OCCUPATIONAL THERAPY COGNITIVE ASSESSMENT INVENTORY – *Version 3 (September 2018)*

Purpose: This inventory was developed to complement the algorithm entitled "An OT Approach to Evaluation of Cognition/Perception". This is an inventory of cognitive (but not perceptual) assessment tools identified by OTs within VCH and PHC. These tools are not meant to be used in isolation during the process of cognitive assessment but, instead, during Steps 4 & 5 of the assessment process (as per the algorithm). Although this inventory provides a comprehensive list of standardized tools available to OTs to measure cognition, it is not an exhaustive list.

Category of Assessment: adopted from "An OT Approach to Evaluation of Cognition/Perception", Vancouver Coastal Health, April 2011 (rev. March 2013)

	Screening assessment	**In-depth assessment**
Level of task performance (ICF: activity & participation)	• Provides screening assessment in context of occupation *(e.g. Cognitive Performance Test, Kettle Test)* • May provide higher ecological & predictive validity than impairment-based screening	• In-depth understanding of the impact of cognitive deficits on occupation *(e.g. AMPS, EFPT, ILS)* • May provide higher ecological & predictive validity than in-depth assessment at level of impairment
Level of Impairment (ICF: body-structure)	• To augment screening at level of task performance *(e.g. SMMSE, MoCA, Cognistat)* • Be aware of limitations (e.g. predictive validity, depth of assessment)	• To provide some in-depth understanding of specific cognitive components such as memory, attention. *(e.g. Rivermead Behavioural Memory Test, Test of Everyday Attention)*

Statistical Evaluation Criteria: from StrokEngine *(accessed April 2018)*, **http://strokengine.ca/assess/statistics-en.html**

Reliability	
Internal consistency (Chronbach's α or split-half statistics)	
Excellent	≥ 0.80
Adequate	0.70-0.79
Poor	< 0.70
Test-re-test or Inter-rater reliability (ICC or kappa statistics)	
Excellent	≥ 0.75
Adequate	0.40-0.74
Poor	<0.40
Validity	
Concurrent and construct/convergent correlations	
Excellent	≥ 0.60
Adequate	0.31-0.59
Poor	≤ 0.3

DEFINITIONS: ***In deciding whether or not an assessment tool is precise, it is important to consider both reliability and validity.*

Reliability: "*Does the test provide a consistent measure?*"

Internal consistency = the extent to which the items of a test measure various aspects of a common characteristic (e.g., "memory"). Do the items/subtests of the measure consistently measure the same aspect of cognition as each other?

Test-retest reliability = the extent to which the measure consistently provides the same results when used a second time (re-test). *Parallel-form reliability* would involve 2 different/alternate versions of the same test.

Inter-rater reliability = the extent to which two or more raters (assessors) obtain the same result when using the same instrument – do they produce consistent results?

Validity: "*Does the test measure what it is supposed to measure?*" (relates to: "*What is the meaning of the score*?")

Criterion validity = the extent to which a new measure is consistent with a gold standard criterion (i.e., a previously validated measure). For ***concurrent validity***, the measures are administered at approximately the same time. For ***predictive validity***, typically one measure is administered at some time prior to the criterion measure (to examine whether the measure can predict, or correlate with, the outcome of a subsequent criterion event). Note: *poor* concurrent validity would suggest that the tests being compared measure different constructs; *adequate* concurrent validity suggests some shared variance in the constructs being measured; and *excellent* concurrent validity suggests that the tests measure very similar constructs. If 2 tests are highly correlated with each other, then one would want to question the need for having both tests – you would then want to determine other ways in which one test might be more superior than the other (for example, one takes less time to administer).

Construct validity = the extent to which a test can be shown to measure its intended construct, e.g. "memory" or "cognition for everyday function". The construct validation process may be used when a gold standard (previously validated criterion) does not exist, thus, when one cannot test for concurrent validity. ***Convergent validity*** is the extent to which a test agrees with another test (or test) believed to be measuring the same attribute. ***Discriminant validity*** is the extent to which tests that are supposed to be unrelated are, in fact, unrelated (i.e., measure different things). ***Group differences*** refers to: "Does the measure allow you to differentiate between 2 or more populations?" for example as determined by analyzing for statistically significant differences between the groups on the measure. *Ecological validity* refers to: "Does the measure reflect behaviours/function that actually occur in natural/everyday settings?"

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
ADL Profile and IADL Profile In-depth assessment; Task performance level **Population**: developed and tested for acquired brain injury (traumatic brain injury, stroke). Not yet researched sufficiently with other populations.	The ADL Profile was developed in 1990 and the IADL Profile was later developed in 2004 to provide additional activities/tasks. These assessments involve analysis of an individual's performance of ADL and IADL tasks within 3 dimensions (personal care, household management, and community activities) through analysis of 4 cognitive operations (executive functions) during task performance (thus within interaction of their environment). The performance component involves minimal instruction/structure. • ADL Profile consists of 20 tasks (OT can select few or many). See Dutil et. al (2017) for full list of the 17 performance tasks. The 3 additional tasks are assessed with semi-structured interview (=taking medication, following a diet, keeping appointments). • IADL Profile contains 8 tasks relating to planning and preparing a hot meal for guests (including the shopping required). For both, the cognitive operations assessed: i. formulating a goal ii. planning iii. executing (carrying out the task) iv. verifying attainment of the initial goal **Time to administer:** Allow approximately 30-60 minutes for the tasks selected, although the time varies with task(s) chosen, client's stage of recovery, and number of tasks. Time could take up to 7 hours if all tasks from the ADL Profile are assessed. Allow sufficient time for shopping and meal preparation for IADL Profile. **Scoring:** Each of the activities selected and assessed is given a *task score* (level of independence), and *operation score* (manner in which it is performed based on the 4 cognitive operations as given above). **Minimal Clinical Difference (MCD)**: *not determined to date.*	**Reliability**: • ADL Profile: Adequate to excellent test-retest reliability (likely confounded by learning effect), and poor to adequate inter-rater reliability across tasks (*traumatic brain injury*). • IADL Profile: Excellent internal consistency and inter-rater reliability (*traumatic brain injury*). • IADL Profile: the training taken by raters is intrinsic to the test's reliability (*traumatic brain injury*). **Predictive Validity:** • (*no published research to date*) **Group Differences:** • ADL Profile: the budgeting task discriminates individuals with TBI and healthy controls (with planning being the most difficult aspect for TBI). **Other Aspects of Validity:** • Content validity: determined during initial development of each Profile tool (ADL, IADL). • Construct (convergent) validity (ADL Profile): In a review of ADL measures, OTs found the ADL Profile to match most of the constructs relating to OT including that it recognizes the dynamic relationship between person, environment & task (it had the highest match with OT constructs e.g. compared to AMPS, FIM, etc.) (Klein et al., 2008). • Criterion (concurrent) validity (IADL Profile): adequate in comparing to 2 neuropsych measures of executive functioning (which focus on planning and working memory), and no significant correlation with a 3rd measure (which focuses on inhibition (Bottari et al., 2009).	**Pros**: • Provides for a standardized ADL or IADL analysis including consideration of cognitive factors (focusing on executive functions). • Ecological validity: provides a measure of cognition through performance-based assessment of daily living tasks. **Cons**: • Training: o ADL Profile: OT needs specific training to administer (i.e., a multi-day course such as is offered through CAOT from time to time) to ensure correct administration and interpretation (and enhance reliability) – this can be costly and time-consuming for most OTs, and may not be readily available. o IADL Profile: training not available. • ADL Profile: Additional costs: user guide ($113.85) and assessment forms ($34.00/package of 5), available from CAOT). • Can require a long time and/or multiple settings, depending on tasks assessed. • IADL Profile: although found to be feasible for use with seniors living in the community (in that it may help to identify those with mild cognitive impairment, MCI), further research is needed (Bier et al., 2016).
AMPS: Assessment of Motor and Process Skills In-depth assessment; Task performance level **Population**: age > 2 years (*information provided in this Inventory relates to use of AMPS for adults) https://www.innovativeotsolutions.com/tools/amps	A standardized, performance-based, observational assessment to measure the quality of a person's ability for ADL and IADL tasks by rating the effort, efficiency, safety and independence in chosen, familiar, and life-relevant tasks (some personal care, but mostly domestic skills). The assessor selects 3-5 tasks likely familiar to the client (who then selects 2-3 of these tasks) from a list of 125 tasks within 13 major groups (from "very easy ADL tasks" including eating a snack with a utensil, to "much harder than average ADL tasks" including making Spanish omelette with added ingredients). Other tasks include raking grass,	**Reliability**: A number of studies have been conducted showing excellent internal consistency, test-retest reliability and inter-rater reliability (Douglas et al., 2008). Some examples from the literature: • Excellent test-retest reliability (*elderly adults*). • The "severity calibrations" (using 'many faceted Rasch analyses') were stable over time for ≥ 92.5% of ratings for a group of 40 trained raters. **Predictive Validity:** • One study indicated excellent validity (for Process score) for predicting safety 2 weeks post-discharge home (*acute psychiatry*) (McNulty & Fisher, 2001).	**Pros**: • Provides for a standardized ADL analysis. • Identifies between difficulties with process (cognitive) & motor (physical) tasks. • Some cultural sensitivity (e.g. client plans own meal of choice). • Useful in mental health & physical disability settings. • Easy to convert data to a written report (a program does this for you; also provide graphics). • Good for variety of age groups. • For a performance-based assessment, the AMPS may be more appropriate than using the assessment activities offered by other

