



Executive Summary  
Progress Report on

*The*  
CDC  
Healthy Brain  
*Initiative*

2006–2011

National Center for Chronic Disease Prevention and Health Promotion



## The Healthy Brain Initiative

- Alzheimer's disease is now the 6th leading cause of death among American adults aged 18 and older,<sup>1</sup> and the 5th leading cause of death for those aged 65 and older.
- Current estimates for the prevalence of Alzheimer's disease range from 2.6 million to 5.2 million Americans,<sup>2</sup> and the risk of developing the disease increases with age.
- If present trends continue, by 2050, as many as 16 million people may be living in the United States with Alzheimer's disease.<sup>3</sup>
- For people with Alzheimer's disease and other dementias, aggregate payments for health care, long-term care, and hospice are projected to increase from \$183 billion in 2011 to \$1.1 trillion in 2050 (in 2011 dollars).<sup>4</sup>

The growing burden on individuals, families and communities has moved Alzheimer's disease, once considered a rare disorder, to a recognized major public health problem that severely impacts older adults and their families. To more fully understand its implications, the Centers for Disease Control and Prevention (CDC) established the Alzheimer's-specific segment of CDC's Healthy Aging Program, referred to as The Healthy Brain Initiative, in 2005. Together with the Alzheimer's Association, National Institute on Aging, Administration on Aging, AARP, and other public and private sector organizations, CDC began to examine the current state of knowledge regarding the promotion and protection of cognitive health, to identify important gaps, and to define the unique role and contributions of public health.

The groundwork for The Healthy Brain Initiative emanated from a critical analysis of the scientific literature in 2001, sponsored by the National Institutes of Health (NIH) Cognitive and Emotional Health Project (CEHP). Building on this work, CDC co-chaired a Steering Committee of national experts to guide The Healthy Brain Initiative. One of the initial efforts was to establish a Work Group that coordinated a public health research meeting in May 2006 on *The Healthy Brain and our Aging Population: Translating Science to Public Health Practice*. The Work Group and subsequent Steering Committee deliberations led to a framework to guide a coordinated public health response to address cognitive health—*The Healthy Brain Initiative: A National Public Health Road Map to Maintaining Cognitive Health*.

The Road Map focused on physical activity and vascular factors because of their association with cognitive outcomes. Its creators adopted a long-term goal **to maintain or improve the cognitive performance of all adults** and a set of 44 action items, ten that were prioritized for immediate action. To view the Road Map, please visit [www.cdc.gov/aging](http://www.cdc.gov/aging).

While development of the Road Map by a wide range of interested agencies and organizations was itself a major accomplishment, the greater value of having such a tool lies in its use by those agencies to focus efforts in a strategic and mindful manner. As one of those organizations, CDC's Healthy Aging Program has embraced the Road Map and used it to allocate resources for The Healthy Brain Initiative in four major areas: conducting surveillance, supporting policy change, advancing communication, and guiding applied prevention research.

The Healthy Brain Initiative aims to better understand the public health burden of cognitive impairment through surveillance; build a strong evidence base for policy communication and programmatic interventions for improving cognitive health; and translate that foundation into effective public health practice in states and communities. This progress report provides brief background on the Initiative and highlights CDC's accomplishments to date.

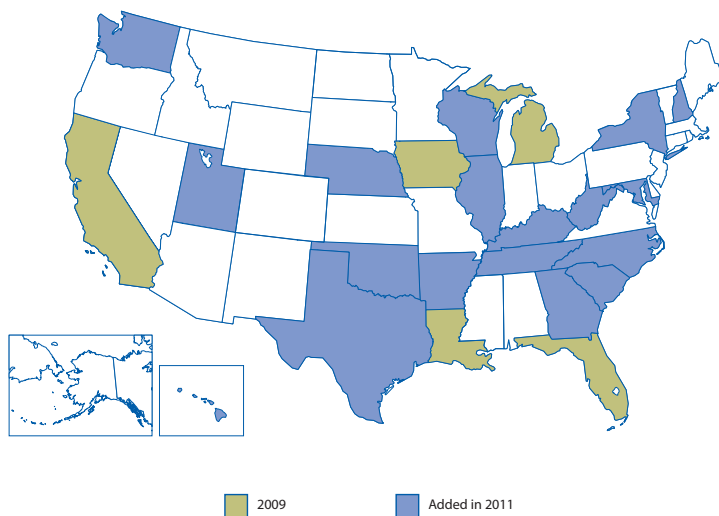
For more detailed information on accomplishments and next steps, see the full report at [www.cdc.gov/aging](http://www.cdc.gov/aging).

