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Title: New Technologies to Assess Cognition at Home

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Decline in cognitive function is the key change heralding the onset of dementia. The assessment of this change has traditionally relied on episodic or intermittent testing or examinations usually conducted for a relatively brief period of time in a clinic setting at times that are convenient for the examiner. The capabilities of ubiquitous unobtrusive computing platforms and sensor enriched home environments change this paradigm. Using these newer approaches, assessment of cognitive function is freed of the constraints of time and space such that assessments can be conducted in the course of a person's typical day in their natural home environment at multiple times or even continuously for some data types. These methodologies go beyond simple porting of standardized cognitive tests to a home PC to what may be called assessment of functional cognition or the ability to directly examine a person's process of thought in real time as activities of daily living are conducted. The presentation will review relevant background with regard to progress in assessing cognition at home with an emphasis on the home-based ambient assessment approach with examples from several completed and on-going longitudinal studies of the Oregon Center for Aging & Technology and other pertinent examples.