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	cleaning a bathroom, ironing a shirt, upper body grooming, shopping, etc.). Task is selected according to level of difficulty and meaning to person being assessed. The Process score relates to cognition. **Time to administer:** varies with activity chosen **Scoring:** 16 motor and 20 process skill items are rated on a 4-point scale (from 1-deficit, to 4-competent), generating a Process score and a Motor score. Cut-off scores have been developed between "needs assistance" and "independent". Once an OT has successfully calibrated as a reliable and valid AMPS evaluator, s/he is able to use a personal copy of the AMPS computer-scoring software to generate a Graphic Report and a Results and Interpretation Report. **Minimal Clinical Difference (MCD)**: *not determined to date.*	• However, another study indicates that AMPS did not predict problems with independent living for people with schizophrenia admitted to a mental health facility; therefore, the authors recommend it be used in conjunction with other functional performance measures (*Ayres & John, 2015*). • Process score is stronger than Motor score in predicting need for level of assistance to live in the community, although new (2010) cut-off scores have only fair to good discrimination power using "ROC analysis". **Group Differences:** *(no literature reviewed to date)* **Other Aspects of Validity:** *Many studies have been conducted and, overall, the AMPS correlates with at least 5 other measures and is predictive of ADL, level of care, and independence in the home (Douglas et al., 2008). Some examples of research findings:* • Adequate to excellent concurrent validity compared to tests of cognition & function e.g. FIM & MMSE (*mild memory impairment or dementia*). • Poor concurrent validity in comparing AMPS Process score (measure of task) and the Large Allen Cognitive Level Test (measure of impairment) (*stroke*). • Adequate concurrent validity between AMPS Process score and level of employment (*schizophrenia*).	task/performance tests such as ILS. • Based on MOHO. • Is recommended for assessment of executive functions (EF) in a published inventory of tests of executive function for stroke (Poulin et al, 2013) – although see Cons below re: EF. **Cons**: • OT needs specific training to administer: training is expensive and time-consuming: 5-day course (and must follow-up training by testing 10 people within 3 months and submitting results to become "calibrated"). • Not specifically designed to evaluate for presence of cognitive impairments – but Process score can be used to help understand cognitive limitations. • Research recommends assessing client in home instead of clinic because environmental factors may influence performance in particular the Process score (Park 1994). • Mixed research results regarding predictive validity for independent living for psychiatric clients. • Assessor selects 3-5 tasks likely familiar to client (who then selects 2-3 tasks) – thus due to the familiarity, the AMPS may not assess EF very well (Poncet 2017). • Limitations for use on its own to predict level of assistance or predict employment (see psychometrics).
Behavioural Assessment of Dysexecutive Syndrome (BADS) *(a version is also available for children: BADS-C. However, no information is contained in this Inventory about it)* In-depth assessment; Impairment level. **Population**: • adults with: -schizophrenia -brain injury -dementia (may not be so good for MCI-mild cognitive impairment) -chronic alcoholism, substance dependence, Korsakoff's • maybe useful for: -Parkinson's disease -multiple sclerosis **Norms**: Based on 216 UK healthy controls age 16-87 (details in manual).	The BADS aims to assess for "everyday executive impairment". There are 6 subtests (rule shift cards, action program, key search, temporal judgment, zoo map, & modified 6 elements). The test kit also provides a questionnaire, the DEX (Dysexecutive Questionnaire), which is scored separately. **Time to administer**: approx. 40 minutes assuming OT is familiar with the test; plus extra time to score (including conversion from raw to profile to standardized scores). **Scoring**: For each BADS subtest, the raw scores are converted to profile scores (0-4), which are then summed to produce an overall total score (battery profile score, 0-24, which in turn gets converted to a standardized score with a mean of 100). The DEX is not included in the BADS total score; it is scored separately by adding up the individual items. Using the BADS standardized score, follow the manual to provide for an age-controlled classification of executive function performance (based on the normative sample): *impaired*, *borderline*, *low average*, *average*, *high average*, *superior*. **Interpret with caution, because a person may fall into "*average*" even though they did badly on 1 or 2 tests.	**Reliability**: • Excellent inter-rater reliability (r=0.88-1.00 for subtests) (*adults with brain injury*). • Test-retest reliability is not expected to be high, considering that a critical aspect of the test is novelty. However, it has been found to range from poor to excellent (at 3 weeks) for a group of adults with schizophrenia, and poor to adequate (at 6 to 12 mos) for a group of adults with brain injury. • Note: for both groups, participants tended to obtain higher scores on re-administration (may be due to a practice effect including that the test was not so novel the second time; or could possibly show improved function over time). • Adequate internal consistency (α= 0.73) (*schizophrenia*). **Predictive Validity**: • Chronic schizophrenia: BADS found to be a predictor of IADLs (beyond outcomes accounted for by basic cognitive skills). • Traumatic brain injury (TBI): some ability of BADS (total score) to predict executive function for everyday activity (as measured by the DEX), but only if the DEX is administered to a clinician (OT or neuropsych) and not to a family member or client; also, the predictive validity increases if BADS is used together with multiple other neuropsych tests, but still only 46% of variance predicted. • For adults with "higher brain dysfunction" from acquired brain injury: BADS does <u>not</u> predict	**Pros**: • Has been validated with a number of populations. • BADS demonstrates some ecological validity (in terms of predicting everyday function) for: (a) schizophrenia (b) traumatic brain injury, including more so than traditional neuropsych measures of executive function – although the predictive validity is improved if multiple modes of assessment are used (e.g. BADS + neuropsych tests + observations). • In addition to providing numerical scores, the BADS can provide useful qualitative (observational) information, e.g. in terms of the efficiency or effectiveness of strategies a person uses (or not) to complete subtests. • DEX appears to be a good measure of executive function if administered by a clinician (but not by the client or a relative). • If time is limited, then the DEX (or similar questionnaire) is likely the best measure of executive functioning instead of trying to do BADS subtests (but only if filled in by a clinician). **Cons**: • Expensive (about $789.00 CAD; plus $66.00 for 25 extra package of scoring sheets, and $51.00 for extra package of DEX questionnaires). • Even though BADS is comprehensive, on its own it still does not provide a full picture of executive functions (at least for dementia and TBI); instead,

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https://www.pearsonclinical.ca/en/products/product-master/item-103.html	**Minimal Clinical Difference (MCD)**: not identified (and not likely to be determined, because the BADS is not well suited for test-retest – see reliability findings).	capacity for competitive employability. • Older adults with dementia: in combination with 5 other cognitive tests the BADS has some predictive validity (67% accuracy all tests. combined) in determining safety for driving. • For chronic alcoholics, BADS was statistically significant in predicting work outcome (whereas 11 other neuropsych tests were not); and for substance dependent adults, predicted everyday problems related to executive dysfunction (whereas Wisconsin Card Sort did not). **Group Differences:** • Differentiates between healthy controls and: - schizophrenia (acute & chronic) - mod-sev brain injury - mild Alzheimer disease (but mixed results in studies involving mild cognitive impairment) - chronic alcoholics - substance dependency • For early Alzheimer disease and non-demented Parkinson's disease, group differences between healthy controls did not show up for all subtests, but showed for total BADS score. • Differentiates between MCI and early Alzheimer's; and between chronic alcoholics and Korsakoff's (thus, sensitive to progression of cognitive impairment). • One study indicated that the BADS does not do a good job at differentiating between younger and older adults; but another study (in manual) shows significantly poorer performance overall for subjects older than 65. • The DEX differentiates between individuals with brain injury and healthy controls, but only the therapist ratings and not the self-ratings (thus reflecting poor insight in patients). **Other Validity**: • For schizophrenia: some studies show normal performance for some subtests (thus, all subtests should be administered, resulting in the full battery profile score). • BADS appears to best assess *planning* and *problem solving* aspects of executive impairment (chronic schizophrenia; mod-severe brain injury). • Mixed results in terms of showing a correlation between BADS subtests and other neuropsych tests of executive function (e.g., Tower of London - TOL, and Modified Card Sorting Test ; with TOL showing the least sensitivity to executive deficits in at least 2 studies). • Convergent validity: adequate convergence (r=0.36-0.59) with neuropsych tests purporting to measure executive functioning (schizophrenia). • Adequate correlation between BADS and daily life functioning (measured using Life Skills Profile) (*schizophrenia*). • Specific to DEX: - Factor analysis shows that 3 aspects of EF are measured: behaviour, cognition, and emotion.	multiple ways of assessment (i.e., battery of tests + qualitative information) need to be used. • Avoid doing just some of the BADS subtests in an effort to save time because the full BADS test score (or at least 5/6 subtests as per test manual) is needed for validity findings to apply. (Although, as per above, the therapist-rated DEX may be useful on its own, if administered by a clinician who knows the client). • Based on test-retest reliability data, this test is not very suitable for using as a measure of change over time (because there may be a practice effect including that the test is not so novel the second time). • Socio-cultural background may have some influence on results (no influence comparing Japanese with British adults with schizophrenia; but differences between different American cultural/language groups for healthy controls).

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		- As per manual, subjects with brain injury tend to underrate themselves as compared to others. - As per manual, poor to excellent concurrent validity with neuropsych tests of executive functioning and also with BADS total score (with highest correlation being with BADS total score) – but only if DEX is rated by others. No concurrent validity if DEX is rated by clients (brain injury). - As per other studies, when comparing results of the DEX and BADS, if the DEX was completed by the client, caregiver or family, then it is not sensitive to EF performance (as measured by BADS) (chronic schizophrenia, brain injury, multiple sclerosis). However, if DEX is completed by a clinician (e.g. psych, OT) who works with the client, then it is sensitive to EF as measured by BADS (brain injury).	
Butt Non-Verbal Reasoning Test (BNVR) In-depth assessment; Impairment level **Population**: adults with aphasia related to stroke **Norms**: based on 84 community living (UK) healthy controls and 93 people with CVA with difficulties initiating communication, ages 34-95. https://www.routledge.com/products/search?keywords=butt+non-verbal	A standardized measure of problem-solving (reasoning) abilities for individuals with aphasia post stroke. It is suggested that it is most useful in the acute (<6 months post CVA) stage to inform strategy use and interventions. It does not comprise a full cognitive assessment. The test consists of 1 practice photograph (scenario) to ensure the person has the perceptual skills required; and 10 test photographs of people with everyday problems. The client solves these problems by selecting from 4 smaller photos of object, one of which is the solution to the problem depicted in the larger photo. These 4 small photos include the target response, a visual distracter, a semantic distracter and an unrelated distracter, to help the evaluator identify any specific pattern of types of errors (if any). **Time to administer**: not stated in manual but approximately 15 minutes. **Scoring**: scored out of a possible 10 correct responses. Three error responses can be obtained to identify visual errors, semantic errors and unrelated errors which can inform further assessment and intervention. **Minimal Clinical Difference (MCD)**: not determined to date.	**Reliability**: • Good test-retest and inter-rater reliability (27 participants with CVA age 52-90, 19 male, 8 female). **Predictive Validity:** • Not researched to date. **Group Differences:** • Differentiates between healthy controls and adults with CVA. **Other Aspects of Validity**: • Poor to adequate concurrent validity with the Pyramids and Palm Trees Test and the Spoken Word to Picture Matching Test (correlations ranged from 0.27-0.44). Errors on these tests account for less than 20% of the variance in BNVR error performance indicating that the BNVR is measuring some aspect of semantic processing which is additional or different to these other 2 tests.	**Pros**: • Discriminates between healthy controls and people with CVA. • Appears sensitive to change. • Quick to administer and score. • Aimed at stroke patients with aphasia. • May guide further assessment and intervention. • Cost is not too prohibitive (approx. $150.00). **Cons**: • The focus is on problem-solving (reasoning) abilities, therefore does not comprise a full cognitive assessment for individuals with aphasia – to be used in conjunction with other assessment methods/tools. • No further research yet on this test, including correlating test results to functional measures. • Testing for cultural sensitivity needed. • No MCD available (thus it's difficult to measure if there is a significant clinical change over time on re-test). • The problem-solving scenarios in the test are quite concrete, generally with one primary solution; whereas in real life many problems are more complex with more than one possible solution – thus the BNRT does not assess higher-level problem solving/reasoning.
Cognistat (Neurobehavioural Cognitive Status Examination) Screening assessment; Impairment level *(global)* **Population**: Adolescents to over 65 years	The Cognistat has 11 subtests which screen for 3 general factors (consciousness, attention and orientation) and 5 major ability areas (memory, (language, construction, calculation, and reasoning). There are 2 tests: the original Cognistat, and the Cognistat Five. Each has 3 formats available: paper-and-pencil test; web-based, computer assisted format; and computerized PDF format that does not require web access.	**Reliability**: • Excellent inter-rater reliability (*psychiatry*). • Adequate to excellent test-retest reliability (*psychiatry*). • *no studies were found for geriatrics or brain injury* **Predictive Validity:** • Poor validity for predicting FIM self-care scores upon discharge from acute care, and adequate validity for predicting FIM cognitive scores (*Chinese adults with stroke*).	**Pros**: • Broader profile than SMMSE or MoCA, more sensitive than MMSE. • Has been found to identify presence of cognitive impairment in TBI (reliably classifies individuals in acute & post-acute settings into the Cognistat impairment categories). • Is predictive of function (BI or FIM) for persons with stroke. • When used with the Rivermead Behavioural Memory Test can detect MCI and mild dementia.

