

New approaches for early diagnosis of Alzheimer's

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Cognitive testing with the elderly is illustrated. Credit: Wayne State University

Mild cognitive impairment, or MCI, may be one of Alzheimer's earliest signs. The subtle changes of MCI include problems with memory, language, thinking and judgment and a subjective sense that mental function is getting worse. MCI is seldom severe enough to impair day-to-day activities and is sometimes ignored as "normal aging." Though it doesn't always progress to Alzheimer's or another dementia, it should always be investigated further.

This may be especially important for older African Americans. They are

twice as likely to develop MCI and Alzheimer's as their Caucasian counterparts, but far less likely to be diagnosed or treated in the early stages. Voyko Kavcic, Ph.D., assistant professor - research in the Institute of Gerontology at Wayne State University, thinks access and convenience may be part of the reason.

"We want to develop affordable, comfortable ways to test for evidence of these disorders so it is easier for older African Americans," Kavcic said. "People with transportation or mobility problems shouldn't have to navigate large, confusing medical centers to get answers. Why not take the test to them?"

Current testing usually requires a brain scan in an MRI machine the size of a school bus. Kavcic and colleagues from the University of Michigan are looking at a more portable diagnostic method that is easier to administer and may better assist in determining who needs the more complicated and expensive tests for a more definitive diagnosis. The National Institute on Aging of the National Institutes of Health has awarded Kavcic a two-year, \$420,000 grant to determine if an electroencephalograph (EEG) plus cognitive tests on a computer - or even the EEG alone - could be the answer.

"This is a community-based approach," said Kavcic. "If we want more people to be diagnosed and treated, testing must be easy, fast, cheap and readily accepted. The tests we propose can be conducted in a church basement or a senior center. Older African Americans are at highest risk to develop Alzheimer's from MCI, so they are the priority."

Kavcic, along with Michigan Alzheimer's Disease Center (MADC) Associate Director Bruno Giordani, Ph.D., and Edna Rose, Ph.D., the MADC minority recruitment specialist and a nurse and social worker, will recruit 200 older African Americans with no diagnosed [cognitive impairment](#), but who feel their memory may be worsening. The database

of volunteers compiled through the Participant Resource Pool (PRP) of the Healthier Black Elders Center will be vital in recruiting these people.

Peter Lichtenberg, Ph.D., director of the Institute of Gerontology and the Merrill Palmer Skillman Institute at Wayne State University and James Jackson, Ph.D., director of the Institute for Social Research at the University of Michigan, oversee the Michigan Center for Urban African American Aging Research grant that funds the database. The PRP list of older African Americans willing to help with research makes projects like Kavcic's possible.

"Six years ago it would have been extremely difficult to find larger numbers of African American elders in Detroit willing to participate," Lichtenberg said. "Through trust-building, outreach and education, more than 1,200 volunteers now fill the database."

Participants will take computer-based tests of cognitive function and perform easy computer tasks while wearing an EEG cap. Data from the EEG is then analyzed through sophisticated software for clues of abnormal activity. The participants also will be enrolled into the Michigan Alzheimer's Disease Center, for a brief re-assessment every year to see whether identified difficulties have progressed.

"We want to know if the simple EEG is as effective as more expensive, time consuming and far less available approaches in identifying the mild cognitive changes that lead to Alzheimer's," said Kavcic. "With this approach, we could easily reach thousands more of the high-risk minorities who often go undiagnosed," he said.

No cure exists for Alzheimer's, but medications given early in the disease can slow its progress. Newer medications now under development may actually cure or stop the progress of the disease. Non-pharmaceutical treatments might also help if started early. At a

minimum, with the earliest possible identification, patients and caregivers could receive resources to plan finances and future care.

"It is crucial to be able to predict who will develop [mild cognitive impairment](#) and later Alzheimer's, especially in high-risk, minority populations," Kavcic said. "Only then can we work to maintain quality of life and test new, promising treatments."

Provided by Wayne State University

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