



CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS

Vascular Cognitive Impairment Seventh Edition, 2024

Appendix 4: Summary of selected screening and initial assessment tools for vascular cognitive impairment

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on behalf of the Canadian Stroke Best Practice Recommendations

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Appendix 4: Summary of selected screening and initial assessment tools for vascular cognitive impairment

This table provides additional information on a selection of cognitive screening and assessment tools that have been identified through the literature review for the Canadian Stroke Best Practice Recommendations: Vascular Cognitive Impairment, 7th Edition Update 2024. This is not intended to be an exhaustive list, rather as a starting place for researchers and clinicians in identifying validated tools. A full reference list can be found at the end of the table.

Assessment Tool	Purpose	Items and Administration	Availability
Quick Screening Tools (≤5 minutes to administer)			
6-Item Cognitive Impairment test (6-CIT) Brooke & Bullock 1999	A dementia screening tool designed for use in primary care.	6 items: 1. What year is it? (correct-0; incorrect 4) 2. What month is it? (correct-0; incorrect-3) 3. About what time is it (within one hour)? (correct-0; incorrect-3) 4. Count backwards from 20-1. (no errors-0; 1 error-2; ≥1 error-4) 5. Say the months of the year in reverse. (no errors-0; 1 error-2; ≥1 error-4) 6. Repeat an address phase given after Q2. (no errors-0; errors range from 2-10 depending on the number of errors). Total scores range from 0 to 28. Scores of 0-7 are considered normal, while scores ≥ 8 are more significant. Test takes 3-4 minutes to complete. Does not require specialized training for administration	Free https://www.mindwell-leeds.org.uk/wp-content/uploads/2021/03/6CIT.pdf
Clock Drawing Test (CDT) Sunderland et al. 1989	A screening tool for cognitive impairment.	Involves a command to draw a clock or to copy a clock. Score Interpretation: No universal system for scoring exists. Individual scoring systems are based on the number of deviations from what is expected from the drawing. Takes approximately 1-2 minutes to complete by the individual with VCI. Does not require additional equipment or specialized training for administration.	Free http://www.strokingin.ca/?s=clock+drawing
Memory Impairment Screen (MIS) Buschke et al. 1999	A brief screening tool to evaluate memory.	1. A sheet of paper with 4 words in ≥24 upper case font is presented to the individual with VCI. 2. Tell the individual with VCI that each item belongs to a different category. Give a category cue and ask individual with VCI to indicate which of the words belongs in the stated category (e.g., "Which one is the game?"). Allow up to 5 attempts. Failure to complete this task indicates possible cognitive impairment.	Free Available on many websites https://www.cogsclub.org.uk/professionals/files/The_Memory_Impairment_Screen.pdf

Assessment Tool	Purpose	Items and Administration	Availability
		<p>3. When the individual with VCI identifies all 4 words, remove the sheet of paper. Tell the individual with VCI that he or she will be asked to remember the words in a few minutes.</p> <p>4. Engage individual with VCI in distractor activity for 2 to 3 minutes, such as counting to 20 and back, counting back from 100 by 7, spelling WORLD backwards.</p> <p>5. FREE RECALL — 2 points per word: Ask individual with VCI to state as many of the 4 words he or she can recall. Allow at least 5 seconds per item for free recall. Continue to step 6 if no more words have been recalled for 10 seconds.</p> <p>6. CUED RECALL — 1 point per word: Read the appropriate category cue for each word not recalled during free recall (e.g., “What was the game?”).</p> <p>Scores range from 0 to 8. Scores of 5-8 indicate no cognitive impairment; scores ≤ 4 indicate possible cognitive impairment. Takes <5 minutes to complete.</p>	<p>https://www.alz.org/media/documents/memory-impairment-screening-mis.pdf</p>
<p>Mini Cog</p> <p>Borson et al. 2003</p>	<p>A rapid screening test for <u>Alzheimer's disease</u></p>	<p>There are 2 components, word recall (scores range from 0-3 with one point awarded for each word correctly recalled) and a clock drawing test where the individual with VCI is asked to place the numbers in a provided circle and set the hands to ten past eleven (0-2 points).</p> <p>Total scores range from 0-5. Cut offs of <3 and <4 have been used to identify possible deficits. Test takes 3-4 minutes to complete.</p>	<p>Free</p> <p>https://mini-cog.com/</p>
<p>The General Practitioner Assessment of Cognition (GPCOG)</p> <p>Brody et al. 2002</p>	<p>A brief screening tool for VCI</p>	<p>Patient portion (5 components)</p> <p>1. The test administrator or healthcare provider asks the individual to repeat and remember a name and address (e.g., John Brown, 42 West Street, Kensington) and recall it in a few minutes.</p> <p>2. The individual is asked to state today's date.</p> <p>3. The test administrator provides a blank page with a circle and asks the individual to make a clock drawing with all of the numbers drawn correctly on the face of the clock.</p> <p>4. The individual is then asked to draw in the clock's hands so that it reads 10 minutes past 11 o'clock.</p> <p>5. The test administrator asks the individual to describe something specific that has happened in the news in the last week.</p> <p>Scores range from 0 to 9 points.</p> <p>In the name and address recall section, one point is given for correctly providing each of the answers (for a score of up to five points).</p>	<p>Free</p> <p>https://www.alz.org/media/documents/gpcog-screening-test-english.pdf</p>

