



A Systematic Evidence Review of the Signs and Symptoms of Dementia and Brief Cognitive Tests Available in VA

EXECUTIVE SUMMARY

April 2010

Prepared for:

Department of Veterans Affairs
Veterans Health Administration
Health Services Research & Development Service
Washington, DC 20420

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PREFACE

HSR&D's Evidence-based Synthesis Program (ESP) was established to provide timely and accurate syntheses of targeted healthcare topics of particular importance to VA managers and policymakers, as they work to improve the health and healthcare of Veterans. The ESP disseminates these reports throughout VA.

HSR&D provides funding for four ESP Centers and each Center has an active VA affiliation. The ESP Centers generate evidence syntheses on important clinical practice topics, and these reports help:

- develop clinical policies informed by evidence,
- the implementation of effective services to improve patient outcomes and to support VA clinical practice guidelines and performance measures, and
- set the direction for future research to address gaps in clinical knowledge.

In 2009, an ESP Coordinating Center was created to expand the capacity of HSR&D Central Office and the four ESP sites by developing and maintaining program processes. In addition, the Center established a Steering Committee comprised of HSR&D field-based investigators, VA Patient Care Services, Office of Quality and Performance, and VISN Clinical Management Officers. The Steering Committee provides program oversight and guides strategic planning, coordinates dissemination activities, and develops collaborations with VA leadership to identify new ESP topics of importance to Veterans and the VA healthcare system.

Comments on this evidence report are welcome and can be sent to Nicole Floyd, ESP Coordinating Center Program Manager, at nicole.floyd@va.gov.

Recommended citation: Kansagara D and Freeman M. A Systematic Evidence Review of the Signs and Symptoms of Dementia and Brief Cognitive Tests Available in VA. VA-ESP Project #05-225; 2010.

This report is based on research conducted by the Evidence-based Synthesis Program (ESP) Center located at the Portland VA Medical Center, Portland, OR funded by the Department of Veterans Affairs, Veterans Health Administration, Office of Research and Development, Health Services Research and Development. The findings and conclusions in this document are those of the author(s) who are responsible for its contents; the findings and conclusions do not necessarily represent the views of the Department of Veterans Affairs or the United States government. Therefore, no statement in this article should be construed as an official position of the Department of Veterans Affairs. No investigators have any affiliations or financial involvement (e.g., employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties) that conflict with material presented in the report.

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BACKGROUND

The Veterans Health Administration (VHA) Office of Geriatrics and Extended Care (OGEC) in Patient Care Services has primary responsibility for coordination and direction of VHA dementia initiatives. OGEC convened an interdisciplinary Dementia Steering Committee (DSC) in December 2006, with the goal of making recommendations on comprehensive, coordinated care for Veterans with dementia.

The DSC requested VA HSR&D's Evidence-based Synthesis Program (ESP) to review evidence on selected topics to assist with DSC planning efforts.

Broad-based dementia screening programs have not been widely advocated given lack of evidence that earlier detection will improve health outcomes. Improving the accuracy of case-finding techniques depends both on an understanding of signs and symptoms that help distinguish patients with dementia from those without, and the reliability of brief assessment tests that can be incorporated into primary care practice when appropriate. The purpose of this report is to systematically review the evidence on identifying the signs and symptoms of dementia in undiagnosed patients, and evaluating several brief mental status measures currently being used in VHA. The key questions and scope of this review are the following:

Key Question #1. What signs and symptoms should prompt VA providers to assess cognitive function as part of an initial diagnostic workup for dementia?

Key Question #2. Which measures of cognitive function provide the optimal sensitivity, specificity, and time to completion among the measures available to VA providers?

Key Question #3. What are adverse consequences of using these measures?

Population: Adults without prior diagnosis of dementia.

Measures to be compared: Blessed Orientation-Memory-Concentration (BOMC) Test, Mini-Cog, Montreal Cognitive Assessment (MoCA), General Practitioner Assessment of Cognition (GPCOG), St. Louis University Mental Status (SLUMS) Exam, and Short Test of Mental Status (STMS).

Outcomes: Likelihood for patients to be appropriately diagnosed and treated for dementia; and adverse consequences of assessment, such as depression and anxiety.

Settings: Primary general medicine, mental health, geriatric clinics, specialty clinics, and extended-care settings.

The DSC served as the technical expert panel for guiding topic development and reviewing drafts of the report.

METHODS

We conducted searches in MEDLINE (PubMed), PsychINFO, CINAHL, HAPI, and AGELINE databases for literature published from database inception through July 2009. We obtained additional articles from systematic reviews, reference lists of pertinent studies, narrative reviews, editorials, and from experts in the field. Two reviewers trained in the critical analysis

of literature assessed for relevance the abstracts of citations identified from literatures searches. Full-text articles of potentially relevant abstracts were retrieved for further review. We assessed the quality of studies of diagnostic test accuracy using the Quality Assessment of Diagnostic Accuracy Studies (QUADAS) criteria. We compiled a qualitative synthesis of the evidence.

