

# Review: Some screening tests for dementia in older persons are accurate and practical for use in primary care

Holsinger T, Deveau J, Boustani M, Williams JW Jr. *Does this patient have dementia?* JAMA. 2007;297:2391–404.

**Clinical impact ratings:** GIM/FP/GP ★★★★★☆ Hospitalists ★★★★★☆ Geriatrics ★★★★★☆ Neurology ★★★★★☆

## QUESTION

How accurate are screening tests for dementia in older persons when used in primary care?

## METHODS

**Data sources:** MEDLINE and PsycINFO (2000 to April 2006). Earlier studies were covered by a previously published review.\*

**Study selection and assessment:** English-language studies that evaluated screening tests for dementia, suitable for use by generalist physicians, in persons > 60 years of age without clinically obvious dementia. Included studies were required to use an acceptable criterion standard to diagnose dementia. Studies in patients in institutions or memory clinics or with < 6 years of education and those involving diagnostic imaging or laboratory or physiologic tests were excluded. 29 studies involving 42 assessments of 25 screening instruments met the selection criteria. Quality of individual studies was assessed based on sample size, participant selection, and use of a credible reference standard applied blindly and independently.

**Outcomes:** Positive (+LR) and negative (–LR) likelihood ratios.

## MAIN RESULTS

Because of differences in tests evaluated and study designs, meta-analysis was not done. Results of the review are summarized in the

Table. The Mini-Mental State Examination (MMSE), the standard screening instrument for dementia, takes 7 to 10 minutes to administer and had a median +LR of 6.3 and a median –LR of 0.19. Brief screening tests, such as the Memory Impairment Screen, Abbreviated Mental Test, clock drawing, 7-Minute Screen, and Short Cognitive Evaluation Battery, take 1 to 10 minutes, assess fewer domains, and were of variable usefulness for screening for dementia. More comprehensive instruments, such as Cambridge Cognitive Examination, Community Screening Interview for Dementia, and Modified MMSE, take 10 to 45 minutes and had a median +LR of 8.9 and a median –LR of 0.12. Instruments for special situations, such as screening by telephone (Memory Impairment Screen–Telephone Version and

Telephone Interview for Cognitive Status), written questionnaires (Cognitive Assessment Screening Test), and tests for highly educated patients (Hopkins Verbal Learning Test), were also useful for screening for dementia.

## CONCLUSIONS

Screening tests for dementia in older persons that can be used in primary care vary in their diagnostic accuracy and the time required to administer them. No single instrument is ideal for all settings.

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\*Boustani M, Peterson B, Hanson L, Harris R, Lohr KN. *Ann Intern Med.* 2003;138:927–37.

### Primary care screening tests for dementia in older persons†

Type of test	Time required	Number of studies	Median +LR (range)	Median –LR (range)
Mini-Mental State Examination	7 to 10 min	11	6.3 (3.4 to 47)	0.19 (0.06 to 0.37)
Brief instruments	1 to 10 min	15	6.9 (1.2 to 47)	0.16 (0.02 to 0.63)
Comprehensive instruments	10 to 45 min	7	8.9 (3.1 to 17)	0.12 (0.01 to 0.25)
Instruments for special situations	3 to 30 min	9	5.6 (3.6 to 49)	0.16 (0.01 to 0.34)

†Diagnostic terms and abbreviations defined in Glossary.

## COMMENTARY

This useful review by Holsinger and colleagues confirmed what experienced primary care physicians know: that the MMSE is a useful test for both ruling in and ruling out dementia. Unfortunately, its performance varies according to who is using it; it is less useful if the examining physician does not know the patient well. The MMSE also has limitations if the patient is visually or physically impaired or has a low formal educational attainment. Physicians should keep these limitations in mind and remember that the MMSE is only a *screening* test; it is helpful if a positive test is repeated on another occasion. Physicians should also remember that the MMSE, like any test, can give both false-positive and false-negative results.

An interesting finding from this review is that the Memory Impairment Screen (which is shorter than the MMSE) has better +LR (33) and –LR (0.08) values; perhaps busy physicians should consider it.

Holsinger and colleagues concluded that clinicians should select 1 primary tool and familiarize themselves with it to become more efficient in screening for dementia. I certainly agree with this conclusion.

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