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Normative Data: Based on 4 groups, each with about 30 subjects: age 20-30, age 40-66, and age 70-92. http://www.cognistat.com/	The Cognistat Five provides an even quicker screening tool (measuring orientation, memory and construction) – reported to provide an "MCI" index as a risk assessment algorithm for MCI and dementia. **Time to administer**: original takes approx 45 minutes. There is a screening score also available for the original version – but with a high false positive. It takes about 5 minutes for the Cognistat Five version. **Scoring**: 1. Original (long) version provides a "cognitive profile" (not a single numerical score), with a cut-off for each test. Cut-off scores place client within categories of "average range" or "mild", "moderate, or "severe" cognitive disability. *Note: As per manual: "…profiles in which no score falls below the gray zone cannot be taken as proof that no cognitive dysfunction exists…" (page 18). 2. Also (relatively new), both versions provide a "MCI Index" reportedly to help estimate the risk for mild cognitive impairment (MCI) and dementia, but with a reminder provided that the score does NOT diagnose MCI or dementia (which of course depend on the clinical judgment of the appropriate expert). **Minimal Clinical Difference (MCD)**: *not determined to date*.	• Cognistat's comprehension and repetition subscales were found to be useful in predicting (accounts for 64.4% of the regression model) functional independence as measured by the Barthel Index for persons recovering from stroke. • Cognistat's comprehension and similarities subscales were found to be useful in predicting functional performance as measured by the FIM for persons recovering from stroke. **Group Differences:** • Differentiates between healthy controls and: - dementia - neurosurgical groups - stroke - individuals on an outpatient geriatric mental health team • May help differentiate between individuals with late onset depression and dementia. **Other Aspects of Validity:** • Adequate to excellent concurrent validity with "parallel" neuropsych tests for a range of neurological & psychiatric diagnoses, including traumatic brain injury. • Poor to adequate concurrent validity with an IADL measure, the Observed Tasks of Daily Living-Revised (*persistent schizophrenia*). • Lacks correlation with the BADS (i.e., basic cognition vs. executive function) (*schizophrenia*). • Non-significant correlations with a measure of functional outcome (Routine Task Inventory), thus lacking ecological validity (*schizophrenia*). • Moderate validity of using both the Cognistat and the Rivermead Behavioural Memory Test together to detect MCI and mild dementia.	• The new MCI Index might be helpful for OTs working in programs/clinics involving clients with MCI and dementia. • Overall: useful as a measure of gross cognitive impairment that may be useful to identify areas needing more in-depth assessment (Shea et al., 2017). **Cons**: • This test has become very expensive (e.g., for the paper test: $575.00 USD for a starter kit and $475.00 USD for a package of 25 test booklets). • Individuals with frontal lobe lesions may not perform in the impaired range on this test. • Significant difficulties in reading, writing and spelling will not be detected. • Poor performance may reflect a long-term learning disability (rather than new, acquired cognitive impairment). • Although it may help to determine specific cognitive impairments, evidence varies to support concurrent/predictive validity of function. • Scoring is a profile (not a single numerical score) – although some researchers create a composite score for purposes of their research, e.g. Drane et al., 2003; and there is now the new MCI Index score. • "Screening" score (of original version) produces high false positive (so it is recommended to use total score). • Cautions in interpreting results if presence of frontal lobe lesion, pain, medications, sleep deprivation, sensory deficits, language deficits. • Cautions also with individuals with lower levels of education and older adults (this test may overestimate cognitive impairment). • May not be sensitive to mild impairment. For example, the Cognistat detected only 60-80% of cognitive deficits diagnosed by a skilled neuropsychologist (Nokleby et al., 2008) (stroke). • It may be too simple for post-acute, high functioning TBI. • Not recommended by researchers to use with TBI for planning rehab & community reintegration (because not sensitive enough to residual cognitive deficits across different stages of recovery). • One study found a gender bias in the judgment subtest (females more often score 1 rather than 2 as compared to males).
The Cognitive Assessment of Minnesota (CAM) Screening assessment; Impairment level *(global)* **Population**: adults with a brain injury or CVA and at Level IV and above on the Rancho Los Amigos	The CAM is a hierarchical approach to screening a range of cognitive skills to identify general areas of cognitive impairment and to guide treatment activities. It can be used as a baseline and to measure change, and to indicate areas for in-depth investigation. The 17 subtests (with total of 29 items) range from simple to complex and cover: attention, memory, visual neglect, math, ability to follow directions, and judgment. These are grouped	**Reliability:** • Excellent internal consistency (*residents of long term care facilities with acquired brain injury*). • Excellent inter-rater reliability (*acquired brain injury*). • Excellent test-retest reliability (*acquired brain injury + healthy controls*). **Predictive Validity:** • Does not have validity for predicting functional status 3 months later using FIM + FAM (*acute care*	**Pros**: • Easy to administer allowing a quick and inclusive assessment of significant areas of cognition. • Evaluates variety of cognitive skills in a short time. • Utilizes materials that are easily accessible and inexpensive. • Uses familiar tasks and gives clear directions and guidelines. **Cons**: • May not pick up on subtle/mild cognitive deficits

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
Cognitive Scale. **Normative data**: sample of 200 healthy adults, age 18-70 years. http://www.pearsonclinical.com/therapy/products/100000577/cognitive-assessment-of-minnesota-the.html	into 4 categories: fund of acquired information or store of knowledge (18 items); manipulation of old knowledge, calculation or problem solving (9 items); social awareness & judgment (1 item); and abstract thinking (1 item). **Time to administer:** approximately 40 minutes, or two 20-minute sessions. **Scoring:** The raw scores are plotted on a scoring profile, which shows a pattern of how many items fit into "none to mild impairment", "moderate impairment" or "severe impairment". *Note: As per manual: If an individual scores at below the cut-off, then it is extremely probable that s/he has cognitive impairment. If s/he scores at above the cut-off, then there is still a 23.5% chance that impairment is present. If the examiner continues to suspect cognitive impairment, then further assessment is required. **Minimal Clinical Difference (MCD)**: *not determined to date*.	*inpatients up to 3 months post acquired brain injury*). **Group Differences:** • Differentiates between healthy controls and acquired brain injury. • Differentiates between 3 groups of cognitive impairment (mild, moderate, severe) which were been determined by clinician ratings. **Other Aspects of Validity:** • Adequate concurrent validity with 2 impairment-based tests: MMSE and Porteus Maze Test Quotient (*acquired brain injury*).	• Not appropriate for individuals with severe visual-perceptual motor or visual acuity deficits, or aphasia. • Not a complete test battery or in-depth cognitive evaluation; the CAM is best used as a screen of abilities and deficits. Identifies problem areas to further evaluate. • No alternate version available for re-test. • For acute care inpatients with acquired brain injury, does not predict function at 3 months later.
Cognitive Competency Test (CCT) Screening assessment; Impairment level *(global)* **Population**: older adults	The CCT has 12 subtests of cognitive skills including: orientation to personal information, social intelligence, memory, reading, financial management, safety, judgment and spatial orientation. **Time to administer:** 60 minutes. Can be administered in sections. **Scoring:** per subtest and as a total. An Average Total Score (ATS) below 76% indicates some assistance will be required for ADLs. **Minimal Clinical Difference (MCD)**: *not determined to date*.	**Reliability:** • Cited by Douglas et al. 2008 as having "adequate" test-retest reliability. **Predictive Validity:** • Can be helpful when distinguishing between a recommendation for long-term care and a recommendation for retirement home (assisted living residence) or return home with supports. **Group Differences:** • Pilot study showed the CCT to differentiate between a dependent group and an independent group; subsequent study showed discrimination between normal aging group and CVA & dementia groups (*dementia*). **Other Aspects of Validity:** • Adequate concurrent validity with MMSE, and with judgment concerns & insight concerns (as reported by family, staff) (*dementia*). • Poor concurrent validity with: safety concerns (as reported by family, staff), a non-standardized IADL scale, non-standardized kitchen assessment, level of supports received at home, Geriatric Depression Scale, and Cumulative Illness Rating Score.	**Pros:** • Commonly used by OTs to predict function for discharge planning. **Cons:** • It may be difficult to find a manual. • Some items are dated, e.g. money management and sequencing. • Note the poor concurrent validity with functional measures (for dementia). • Does not measure insight, judgment, or awareness. • Use ++caution for individuals other than dementia, because of the lack of psychometric studies for other populations. • More research on reliability and validity is needed. • Caution using subtests for prediction. • It is a unidimensional outcome measure.
Cognitive Performance Test Screening assessment; Task performance level **Population**: Developed primarily for use with older adults (focus=dementia).	The CPT (developed 1990; revised 2002) is a performance test based on the Allen Cognitive Disability theory. There are 6 original tasks: dressing, shopping, telephone, toast preparation, washing, and traveling. Later, 7th task was added: "medbox". **Time to administer:** At least 45 minutes for all 7 tasks (if mild to moderate cognitive disability).	**Reliability:** • Excellent internal consistency (*dementia*); adequate internal consistency (*geriatric rehab unit patients*). • Excellent inter-rater and test-retest reliability (*Alzheimer disease; outpatients with dementia; individuals with memory deficits*). **Predictive Validity:** • May have some predictive validity of risk of	**Pros:** • Fairly easy to administer. • Focus is on function. • Research has shown that age, sex and years of education did not significantly relate to CPT scores (for geriatric rehab inpatient patients). **Cons:** • Requires significant materials (provided with purchase of the test) and designated space.

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
*Populations researched: first developed for persons with Alzheimer disease (AD). The website states that it has been researched with other elderly, dementia, and neuro groups, although it's unclear re: details on CVA and TBI populations. http://www.maddak.com/cpt-cognitive-performance-test-p-27823.html Additional resources: YouTube video showing mock administration of this test: http://www.youtube.com/watch?v=b7xZh66Klgs	Recommended to administer all tasks (at minimum, 4 – otherwise final score is skewed). **Scoring:** Divide total score by 7 for average (final) score, max 6 points, to determine cognitive level and mode (as relates to Allen's Cognitive levels). The lower the score, the more monitoring/assistance required for functional tasks. **Minimal Clinical Difference (MCD)**: *not determined to date.*	institutionalization over time (over a 4-year follow-up period (*dementia*). **Group Differences:** • Differentiates between healthy elderly and outpatients with dementia. • Differentiates between unimpaired adults and those impaired who are on a geriatric rehab unit. **Other Aspects of Validity**: • Excellent concurrent validity with MMSE (normal elderly controls, Alzheimer disease, and outpatients with dementia); and adequate concurrent validity with SMMSE (*older adults on geriatric rehab unit*). • Excellent concurrent validity with the Routine Task Inventory (a cognitive functional scale that uses non-structured observation of daily tasks) (*outpatients with dementia*). • Adequate concurrent validity with AMPS and FIM (older adults on geriatric rehab unit) – which makes sense because AMPS and FIM scores include motor and process/cognitive elements. • Adequate to excellent concurrent validity with 2 measures of caregiver-rated ADL (*normal elderly controls, Alzheimer disease*). • *Further validity results are discussed on web-site, but specific details of these results were not found in the peer-reviewed literature.*	• Dressing and travel subtasks are not portable so cannot be assessed if you see client in their home, although there is an alternate now for dressing (gloves). • Researchers suggest: avoid administering only some subtests; and to ensure reliability of the overall score, OT should administer all subtests • Expensive (>$500.00).
Contextual Memory Test (CMT) In-depth assessment; Impairment level *(memory)* **Population:** Adults 18+ who have neurological or organic memory impairment which include: head trauma, CVA, dementia, MS, Parkinson's, brain tumour, AIDS, epilepsy, or chronic alcohol abuse, *and* who are able to follow 2-step commands. May be useful with older children and adolescents. **Norms**: 3 age groups, based on 375 healthy adults aged 17-86. (There is also a Contextual memory Test for school-age children) http://www.pearsonclinical.com/therapy/products/100000075/contextual-memory-test.html	The CMT assesses awareness of memory capacity, use of strategy, and memory recall in adults with memory dysfunction. It can be used as a screen to determine the need for further evaluation or to indicate how responsive the individual is to memory cues to recommend compensatory or remedial treatment. There are 2 parallel forms: Morning version and Restaurant version. **Time to administer:** Requires 5-10 minutes, in addition to the 15-20 minute delayed task. **Scoring**: The test yields three recall scores (immediate, delayed and total), and scores for cued recall, recognition, awareness and strategy use. Scores are compared to the norms and then analyzed for patterns using the Summary of Findings worksheet. Recall scores are classified into categories of WNL, suspect, mild, moderate or severe deficit. **Minimal Clinical Difference (MCD)**: *not determined to date*.	**Reliability**: • Adequate to excellent reliability for parallel form (*brain injury*). • Adequate to excellent test-retest, using immediate recall and delayed recall scores (*healthy adults, brain injury*). **Predictive Validity:** • *not determined to date* **Group Differences:** • Differentiates between healthy controls and: - Alzheimer disease - brain injury **Other Aspects of Validity:** • Excellent concurrent validity with the Rivermead Behavioral Memory Test (*brain injury*).	**Pros**: • Asks about strategies thus aids in planning intervention. • Option of contextual prompt. • Flexible testing procedures – recall vs recognition. • Uses pictures of everyday objects. • Easy to transport. **Cons**: • Scoring is confusing and lengthy. • Not appropriate for individuals with moderate or severe aphasia or visual perceptual deficits. • Ceiling effect – may not identify clients with subtle memory deficits. • Normative data focused on Caucasian, highly educated young population (although results were replicated for the most part with an Israeli population).

