

## Detection & Diagnosis Literature Review

### Resources

[A Practical Approach to Evaluating Cognition in Primary Care](#)

[DAC: Brief Cognitive Screening Tools for Primary Care, DAC Position Paper](#)

[Clinical Provider Practice Tool – Guidance for identifying and diagnosing dementia](#)

[KAER Toolkit](#)

[Billing and Coding: Psychological and Neuropsychological Tests](#)

[APA Psychological and Neuropsychological Testing Billing and Coding Guide](#)

### Literature

Citation	Findings
<a href="#">Tsoi KK, Chan JY, Hirai HW, et al. Cognitive tests to detect dementia: a systematic review and meta-analysis. JAMA Intern Med. 2015;175(9):1450-1458.</a>	<p>Systematic review of 11 studies among 149 studies with 49,000+ participants to evaluate diagnostic performance of all cognitive tests for detection of dementia</p> <p>Key messages:</p> <ul style="list-style-type: none"><li>- MMSE most commonly tested</li><li>- Many other cognitive tests with comparable diagnostic performance (<b>mini-cog, ACE-R had best diagnostic performance</b>)</li><li>- <b>MoCA was only test to have comparable performance to MMSE for mild cognitive impairment</b></li></ul>
<a href="#">Nonphysician Care Providers Can Help to Increase Detection of Cognitive Impairment and Encourage Diagnostic Evaluation for Dementia in Community and Residential Care Settings (2017)</a>	<p>Narrative review of practice recommendations for non-physician care providers to increase detection of cognitive impairment in older adults, using the Kickstart-Assess-Evaluate-Refer (KAER) framework. Seven practice recommendations below:</p> <ul style="list-style-type: none"><li>- Make information about brain health and cognitive aging readily available to older adults and their families.</li><li>- Know the signs and symptoms of cognitive impairment, that signs and symptoms do not constitute a diagnosis of dementia, and that a diagnostic evaluation is essential for diagnosis of dementia</li><li>- Listen for concerns about cognition, observe for signs and symptoms of cognitive impairment, and note changes in cognition that occur abruptly or slowly over time.</li><li>- Develop and maintain routine procedures for detection of cognition and referral for diagnostic evaluation.</li></ul>

	<ul style="list-style-type: none"> <li>- Use a brief mental status test to detect cognitive impairment only if: <ul style="list-style-type: none"> <li>o Such testing is within the scope of practice for the nonphysician care provider, and</li> <li>o The nonphysician care provider has been trained to use the test, and</li> <li>o Required consent procedures are known and used, and</li> <li>o There is an established procedure for offering a referral for individuals who score below a pre-set score on the test to a physician for a diagnostic evaluation</li> </ul> </li> <li>- Encourage older adults whose physician has recommended a diagnostic evaluation to follow through on the recommendation.</li> <li>- Support better understanding of a dementia diagnosis</li> </ul>
<p><a href="#">AD-8 for detection of dementia across a variety of healthcare settings</a> (2019)</p>	<p>Systematic review of 10 studies with 4045 participants to determine diagnostic accuracy of informant-based AD-8 questionnaire, in detection of all-cause dementia in adults</p> <p>Key messages</p> <ul style="list-style-type: none"> <li>- Suggest that AD-8 can identify adults who may have a diagnosis of dementia who would benefit from specialist assessment</li> <li>- AD-8 is unsuitable as a single diagnostic test, but change of missing a diagnosis of dementia is low (5%)</li> <li>- <b>AD-8 is best suited as an initial screening tool</b> or triage tool to select those needing more detailed assessment (high sensitivity, low specificity)</li> </ul>
<p><a href="#">Addenbrooke's Cognitive Examination III (ACE-III) and mini-ACE for the detection of dementia and mild cognitive impairment</a> (2019)</p>	<p>Systematic review of 7 cross-sectional studies with 1711 participants to assess diagnostic accuracy of ACE-III and mini-ACE for the detection of dementia, dementia sub-types and mild cognitive impairment (MCI) at published thresholds in primary, secondary, and community care settings in patients presenting with or at high risk of cognitive decline</p> <p>Key Messages:</p> <ul style="list-style-type: none"> <li>- <b>The quality, size and number of included studies has not allowed for a definitive conclusion.</b></li> <li>- All studies were conducted in a hospital setting, none in community</li> <li>- Both tests can be used in clinical assessment when making a diagnosis of dementia but not useful as independent tests</li> </ul>
<p><a href="#">Nielsen TR, Jørgensen K. Cross-cultural dementia screening using the Rowland</a></p>	<p>Systematic review and meta-analysis of 26 studies with 1700 participants to synthesize data on accuracy of the Rowland Universal Dementia Assessment Scale (RUDAS) in different sociocultural settings and compare its performance to other brief screening instruments for the detection of dementia.</p>