Assessment Tool	Purpose	Items and Administration	Availability
		<p>First name, last name, street number, street name and city name.</p> <p>One point is given for saying the correct date. The exact date required to get credit.</p> <p>One point is given for correctly <u>drawing the clock</u>. Another point is given for correctly drawing the hands of the clock to show 10 minutes past 11 o'clock.</p> <p>A point is awarded for telling the administrator something specific from recent news in the past week.</p> <p>No further assessment is needed if the individual scores the maximum total of 9 points. If an individual with VCI scores 5-8, proceed with Step 2, informant section.</p> <p>Test takes 2-5 minutes to complete.</p> <p>Informant section</p> <p>The test administrator asks a caregiver or family member if the individual has more difficulty than they used to five to 10 years ago with the following tasks: recent memory, memory for conversations held a few days ago, word-finding difficulty, managing finances, medication management or the ability to handle transportation needs.</p> <p>If the informant indicates a decline in three or more of these areas, the individual likely has cognitive impairment.</p>	
<p>6-Item Screener (SIS)</p> <p>Callahan et al. 2002</p>	A brief screen for cognitive impairment	<p>There is a 3-item recall component (apple, table, penny), whereby the patients should be able to repeat the words three items initially, and then recall them after 5 minutes; there is also a 3-item temporal orientation component (day of the week, month, year).</p> <p>Scores range from 0-6. Scores of 4-6 indicate that impairment is less likely, while scores of 0-3 indicate that impairment is likely.</p> <p>Test takes 1-2 minutes to complete.</p>	<p>Free</p> <p>https://www.merckmanuals.com/medical-calculators/CognitiveImpairment6.htm</p>
<p>Depression, Obstructive Sleep Apnea and Cognitive Impairment (DOC) Screen</p> <p>Swartz et al. 2017</p>	To identify patients who are at high-risk for depression, obstructive sleep apnea (OSA) and cognitive impairment	<p>The DOC Screen is an integrated tool that combines the PHQ-2, a screening tool with 2 questions regarding mood, scored from 0 to 3, (total 0 to 6); The STOP questionnaire, a 4-question screen for OSA (total scores range from 0-4); and a 10-point version of the MoCA (5-word recall (5 points), clock drawing (3 points), and abstraction (2 points).</p> <p>Total scores range from 0-20. For interpretation of data, raw scores from each of the 3 domains are entered into a form on the DOC screen website.</p> <p>Takes approximately 5 minutes to complete.</p>	<p>Free</p> <p>http://www.docscreen.ca/</p>