### ▶ A New Cognitive Impairment Module in the Behavioral Risk Factor Surveillance System

In 2007, CDC's Healthy Aging Program began exploring the inclusion of an optional module in the Behavioral Risk Factor Surveillance System (BRFSS) on cognitive impairment and cognitive health. A meeting with the members of Michigan's Dementia Coalition in September 2007 confirmed the need and requirements for this new module. A panel of national experts in public health, population-based surveillance, cognitive impairment, and aging then defined the constructs to be assessed, identified and reviewed questions previously used to assess the impact of cognitive impairment and cognitive health at the population level, and developed a final set of questions that were approved by the state BRFSS coordinators at their national conference in 2009.

The new 10-item *Impact of Cognitive Impairment Module* gathers information about individuals affected by cognitive impairment; the impact of cognitive impairment on activities in and outside of the home; the need for assistance and caregiving; healthcare-seeking behaviors; and, in households with more than one person, the total number of persons affected by cognitive impairment treatment. Five states piloted the BRFSS questions on cognitive impairment in 2009, and 23 states are currently using the module in their 2011 BRFSS surveys. The Alzheimer's Association worked with the states and provided state support for the module through funding from CDC.

State-level data obtained from the BRFSS will be helpful for advancing public health's understanding about the perceived impact of cognitive impairment among American adults. Information obtained from the module can be used to develop state and national report cards about cognitive impairment, inform state and local plans and policies, promote program development and community coalitions, and identify calls to action.



*States Using the BRFSS Cognitive Impairment Module in 2009–2011*

### Resources

*Surveillance: Impact of Cognitive Impairment Module—Behavioral Risk Factor Surveillance System (BRFSS)* shares briefs from the states of California, Florida, Iowa, and Louisiana prepared using BRFSS data to inform public health professionals on the burden of cognitive impairment in their states. Two additional briefs were developed by the Healthy Aging Program to share similar messages with the general public and policy makers. [www.cdc.gov/aging/healthybrain/surveillance.htm](http://www.cdc.gov/aging/healthybrain/surveillance.htm).

## ▶ Additional Questions on Cognitive Function in the National Health and Nutrition Examination Survey

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CDC's Healthy Aging Program collaborated with CDC's National Center for Health Statistics to incorporate two questions on cognitive impairment among adults aged 60 and older in the 2011-2012 National Health and Nutrition Examination Survey (NHANES). In addition, three brief neuropsychological assessments of cognitive functioning are included in the mobile examination component of NHANES to measure executive function, memory, processing speed, and attention. The addition of these cognitive components provides a unique and critical opportunity to examine prevalence, morbidities, and co-morbidities of cognitive functioning using combinations of physical, psychological, and social variables not available simultaneously from other data sources.