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
Dynamic Assessment of Categorization (Toglia Category Assessment – TCA) In-depth assessment; Impairment level *(cognitive flexibility, develop strategies)* **Population:** age 18-86, with brain injury or chronic schizophrenia (with negative symptoms). http://www.erp.ca/Toglia-Category-Assessment-ERP1818.html	Examines the ability to establish categories and switch conceptual set and deductive reasoning. Emphasizes qualitative aspects of performance, and is based on Toglia's dynamic interaction principles of testing. The evaluee needs to be able to follow two-step directions, discriminate between size, color and form, and attend to a task for a minimum of 15 minutes. **Time to administer:** 10-30 minutes **Scoring:** Standardized test score sheet is used. Scores range from 1 (unable to sort after reduction of amount) to 11 (independent sort, no cues given). Provides a total score plus 3 sub-test scores: sort by colour, type, and size. **Minimal Clinical Difference (MCD)**: *not determined to date*.	**Reliability:** • Adequate to excellent internal consistency (*stroke, traumatic brain injury, inpatients with schizophrenia*). • Excellent inter-rater reliability (*stroke, traumatic brain injury, inpatients with schizophrenia*). **Predictive Validity:** • Adequate validity for predicting IADL tasks (*acquired brain injury on acute neurosurgery unit*). **Group Differences:** • Differentiates between healthy controls and brain injury. **Other Aspects of Validity:** • Adequate concurrent validity with the Risks Object Classification Test (*stroke, traumatic brain injury, inpatients with schizophrenia*).	**Pros**: • Portable; can be used at bedside. • Short time to administer. • Uses familiar items (i.e., in terms of the objects to be categorized). • Links assessment results with treatment planning (in particular, developing strategy use). • Deductive reasoning test may be used to demonstrate the potential for change or learning. • Deductive reasoning test can be used as a re-assessment tool. **Cons**: • Cost: about $100.00 (for simple items and score sheets). • Requires use of language skills thus cannot be used for individuals with moderate to severe aphasia. • May not be applicable to populations other than acquired brain injury or chronic schizophrenia. • Cannot be used to measure change over time. • Scoring is rather lengthy and may not provide very useful information as applied to assessment of cognition or function.
Executive Function Performance Test (EFPT) **(and alternate version, aEFPT)** In-depth assessment; task performance level *(executive functions)* (*Acts as a screening assessment if you use only 1 or 2 subtests, or if EFPT is used with higher functioning clients*) **Population:** Research has been conducted with stroke, MS & schizophrenia, but no specific normative data yet. Could be used with other groups (ABI, older adults). EFPT website: https://www.ot.wustl.edu/about/resources/executive-function-performance-test-efpt-308 YouTube videos on mock administration of this test: http://www.youtube.com/watch?v=vO2uvlIh_ao http://www.youtube.com/watch?v=5SMzCougcOs	A performance-based, standardized assessment of cognitive (executive) function. It examines 5 executive function components (initiation, organization, sequencing, safety & judgment, and completion) for each of 4 tasks (cooking oatmeal, telephone use, medication management, and bill payment). Aims to determine level of support required (i.e., what type of cueing or assistance is required) to perform IADLS. New: * 2015: alternate version, aEFPT: this version contains 4 additional tasks to complement the original EFPT, thus ensuring novelty for a repeat administration of the EFPT. The alternate tasks are within the same categories (cooking pasta instead of oatmeal; telephoning a doctor's office instead of a grocery store; sorting medications into a 7-day pill sorter instead of taking a medication; money management involving ordering an item from a catalog instead of paying 2 bills) (*see details on EFPT website*). * 2018: internet-based tasks for the bill paying and telephone-use tasks: - bill-paying instructions are available on EFPT website; software is also available at no cost: http://www.tau.ac.il/~portnoys/Internet-based_Bill_Paying_Task.html. - telephone: simply substitute a Google search for the telephone book * a culturally adapted version has been developed in Korea (EFPT-K)	**Reliability**: • Excellent internal consistency (*stroke, healthy controls, schizophrenia*). • Excellent interrater reliability (*mild stroke & healthy controls, multiple sclerosis*). • Alternate-form reliability established with on-line version tasks; and with aEFPT. **Predictive Validity:** • For individuals with severe traumatic brain injury, the EFPT predicts the self-perception of independence as measured by the TBI-QOL. **Group Differences:** • Differentiates between healthy controls and: - mild stroke, moderate stroke - brain tumour • Differentiates between acute and chronic schizophrenia. • Differentiates between controls, complicated mild/moderate, and severe traumatic brain injury. • aEFPT: differentiates between controls and stroke. **Other Aspects of Validity:** • Poor to adequate concurrent validity with various neuropsych tests, suggesting EFPT measures some differing aspects of cognition compared to these tests (*stroke, traumatic brain injury, & healthy controls*). • Adequate to excellent concurrent validity with 2 executive function tests (BADS, DKEFS), supporting the EFPT as a measure of executive functioning (*schizophrenia, acute stroke*). • Adequate concurrent validity with FIM, plus **e**xcellent concurrent validity with FAM and AMPS, suggesting EFPT is a good measure of function in particular IADLs (*stroke & healthy controls*).	**Pros**: • There is ecological validity (thus, assessment of executive function in context of function), including that new "on-line" versions are available for bill-paying and telephone use. • Portable. • Helps determine supports needed for living at home. • The manual (test protocol booklet) and the on-line bill-paying task are available on-line, no cost. • EFPT is recommended for assessment of executive functions in a published inventory of tests of executive function for stroke (Poulin et al, 2013). • Alternate version is now available (2015) allowing for repeat administration. **Cons**: • Need to gather and replenish items; need stove and phone (cell phone is okay); and need computer with internet access for internet version. • Verbal and written English fluency required. • May not provide a sufficient cognitive challenge for higher-functioning clients.

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	Time to administer: 45-60 minutes. Preferable to administer full test (4 tasks) but can use fewer tests for screening purposes. **Scoring:** Based on the amount of cueing provided. A total score of 100 can be calculated (the higher the score, the more difficulties the client has). **Minimal Clinical Difference (MCD)**: *not determined to date*.	• For the on-line versions of bill paying and telephone tasks: - for bill paying: adequate to excellent construct validity when compared to trail making A & B; however, no significant correlation between telephone task and trail making - construct validity was not established for the on-line telephone task ***do not use this task in isolation for assessing EF***	
Executive Function Route Finding Task (EFRT) Screening assessment; Task performance level *(executive functions)* **Population:** Adults with traumatic brain injury or mild cognitive impairment; no normative data to date.	A performance-based screening of executive functioning to relating to route: task formation, strategy approach, detection & correction of errors, dependence on cueing. **Scoring**: 1- to 4-point scale for each of: o Task Understanding o Information-seeking o Retaining directions o Error detection o Error correction o On-task behaviour (the higher the score, the fewer the difficulties) The OT can also record potential contributing problems evaluated e.g. visual/perceptual; and overall independence is evaluated. **Minimal Clinical Difference (MCD)**: *not determined to date*	**Reliability**: • Excellent inter-rater reliability (*traumatic brain injury; older adults with mild cognitive impairment*) **Predictive Validity:** • *not determined to date* **Group Differences:** • Differentiates between healthy controls and: - mild cognitive impairment (*MCI*). **Other Aspects of Validity:** • Adequate concurrent validity with some neuropsych tests (verbal comprehension, perceptual organization, flexibility of hypothesis testing), and no correlation with test of speed of information processing (*traumatic brain injury*). • Adequate concurrent validity with 1 of 2 subtests of the EFPT – with "bill payment" but not "telephone use".(*older adults with mild cognitive impairment*). • Adequate concurrent validity with another measure of "everyday cognition" (RBMT) and non-significant correlations with more impairment-based measures (MMSE, block design, vocabulary scores) (*older adults, some with mild to moderate dementia*).	**Pros**: • Ecological validity (measure of executive function for task performance) • No cost; information readily available in a published article (Boyd, 1993). • Portable (requires only use of a record to keep track of score, within any environment where OT can plan the route/destination). • VCH has developed a form that provides the reference, all instructions, and scoring. **Cons** • Need to plan ahead for the general route/destination that you will be using for each client (cannot necessarily be the same route for every client).
Executive Secretarial Task In-depth assessment; Task performance level *(high level executive functions)* **Population**: adults with brain injury. No normative data so far (although the primary research article to date provides a possible cut-off score of 34-35/45; Lamberts et al., 2010).	Provides an in-depth assessment of executive function. A job assessment procedure is simulated, involving simple secretarial assignments. A new assessment which, to date, has been used mostly for research. **Time to administer:** very lengthy, 3 hours. Must administer full test. **Scoring**: A score form is filled out (available in Lamberts et al., 2010), with the various tasks scored in terms of initiative, prospective memory, execution of task; and various topics in terms of overall impressions (of planning, effort etc.) – maximum score of 45 (higher scores reflect higher level of function). Client also rates own performance in terms of 5 questions asked at end of task. The authors have developed a possible cut-off score of 34 or 35 (in comparing normal healthy controls with brain injury). **Minimal Clinical Difference (MCD)**: cannot be used as test-retest (there is no parallel version).	**Reliability**: • *Test-retest and inter-rater reliability not yet tested – limited by lack of a parallel test.* **Predictive Validity:** • Poor validity predicting changes in life roles when correlating this test with the Role Resumption List (a structured interview) (*brain injury*). **Group Differences:** • Differentiates between healthy controls and brain injury. **Other Aspects of Validity:** • Poor to adequate concurrent validity with measures of executive function (BADS, Dysexecutive Questionnaire, Executive Observation Scale) (*brain injury*).	**Pros**: • No cost involved. Information available in Lamberts et al. (2010), including tasks, score form • Ecological validity. • Challenges high-level cognitive and executive functions and therefore may be of benefit in an outpatient or return-to-work assessment setting. **Cons**: • Very lengthy test, may not be useful/feasible in most areas of clinical practice. • Takes extra time to set up for each client; various materials are required (quiet room with desk, phonebook, calculator, telephone, office supplies, day agenda, envelopes, etc.). • No further research published since this assessment was initially published in 2010