RESULTS

We reviewed 2,394 titles and abstracts from the electronic search, an additional 88 from reference mining, and 57 from an update search of a selected systematic review. We retrieved 310 full-text articles for further review. Of these, we included 18 studies and 1 systematic review in synthesizing evidence for Key Question #1. For Key Question #2, we evaluated the results of 15 diagnostic accuracy studies of the 6 VA cognitive measures. To address Key Question #3, we included 3 cross-sectional studies on the acceptability of dementia screening and diagnostic workup.

KEY QUESTION #1. What signs and symptoms should prompt VA providers to assess cognitive function as part of an initial diagnostic workup for dementia?

Relatively few studies have rigorously evaluated signs and symptoms that may help distinguish people with mild to moderate dementia from non-demented individuals. Subjective memory complaints (SMC) and neuropsychiatric symptoms have been the best studied symptoms.

Epidemiologic studies suggest that SMC – in most cases, elicited with single- or multi-item questionnaires rather than spontaneous – are common in community-living elderly adults. The ability, however, of SMC to discriminate effectively between healthy elderly adults and those with dementia is uncertain. We examined cross-sectional studies comparing rates of SMC between persons with dementia and healthy elderly controls. Patient-reported SMC did not reliably distinguish demented from non-demented individuals. In populations with low rates of dementia, the absence of SMC may have some utility in excluding a diagnosis of dementia. Informant-reported memory complaints may better distinguish demented from non-demented individuals.

A limited body of evidence examined neuropsychiatric symptoms in demented and non-demented individuals. In general, the absence of neuropsychiatric symptoms would not effectively rule out a dementia diagnosis, but the presence of certain symptoms such as apathy, delusions, and/or hallucinations was associated with a dementia diagnosis and may suggest the need for further evaluation. Depression and anxiety were common in demented and non-demented individuals, suggesting the presence of either symptom would not be useful in reliably ruling in or ruling out a diagnosis of dementia.

A very limited body of evidence evaluated sleep disturbance, gait disturbance, and physical exam findings in demented and non-demented individuals. In general, sleep disturbance is a commonly reported symptom in both demented and non-demented individuals, and does not discriminate well the two groups. Gait disturbances are probably useful in distinguishing different subtypes of dementia, but there is little evidence that gait disturbances can clearly distinguish demented from non-demented individuals. Several physical exam findings may be more common in persons with Alzheimer's dementia (AD) than healthy controls. The only finding that was highly specific for AD, however, was impaired sense of touch for perceiving the form of an object (stereognosis), or the form of a letter or number written on the skin (graphesthesia).

KEY QUESTION #2. Which measures of cognitive function provide the optimal sensitivity, specificity, and time to completion among the measures available to VA providers?

All 6 measures available in VA test for recall ability, and 5 of the 6 measures assess executive function by means of a clock drawing test. The assessment of other cognitive domains, such as orientation, abstraction, math, and language skills, varies among the 6 measures.

The Mini-Cog has the shortest administration time of all 6 tests and has been validated in a large sample of the general population. Sensitivity ranged from 76% to 99%, and specificity ranged from 83% to 93% in analyses that excluded patients with mild cognitive impairment (MCI).

The SLUMS test was studied in a VA population and found to have high sensitivity (98-100%) and specificity (98-100%) with adjustment for education. The SLUMS takes longer to administer than other tests. It was developed more recently than the other tests and has not been widely studied.

The STMS has been studied in a primary care setting. The STMS had sensitivity ranging from 86% to 95%, and specificity was highest (93.5%) when cut-off score was adjusted for age. The STMS was evaluated in 2 samples and has not been widely studied.

The GPCOG has been evaluated in a primary care setting, and includes separate sections for patient and informant. The sensitivity of the components ranged from 82% to 98%, but the informant section by itself had low specificity (49-66%). The specificity of the combined score and 2-stage method ranged from 77% to 86%.

The BOMC was evaluated in a bi-racial population sample, and found to misclassify more blacks than whites as impaired. Specificity ranged from 38% to 94%, and sensitivity ranged from 69% to 100%, although the inclusion of patients with previously diagnosed dementia might have inflated the sensitivity in 2 studies.

The MoCA has the longest administration time among the 6 tests, and had low specificity in 2 of 3 studies (35-50%). The MoCA has been evaluated in a memory clinic population but has not been studied in a general practice setting.

KEY QUESTION #3. What are adverse consequences of using these measures?

We found no evidence on adverse effects of the 6 cognitive tests of interest to VA. Three cross-sectional studies assessed the acceptability of dementia screening or diagnostic workup among older adults. The studies reported that high proportions of older adults were unwilling to be routinely tested for memory problems, or to undergo further diagnostic assessment for dementia after having positive results on cognitive screening tests. One survey determined that 80% of respondents wanted to know if they had dementia, but only 57% would agree to routine testing by a physician. Perceived harms included worry about losing insurance, and fear of losing drivers license. The high refusal rates of screening and diagnostic workup indicate the need for further research to understand the psychological burden associated with cognitive tests and assessment for dementia.