## Supporting Policy Change

### ▶ New Topic Area and Objectives Focused on Dementia in *Healthy People 2020*

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When the “Proposed Healthy People 2020 Objectives” were released in the fall of 2010, Alzheimer’s disease was the only leading cause of death that did not have a designated topic area. Following extensive input from the public and support from the Federal Interagency Workgroup, *Healthy People 2020* now includes a new topic area, “Dementias, including Alzheimer’s disease” to “reduce the morbidity and costs associated with, and maintain or enhance the quality of life for, persons with dementia, including Alzheimer’s disease” ([www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=7](http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=7)). The developmental objectives in this topic area are—

- To increase the proportion of persons with diagnosed Alzheimer’s disease and other dementias, or their caregivers, who are aware of the diagnosis. Many individuals with Alzheimer’s disease or other dementias are currently undiagnosed, which seriously impairs their access to available medical management, valuable information, and support.
- To reduce the proportion of preventable hospitalizations in adults with diagnosed Alzheimer’s disease and other dementias. Older adults with dementia are three times more likely to have preventable hospitalizations than older adults without dementia.<sup>5</sup> Preventing these hospitalizations can decrease healthcare costs incurred by families and the healthcare system.

CDC’s Healthy Aging Program in partnership with the National Institute on Aging is currently working to identify and obtain relevant data from the necessary sources so that baseline measures can be established and changes tracked at regular intervals throughout the 10-year time frame.

### Resources

*Cognitive Impairment: A Call for Action, Now!* was released by CDC’s Healthy Aging Program and the Alzheimer’s Association in Spring 2011. The brief provides information for decision makers on the impact of cognitive impairment, along with “Calls to Action,” state and community examples of successful efforts, and other resources. [www.cdc.gov/aging/pdf/cognitive\\_impairment/cogImp\\_policy\\_final.pdf](http://www.cdc.gov/aging/pdf/cognitive_impairment/cogImp_policy_final.pdf)

*Cognitive Impairment and Alzheimer’s Disease*, part of the Healthy States project of the Council of State Governments, with support from the Alzheimer’s Association and CDC, offers valuable guidance for states seeking to inform cognitive health policy. The brief opens with a remarkable case study of policy change in Missouri and provides talking points for legislators, data on prevalence and cost of Alzheimer’s disease, suggested legislative actions, and additional resources. [www.healthystates.csg.org/NR/rdonlyres/265E9FFC-18C4-4757-9254-CB6AC771EA46/0/AlzheimersTPfinal.pdf](http://www.healthystates.csg.org/NR/rdonlyres/265E9FFC-18C4-4757-9254-CB6AC771EA46/0/AlzheimersTPfinal.pdf)

### ► Greater Understanding of the Public's Perception of "Brain Health"

Between 2005 and 2007, researchers with CDC's Healthy Aging Research Network conducted 55 focus groups with a diverse group of over 450 older adults from nine states to learn how they understand cognitive health and which health promotion and disease prevention approaches related to cognitive health they find most desirable. Several key themes emerged.

- Race and ethnicity can influence how we define a healthy brain.
- Older adults believe that physical activity can protect cognitive health but are less clear on the role of nutrition.
- Media messages concerning cognitive health are rare and often conflicting.

It is anticipated that these themes and other findings will help to develop effective public health messages to promote cognitive health in older adults, along with questions that can be used in national surveys to track attitudes and beliefs.

#### Resources

*Promoting Cognitive Health in Diverse Populations of Older Adults* is a special issue of *The Gerontologist* published in 2009 to share the results of the focus groups. [gerontologist.oxfordjournals.org/content/49/S1.toc](http://gerontologist.oxfordjournals.org/content/49/S1.toc)

*What is a Healthy Brain? New Research Explores Perceptions of Cognitive Health Among Diverse Older Adults* is a fact sheet describing the major findings from the focus groups that were published in *The Gerontologist*. [www.cdc.gov/aging/pdf/Perceptions\\_of\\_Cog\\_Hlth\\_factsheet.pdf](http://www.cdc.gov/aging/pdf/Perceptions_of_Cog_Hlth_factsheet.pdf)

### ► Insight into Beliefs and Practices of General Population and Healthcare Providers

The Styles Project is a collaborative effort between CDC's Healthy Aging Program and Healthy Aging Research Network's Healthy Brain Interest Group to assess the general population and healthcare providers' attitudes and practices with respect to cognitive health. Two surveys, owned by Porter Novelli and licensed by CDC for analysis in health communication planning, were used in this project.