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EXIT-25 (The Executive Interview) Screening assessment; Impairment level **Population**: Persons with dementia, Alzheimer disease (AD), dementia of major depression (DMD), schizophrenia (dementia praecox), and vascular dementia without cortical features Test form (including scoring): http://www.charlesjvellaphd.com/Tests/Executive%20Interview%2025%20question.pdf	The EXIT-25 was developed as a "bedside screen" of executive dysfunction. It provides a standardized clinical assessment (screen) of executive function. The 25 items assess perseveration, intrusions, apathy, disinhibition, verbal fluency, design fluency, frontal release signs, motor/impulse control, imitation behavior, and other clinical signs associated with frontal system dysfunction. Note: More recently, researchers have identified that the EXIT appears to require EF (executive functions) but also reflects non-EF demands, and therefore should be considered a measure of global cognitive function rather than pure EF measure. There have been attempts to shorten it, and the QuickEXIT (14 items) appears to have the best psychometrics of these attempts. **Time to administer**: EXIT-25 takes approximately 15-20 minutes **Scoring**: EXIT-25 scores range from 0 to 50, with high scores indicating impairment. Scores ≥ 15/50 suggest clinically significant EF impairment in young and elderly populations. (Normal range for young adults ≤ 5/50; normal range for elderly adults ≤ 10/50.) **Minimal Clinical Difference (MCD)**: *not determined to date.*	**Reliability**: • Excellent interrater reliability (dementia; late-life depression). • Excellent internal consistency (dementia); poor internal consistency (*late-life depression*). **Predictive Validity**: • Adequate predictive validity of change scores of EXIT25 on change scores in an IADL measure – over time for individuals (whereas NO correlation between change scores in EXIT25 and change scores in MMSE). (*elderly retirees age 70+ at non-institutional levels of care, evaluated at 3 points over 3 years*). **Group Differences:** • Differentiates between healthy controls and individuals with dementia. • One study indicates EXIT25 does NOT differentiate between healthy controls and mild cognitive impairment (MCI), whereas another study indicates it differentiates between healthy controls and "mild dementia" (and that MMSE does not). **Other Aspects of Validity**: • There is concurrent validity of the EXIT25 and MRI findings that show frontal lobe pathology, as analysed by comparing individuals above and below a cut-off score of 15/50 and the effect of various frontal lesions (analysis does not use correlational analysis) (*individuals seen at a dementia assessment clinic*). • Excellent concurrent validity with MMSE. (*individuals seen at a dementia assessment clinic*) • Excellent concurrent validity with MMSE, 3MS, and cognitive score of FIM (*traumatic brain injury inpatients*). • Marked ceiling effects when used with TBI outpatients. • Excellent concurrent validity with BADS, but non-significant correlation with 2 neuropsych measures of executive function (Stroop & Trail Making) (*TBI outpatients*). • Excellent concurrent validity with the Direct Assessment of Functional Status-Revised test (DAFS-R) (normal controls and also people with dementia); and adequate concurrent validity for persons with mild cognitive impairment (likely because of higher variance in scores for the MCI group). • Adequate concurrent validity with an IADL score (from the Physical Self-Maintenance Scale and Instrumental Activities of Daily Living Scale) (*at a geriatric memory clinic*). • Excellent concurrent validity with another screen of executive functions/frontal lobe dysfunction (the Frontal Assessment Battery) (*at a geriatric memory clinic*). • Adequate to excellent concurrent validity with neuropsychiatric tests measures that aim to	**Pros**: • The EXIT-25 is readily available on internet (no cost involved), although scoring information is no longer readily available (see Cons below) • Quick to administer • May add important information about executive functioning when screening for cognitive impairment (to add to information from other cognitive screens which do not screen well for executive dysfunction, such as the MMSE) – for individuals with dementia, and also in psychiatry (Royall et al., 2000; Schillerstrom et al, 2003), but unclear how useful it is for outpatients with TBI (and with mild/moderate disability). • For individuals with dementia, it links well to function. • Has also been shown to have utility for individuals with psychiatric diagnoses. **Cons**: • Note: no longer included as a recommended assessment/outcome measure by Dementia KT Hub (an Australian resource, http://dementiakt.com.au/).Not a pure measure of executive functions; more accurately it is a global measure of cognition. • Practice is needed to administer and score appropriately. • May not be able to detect MCI, or cognitive impairment in TBI outpatients. • Moderately influenced by age and education. • Research findings advise that there was NO clear cut-off score found for presence of dementia; and advised that other testing is required to confirm dementia (Moorhouse et al, 2009).

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		assess executive functioning including: Wisconsin Card Sorting Test (r=0.54), Lezak's Tinker Toy Test (r=0.57), Test of Sustained Attention (time, r=0.82; errors, r= 0.83), and Trail Making Part B (r=0.64). (*older adults assessed for dementia*).	
Galveston Orientation and Amnesia Test (GOAT) Screening assessment; Impairment level **Population**: designed for use with individuals with traumatic brain injury and closed head injury. There is also a modified version for people with aphasia which uses multiple choice questions (**AGOAT**) although it's not readily available and requires further research/evaluation (Jain 2010). There is also a related version for children age 3 to 15: the Children's Orientation and Amnesia Test (**COAT**) (see Ewing-Cobbs, 1990). For copy of test: (*note that current interpretation of scoring differs from this version*): http://scale-library.com/pdf/Galveston_Orientation_Amnesia_Test.pdf Description: https://www.physio-pedia.com/Galveston_Orientation_%26_Amnesia_Test https://www.abiebr.com/set/17-assessment-outcomes-following-acquiredtraumatic-brain-injury/galveston-orientation-and	The GOAT was the first of its kind developed to assess for post-traumatic amnesia (PTA) following head trauma, including for use on a serial basis such as could be incorporated into physician patient rounds or the recording of vital signs. It is used particularly in the United States. (Note: PTA refers to a post-traumatic state of confusion involving disorientation, anterograde amnesia, and retrograde amnesia.) **Be aware that opioid use (such as is widely prescribed following TBI for pain/headache management) can confound results, especially for anterograde amnesia and orientation items** (Marshman et al., 2018). The GOAT has 16 questions (sometimes categorized under 10 items), presented orally, to which the patient can respond orally or in writing. It is primarily a measure of orientation/ disorientation, and not of memory (the memory portion relates to specific aspects of pre- and post-injury, i.e. measures of retrograde and anterograde amnesia). Bode et al. (2000) presents an alternate method of administration and scoring to allow for more efficient assessment of PTA (with items presented in order of difficulty, easiest to most difficult); however, this does not appear to have been adopted widely. **Time to administer**: about 10 minutes **Scoring**: total score 100. Points are deducted for each incorrect response, and subtracted from 100 for the final score: • 75-100 (updated from 76-100 in original paper) is considered normal, i.e. the client does not have PTA • If the score is <75, then the person is in a period of post-traumatic amnesia (PTA). PTA has ended when their score becomes 75 or greater on 2-3 consecutive administrations (Ellenberg et al, 1996; Zafonte et al. 1997; Novack et al. 2000). **Minimal Clinical Difference (MCD)**: not applicable – instead see Scoring above.	**Reliability**: • Excellent inter-rater reliability (*individuals hospitalized with closed head injury of varying severity*). • Internal consistency was demonstrated using Rasch analysis. **Predictive Validity**: • PTA (as measured by GOAT) is a predictor of functional outcome (as measured by Disability Rating Scale and Functional Independence Measure): in that for one study it accounted for 20% to 45% of variance (Zafonte et al, 1997). *Note: this does NOT represent a specific cut-off score for the GOAT (or a specific length of PTA) as being predictive of function.* • PTA for more than 2 to 4 weeks (and certainly more than 12 weeks) post-emergence from coma are more likely to have moderate to severe disability 6-12 months later as described on Glasgow Outcome Scale (Levin et al. 1979; Katz & Alexander, 1994). (*Note: the GOS categorizes severe disability as including dependence for ADL, and moderate disability as including independent ADL but reduced employment capacity: http://www.strokecenter.org/wp-content/uploads/2011/08/glasgow_outcome.pdf*). • Individuals with presence of PTA at start of rehab have longer rehab stays than individuals without presence of PTA at start of rehab – thus individuals without presence of PTA recover sooner/faster in rehab than those with PTA (Bode et al., 2000) – *Note: this is NOT the same thing as stating that individuals with presence of PTA will not benefit from rehab.* **Other Aspects of Validity**: • Construct validity: there is an association with CT findings (Levin et al, 1979). • Construct validity (in terms of measuring initial cognitive recovery): adequate correlation with Glasgow Coma Scale (which measures very initial cognitive state/recovery; GOAT measures next step, PTA). [Note: it has been found that individuals should not be assessed with the GOAT until their Glasgow Coma Scale (GCS) score is 12 or higher, optimally if score is 14 (ideally with eye opening score 2, verbal response score 4, and motor response score 6) (Silva et al., 2007)]. • Concurrent validity: excellent correlation with other measures of PTA and orientation.	**Pros**: • No cost and readily available on-line (http://scale-library.com/pdf/Galveston_Orientation_Amnesia_Test.pdf) • Quick to administer, if your goal is to assess for post traumatic amnesia (which is not typically a goal for OT assessment). • Modifications are permitted for non-verbal patient (such as when tracheostomy is in place), e.g., by providing a calendar so that they can point to a date; allowing them to write their responses. **Cons**: • It is difficult to identify any relevant purpose for an OT to use this measure – being that it's a measure of PTA and, therefore, of primary interest to physicians and not OTs (and function). • Some physicians have asked OTs to use the GOAT to help the team determine if the client is appropriate for rehab; however, research does not verify that there is predictive validity for this purpose. • Results can be confounded if the patient is taking opioids (pain/headache management) – therefore be cautious in interpreting results for such patients. • Some of the memory items are difficult to verify by the assessor – and, therefore, the test can be difficult to score. The assessor will need to know the answers ahead of time (e.g., mode of transport used to get the patient to hospital). Some items might not be verifiable and, therefore, it might not be possible to determine if the patient's response is an error (for example, represents confabulation) or is accurate. • GOAT is difficult with non-verbal clients – be careful in interpreting results for individuals who are non-verbal or who have aphasia (because poor results may represent non-verbal status or aphasia, and NOT post-traumatic amnesia). Consider using AGOAT instead, unless the person is simply non-verbal and there is no question of aphasia (thus has good comprehension and can express themselves without difficulty in writing (for the GOAT). • "...Due to its simplicity, it should not be used as the sole assessment to determine PTA. Using the GOAT in combination with other tests may yield more efficient and cohesive results..." (https://goltv.com/g/galveston-orientation-amnesia-test/, *accessed June 2018*).
Independent Living Scales (ILS)	The ILS is a standardized assessment of competence in IADLs, requiring the client to demonstrate problem solving, demonstrate	**Reliability:** • Adequate to excellent internal consistency (*'non-clinical cases'*).	**Pros**: • Includes performance-based testing (with scenario-based questions and actual tasks for the

