

MCI Screen May Improve Alzheimer's Detection, Treatment

BY CINDY SANDERS

Dr. William Rodman "Rod" Shankle is a board-certified neurologist and statistician whose entire career has been focused on Alzheimer's disease and related disorders, or ADRD.

Almost two decades ago, he co-founded the Alzheimer's Research Center at the University of California, Irvine. Currently, he manages about 1,000 patients through his community-based private clinic in Orange County and is the chief medical officer for the Medical Care Corporation (MCC), a private company he founded that specializes in management and detection tools for ADRD.

Last month, Shankle demonstrated the centerpiece of his company's technologies, the MCI Screen, at the American Academy of Family Physicians Conference. The screening tool for mild cognitive impairment, or MCI, was developed by a team of cognitive and computer scientists.

Shankle says he and his team screened the neuropsychological tests from the Consortium to Establish a Registry for Alzheimer's Disease (CERAD) Battery for the National Institute of Aging.

"We found that one test was able to distinguish normal aging from mild cognitive impairment better than any other test in the battery ... that was step one," he says.

Although the Mini-Mental Status Exam is the most typically used detection method for dementia in physician offices, Shankle says the test is not very sensitive to detecting MCI in the early stages when disease progression can be delayed. Instead his team focused on the CWL (CERAD 10-word list), which he says has about an 82 percent accuracy rate in MCI detection in its standard format.

The next step, Shankle says, was to extract even more information from the test using correspondence analysis. Shankle says this approach increases the accuracy of detection of MCI to 97 percent. Detailed information from the team's study was published in the *Proceedings of the National Academy of Sciences* (PNAS) on March 29, 2005.¹

The team created a computer algorithm for the online test that immediately displays results along with a full report on the computer

screen in the physician office where the test is being given.

"It helps the physician know what to do next," he says. "If it is normal, we also have a preventative program that is part of the same set of tools available that identifies your individual risk factors and then indicates what are the most scientifically established ways to reduce those risks."

The noninvasive MCI Screen, which takes only about 10 minutes to complete, is fully automated. For this reason, Shankle says, someone other than trained medical staff can administer the test without affecting accuracy rates, thus freeing up physician time. The test is reimbursable by Medicare.

Shankle's passion for early detection is rooted in his career choice of caring for ADRD patients. "Alzheimer's begins 30 years before you have a symptom," he says, adding that its effects in the brain are cumulative.

He points to a recent Mayo Clinic study, which showed a 60 percent conversion rate from MCI to Alzheimer's within six years, as an example of why it's so important to detect the earliest warning signs of ADRD.

"You commonly hear there are four-and-a-half million people with Alzheimer's (in the United States)," he says. "What they mean is that four-and-a-half million have dementia due to Alzheimer's."

He adds that there are another 4.5 million with MCI due to Alzheimer's so the true number of people with the disease is at the nine million mark, although half are relatively asymptomatic.

Shankle notes once the large Baby Boom population begins turning 65, those numbers are expected to double or triple.

"This is a much larger public health problem than is generally realized," he says.

However, Shankle believes it is possible to delay the onset of symptoms on the front end and progression of the disease on the back end with aggressive, proactive treatment plans.



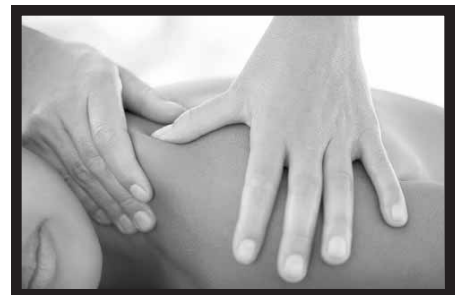
Dr. William Rodman Shankle

"The great value of early detection is we can reduce the cost of the disease by \$200,000 per person and keep them out of nursing homes," Shankle says, adding that delaying symptoms also has obvious quality-of-life implications for patients.

"The key is early detection and sustained treatment," he says. "It really changes the whole face of Alzheimer's."

Shankle received his undergraduate degree in biology from Stanford University and his medical degree from Brown University. He trained as a statistician at the University of Southern California and did postgraduate work at Harvard. He is the co-author, along with Dr. Daniel Amen, of "Preventing Alzheimer's Disease," which was published in April 2004.

¹ William R. Shankle, A. Kimball Romney, Junko Hara, Dennis Fortier, Malcolm B. Dick, James M. Chen, Timothy Chan and Xijiang Sun, "Methods to Improve the Detection of Mild Cognitive Impairment," *PNAS*, 102 (13): 4919-4924 (2005).



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