-supported AD Genetics Consortium have identified a gene, ABCA7, which appears to be more strongly associated with AD in African Americans than in individuals of European ancestry. Further study is needed to confirm and extend this finding.

NIH currently supports more than 35 clinical trials, including both pilot and large-scale trials, of a wide range of interventions to prevent, slow, or treat AD and/or cognitive decline; more than 40 compounds are in preclinical development through the AD Translational Initiative. Funding for the groundbreaking Alzheimer’s Disease Cooperative Study was renewed earlier this year, and several interventional studies are planned: a secondary prevention trial to test an amyloid-clearing drug in 1,000 symptom-free older volunteers with abnormal levels of brain amyloid accumulation; a randomized, controlled trial to find out if supervised aerobic exercise can influence cognitive decline, slow brain atrophy, or mitigate Alzheimer’s pathology in older adults with mild cognitive impairment, a condition that often leads to AD; and a study to test the drug prazosin to help control agitation, a common symptom in AD patients.

UNDERSTANDING AGING AT THE MOST BASIC LEVEL

NIA initiatives on the molecular mechanisms of aging, from in-depth study of single cells to the broad study of organisms at the systems level, continue to advance our understanding of the basic underpinnings of the aging process. The NIH Geroscience Interest Group (GSIG) was formed in 2012 to accelerate and coordinate efforts to promote discovery on the common risks and mechanisms behind age-related diseases and conditions. The GSIG has planned a number of initiatives for coming years, including informational activities, expansion of current initiatives to incorporate aging-related aims, and new trans-NIH funding initiatives. A GSIG workshop on inflammation and age-related diseases was held in September 2012, and a larger-scale workshop tentatively entitled “Geroscience: Foundations for Delaying Chronic Disease and Increasing Healthspan” is planned for fall 2013.

EMPOWERING THE NEXT GENERATION OF AGING RESEARCHERS

The need for health care professionals and research scientists who specialize in the unique needs of older individuals is becoming ever more urgent. Recently, NIA established the Grants for Early Medical/Surgical Subspecialists’ Transition to Aging Research (GEMSSTAR) program to support physicians who seek to become clinician-scientists in geriatric aspects of their subspecialty. NIA has also established a program targeting undergraduate students from diverse backgrounds in order to advance their interest in and knowledge of aging issues.

Richard J. Hodes, M.D.

Director, National Institute on Aging

Richard J. Hodes, M.D., directs the research program of the National Institute on Aging (NIA) at the National Institutes of Health. A leading immunologist, Dr. Hodes was named Director of the NIA in 1993, to oversee studies of the basic, clinical, epidemiological and social aspects of aging.

Under Dr. Hodes' stewardship, the NIA budget has surpassed \$1 billion, reflecting increased public interest in aging as America and the world grows older. Dr. Hodes has devoted his tenure to the development of a strong, diverse, and balanced research program, focusing on the genetics and biology of aging, basic and clinical studies aimed at reducing disease and disability, including Alzheimer's disease and age-related cognitive change, and investigation of the behavioral and social aspects of aging. Ultimately, these efforts have one goal—improving the health and quality of life for older people and their families.

In the past decade, NIA has worked in new and innovative ways to conduct research, and to translate research findings into practical interventions and public information. In biology, research conducted and supported by NIA examines the genetic and other factors influencing lifespan and age-related diseases and conditions. Research in geriatrics is uncovering new ways to combat frailty with age, and social and demographic research is deepening understanding of the individual behaviors and societal decisions that affect well-being. In Alzheimer's disease (AD), new initiatives to find genes involved in AD and to identify biomarkers are expected to considerably

reduce the length and cost of clinical trials, thereby speeding up the testing of new therapies for AD.

Dr. Hodes is a graduate of Yale University and received his M.D., from Harvard Medical School. He completed training in Internal Medicine at Massachusetts General Hospital and in Oncology at the National Cancer Institute. Dr. Hodes is a Diplomate of the American Board of Internal Medicine. In 1995, he was elected as a member of The Dana Alliance for Brain Initiatives; in 1997, he was elected as a Fellow of the American Association for the Advancement of Science; and in 1999, he was elected to membership in the Institute of Medicine of the National Academy of Sciences.

Dr. Hodes' research laboratory in the National Cancer Institute focuses on the cellular and molecular mechanisms that regulate the immune response, with major fields of current emphasis in: 1) the function of costimulation in T and B cell lineage development and function, and 2) regulation of telomere length, and its functional consequences, in both human and mouse model systems. Additional background is available at the lab's website: <http://ccr.cancer.gov/Staff/Staff.asp?StaffID=472>