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(Loeb 1996; not to be confused with the "Independent Living Scale" developed for brain injury) In-depth assessment; Task performance level **Population**: Psychometric data focuses on dementia and schizophrenia (with cut scores provided for age 65 plus). The norms provided in manual (1996) are for various diagnostic groups: mental retardation, traumatic brain injury, dementia, 'chronic psychiatric disturbance', major depression, and schizophrenia. https://www.pearsonclinical.ca/en/products/product-master/item-45.html See discussion on Prezi presentation (2015) at: https://prezi.com/xmmfwnosgagx/ils-independent-living-scales/	knowledge, or perform a task. There are 5 subscales: memory/orientation, managing money (including outdated tasks), managing home and transportation, health and safety, and social adjustment – total 70 items. **Time to administer**: about 45 minutes but varies. The manual recommends giving the entire test in one session. **Scoring**: Convert raw scores to standard scores (using charts in the manual, with different norms tables for different populations), which results in a total score as well as a score for each of the 5 subscales and a score for each of problem solving and performance/ information. Plot these 8 standard scores on a graph (provided on the test form) to determine if the person falls within category of *low*, *moderate* or *high* functioning for each score. (The standard score has a mean of 100 and a standard deviation of 15; higher scores = higher performance.) **Minimal Clinical Difference (MCD)**: *not determined to date*.	• Excellent test-retest reliability (*'non-clinical cases' and schizophrenia*). • Excellent inter-rater reliability (*'non-clinical cases'*). **Predictive Validity:** • The "Managing Money" and "Health and Safety" subscales performed better than MMSE and Trails (A+B) in predicting ultimate judicial decision-making about competency (*in considering court judgments for 71 individuals with intellectual disability, and psychiatric and/or neurological diagnoses*) – with MM and HS scales having 73-78% sensitivity, and MMSE, TMT-A and TMT-B having 62-69% sensitivity. [Competency in this case referred to capacity for managing own affairs/making decisions about person, family and property.] **Group Differences:** • Differentiates between healthy controls and: - schizophrenia - severe brain injury • Does not differentiate between healthy controls and mild or moderate brain injury (but could be because of small sample sizes in the study). • Differentiates between these 3 groups: adults with chronic psychiatric disorders who have *high* vs. *moderate* vs. *low* Global Assessment of Functioning (GAF) scores. • Differentiates between 3 levels of functional outcome (minimum, moderate and maximum supervision) better than the GAF did (*for inpt and outpt schizophrenia*). **Other Aspects of Validity:** • Excellent concurrent validity with some tests of cognition (WAIS-R, MicroCog) (*'non-clinical cases'*). • Adequate to excellent concurrent validity with various executive function neuropsych tests (*dementia*). • Adequate concurrent validity with the "MATRICS consensus cognitive battery" (*schizophrenia*). • Excellent concurrent validity with the personal self-maintenance scale and the IADL scale of the Philadelphia Geriatric Centre Multilevel Assessment Instrument (*'non-clinical cases'*). • Excellent concurrent validity with the shorter (21 item) performance-based Test of Everyday Functional Ability - TEFA (*dementia*). • Excellent concurrent validity with the Dementia Rating Scale; poor concurrent validity with the Geriatric Depression Scale (*dementia*). • Poor to adequate concurrent validity with the Hopemont Capacity Assessment Interview (*healthy elders*). • Poor concurrent validity with a negative & positive symptom scale and with a quality of life scale – suggesting that ILS does not measure impact of these areas on independent living skills (*schizophrenia*).	person to do, related to function at home), thus enhancing ecological validity. • Fairly good psychometric properties for use with individuals with schizophrenia and dementia (thus best suited for these populations) – there is some initial research with other populations (as per manual, 1996), but lack of further studies with these other groups. • Appears to reflect cognitive aspects of performance (but may not reflect emotional influence e.g. depression; positive & negative symptoms). • As per 1 study (Quickel 2013), when used with other measures, the "Managing Money" and "Health and Safety" can assist in predicting competency; However: these subscales cannot make this determination on their own; and also keep in mind that some of the tasks are outdated thus not relevant/familiar to many clients. **Cons**: • This test is old. Cheque-writing and phonebook tasks are not relevant to many clients. • Lacks external research for many client groups (including recent stroke, TBI, and other cognitive impairments. • Map-based way-finding task seems to be more of a memory and attention task than measuring the person's ability to way-find. • May not be sensitive enough to identify individuals with mild cognitive impairment. • Quiet room (private setting) recommended. • Costly: $573 CAN for initial kit, and then $105.00 CAN for set of 25 replacement forms. • OT must obtain additional materials: telephone, telephone book (*thus very outdated*), various denominations of money (*including pennies!, thus outdated for Canada*), stop-watch, pen, paper, envelope. • Instead of using ILS, OTs working with dementia clients may want to explore use of KELS or TEFA (sold as the Texas Functional Living Scale, TFLS). These are newer and cost much less than ILS.

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
Kohlman Evaluation of Living Skills (KELS) ***4th edition was published in 2016* Screening assessment; Task performance level **Population:** Developed for acute psychiatric setting and later assessed and adapted for a geriatric population. Wider application includes clients with "mental retardation", brain injury, geriatric, or otherwise cognitively impaired – although there is a lack of psychometric studies to support use with these populations. https://www.caot.ca/client/product2/334/item.html *There are numerous YouTube videos showing KELS (most by OT students):* http://www.youtube.com/watch?v=30FOxT2ubU4 (***2012***) https://www.youtube.com/watch?v=V83myLkwsU8 (***2014***) https://www.youtube.com/watch?v=EO_dIj6uEZY (***brief "Dos and Don'ts", 2016***) ***KELS 4 (2016):*** https://www.youtube.com/watch?v=B70WnfcPpe0	The KELS was designed as a short basic living skills evaluation of an individual's ability to perform basic living skills (with a strong emphasis on cognitive perspective), for the purpose of determining the degree of independence (and supports required) for return to community living. The KELS generally tests knowledge, not actual task performance. Includes items in 5 categories: Self Care, Safety & Health, Money Management, Transportation & Telephone, and Work & Leisure. The most recent version, KELS-4 (2016) includes updates as follows: • updated safety pictures • allows use of cell phone and electronic banking (if these are what client is familiar with), using the KELS Flash Drive (included) • removal of budgeting item • new score form format (with no cumulative score) **Time to administer:** approx 30-45 minutes (2016 version may take longer) **Scoring:** • Older versions: items are scored as independent (0), or needs assistance (1 ½ or 1 point). Total score ranges from 0 to 17; a person with a score of <6 is considered capable of living independently. • 2016 (KELS-4): A cumulative score is no longer computed. Instead, each item is scored (as "Independent" or "Needs Assistance"), providing guidance to help the OT with clinical reasoning in determining the most appropriate independent situation for the client (based on abilities of the client, and support required). **Minimal Clinical Difference (MCD)**: *not determined to date*.	**Reliability (previous versions of KELS):** • Excellent inter-rater reliability (*acute psychiatry, and older adults*). **Predictive Validity:** • As per the KELS-4 manual: "…not enough research has been completed to establish the predictive validity of a cumulative score…". (Thus, the aim of the KELS is to help the OT in their clinical reasoning process, not to provide a score to predict the best living situation.) **Group Differences (previous versions of KELS):** • Differentiates between healthy controls and individuals with schizophrenia. • Differentiated between 3 groups of elderly (living in community, living in sheltered housing, attending day care); and more sensitive than the FIM in differentiating these groups. **Other Aspects of Validity (previous versions of KELS):** • Excellent concurrent validity with Global Assessment Scale and with BaFPE. • Excellent concurrent validity with FIM and with an IADL measure (*older adults*). • Excellent concurrent validity with MMSE (*older adults*). • Construct validity supported in assessing older adults' capacity to live safely and independently in the community – as was determined by comparing KELS scores with a battery of tests often used to screen ability to function safely & independently in the community (measures of cognition, affect, executive & functional status).	**Pros**: • Helpful for many settings (inpatient, outpatient, acute care). Research has focused on use with schizophrenia and older adults. • Useful for quickly obtaining information regarding the ability of a person to perform basic independent living skills. • Provides information to help the clinician suggest appropriate living situations that will maximize independence – although should be augmented with performance-based assessment (for example, kitchen assessment). • Cost: $189.00 CAD (KELS-4) as available through CAOT ($239.00 CAD for non-members); also available through AOTA. **Cons**: • Task-oriented but not fully performance-based. • Based on urban lifestyles. Some items must be scored 'not applicable' in rural areas. • No Canadian adaptations. • Additional performance-based testing should be done to supplement the KELS because it tests primarily *knowledge* rather than the *actual performance* of living skills. • Caution in using with individuals hospitalized more than 1 month/ for a long length of stay. • Not applicable to long term care settings (because of the activities/test items).
Kettle Test Screening assessment; Task performance level **Population**: adults with identified or suspected cognitive difficulties. (Research to date has been with stroke and older adults with suspected cognitive deficits)	Aims to evaluate the ability for independent community living of people with identified or suspected cognitive disabilities. Screens for many different cognitive areas (including memory, executive functions) – but the score is based on cueing required, not specific cognitive performance. The client prepares 2 cups of hot beverage, one for self and one for clinician, with complexities in the task relating to type of hot drink selected by evaluator; electric kettle not being assembled; extra items on display not being required in the task; etc. **Time to administer**: approx 20 minutes	**Reliability**: • Excellent inter-rater reliability (geriatric stroke). • *Note: the authors of the test feel that test-retest reliability is irrelevant/does not apply because the test incorporates an element of novel problem solving, thus it is expected that the client would improve on re-test.* **Predictive Validity:** • When used together with the MoCA, there is an improved prediction of the person's need for supervision upon discharge, as compared to using MoCA alone (but still fairly low predictive value even using these tests together) (*stroke & TBI*).	**Pros**: • Ecological validity, portable, assesses functional performance. • Fairly quick to administer; provides a score of cognition through use of a functional task. • VCH has developed a user-friendly instruction and scoring form. • When used together with MoCA test, can improve OT's capacity to predict discharge needs in terms of supervision required at home – but still the OT must consider other information gathered in assessment, and not depend solely on these 2 scores. • Is recommended for assessment of executive

