ADRC Director Partners with Small Business to Develop Early Dementia Screening Test

02/08/2024

qBEANS developers Beth Fauth and Sydney Schaefer demonstrate the cognitive assessment with graduate student Josie Batura.

Elizabeth Fauth, director of the Alzheimer's Disease and Dementia Research Center at Utah State University, has partnered with Sydney Schaefer, associate professor in the School of Biological Health Systems at Arizona State University, and Jill Love, a geriatric care manager and co-owner of Neurosessments, to improve early dementia detection with a simple, non-invasive motor test. The test has already been shown to detect neuropathology and neurodegeneration in older adults who exhibit little to no symptoms of dementia.

In 2023, Neurosessments, a Los Angeles-based company focused on bringing science to senior care, was awarded a Small Business Innovation Research (SBIR) grant of $370,000 from the National Institutes of Health. Neurosessments owners Love and Schaefer partnered with Fauth to further the research and develop the test for market. "It has taken years to develop qBEANS in the laboratory," says Schaefer. "We're ready to gather the evidence needed to help integrate it into a marketable product for use in primary-care settings."

The grant award enables the team to develop and test the reliability of a clinical version of the assessment, referred to as the Quick Behavioral Exam to Advance Neuropsychological Screening (qBEANS) which can be administered by a nurse or medical assistant during a senior adult's routine visit to his or her doctor. Fauth will use students at Utah State University as well as older adults in the community to test qBEANS in a mock clinical setting to determine if a new digital scoring system will be easy for medical technicians to navigate. Love will also test the product in a diverse ethnic sample in the Los Angeles area, assessing if a two-minute clinical test yields scores that are similar to the seven-minute laboratory test.

With only 16% of older adults in the U.S. currently receiving regular cognitive testing, the research team is hoping to provide medical practitioners across the country with the new assessment. "Detecting that a person may be experiencing cognitive impairment before they are noticeably impaired gives people a better chance to get into clinical trials and more time to prepare finances, make care plans, and so on," says Fauth.

The assessment, qBEANS, tests motor behavior and is intentionally not cognitively demanding, which can cause significant anxiety for patients. In the assessment, individuals use a spoon with their non-dominant hand to scoop up dry kidney beans into cups in specific sequences. "We're testing the brain's ability to improve on the task," explains Fauth. "As they move the beans around, their brain is trying to learn strategies to move faster and to be more accurate. We now know that people who don't improve on qBEANS likely have some underlying impairment."

Beth Fauth discusses the qBEANS screening test with an older adult.

If the assessment is adopted into primary care standard practices, it will assist physicians in determining older patients' cognitive health. Currently less than half of primary care providers (48%) offer cognitive testing to their patients. Instead, most providers conduct their own screening by observing the patient and using their clinical judgement or a patient's self-assessment. Now,

using the results of the screening, the physician will be better equipped to determine whether a patient should be referred to a specialist.

Older adults have already accepted that checking blood pressure is a good idea because it indicates that there might be problems in the vascular system. The qBEANS assessment does something similar for the brain.

As the team moves into the clinical application phase of the project, Schaefer, Fauth, and Love are optimistic about its potential. "Screening individuals for cognitive decline before they meet with their doctor can be a game changer when it comes to catching Alzheimer's Disease early on," says Love. "qBEANS can empower older adults to take charge of their future through early detection."

The content of this article is solely the responsibility of the author and does not necessarily represent the official view of the National Institutes of Health.