Assessment Tool	Purpose	Items and Administration	Availability
		No specialized equipment or training is required.	
<p>Eight-item Informant Interview to Differentiate Aging and Dementia (AD8®)</p> <p>Galvin et al. 2005</p>	<p>An informant-based interview, to be completed by a spouse, adult child, friend who knew the older adult well. Developed to help discriminate between signs of normal aging and mild VCI.</p>	<p>8 items enquiring about changes in the past year (response categories are yes [1 point], no [0 points], and don't know)</p> <ol style="list-style-type: none"> 1. Problems with judgment (e.g., problems making decisions, bad financial decisions, problems with thinking). 2. Less interest in hobbies/activities 3. Repeats the same things over and over (questions, stories, or statements) 4. Trouble learning how to use a tool, appliance, or gadget (e.g., VCR, computer, microwave, remote control) 5. Forgets correct month or year 6. Trouble handling complicated financial affairs (e.g., balancing checkbook, income taxes, paying bills) 7. Trouble remembering appointments 8. Daily problems with thinking and/or memory <p>Scores of 0-1 indicate normal cognition, scores of ≥ 2 indicate impaired cognition.</p>	<p>The user is required to agree to the terms of a license agreement from Washington University and to complete and submit an access form in order to download the tool, which may be used for clinical and research purposes.</p> <p>https://otm.wustl.edu/ad8-terms-agreement/</p>
<p>Mini Addenbrooke's Cognitive Examination (Mini ACE)</p> <p>Hsieh et al. 2015</p>	<p>A brief screening test for mild cognitive impairment and dementia</p>	<p>Five components</p> <p>Attention: day, date, month year (0-4 points)</p> <p>Memory: recall of name and address (0-7 points)</p> <p>Fluency: name as many animals as possible in one minute (0-7 points)</p> <p>Clock drawing +hands at 10 past 5 (0-5 points)</p> <p>Recall of name and address (0-7 points)</p> <p>Total scores ranged from 0-30. There are 2 cut-offs: 25 and 21. The latter is recommended when the test is used with general clinical populations as part of a VCI assessment. The test takes 5 minutes to complete.</p> <p>Training is required, in the form of watching a video (30-60 minutes).</p>	<p>Free</p> <p>https://remedy.bnssg.icb.nhs.uk/media/2787/mini-ace.pdf</p>
Screening Tools (≥ 5 minutes to administer)			
<p>Addenbrooke's Cognitive Examination (ACE)</p> <p>Hsieh et al. 2013</p>	<p>A test to aid in the detection of cognitive impairment, especially in the detection of Alzheimer's disease and fronto-temporal dementia</p>	<p>Includes 3 components assessing attention (scores range from 0-18), three components assessing memory (scores range from 0-26), fluency (scores range from 0-14), language (0-26), and visuospatial ability (scores range from 0-16).</p> <p>Total scores range from 0-100. Scores <88 and <82 have been recommended as cut-off points for suspicion of VCI.</p> <p>Test takes approximately 15-30 minutes to complete (and 15 minutes to score).</p>	<p>Free</p> <p>https://www.sydney.edu.au/brain-mind/resources-for-clinicians/dementia-test.html</p>

