

SUSTAINING MOMENTUM:

NIH Takes Aim at Alzheimer's Disease & Related Dementias

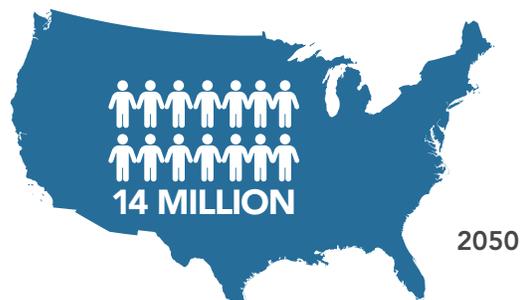
NIH BYPASS BUDGET PROPOSAL FOR FISCAL YEAR 2019



The **National Institutes of Health (NIH)** presents an annual professional judgment budget for the additional Federal funds needed to stop Alzheimer's disease and related dementias by 2025. This report outlines the toll Alzheimer's takes on our Nation and the scientific opportunities we could pursue with enhanced funding in Fiscal Year (FY) 2019. To view the NIH Professional Judgment Budget for FY 2019, visit www.nia.nih.gov/bypass-budget.

DEMENTIA AFFECTS MILLIONS OF AMERICANS

Today, more than **5 million** older Americans live with Alzheimer's disease. This number is expected to climb to nearly **14 million** by 2050, unless we find ways to stop the disease. Many thousands more live with related disorders—frontotemporal, vascular, Lewy body, and other types of dementia.



ALZHEIMER'S IS A LEADING CAUSE OF DEATH

Alzheimer's disease remains the **sixth leading cause of death** overall in the U.S., accounting for 3.6 percent of all deaths in 2014. It is the fifth leading cause of death among Americans age 65 and older.



DEMENTIA IS COSTLY

Alzheimer's is costly to families not only financially, but in the sheer

intensity of caregiving for a loved one with the disease. In 2011, nearly 6 million caregivers assisted older adults with dementia, devoting more than 6 billion hours per year in care. For the Nation, health and long-term care costs for dementia were estimated as high as **\$215 billion** in 2010; these annual costs may soar to **\$511 billion** by 2040.

BUDGETING NOW FOR A CURE IN 2025

NIH estimates we will need **a total of \$2 billion** in FY 2019 toward our goal of preventing and treating Alzheimer's disease and related dementias by 2025. In FY 2017, funding for this research was an estimated \$1.4 billion. The Professional Judgment Budget presented here estimates \$1.2 billion in additional funds needed relative to the FY 2018 President's budget proposal—comprising \$577 million to compensate for proposed reduced funding in FY 2018 and \$597 million in additional investment—to sustain our momentum.

Making Progress, Advancing Research in Alzheimer's & Related Dementias

The FY 2019 NIH Professional Judgment Budget for Alzheimer's Disease and Related Dementias highlights an integrated, multidisciplinary research agenda that is designed to accelerate the discovery and delivery of successful treatments for all stages of Alzheimer's, as well as to improve care and services.

Read more about the research initiatives and advances highlighted below in the full budget document at www.nia.nih.gov/bypass-budget.

Harnessing the Power of Big Data

Big Data collaborations are critical to shorten the time between the discovery of drug targets and the development of new drugs. The [AMP-AD Target Discovery and Preclinical Validation Project](#) has already discovered more than 100 novel candidate targets, now being evaluated with industry partners. The [Molecular Mechanisms of the Vascular Etiology of Alzheimer's Disease \(M²OVE-AD\) Consortium](#) is working to identify the genes, proteins, and metabolites that could become future markers for disease risk or for tracking the effectiveness of promising therapies.

Radical Rethinking of Tools, Translational Infrastructure

The [Alzheimer's Disease Preclinical Efficacy Database](#), or AlzPED, and the new center of excellence [MODEL-AD](#) aim to overcome one of the major challenges to creating new therapies for Alzheimer's disease—poor translation of studies in animal models to clinical trials—by enabling transparent reporting and developing better mouse models of the disease. In addition, new programs are developing much-needed research tools by building on highly promising reprogramming of human cells.

Creating a Pipeline of New Candidate Therapeutics

To bridge the funding gap between discovery science and early-phase clinical trials, NIH continues to invest in robust translational initiatives such as the NIA AD Drug Development program, the NIH-wide [Blueprint Neurotherapeutics Program](#), and the NIH [Small Business Innovation Research](#) program. Many new compounds are in various stages of development, including candidate drugs aimed at activating neural stem cells for brain repair, insulating brain cell connections from harm, boosting declining cognition, and neutralizing the toxic effects of harmful proteins.

Learning About Alzheimer's Complexity from Down Syndrome

Many people with Down syndrome develop brain changes associated with Alzheimer's, and a high percentage go on to develop dementia. The NIH [Alzheimer's Biomarkers Consortium of Down Syndrome \(ABC-DS\)](#) is moving forward to test biomarkers and look at new technologies to track Alzheimer's disease progression in this vulnerable population, as well as to test an immunotherapy vaccine and examine problems in the body's disposal system for abnormal proteins.

Detecting Disease Progression

Discovery of novel biomarkers for Alzheimer's disease is critically needed for detection of disease-related change years before symptoms of memory loss appear. The landmark [Alzheimer's Disease Neuroimaging Initiative](#) (ADNI), along with the [AMP-AD Biomarkers Project](#), are exploring tau imaging and working to discover other novel biomarkers for detecting disease and tracking responsiveness to treatment and/or disease progression. New explorations of brain connectivity through an extension of [The Human Connectome Project](#) are developing more precise mapping of brain regions and how they work together.

Monitoring Elders and Tracking Disease at Home

To support the goal of helping seniors remain at home longer, the [Collaborative Aging \(in Place\) Research Using Technology \(CART\) Initiative](#) unites NIH with other agencies and experts to develop and test tools that track changes in older adults' health status and activities unobtrusively in real time. In another project, a portable tablet application is being tested to see how it might be able to help detect early cognitive decline in older adults, initially in research studies and perhaps someday in clinical evaluations.

Understanding Alzheimer's-Related Dementias

Stepped-up efforts to study Lewy body dementia, vascular dementia, and frontotemporal degeneration are underway. Focused on small vessel disease in the brain and its role in vascular contributions to cognitive impairment and dementia (VCID), the [MarkVCID Consortium](#) aims to speed up development of new biomarkers for small vessel VCID. New support has also created a "Center Without Walls," bringing together interdisciplinary teams to coordinate and share scientific resources and data.

Improving Quality of Clinical, Long-Term Care

Concurrent with discovery in the lab, research into innovations in clinical and long-term care is advancing to improve quality of life for patients and families. New, nondrug approaches to help with anxiety, aggression, and apathy for hospitalized dementia patients show promise. NIH is also exploring next-generation caregiving strategies, including the use of mobile and assistive technologies, such as socially assistive robots.

Progress on Understanding Health Disparities

Through the lens of the [NIA Health Disparities Research Framework](#), NIH is looking at how genetic, environmental, and other risk factors may affect disease prevalence and expression among racial and ethnic groups differently and seeking to better understand cultural differences in how dementia and family caregiving are viewed.