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
https://www.sralab.org/rehabilitation-measures/kettle-test	**Scoring**: Score the cueing required for each of 13 steps of the task. Total score = 0-52, with higher score representing higher need for cueing (more problems in performance). Information from the authors also allows the client's performance to be categorized as independent, mild assist required, or significant assist required. **Minimal Clinical Difference (MCD)**: *not determined to date*.	**Group Differences:** • Differentiates between healthy controls and stroke at discharge from rehabilitation. **Other Aspects of Validity:** • Adequate convergent validity in comparing to a battery of cognitive tests (*older adults with suspected cognitive deficits; stroke*). • Adequate to excellent convergent validity (also considered "ecological validity") in comparing to tests of ADLs and IADLs (*older adults with suspected cognitive deficits; stroke*).	functions in a published inventory of tests of executive function for stroke – as having high clinical utility because it takes less than 20 minutes (Poulin et al, 2013). • Although there have been no updates since 2005, the tasks continue to be ecologically valid (i.e., are not outdated). **Cons**: • No cost to access test manual, but the OT/clinic needs to purchase and assemble all materials (kettle, drink items etc.) ahead of time; and replace some materials just prior to assessing client (e.g., milk).
Lowenstein Occupational Therapy Cognitive Assessment Battery (LOTCA, LOTCA-II, DLOTCA, DLOTCA-G, and FLOTCA) Screening assessment; Impairment level *(global)* **Population**: **LOTCA/DLOTCA**: adults age 18-69 with neurological deficits (stroke, traumatic brain injury), dementia, mental illness. **LOTCA-G**/**DLOTCA-G**: age 70+ **FLOTCA**: adults with TBI (studied with individuals age 18-49) Psychometrics and norms also available for children age 6-12 (DOTCA-Ch). Available through: www.maddak.com www.ncmedical.com	Assesses basic cognitive skills. Used for treatment planning and to measure change. In 2011, the **LOTCA** (2nd edition, i.e. LOTCA-II)) and LOTCA-G were updated to become the Dynamic LOTCA (i.e., **DLOTCA**) and Dynamic LOTCA-G (i.e., **DLOTCA-G**). The "dynamic" factor refers to use of mediation guidelines and scoring based the mediation guidelines and scoring used with the Toglia Category Assessment. The **DLOTCA** has 28 subtests in 7 cognitive areas (orientation, awareness, visual perception, spatial perception, praxis, visuomotor construction, and thinking operations), whereas the **LOTCA-II** has 26 items in 6 categories. The **LOTCA-G** (geriatric version) has enlarged items to reduce visual and motor coordination difficulties, shortened sub tests & reduced administration time; and addition of memory subtests. There are 24 subtests in 8 cognitive areas (additional area is memory). The Functional LOTCA (**FLOTCA**) was developed in 2016 for use with clients with TBI. It consists of only 3 tasks: (1) planning a route and navigating on a map, (2) organizing tools in a toolbox, and (3) planning a daily schedule according to a list of activities. (Schwartz et al, 2016) ***as of spring 2018, it appears that the manual (English) is available only in Israel.* **Time to administer:** approx 30-90 minutes for DLOTCA; 30-45 minutes for DLOTCA-G (although one source gives 15 min); 30-60 minutes for FLOTCA. **Scoring:** Most subtests are scored 1-4 (from "fails to perform" to "demonstrates good performance"); some are scored 1-5 or 1-8. Total score for LOTCA-II ranges 26-115. Results provide a cognitive profile, with lower scores = lower cognitive functioning (presence of cognitive impairment). Authors caution that	**Reliability:** • Excellent internal consistency for LOTCA (*stroke, traumatic brain injury, healthy controls, schizophrenia*). • Excellent inter-rater reliability for LOTCA (stroke, traumatic brain injury, healthy controls) and for DLOTCA (*stroke, healthy controls*). • LOTCA: Excellent internal consistency in all domains except poor for the memory domain (*stroke rehab patients and healthy controls*). • DLOTCA: Adequate to excellent internal consistency. **Predictive Validity:** • *Not established to date* **Group Differences:** • differentiates between healthy controls and: - stroke/brain injury - dementia (LOTCA-G) - stroke (LOTCA-G) • For LOTCA-G: most subtests differentiate between individuals with mild vs. moderate dementia. • DLOTCA: differentiates between stroke and healthy controls in terms of performance before mediation; and levels of mediation required (*stroke needing higher levels*). **Other Aspects of Validity:** • Construct validity supported for LOTCA using factor analysis. • Adequate concurrent validity with LOTCA and MMSE (*stroke*). • Construct validity of the DLOTCA-G matches with the LOTCA-G and DLOTCA. • Adequate concurrent validity with LOTCA and FIM-cognitive; lower correlations between LOTCA and FIM-total (but higher correlation than between MMSE and FIM-total) (*stroke*). • Adequate concurrent validity with LOTCA-G and MMSE, with strongest correlations between MMSE and with LOTCA-G categories of orientation, visuomotor organization, thinking operations, and memory (*dementia*).	**Pros:** • A performance test with minimal verbal requirements. • Procedures are included for use with clients with aphasia. • Can be used to evaluate change over time (i.e., to re-test clients). • There is also a version available for geriatric population (DLOTCA-G). • DLOTCA/DLOTCA-G provides a more detailed cognitive profile than the MMSE, and may be stronger than MMSE in predicting function (where function is measured by FIM). **Cons:** • No memory subtests in the LOTCA/DLOTCA (but present in the LOTCA-G/DLOTCA-G). • Can be long and difficult to administer. • One study found a substantial ceiling effect for a sample of adults with schizophrenia – therefore, may not be useful with this population (and perhaps also may not be useful with adults with mild cognitive impairment). • Scoring for the DLOTCA-G has been found to be hard to understand and some of the administration instructions are difficult to follow – thus the OT needs extra time to become familiar with these procedures. • Cost: approx $300.00 USD each for DLOTCA, DLOTCA-G. • Manual for FLOTCA not readily available (as of spring 2018).

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
	use of a total score impacts the ability of the clinician to identify specific areas of cognitive impairment. **Minimal Clinical Difference (MCD)**: *not determined to date*.		
Middlesex Elderly Assessment of Mental State (MEAMS) Screening assessment; Impairment level *(global)* **Population:** Developed for use with elderly, dementia. Also researched with acquired brain injury. http://www.pearsonclinical.com/education/products/100000142/middlesex-elderly-assessment-of-mental-state-the-meams.html	Designed to detect (screen) gross impairment of cognitive skills in the elderly. 12 subtests: orientation, memory, new learning, naming, comprehension, arithmetic, visuo-spatial skills, perception, fluency, motor perseveration. Two of the sub-tests are taken from the Rivermead Behavioural Memory Test (RBMT). Two parallel versions (A and B) allow for test-retest. **Time to administer:** 10 minutes **Scoring:** Each subtest is scored 1 (pass) or 0 (fail). Total score: • 10-12: expected range for normal elderly • 8-9: borderline cognitive impairment, needs further cognitive assessment • <7: definitely needs full cognitive evaluation **Minimal Clinical Difference (MCD)**: *not determined to date*.	**Reliability**: • Adequate to excellent internal consistency (*hospitalized elderly, acquired brain injury*). • Excellent parallel form reliability between Version A and B (*community living older adults with depression or dementia*). • Adequate parallel form reliability (*hospitalized elderly*). • Excellent test-retest reliability (*dementia*). • Excellent inter-rater reliability (*older adults with dementia or depression*). **Predictive Validity:** • *No research to date*. **Group Differences:** • Differentiated between older adults with dementia vs. depression. **Other Aspects of Validity:** • Construct validity: found to be more sensitive than MMSE in detecting mild cognitive impairment (*elderly acute psychiatry*). • Construct validity: questionable as a cognitive screen by findings of one study in that the MEAMS as compared to a detailed neuropsych battery had an unacceptable high false negative rate – i.e., not a very sensitive screen for overall cognitive impairment (or specifically for memory, language, perception or executive problems) (*stroke*). • Adequate to excellent concurrent validity with MMSE and Clock-drawing (*hospitalized elderly*). • Adequate concurrent validity with FIM (*hospitalized elderly, acquired brain injury*).	**Pros** • Quick to administer. • The test "manuals" provide very clear guidance for all questions to be asked. • Two parallel forms allow for test-retest (although only adequate parallel version reliability in one study). **Cons**: • Old; no recent research. • Developed only for use with elderly. • Not suitable for those with severe receptive language impairment (i.e., unable to follow simple instructions). • Cost (approx $234.00 USD) for full kit; less if just the manual or extra score sheets. • Questionable in some research as a cognitive screen (not very sensitive to cognitive impairment). • Adequate but low correlations with function as measured by FIM.
Mini Mental State Examination (MMSE) (aka Folstein MMSE; Standardized MMSE – SMMSE) and MMSE-2 ***See also Modified MMSE (3MS) – next item.*** **Note: do not confuse the use of "SMMSE" in the literature to refer to a different test, the "Short form MMSE" – they are unrelated.* Screening assessment; Impairment level *(global)*	Developed as a brief, objective assessment to detect dementia. • To improve reliability, the SMMSE was developed, to provide strict guidelines for administration and scoring. • In an attempt to improve the MMSE, the 3MS was developed – see below. • The MMSE-2 versions (standard, brief and expanded) were developed to expand usefulness with clients who have mild cognitive impairment. There are 2 alternate versions for use with test re-test. (see ++ details about the MMSE-2 at https://www.parinc.com, including bibliography and a presentation) **Time to administer standard versions:** 10 minutes (20 min for MMSE-2 expanded)	**Reliability (MMSE)**: • Poor internal consistency (older adults without cognitive impairment); excellent internal consistency (*older adults with Alzheimer disease*). • Adequate inter-rater reliability for MMSE and excellent for SMMSE (which has stricter administration and scoring guidelines). • *See information at https://www.parinc.com for detailed information about MMSE-2*. **Predictive Validity (MMSE):** • Poor validity of MMSE in predicting discharge FIM motor scores in some research (geriatric rehabilitation; subacute stroke); another study indicated no predictive value in predicting FIM scores (*geriatric assessment program*). • Poor predictive validity of cognitive sequelae at 6 months post discharge of survivors of critical illness.	**Pros**: • Quick screen, easy to administer. • Widely utilized thus well-known by health care team members. • Available in many languages (but for a cost). • SMMSE is recommended by BC Ministry of Health as one tool for use in the assessment of frail elderly. • Some research has supported MMSE as a useful screen in community-based health care to capture early cognitive impairment. **Cons**: • Lack of psychometric studies involving younger adults and adults with acquired brain injury. • Does not assess executive functions (including judgement and reasoning) – thus MMSE is less useful, for example, in frontotemporal or vascular dementia.