Assessment Tool	Purpose	Items and Administration	Availability
		<p>Training is required. A training course is available through the University of Glasgow. (There are 3 US versions of the test)</p>	
<p>Free Cog</p> <p>Burns et al. 2021</p>	<p>A hybrid screening instrument incorporating tests of cognitive and executive function</p>	<p>Components include:</p> <p>General knowledge (0-1 points)</p> <p>Orientation to time (0-3 points); place (0-3 points)</p> <p>Registration: repeat five words to be recalled later (no points awarded)</p> <p>Calculation (0-3 points)</p> <p>Attention/calculation (0-2 points)</p> <p>Memory recall of 5 previously presented words (0-5 points)</p> <p>Verbal fluency in 1 minute (0-1 point)</p> <p>Language: Naming (0-2); Repetition (0-1); Write a sentence (0-1)</p> <p>Visuospatial draw a clock with hands set at 10 past 11:00 (0-3)</p> <p>Executive function 5 questions relating to social function, travel, home, emergency, and care function (0-5 points)</p> <p>Total possible score of 30 points. A score of ≤ 22 is indicative of mild cognitive impairment.</p> <p>No formal training is required. The test takes 5-10 minutes to complete.</p>	<p>Free</p> <p>https://psychscenehub.com/wp-content/uploads/2021/03/FInal-Free-Cog-Tool-1.pdf</p>
<p>Montreal Cognitive Assessment (MoCA)</p> <p>Nasreddine et al. 2005</p>	<p>The MoCA is a screening tool for mild cognitive impairment.</p>	<p>Eleven items relating to 8 cognitive domains (visuospatial, executive, naming, memory, language, abstraction, delayed recall, and orientation). Items are in the form of questions or tasks.</p> <p>Score Interpretation: Maximum score is 30; higher scores indicate greater cognitive functioning. Total score ≥ 26 is considered normal.</p> <p>The test takes approximately 5-10 minutes to administer, requires extra equipment (stopwatch and score sheet) and some training (required reading).</p>	<p>Free</p> <p>http://www.mocatest.org/</p>
<p>Mini-Mental State Examination (MMSE)</p> <p>Folstein et al. 1975</p>	<p>The MMSE is a screening tool for cognitive impairment.</p>	<p>Eleven items relating to 6 cognitive domains (orientation – in time and space, registration, attention and calculation, recall, language and read and obey). Items are in the form of questions or tasks.</p> <p>Maximum score is 30, where higher scores indicate greater cognitive functioning. A score of < 24 indicates possible cognitive impairment.</p> <p>The test takes approximately 10 minutes to administer. No specialized training required.</p>	<p>Available for purchase.</p> <p>http://www4.parinc.com/Products/Product.aspx?ProductID=MMS E</p>

Assessment Tool	Purpose	Items and Administration	Availability
		A newer version, MMSE-2® is also available.	
<p>Rowland Universal Dementia Assessment Scale (RUDAS)</p> <p>Storey et al. 2004</p>	<p>Designed to detect VCI in culturally and linguistically diverse populations</p>	<p>Memory: repeat and later recall four items (not scored)</p> <p>Visuospatial (body orientation): identify eight body parts (possible score 0-5)</p> <p>Praxis: copy the testers action or exercise (possible score 0-2)</p> <p>Drawing: draw a 3-D square box (possible score 0-3)</p> <p>Judgement - Crossing the Street: (possible score 0-4)</p> <p>Memory: recall items from beginning of the test (possible score 0-8)</p> <p>Language: Name as many animals as you can in 60 seconds (scores 0-8)</p> <p>Total possible score is 30 points. A score of ≤22 is the threshold for possible dementia.</p> <p>The test takes 10-15 minutes to complete.</p>	<p>Free</p> <p>https://www.dementia.org.au/sites/default/files/20110311_2011RUDASAdminScoringGuide.pdf</p>
<p>Informant Questionnaire on Cognitive Decline in the Elderly (Short IQCODE)</p> <p>Jorm 1994</p>	<p>Informant based test designed to assess cognitive decline and dementia in elderly people, to be completed by a relative or friend who has known the elderly individual for 10 years or more.</p>	<p>Sixteen items with a 5-point scoring for each question ranging from much worse (5 point) to much improved (1 point).</p> <ol style="list-style-type: none"> 1. Remembering things about family and friends (e.g., occupations, birthdays) 2. Remembering things that have happened recently? 3. Recalling conversations a few days later? 4. Remembering his/her address and telephone number? 5. Remembering what day and month it is? 6. Remembering where things are usually kept? 7. Remembering where to find things which have been put in a different place from usual? 8. Knowing how to work familiar machines around the house? 9. Learning to use a new gadget or machine around the house? 10. Learning new things in general? 11. Following a story in a book or on TV? 12. Making decisions on everyday matters? 13. Handling money for shopping? 14. Handling financial matters - e.g., the pension, dealing with the bank? 15. Handling other everyday arithmetic problems - e.g., knowing how much food to buy, knowing how long between visits from family or friends? 	<p>Free</p> <p>https://patient.info/doctor/informant-questionnaire-on-cognitive-decline-in-the-elderly-iqcode</p>