To better understand public beliefs about cognitive health and how individuals obtain information about this topic, cognitive health-related questions were added to the 2009 and 2010 HealthStyles survey, an ongoing mail consumer survey on health orientations and practices. Findings suggest an opportunity for cognitive health promotion: 70% of adults are concerned about memory loss; 20% fear becoming cognitively impaired; and believe that mental stimulation, physical activity, healthy diets, social involvement, vitamins, healthy weight, and avoiding smoking are associated with maintaining cognitive health.<sup>6</sup>

To better understand physicians' perceptions and practices for reducing patient risk of cognitive impairment, questions were added in 2008 and 2009 to a second Styles survey, DocStyles. Findings revealed that 40% of primary care physicians report discussing cognitive health-related concerns with patients who do not have dementia and advise them to reduce risk through behavioral interventions. Such information can be used to inform educational materials for physicians seeking to address patient concerns related to reducing cognitive impairment or dementia risk.

#### Resources

Day KL, Friedman DB, Laditka JN, Anderson LA, Hunter R, Laditka SB, et al. Perceptions and practices on prevention of cognitive impairment: a survey of U.S. physicians. *Journal of Applied Gerontology* 2011 March 15. doi 10.1177/0733464811401354. [jag.sagepub.com/content/early/2011/03/15/0733464811401354.full.pdf+html](http://jag.sagepub.com/content/early/2011/03/15/0733464811401354.full.pdf+html)

### ► Understanding the Impact of Cognitive Impairment on Co-Occurring Chronic Conditions

Investigators at the University of Washington, in partnership with representatives from the Healthy Aging Research Network, received funding from CDC's Healthy Aging Program for a 3-year project (2011 to 2013): *Examining the Impact of Cognitive Impairment on Co-Occurring Chronic Conditions and Geriatric Syndromes*. The study's intent is to gather information and resources that can assist public health practitioners at national, state, and local levels to articulate the impact of cognitive impairment on public health strategies and policies, in particular the design and delivery of evidence-based health promotion and chronic disease self-management programs. It is designed to examine the effects of multiple chronic conditions (dementia plus other chronic illness or geriatric syndromes) on various health outcomes such as functioning, quality of life, and mortality and consists of three interrelated phases. Each phase will produce important findings that will be disseminated to the public health community through a variety of methods.

### ► Assessing the State-of-Science of Physical Activity Interventions and Cognitive Health Outcomes

CDC's Healthy Aging Program funded a systematic literature review on community-based physical activity interventions designed to promote cognitive health. Guided by an expert panel, project investigators developed an organizing model and analytic framework, then performed a systematic review to identify physical activity interventions related to cognitive health, focusing on physical activity interventions most relevant to the public health community. The panel concluded that available data were insufficient for determining whether physical activity or exercise interventions improve cognition in older adults. It outlined that future research should report exercise adherence, use longer study durations, and determine the clinical relevance of measures used.

#### Resources

*Effect of Exercise on Cognitive Performance in Community-Dwelling Older Adults: Review of Intervention Trials for Public Health Practice and Research* describes the methodology and findings of the review. [onlinelibrary.wiley.com/doi/10.1111/j.1532-5415.2011.03323.x/abstract](https://onlinelibrary.wiley.com/doi/10.1111/j.1532-5415.2011.03323.x/abstract)

*Cognitive Health: An Emerging Public Health Issue* describes the demographic and historical imperatives compelling the nation to address cognitive health. A product of collaboration between CDC and the Alzheimer's Association, this article appeared in a special issue of *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*.

Cognitive health "can be viewed along a continuum—from optimal functioning to mild cognitive impairment to severe dementia" ... and cognitive health "should be respected for its multidimensional nature and embraced for the positive changes that occur as a natural part of the aging process."

