

NATIONAL INSTITUTE ON AGING

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Mission:

The National Institute on Aging (NIA) conducts biomedical, behavioral and social research on aging processes to prevent disease and other problems of the aged, and to maintain the health and independence of older Americans. The NIA leads the federal Alzheimer's disease research effort.

Selected Achievements and Initiatives:

Imaging Alzheimer's Disease: Alzheimer's disease (AD) is currently diagnosed using a combination of clinical examination, neuropsychological tests, and brain imaging, although there is at present no scientifically validated method to visualize characteristic pathologic features of AD — amyloid plaques and neurofibrillary tangles — in the living human brain. Recent studies have reported the development of two novel radiotracers that suggest it may be possible to provide quantitative imaging information on amyloid deposits in the brain. In the first human study of a novel amyloid-imaging tracer called Pittsburgh Compound-B (PIB), used with positron emission tomography (PET), patients with mild AD showed marked retention of PIB in areas of the brain known to be heavily affected by AD pathology. In a separate study, researchers used IMPY, a compound under development, in conjunction with single photon emission computerized tomography (SPECT), to image amyloid deposits in mice genetically altered to develop AD pathology. Although further research is needed, such compounds may ultimately play an important role in understanding, diagnosing and developing treatments for AD.

The NIA, in conjunction with other Federal agencies and private companies and organizations, has launched a \$60 million, five year public-private partnership — the Alzheimer's Disease Neuroimaging Initiative (ADNI) — to test whether serial magnetic resonance imaging (MRI), PET, other biological markers, and clinical and neuropsychological assessment can be combined to measure the progression of mild cognitive impairment (MCI) and early AD. The study will take place at approximately 50 sites across the U.S. and Canada and, starting in 2005, will enroll about 800 adults, ages 55 to 90, to participate in the research. The ADNI clinical, imaging, and biological data and samples will be made available to all qualified scientific investigators, and ultimately, the Initiative's aims are to improve diagnosis and to lessen the time and cost of clinical trials, thereby increasing the safety and efficiency of drug development.

Healthy Aging In Neighborhoods of Diversity Across the Life Span (HANDLS): This NIA initiative is a prospective community-based, multidisciplinary, longitudinal study designed to focus on evaluating health disparities in socio-economically diverse African Americans and whites in Baltimore, Maryland. Health disparities may be the result of a complex and dysfunctional interaction of environment, genetics and the normative aging process. The HANDLS epidemiological study will assess physical characteristics of participants, as well as evaluate genetic, biologic, demographic,

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psychosocial, and psychophysiological factors 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, and will employ a novel research tool — mobile medical research vehicles — to improve participation rates among non-traditional research participants. The initial recruitment phase will take approximately three years to complete; starting in 2008, a series of cross-sectional analyses of the data will be initiated.

Resources for Enhancing Alzheimer's Caregiver Health: Approximately 80 percent of caregiving for persons with dementia — a profound stressful undertaking — is provided by family members. REACH is a unique, two phase, multisite research program sponsored by the NIA and the National Institute on Nursing Research to carry out social and behavioral research on interventions designed to enhance family caregiving for AD and related disorders. REACH I was a multi-site caregiver intervention trial testing the feasibility and effects of multiple different psychosocial/behavioral interventions on the health and well-being of dementia caregivers; a total of 1222 caregiver/patient dyads representing major races and ethnicities in the U.S were recruited. This trial has yielded more than 60 peer-reviewed journal publications describing treatment outcomes, the effects of key caregiver transitions, and variations in the caregiving experience by race and ethnicity. REACH investigators recently published two companion papers addressing the issue of racial differences in family caregiving. In one analysis, African-American caregivers reported lower anxiety, better well-being, less use of psychotropic medications, more benign appraisals of stress and perceived benefits of caregiving, and greater religious coping and participation than white caregivers. In the other study, Latina caregivers reported lower appraisals of stress, greater perceived benefits of caregiving, and greater use of religious coping than white caregivers. In addition, several differences emerged between less and more acculturated Latinas, emphasizing the need to examine heterogeneity among Latino caregivers. A second trial, REACH II, has been conducted to test the effectiveness of an intervention that incorporates the best elements of the REACH I trial; REACH II outcomes will be available in 2005.

Appropriations History

(\$ in thousands)

FY 2001	\$785,590 (+14.4%)
FY 2002	\$892,267 (+13.6%)
FY 2003	\$993,598 (+11.4%)
FY 2004	\$1,024,754 (+3.1%)
FY 2005	\$1,051,990 (+2.7%)

Extramural Research Project Grants

(Includes SBIR/STTRs)

FY 2001	1,338
FY 2002	1,380
FY 2003	1,451
FY 2004	1,479
FY 2005	1,526

Success Rate — Research Project Grants

FY 2001	32%
FY 2002	28%
FY 2003	29%
FY 2004	21%
FY 2005	19%

Research Training Positions Supported

FY 2001	552
FY 2002	571
FY 2003	570
FY 2004	550
FY 2005	543

Research Centers

FY 2001	66
FY 2002	65
FY 2003	66
FY 2004	77
FY 2005	76