Assessment Tool	Purpose	Items and Administration	Availability
		<p>16. Using his/her intelligence to understand what's going on and to reason things through?</p> <p>Cut-off scores of 3.38-3.88/question have been reported to identify possible VCI (Jorm et al. 2004). The test takes approximately 5-7 minutes to complete.</p> <p>A 26-item (original version) of this test is also available.</p>	
<p>Test Your Memory (TYM)</p> <p>Brown et al. 2009</p>	<p>A self-assessment test that covers a broad range of cognitive domains</p>	<p>Questions include:</p> <p>Orientation to person and time</p> <p>Copy a sentence.</p> <p>Who is the Prime Minister?</p> <p>In what year the World War I start?</p> <p>Complete 4 simple arithmetic calculations</p> <p>List four creatures beginning with S.</p> <p>Explain why a carrot is like a potato and a why a lion is like a wolf.</p> <p>Name 5 items on drawing.</p> <p>Join circles together to form a letter.</p> <p>Draw a clock face.</p> <p>Write down sentence copied earlier.</p> <p>Total possible score is 50 points. Scores <33 indicate severe cognitive impairment, while scores between 33 and 45 (if 80+ years of age) or 33 and 46 (if younger than 80 years of age), indicate mild cognitive impairment.</p> <p>Test takes 5-10 minutes to complete.</p>	<p>Free</p> <p>https://www.bmj.com/content/suppl/2009/06/04/bmj.b2030.DC1/br oj611491.ww1_default.pdf</p>
<p>Multifactorial Memory Questionnaire (MMQ)</p> <p>Troyer & Rich 2002</p>	<p>A self-report questionnaire that assesses multiple dimensions of metamemory, useful for clinical assessment and interventions.</p>	<p>Composed of 3 subscales</p> <p>1. MMQ Satisfaction includes 18 questions related to: "how I feel about my memory"</p> <p>Each question is scored on a 5-point scale from strongly disagree (0) to strongly agree (4).</p> <p>2. MMQ Ability includes 20 questions related to memory mistakes.</p> <p>Each question is scored on a 5-point scale from never (0) to all the time (4).</p> <p>3. MMQ Strategy includes 19 questions related to the use of memory strategies.</p> <p>Each question is scored on a 5-point scale from never (0) to all the time (4).</p> <p>The test taker should be told to base responses on their experience during the previous 2 weeks.</p> <p>Raw scores for each section are converted to T scores based on normative data.</p> <p>Interpretation of scores is presented in Table 4.1 of the MMQ manual, available at:</p>	<p>Free</p> <p>www.baycrest.org/mm q.</p>

Assessment Tool	Purpose	Items and Administration	Availability
		https://www.baycrest.org/Baycrest_Centre/media/content/form_files/MMQ-Manual-2018_ebook.pdf	
Screening Tools for Remote Use			
Tele-Free-Cog Larner et al. 2021	Adapted from original tool for use during the Covid-19 pandemic.	An adaptation of the Free-Cog that excludes three components, 'visuospatial' (clock face) 'language' (name ear/fingernail and 'write a sentence') and orientation to place. The denominator is reduced from 30 to 21. For diagnosis of VCI a cut-off of ≤ 10 has been shown to have a sensitivity of 0.80 and specificity of 0.89.	Free (original version) https://psychscenehub.com/wp-content/uploads/2021/03/Final-Free-Cog-Tool-1.pdf
Telephone Interview for Cognitive Status (TICS) Brandt et al. 1988	A test of cognitive functioning that was developed for use in situations where in-person cognitive screening is impractical or inefficient.	A derivation of the Folstein Mini-Mental State Examination (MMSE) There are 11 items, assessing orientation to time and place, attention, short-term memory, sentence repetition, immediate recall, naming to verbal description, word opposites, and praxis. Possible scores range from 0-41. A cut-off of 28 has been shown to identify individuals with post-stroke VCI, with a sensitivity of 88% and a specificity of 85% (Barber & Scott 2004). Takes approximately 10 minutes to administer	Available for purchase https://www.parinc.com/Products/Pkey/445
Telephone Interview for Cognitive Status – Modified (TICS-M) Welsh et al. 1993	See above	A modification of the TICS. There are 12 items (one additional item-delayed recall of 10 words), with possible scores ranging from 0-50. A cut-off of 30/31 identified elderly individuals with VCI, living in a care home, with a sensitivity of 85% and a specificity of 83%, when using in-person neuropsychological testing as reference standard. Takes approximately 10-20 minutes to administer.	
Tele-MMSE (26-item version) Newkirk et al. 2004	Alternative method to in-person clinic visits to screen for VCI	A 26-point adaptation of the older, 22-item ALFI-MMSE (Roccaforte et al, 2002), which contains the additions of a 3-step command: "Say hello, tap the mouthpiece of the phone 3 times, then say I'm back". It also contains a new question that requests that the individual with VCI give the interviewer a phone number where they can usually be reached. A Tele MMSE score of 20 is equivalent to an MMSE score of 23 (cut-off for possible cognitive impairment). Takes approximately 5-10 minutes to administer.	
Assessment Tools for Vascular Cognitive Impairment and Dementia			
NINDS-CSN Harmonization VCI	Designed to measure vascular cognitive	Three different versions exist:	-