— The NIH Cognitive and Emotional Health Project



## Related Accomplishments

### ▶ Improving Caregivers' Health And Quality Of Life

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Nearly 15 million Americans currently provide unpaid care for a person with Alzheimer's disease or another dementia. Although national population-based surveys describe some important characteristics of these caregivers, they do not address their health status nor provide state and community level data. To address this gap, one caregiver question was added to the core BRFSS questionnaire in 2009: *People may provide regular care or assistance to a friend or family member who has a health problem, long-term illness, or disability. During the past month, did you provide any such care or assistance to a friend or family member?*

In addition, CDC's Disabilities and Health Program, CDC's Healthy Aging Program, and investigators at the University of Florida developed an optional caregiver module for the BRFSS to obtain state and local data on the prevalence of caregiving as well as the life span health effects of caregiving. This 10-question "Caregiver Module" was piloted in 2005 and used by a total of 9 states and Washington DC in 2009 and 2010.

#### Resources

*Assuring Healthy Caregivers, A Public Health Approach to Translating Research into Practice: The RE-AIM Framework* helps practitioners and researchers plan, conduct, and evaluate intervention programs and policies that promote the health and well-being of caregivers. [www.cdc.gov/aging/pdf/caregiving\\_monograph.pdf](http://www.cdc.gov/aging/pdf/caregiving_monograph.pdf)

The *REACH OUT Action Guide: Implementing a Community-Based Program for Dementia Caregivers*, developed in collaboration with the University of Michigan and the National Association of Chronic Disease Directors, assists community and state agencies in implementing evidence-based programs for improving health and quality of life for persons caring for older adults with dementia. [www.diseasechronic.org/files/public/HA\\_Reach\\_Out\\_Action\\_Guide\\_09.pdf](http://www.diseasechronic.org/files/public/HA_Reach_Out_Action_Guide_09.pdf)

### ▶ Addressing Depression in Late Life

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It is also critical and timely to focus public health effort on emotional health and identify factors that can help adults maintain or enhance both their cognitive and emotional health as they age. The University of Washington's Prevention Research Center performed a systematic review to identify interventions and screening instruments for depression that are particularly suitable for dissemination to older adults through the public health and aging services networks. Findings were presented to the Task Force on Community Preventive Services and used as the basis for three new recommendations concerning mental health and older adults in *The Guide to Community Preventive Services*.

In addition, the Healthy Aging Research Network conducted a dynamic 2-day symposium at the Carter Center in Atlanta, in collaboration with the Rosalynn Carter Georgia Mental Health Forum, to equip over 175 public health, aging services, and mental health professionals with effective strategies for depression screening and treatment for older adults.

#### Resources

*The Guide to Community Preventive Services* is a resource for evidence-based recommendations and findings about what works to improve public health. [www.thecommunityguide.org/index.html](http://www.thecommunityguide.org/index.html)

*Effective Programs to Treat Depression in Older Adults: Implementation Strategies for Community Agencies* shares conference webinars, action briefs, and speaker presentations from the Research to Practice Symposia. [www.prc-hanconferences.com/2008-conference](http://www.prc-hanconferences.com/2008-conference)

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## References

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- <sup>4</sup> U.S. Department of Health and Human Services. Alzheimer's disease: unraveling the mystery. Bethesda, MD: National Institutes of Health. NIH Publication No. 02-3782; December 2003.
- <sup>5</sup> Bynum JP, Rabins PV, Weller W, Niefeld M, Anderson GF, Wu AW, et al. The relationship between a dementia diagnosis, chronic illness, Medicare expenditures, and hospital use. *Journal of the American Geriatrics Society* 2004 Feb;52(2):187-94.
- <sup>6</sup> Laditka SB, Laditka JN, Friedman DB, Wu B, Hunter RH, Tseng W, Anderson LA. (2011). Promoting cognitive health: perceptions and practices among adults in the U.S. In: Abstracts for the Gerontological Society of America Annual Meeting; Boston, MA (in review).

Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

Suggested citation: Centers for Disease Control. Executive Summary Progress Report on *The CDC Healthy Brain Initiative: 2006-2011*. Atlanta, GA: CDC Office of Communications;2011.