FALL 2014

WISCONSIN ALZHEIMER'S DISEASE RESEARCH CENTER

We're Renewed! Seeking V

\$7.45 Million Award Boosts Drive to Find Answers

The National Institute on Aging, the lead agency for Alzheimer's disease research at the National Institutes of Health (NIH), has renewed the grant that funds the Wisconsin Alzheimer's Disease Research Center (ADRC) for another 5 years.

The Scientific Mission

The NIH funding endorses the Wisconsin ADRC's scientific mission: To identify ways to recognize and treat the disease during a stage before a patient shows symptoms, called the "preclinical stage." Evidence suggests that Alzheimer's disease (AD) develops in the brain decades before symptoms appear. Signs of the disease, or biomarkers, if accurate, could lead to early diagnosis as well as the discovery of effective treatment and prevention strategies.

Notable findings

In its first five years, the Wisconsin ADRC has already made notable discoveries. The biomarkers that Sterling Johnson, PhD, is studying through MRI and PET scans indicate that people who show no symptoms but are at high risk have differences in the structure or function of their brains. Moving ahead, Johnson's goal is to determine if amyloid imaging can predict not only the presence of AD in the body, but also brain degeneration, cognitive decline and eventual conversion to symptomatic AD.

Barbara Bendlin, PhD, is investigating other biomarkers for the disease, including central obesity, insulin resistance, and sleep apnea. Her groundbreaking research has shown that cardiovascular disease and diabetes (including pre-diabetes) produce Alzheimer's-like brain changes.

Luigi Puglielli, MD, PhD, has made important discoveries on how AD develops—information that may lead to disease-modifying treatments. Ozioma Okonkwo, PhD, is currently investigating whether physical activity and fitness can promote healthy brain aging and thereby delay the onset of AD symptoms.

"We are thrilled with the award," said Dr. Sanjay Asthana, Director of the Wisconsin ADRC. "Once we find a biomarker that can accurately predict the presence of the disease, it opens the door to finding effective preventions and treatments." Seeking Volunteers Whose Parents Did NOT Have Alzheimer's

Many of our research participants join our studies because they have a parent with Alzheimer's disease. In order to really understand risk associated with parental history, we need a comparison group. In other words, we need volunteers who do not have a parental history of the illness. Can you help us find and enlist adults aged 45-65 whose father lived to the age of 70 and whose mother lived to age 75 without signs of dementia?

We also are actively enrolling people who have Mild Cognitive Impairment (MCI). Please help spread this message about prevention research. To learn more, call the Wisconsin Alzheimer's Disease Research Center.



Dr. Sanjay Asthana greets participants.

AD Prevention **Study**

For the first time, researchers are studying whether healthy people at high risk for Alzheimer's disease (AD) can delay its onset by taking an experimental drug. The Wisconsin ADRC is one of 60 sites hoping to contribute 30 to 50 study volunteers to the overall goal of 2,000. Here are some of the most frequently asked questions about this landmark study.

What is the goal of the study?

The study, called the Anti-Amyloid Asymptomatic Treatment in Alzheimer's study ("A4 study" for short), will test whether a new investigational drug, called an amyloid antibody, can slow memory loss caused by AD.

Who is eligible?

Eligible people will be between the ages of 65 and 85 with normal thinking and memory function but who may be at higher risk for developing the disease sometime in the future.

Why is the study recruiting people with normal thinking and memory function rather than people with AD?

Researchers believe that the markers for AD are present in the brain at least 10 to 20 years before memory problems appear. Many believe that intervening before symptoms appear is the key to preventing or slowing the disease.



Dr. Cindy Carlsson (center) and Dr. Carey Gleason (left) talk with a participant at a recent appreciation event.

How will researchers identify people at higher risk?

Physicians and researchers will use PET amyloid imaging scans to determine whether potential participants have evidence of elevated amyloid build-up in the brain. If a person is going to get AD, this is considered the "preclinical" or "asymptomatic" phase of the disease.

What is "amyloid plaque buildup"?

Scientists believe that accumulation of "amyloid" or "beta amyloid," a protein in the brain that can build up in older people, may play a key role in the eventual development of AD-related memory loss, much like the build-up of cholesterol can lead to heart disease.

What is the investigational drug supposed to do?

Researchers are hoping that the drug-that binds to amyloidwill slow decline in memory and thinking as measured by cognitive tests. The A4 study will also look at whether imaging tests show the treatment slows brain injury caused by AD.

How is the study being funded?

The \$140 million study is a publicprivate partnership, funded by the National Institutes of Health, Eli Lilly and Company, and several philanthropic organizations.

How can I get more information about volunteering?