Assessment Tool	Purpose	Items and Administration	Availability
<p>Neuropsychology Protocols</p> <p>Hachinski et al. 2006</p>	<p>impairment in stroke patients</p>	<p>60 Minute - composed of four domains, within which there are several individual tests of executive/activation function (e.g., animal naming), visuospatial, language/lexical retrieval, memory and learning, and neuropsychiatric/depressive symptoms.</p> <p>30 Minute - semantic and phonemic fluency, Digit Symbol-Coding, revised Hopkins Verbal Learning Test, CES-D, and Neuropsychiatric Inventory.</p> <p>5 Minute - subtests from the Montreal Cognitive Assessment, including a 5-word immediate and delayed memory test, a 6-item orientation task and a 1-letter phonemic fluency test (F).</p>	
<p>Cambridge Cognition Examination (CAMCOG)</p> <p>Roth et al. 1986</p>	<p>Designed to be a standardized assessment instrument for diagnosis and grading of VCI</p>	<p>CAMCOG consists of 67 items, divided into 8 subscales: orientation, language (comprehension and expression), memory (remote, recent and learning), attention, praxis, calculation, abstraction and perception.</p> <p>Total score ranges from 0 to 106.</p> <p>Scores lower than 80 are considered indicative of VCI. Among the 67 items, 39 are scored as 'right' or 'wrong'; 11 are scored on a 3-point scale with 'wrong', 'right to a certain degree' or 'completely right' as response options; 9 items encompass questions or commands, and the score for each item is the sum of the correct answers; and 8 items are not scored. Five of the non-scored items are from the MMSE and they are not included in the total score because they are assessed in more detail by other CAMCOG items. The remaining 3 items are optional.</p> <p>The CAMCOG takes 60 minutes to administer.</p>	<p>The CAMCOG can be obtained by purchasing the entire CAMDEX and CAMDEX-DS II through Amazon or Cambridge University Press.</p>
<p>Cognitive- Functional Independence Measure (Cognitive-FIM)</p> <p>Keith et al. 1987</p>	<p>Designed to offer a uniform system of measurement for disability based on the International Classification of Impairment, Disabilities and Handicaps.</p>	<p>5 cognitive items including communication (2 items) and social cognition (3 items) are contained with the broader FIM instrument (18 items in total)</p> <p>Comprehension, expression, social interaction, problem solving, and memory.</p> <p>The level of an individual with VCI's disability indicates the burden of caring for them and items are scored based on how much assistance is required for the individual to carry out activities of daily living.</p> <p>Each item on the FIM is scored on a 7-point <u>Likert scale</u>, indicating the amount of assistance required to perform each item (1=total assistance in all areas, 7=total independence in all areas). The ratings are based on performance by observation.</p> <p>For the cognitive domain, possible scores range from 5 to 35.</p>	<p>FIM is proprietary.</p> <p>https://www.udsmr.org/products/the-fim-system-snf-subacute</p> <p>https://www.udsmr.org/products/inpatient-rehab</p>