<p><a href="#">Universal Dementia Assessment Scale: a systematic review and meta-analysis. Int Psychogeriatr. 2020;32(9):1031-1044. (2020)</a></p>	<p>Key messages:</p> <ul style="list-style-type: none"> <li>- Sensitivity 82% and specificity 83% of the RUDAS</li> <li>- <b>Good diagnostic performance of RUDAS for detecting dementia in different sociocultural settings</b></li> <li>- Limited bias in people with limited or no formal education and minimal need for cultural or language adaptation</li> </ul>
<p><a href="#">McCullum L, Karlawish J. Cognitive impairment evaluation and management. Med Clin North Am. 2020;104(5):807-825. (2020)</a></p>	<p>Narrative review of systematic approach to evaluate patients presenting with concern for cognitive impairment.</p> <p>Key messages:</p> <ul style="list-style-type: none"> <li>- Goal of diagnostic evaluation for cognitive impairment is to <b>determine both the severity of impairment and the likely cause or causes</b></li> <li>- A <b>knowledgeable informant is crucial</b> for a reliable evaluation and, depending on the cause, patient care</li> <li>- The mental status examination should <b>incorporate one or more validated instruments</b> to assess cognition</li> <li>- An assessment of <b>functional status informs both the diagnostic work-up and patient care</b></li> <li>- <b>Environmental, psychological, and behavioral interventions are first line</b> for neuropsychiatric symptoms and can be beneficial for cognition and function in cognitively impaired patients</li> </ul>
<p><a href="#">Mini-Mental State Examination (MMSE) for the early detection of dementia in people with mild cognitive impairment (MCI) - Arevalo-Rodriguez, I - 2021   Cochrane Library (2021)</a></p>	<p>Systematic review of 11 studies with 1569 participants of prospective cohorts to determine the accuracy of MMSE for early detection of dementia in people with cognitive impairment</p> <p>Key messages:</p> <ul style="list-style-type: none"> <li>- <b>Did not find any evidence to support substantial role of the MMSE as a stand-alone, single administration test in identification of patients who will convert to dementia</b></li> <li>- Clinicians should either seek to use MMSE as a follow up to detect changes over time or use in context of comprehensive assessments with more specialized neuropsychological test</li> </ul>
<p><a href="#">Mini-Cog for the detection of dementia within a primary care setting (2021)</a></p>	<p>Systematic review of 4 studies with 1517 participants to determine the accuracy of the Mini-Cog for detecting dementia in primary care settings</p> <p>Key messages:</p> <ul style="list-style-type: none"> <li>- Results of highest quality study found Mini-Cog sensitivity of 76% sensitivity and 73% specificity</li> </ul>

	<ul style="list-style-type: none"> <li>- <b>Not enough evidence to support routine use of Mini-Cog as screening test in primary care</b></li> </ul>
<a href="#">Montreal Cognitive Assessment for the detection of dementia</a> (2021)	<p>Systematic review of 7 studies with 9422 participants (three in memory clinics, two in hospital clinics, none in primary care, two in population derived samples) to determine diagnostic accuracy of neuropsychological tests for dementia</p> <p>Key messages:</p> <ul style="list-style-type: none"> <li>- Found that MoCA correctly detected 94%+ of people with dementia in all settings, but also produced high proportion of false positives</li> <li>- <b>Overall quality of studies was not good enough to make firm recommendations on using MoCA to detect dementia in different healthcare settings</b></li> <li>- Likely that MoCA threshold lower than 26 would be more useful for optimal diagnostic accuracy in dementia</li> </ul>
<a href="#">Mini-Cog for the detection of dementia within a community setting</a> (2021)	<p>Systematic review of 3 studies with total of 1620 participants to determine accuracy of the Mini-Cog for detecting dementia in the community setting</p> <p>Key messages:</p> <ul style="list-style-type: none"> <li>- Methodological limitations and heterogeneity present in current studies, make it <b>difficult to provide recommendations for or against use of Mini-Cog</b> as a cognitive screening test in community settings</li> <li>- Need further research</li> </ul>
<a href="#">Mini-Cog for the detection of dementia within a secondary care setting</a> (2021)	<p>Systematic review of 3 studies with 2560 participants (only 1415 participants included in meta-analysis) to determine the accuracy of the Mini-Cog for detecting dementia in secondary care settings</p> <p>Key messages:</p> <ul style="list-style-type: none"> <li>- Small number of studies identified and variation in how they used the Mini-Cog limit the evidence to make recommendations</li> <li>- <b>Would not recommend for use in inpatient and outpatient secondary care hospital settings</b></li> </ul>
<a href="#">Diagnostic test accuracy of remote, multidomain cognitive assessment (telephone and video call)</a>	<p>Systematic review of 31 studies (19 different tests, 3075 participants) to assess the test accuracy of any multidomain cognitive test delivered remotely for the diagnosis of any form of dementia, and to assess for potential differences in cognitive test scoring when using a remote platform and where a remote screening was compared to the equivalent face-to-face test</p> <p>Key messages:</p>

<p><a href="#">for dementia</a> (2022)</p>	<ul style="list-style-type: none"> <li>- 7 tests were relevant to question regarding accuracy of remote testing</li> <li>- Remote tests could correctly identify people with dementia between 26-100% of the time and correctly rule out dementia 65-100% of the time</li> <li>- <b>Lack of high quality studies research describing accuracy of telephone and video-call based memory and thinking tests – however, in situations where in-person assessment is limited, virtual could be a first step.</b></li> <li>- This needs to be followed up with in-person assessment before a diagnosis is made</li> </ul>
<p><a href="#">Diagnostic test accuracy of self-administered cognitive assessment tools for dementia</a> (2024)</p>	<p>Systematic review of 11 cross-sectional studies with 2300 participants to assess test accuracy of any self-administered cognitive assessment tool for diagnosis of any form of dementia in any setting</p> <p>Key messages:</p> <ul style="list-style-type: none"> <li>- <b>The evidence suggests that cognitive assessment tools that are completed by people themselves could be used in the detection and diagnosis of dementia.</b></li> <li>- <b>There is not enough evidence to recommend one type of assessment tool over another.</b></li> <li>- Further research on the use of these assessment tools in different settings, such as clinics or people's homes, and the scores that indicate dementia is needed.</li> </ul>