Contact Ben Farral at (608) 256-1901, x11640 or email. bofarral@medicine.wisc.edu.

At-A-Glance | Alzheimer's disease by the Numbers

 $5.4 \,\mathrm{mi}$ with Alzheimer's disease.

The number of Americans

The number of 110.000 Wisconsinites with the disease.

13.8 million The projected number of Alzheimer's deaths in 2050.

IN THE SPOTLIGHT

- Dr. Carlsson decided to be a geriatrician in junior high after her grandma developed dementia. "There was nothing I could do to help my grandma except sit there and hold her hand."
- Her MD is from the University of Michigan Medical School– Ann Arbor.
- She completed an internship, residency, and geriatrics fellowship at the UW Hospital

& Clinics and the VA Hospital in Madison.

- She thought at first that doing research meant she'd be stuck in a lab. "Once I discovered I could work with people and do clinical research, I found out I loved it."
- She is the site principal investigator for the A4 study at the Wisconsin Alzheimer's Disease Research Center (see story, page 2).



 "Although research progress is always slower than I want it to be, it has been very rewarding to see progress in the field."

How the Research World is Going to Defeat Alzheimer's Disease

The daunting statistics on Alzheimer's disease (see below) might leave you asking yourself, What are we going to do? You may be relieved to know that, over the years, some very forwardpeople have thinking been working together to find answers to this question. In other words, there is a plan to beat Alzheimer's disease.

The National Plan to Address Alzheimer's Disease (NAPA) was released in 2012, was updated in 2013, and will be updated annually. The Plan has five primary goals:

- 1. Prevent and effectively treat Alzheimer's disease by 2025
- 2. Optimize care quality and efficiency
- 3. Expand supports for people

- with Alzheimer's disease and their families
- 4. Enhance public awareness and engagement
- 5. Track progress and drive improvement

Already the National Institutes of Health (NIH) research program has helped to support new technologies that have stepped up the pace for identifying genes associated with AD; notably, in November 2013, the International Genomic Alzheimer's Project, which is supported in part by the NIH, announced identification of 11 new genes, offering important new insights into the disease pathways. Under an intensifying research effort, NIH has initiated major new clinical trials, including the first primary prevention trial in people at highest genetic risk for the disease (see story, page 2); supported intensive genetics sequencing; and initiated development of innovative new cellular models.

Through its network of Geriatric Education Centers. the Health Resources and Services Administration has provided resources that have facilitated reaching 34,000 trainees-including primary care physicians-on topics from dementia diagnosis to effective management.

 Excerpted from the January 15, 2014, statement of Richard J.
Hodes, Director of the National Institute on Aging.

At-A-Glance | Alzheimer's disease by the Numbers

3rd A study by Rush University indicates that Alzheimer's disease may be the third leading cause of death rather than its current No. 6 ranking.

Alzheimer's is the only disease in the top 10 for which there is no prevention or cure.



Center Updates



Johnson Named Associate Director

Sterling Johnson, PhD, has been named Associate Director of the Wisconsin Alzheimer's Disease Research Center. He is a clinical neuropsychologist and neuroimaging researcher who was recruited to the University of Wisconsin in 2002 as a Professor of Geriatrics and Gerontology. He has been with the Wisconsin Alzheimer's Disease Research Center since its inception in 2009.

Vitamin E Study

According to a national study, large doses of Vitamin E slowed the progression of Alzheimer's disease when used in conjunction with a patient's standard memory medications. Dr. Sanjay Asthana, Director of the Wisconsin ADRC, was one of the authors on the study, which was conducted at 14 VA hospitals nationwide. Asthana believes the findings will lead to additional research and hopefully one day a cure.



Brain Bank Update

Jay Fruehling, MA, has been named Manager of the Wisconsin Brain Donor Program (WBDP). If your contact information has changed since you registered with the WBDP, please update him at (608) 256-1901, x11767 or email, jjfruehling@medicine.wisc.edu.

SAVE THE DATE!

Tuesday, November 4

2014 November Lecture: "The Search for a Solution to Alzheimer's Disease," at Monona Terrace, Madison. Resource Fair begins at 5 pm with presentations from 6 pm to 8:30 pm.

Friday, November 7

An Affair to Remember, a gala event to raise funds for Alzheimer's research will be held at the Edgewater Hotel, Madison. The event begins at 6 pm.

For event locations and more information, go to www.adrc.wisc.edu or call (608) 263-2582.

We Appreciate Our Participants!



Photos from our study participant appreciation events last summer.

Charlie Daniel was presented with the Outstanding Community Partner Award.

Participants have questions for investigators.

Study Coordinator Danielle Washington and participant Shirley Alexander.

At-A-Glance | Wisconsin Alzheimer's Disease Research Center

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