Assessment Tool	Purpose	Items and Administration	Availability
		FIM must be administered by trained evaluator(s) and takes approximately 30-45 minutes to complete.	
Frontal Assessment Battery (FAB) Dubois et al. 2000	Designed to be a brief tool to be used at the bedside or in a clinic setting to discriminate between dementias with a frontal dysexecutive phenotype and Dementia of Alzheimer's Type (DAT).	6 items 1. Conceptualization (similarities) possible score of 0-3 2. Lexical fluency (mental flexibility) possible scores of 0-3 3. Motor series "Luria" test (programming) possible scores of 0-3 4. Conflicting instructions (sensitivity to interference) possible scores of 0-3. 5. Go-No Go (inhibitory control) possible scores of 0-3. 6. Prehension behaviour (environmental autonomy) possible scores of 0-3 A cut off score of 12 has a sensitivity of 77% and specificity of 87% in differentiating between frontal dysexecutive type dementias and DAT. The test can be completed in approximately 10 minutes.	Free https://psychscenehub.com/wp-content/uploads/2018/07/Frontal_FAB_Scale.pdf
Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) Randolph et al. 1998	Designed to be a brief neurocognitive battery with four alternate forms	5 items Immediate memory (list learning, story memory) Visuospatial/Constructional (figure copy/line orientation) Language (picture naming/semantic fluency) Attention (digit span/coding) Delayed memory (list recall/list recognition/story recall/figure recall) The RBANS uses standard scores (mean=100, standard deviation=15) Raw scores in each domain are converted to index scores. The results are compared with normative data. The test takes approximately 30 minutes to complete.	Available for purchase https://www.pearsonassessments.com/

References for Appendix Three: Summary of selected screening and initial assessment tools for vascular cognitive impairment

- Barber M, Stott DJ. Validity of the Telephone Interview for Cognitive Status (TICS) in post-stroke subjects. *Int J Geriatr Psychiatry*. 2004;19:75-9.
- Borson S, Scanlan JM, Chen PJ et al. The Mini-Cog as a screen for dementia: Validation in a population-based sample. *J Am Geriatr Soc* 2003;51:1451-1454.
- Brandt J, Specter M, Folstein MF. The Telephone Interview for Cognitive Status. *Neuropsychiatry, Neuropsychol, Behavioral Neurol* 1988;1:111-17.
- Brodady H, Pond D, Kemp NM, Luscombe G, Harding L, Berman K, Huppert FA. The GPCOG: a new screening test for dementia designed for general practice. *J Am Geriatr Soc*. 2002 Mar;50(3):530-4.
- Brooke P, Bullock R. Validation of a 6-item cognitive impairment test with a view to primary care usage. *Int J Geriatr Psychiatry*. 1999 Nov;14(11):936-40.
- Brown J, Pengas G, Dawson K, Brown LA, Clatworthy P. Self-administered cognitive screening test (TYM) for detection of Alzheimer's disease: cross sectional study. *BMJ*. 2009 Jun 9;338:b2030.
- Burns A, Harrison JR, Symonds C, Morris J. A novel hybrid scale for the assessment of cognitive and executive function: The Free-Cog. *Int J Geriatr Psychiatry*. 2021 Apr;36(4):566-572.
- Buschke H, Kuslansky G, Katz M, Stewart WF, Sliwinski MJ, Eckholdt HM, Lipton RB. Screening for dementia with the memory impairment screen. *Neurol*. 1999 Jan 15;52(2):231-8.
- Callahan CM, Unverzagt FW, Hui SL, Perkins AJ, Hendrie HC. Six-item screener to identify cognitive impairment among potential subjects for clinical research. *Med Care*. 2002 Sep;40(9):771-81.
- Dubois B, Slachevsky A, Litvan I, Pillon B. The FAB: A Frontal Assessment Battery at bedside. *Neurol*. 2000 Dec 12;55(11):1621-6.
- Folstein MG, Folstein SE, McHugh PR. « Mini-mental state ». A practical method for grading the cognitive state of patients for the clinician. *J Psychiatr* 1975; 12: 189-198.
- Galvin JE, Roe CM, Powlishta KK, Coats MA, Muich SJ, Grant E, et al. The AD8 a brief informant interview to detect dementia. *Neurol* 2005;65:559-64.
- Hachinski V, Iadecola C, Petersen RC, Breteler MM, Nyenhuis DL, Black SE et al. National Institute of Neurological Disorders and Stroke-Canadian Stroke Network vascular cognitive impairment harmonization standards. *Stroke*. 2006 Sep;37(9):2220-41.
- Hsieh S, Schubert S, Hoon C, Mioshi E, Hodges JR. Validation of the Addenbrooke's Cognitive Examination III in frontotemporal dementia and Alzheimer's disease. *Dement Geriatr Cogn Diso* 2013;36:242-50.
- Hsieh S, McGrory S, Leslie F, Dawson K, Ahmed S, Butler CR, et al. The Mini-Addenbrooke's Cognitive Examination: a new assessment tool for dementia. *Dement Geriatr Cogn Disord* 2015;39(1-2):1-1.
- Jorm AF. A short form of the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE): development and cross-validation. *Psychol Med*. 1994 Feb;24(1):145-53.
- Jorm AF. The Informant Questionnaire on cognitive decline in the elderly (IQCODE): a review. *Int Psychogeriatr*. 2004 Sep;16(3):275-93.
- Keith RA, Granger CV, Hamilton BB, Sherwin FS. The functional independence measure: a new tool for rehabilitation. *Adv Clin Rehabil*. 1987;1:6-18.
- Larner AJ. Cognitive testing in the COVID-19 era: can existing screeners be adapted for telephone use? *Neurodegener Dis Manag*. 2021 Feb;11(1):77-82
- Nasreddine ZS, Phillips NA, Bédirian V, Charbonneau S, Whitehead V, Collin I et al. The Montreal Cognitive Assessment, MoCA: a brief screening tool for mild cognitive impairment. *J Am Geriatr Soc*. 2005 Apr;53(4):695-9.

- Newkirk LA, Kim JM, Thompson JM, Tinklenberg JR, Yesavage JA, Taylor JL. Validation of a 26-point telephone version of the Mini-Mental State Examination. *J Geriatr Psychiatry Neurol.* 2004 Jun;17(2):81-7.
- Randolph C, Tierney MC, Mohr E, Chase TN. The Repeatable Battery for the Assessment of Neuropsychological Status (RBANS): preliminary clinical validity. *J Clin Exp Neuropsychol.* 1998 Jun;20(3):310-9.
- Roccaforte WH, Burke WJ, Bayer BL, Wengel SP. Validation of a telephone version of the mini-mental state examination. *J Am Geriatr Soc* 1992; 40:697-702.
- Roth M, Tym E, Mountjoy CQ, Huppert FA, Hendrie H, Verma S, Goddard R. CAMDEX. A standardised instrument for the diagnosis of mental disorder in the elderly with special reference to the early detection of dementia. *Br J Psychiatry.* 1986 Dec;149:698-709.
- Storey JE, Rowland JT, Basic D, Conforti DA, Dickson HG. The Rowland Universal Dementia Assessment Scale (RUDAS): a multicultural cognitive assessment scale. *Int Psychogeriatr.* 2004 Mar;16(1):13-31.
- Sunderland T, Hill JL, Mellow AM, Lawlor BA, Gundersheimer J, Newhouse PA, Grafman JH. Clock drawing in Alzheimer's disease. A novel measure of dementia severity. *J Am Geriatr Soc.* 1989 Aug;37(8):725-9.
- Swartz RH, Cayley ML, Lanctôt KL, Murray BJ, Cohen A, Thorpe KE, Sicard MN, Lien K, Sahlas DJ, Herrmann N. The "DOC" screen: Feasible and valid screening for depression, Obstructive Sleep Apnea (OSA) and cognitive impairment in stroke prevention clinics. *PloS One.* 2017 Apr 4;12(4):e0174451.
- Troyer AK, Rich JB. Psychometric properties of a new metamemory questionnaire for older adults. *J Gerontol B Psychol Sci Soc Sci.* 2002 Jan;57(1):P19-27.
- Welsh KA, Breitner JC, Magruder-Habib KM. Detection of dementia in the elderly using telephone screening of cognitive status. *Neuropsychiatry Neuropsychol. Behav. Neurol.* 1993;6:103-110.