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
Population: older adults, stroke, may not be useful for individuals with mild cognitive impairment (see *Pros & Cons* column). **Be careful when interpreting results for individuals with low education, and influences of age, language, culture, presence of depression.** There are many research studies on use of MMSE for various language groups (too many to list in this document). Normative data for illiterate and low education have been developed, but specific to a rural population in China (Xie et al, 2017). MMSE: https://www.uml.edu/docs/Mini%20Mental%20State%20Exam_tcm18-169319.pdf SMMSE: https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/bc-guidelines/cogimp-smmse.pdf To purchase the MMSE-2 versions (standard, brief, expanded), and versions in different languages: https://www.parinc.com	**Scoring for MMSE and SMMSE** (out of 30): • 26-30 = could be normal • 20-25 = mild cog impairment • 10-20 = mod cog impairment • 0-9 = severe cog impairment *some researchers suggest ≤24 as 'suggesting dementia' or cognitive impairment (e.g. Godefroy et al., 2011) *different researchers have created cut-off and percentile tables to allow interpretation of results in context of different ages and levels of education, but nothing has become a standard yet for interpretation. **Minimal Clinical Difference (MCD**: For healthy adults age 55 and older, a score would need to change at least 3 to 4 points for the assessor to be confident that the change is not due to measurement error (Feeney et al, 2014; Kopecek et al., 2016).	• *See information at https://www.parinc.com for detailed information about MMSE-2*. **Group Differences:** • Differentiates between community vs. facility dwelling older adults. • In some studies, MMSE failed to differentiate between mild dementia and healthy adults. In one study, MMSE did differentiate, but with less accuracy than a combination of cognitive/ neuropsych tests. **Other Aspects of Validity:** • SMMSE is stronger at identifying dementia than MMSE. • Adequate concurrent validity with FIM+FAM (*inpatient rehab acquired brain injury*). • Excellent concurrent validity between MMSE and a measure of daily function ("Direct Assessment of Functional Status') (MMSE score mean=23.8, but ranging up to 30/30) – but note that the strongest correlation was between MMSE 'orientation' and DAFS 'time orientation' (*dementia*), thus not really with a daily function task/activity. • Poor convergent validity with the Mini-Cog Screen. • No significant relationship between MMSE scores and fitness for driving (on-road outcome). • MMSE unable to identify psychiatric inpatients who had significant deficits on a neuropsych battery (thus suggesting that MMSE may seriously underestimate cognitive impairment in this population).	• Not recommended for inpatient psychiatric population. • Age, level of education, culture may affect (bias) the score – for example there may be a "false positive" for individuals with low education. • Relies heavily on verbal response, reading, writing; therefore, individuals with hearing or visual impairment, have low English literacy, etc. may perform poorly even when cognitively intact. • Not suitable to be given through an interpreter, or to person with aphasia. • Not sensitive to mild cognitive impairment (in which case the MoCA or Cognistat might be recommended as a screen). • Although there is some evidence of convergent validity with function, some studies show poor predictive validity of function. • Cannot be used as a stand-alone tool in the detection of dementia (Cochrane review, 2016). • Caution against using MMSE as stand-alone tool in determining decision-making capacity (Pachet et al. 2010). • Cannot be used reliably as an indicator of driving risk. *See also*: https://www.crisisprevention.com/Blog/October-2010/A-Discussion-of-Cognitive-Screening-Instruments-an
Modified Mini-Mental State Exam (3MS) Screening assessment; Impairment level *(global)* **Population**: same as MMSE http://adrc.usc.edu/3ms/ http://adrc.usc.edu/wp-content/themes/neuADRC/pdfs/A_3MSManual1996.pdf	The 3MS is a screen to detect and monitor progression of dementia. It was developed in 1996 to extend the scope of the MMSE (see item above), including to improve discrimination among different levels of dementia (*more recently an expanded version of MMSE-2 was developed, as per above*). The 3MS contains additional items to the MMSE, and extended scoring to add precision (with 4 additional subtests, and modified scoring procedure to extend from the 30-point range of the MMSE to a 100-point range). The additional items to the MMSE cover: long term memory, verbal fluency, abstract thinking, and recall of 3 words an additional time. **Time to administer:** 15 minutes. **Scoring**: Maximum score of 100. A score of ≤77 may indicate cognitive impairment, in	**Reliability**: • Excellent internal consistency – higher than the MMSE, likely reflecting in part the larger number of subtests (*older adults with and without cognitive impairment*) • Excellent test-retest reliability (*various studies*) • Adequate to excellent inter-rater reliability (*general psychiatric population; elderly in community*) **Predictive Validity:** • Predictive of later functional decline – with function measured by a semi-structured interview conducted with an informant, assessing a person's difficulties performing various ADLs for non-physical reasons (*adults with probable dementia*) (Zahodne et al., 2013). **Group Differences:** • For older adults with low education, 3MS may be better than the MMSE in differentiating between healthy adults and those with Alzheimer disease.	**Pros**: • Can obtain an MMSE score & 3MS score from same test. **Cons**: • Takes a little longer than MMSE or MoCA. • No psychometric studies involving younger adults or adults with acquired brain injury or mental illness. • Lacks sensitivity to mild cognitive impairment. • Similar issues as MMSE in terms of interpretation of results – including that cut-off scores are not 100% accurate (sensitive), and interpretation must take into consideration factors such as age, education, & culture.

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
	particular if education is 9+ years and age <80 years. As with the MMSE, it is important to take into consideration influence of age, education and culture – although one study found that corrected cut-off scores did not improve accuracy in screening for cognitive impairment or dementia (O'Connell et al., 2004). **Minimal Clinical Difference (MCD)**: A clinically meaningful change (in measuring cognitive decline) is considered ≥5 points, although some researchers suggest 10 points (*elderly*).	**Other Aspects of Validity:** • Excellent concurrent validity with MMSE, Blessed Dementia Scale, Camdex Cognitive scale (CAMCOG) (*various studies, dementia and elderly*). • Adequate to excellent convergent validity with various neuropsych tests such as the Boston Naming Test, Controlled Word Association Test, Logical Memory test. • Adequate concurrent validity with FIM (whereas same study showed poor concurrent validity of the MMSE and FIM) (*geriatric stroke*).	
Montreal Cognitive Assessment (MoCA) Screening assessment; Impairment level *(global)* **Population**: Many groups as per reference list on web site, including Alzheimer disease, Huntington's Disease, Multiple Sclerosis, Parkinson's Disease, stroke, brain tumour. **Note, no psychometric studies yet for traumatic brain injury*. www.mocatest.org	A screen designed to "…to assist first-line physicians in detection of mild cognitive impairment…" (Nasreddine 2005, p. 695). Includes screen for visuospatial/executive, naming, memory (recall), attention, language, abstraction, and orientation domains. The MoCA is available in many languages. There are alternate versions available in English and some other languages including Mandarin. Some recent updates (2018) – *see website for ongoing updates*: - There is a new English version (and 2 alternates) – v. 8.1, 8.2 and 8.3 (*with slight format changes from previous including to allow scoring for "Memory Index Score", MIS*). - There is now an electronic version, eMoCA (English v. 8.1), for use on iPad. This is available by subscription ($10 per month per rater – with initial 30-day free trial), accessed through the MoCA website and Apple Store. - MoCA training and certification is now available for those interested, $125 USD (valid for 2 years) – see details on MoCA website. **Time to administer:** 10 minutes **Scoring:** • Maximum 30. Add 1 point if education is ≤12 years (to compensate for education bias). A score of 26-30 is considered normal (thus, <26 is considered cognitively impaired). Note re: education bias: Johns (2008) recommended adding 2 points if 4-9 years of education or 1 point if 10-12 years, but such recommendations have not been applied to standardized interpretation of scores. Note re: cut-off score: A 2011 study (Godefroy	**Reliability**: • Excellent internal consistency (*normal elderly, mild cognitive impairment & mild Alzheimer disease*) • Excellent test-retest reliability (*normal elderly, mild cognitive impairment & mild Alzheimer disease*) **Predictive Validity:** • Adequate predictive validity of functional status as measured by FIM motor scale and by Modified Barthel Index, with highest correlation between these measures and the MoCA visuo-executive items – highlighting the importance of executive function skills in terms of functional outcomes (*subacute stroke*). • Another study indicated no predictive value in predicting FIM scores (*geriatric assessment program*). • Poor predictor of supervision needs (independent vs. needing supervision) upon discharge – thus needs to be combined with a functional assessment to increase predictive value of the overall evaluation of the client (*stroke & TBI*). • Poor predictor of functional outcomes (*for 1-year post aneurysmal subarachnoid hemorrhage in Hong Kong Chinese patients*). • Did not identify individuals who might experience problems in daily functioning after mild stroke. • Did not predict discharge destination for acute stroke (whereas lower age + higher Barthel Index score were predictive; adding MoCA score did not contribute significantly to this model). • Lower scores on MoCA (<20/30) are more likely to predict task performance (as measured by EFPT) at time of discharge than higher scores (*acute stroke*) – thus, if MoCA is ≥20, other functional performance measures need to be administered to confirm functional abilities. • Lower scores on MoCA (<18/30) are more likely to predict on-road driving safety, and therefore should raise concerns/identify need for an assessment of driver fitness. **Group Differences:** • Differentiates between healthy controls and numerous populations.	**Pros** • Free score sheets, instructions, and lots of information on web site. • Quick screen. • More sensitive than SMMSE in identifying mild cognitive impairment. • Includes some executive function items. • Available in many languages. • For English version: 3 versions thus allows re-test. • Recommended by BC Ministry of Health to assist in diagnosis for cognitive impairment of elderly & endorsed by VCH and PHA. • Capable of detecting change over time (but beware that there may need to be a decline of >2 or improvement of >4 points to be a reliable measure of change, as per recent ABI study). **Cons** • This is simply a screen for mild cognitive impairment; it is not otherwise a measure of degree of cognitive impairment. • On its own, the MoCA is not a very good predictor of function (must combine with functional testing) as shown in multiple studies – although higher scores for the visuo-executive items do correlate with higher functional outcomes (subacute stroke). • Conventional use of the MoCA as a screening tool to detect MCI may be problematic in cultures different from that in which the cut-off score was determined. • Need to use caution when applying cut-off score in lower education or ethnically diverse populations. • For the eMoCA: be cautious using this with clients who are unfamiliar with a stylus and tablet (iPad).

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
	et al.) suggests cut-off score be adjusted, with <23 representing cognitive impairment for literate adults aged <80 years – but the original scoring continues to be presented on the MoCA website. **Minimal Clinical Difference (MCD)**: For healthy adults age 55 and older, a score would need to change at least 4 to 5 points (and possibly -6 to +8 points) for the assessor to be confident that the change is not due to measurement error (Feeney et al, 2014; Kopecek et al., 2016). For an ABI study (stroke and TBI) it was determined that the reliable change index for a confidence interval of 80% is -2 to +4 (Lim et al, 2016).	**Other Aspects of Validity:** • Adequate correlation between MoCA and Activities of Daily Living Questionnaire (ADL-Q) for outpatients with neurodegenerative disease. • Found to be more sensitive than the MMSE in detecting cognitive impairment (*e.g., normal elderly, mild cognitive impairment & mild Alzheimer disease; stroke; Huntington's disease*). • Small to moderate sensitivity for monitoring cognitive change in early Alzheimer disease • The eMoCA has excellent convergent validity with the standard version (v. 7.1). (*Outpatient memory clinic, age range 47–89, mean age 71.6*) (Berg et al., 2018)	
Multiple Errands Test (MET) In-depth assessment; Task performance level *(high level cognitive/ executive functions)* **Population**: For high level clients. Developed for individuals with cognitive deficits who are independently mobile, verbal, & able to read/follow instructions. No norms available.	The MET is a complex shopping/errands task performed in a shopping mall or hospital environment (with a home version also recently developed). This includes completion of a variety of tasks, rules to adhere to, and a specific time frame. The assessor observes the client (follows client) while the client carries out the errands. This test assists in assessing executive functioning including to help determine capacity for independent community living skills. • MET-R = MET-Revised. The revised scoring format, including to make scoring more objective, remove possible double-counting e.g. of a task failure also being scored as a rule break; and some new scoring. • MET-HV = MET hospital version. • BMET = Baycrest hospital version. More recently the BMET-R (Baycrest MET Revised) was developed, to improve construct validity; be more representative of everyday life challenges; and to better discriminate between individuals with ABI and healthy controls, also with an alternate version to permit retesting (Clark et al, 2016). • MET-Home = Home version (*As of the date of this Inventory, the article describing its development and psychometrics is in press.*) **Time to administer:** 20-60 minutes or longer (depends on tasks involved, client performance) plus travel time (if required) **Scoring**: • self-evaluation (ratings) • errors (scores for task failures, inefficiencies, rule breaks) • observational (qualitative) information: optional but can be very useful (behavioural observations, strategies used)	**Reliability**: • Adequate to excellent inter-rater reliability (*normal controls and community dwelling acquired brain injury*). • Excellent inter-rater reliability (*mild CVA, community dwelling ABI*). • Excellent inter-rater reliability for BMET-R versions A and B (*ABI*) • MET-home: evidence of reliability including inter-rater and internal consistency (in press May 2018). **Predictive Validity:** • Adequate predictive validity of MET-HV when administered on discharge from inpatient rehab, in predicting Participation Index (M2PI) score administered 3 months later (*ABI*). • Ecological validity was supported using MET-HV in terms of its ability to predict (using regression analysis) aspects of the FrSBE and DEX (measures of frontal lobe/executive function difficulties) (*community-dwelling ABI*). **Group Differences:** • Differentiates between healthy controls and: - inpatients/outpatients with ABI - individuals with mild CVA (community *dwelling*) • VMET (virtual MET): differentiates between individuals with Parkinson's Disease who have mild cognitive impairment, and PD without cognitive impairment, and better than other measures of EF in differentiating between these groups. • The 2 versions of the BMET-R differentiate between participants with ABI and healthy controls. • MET-home: differentiates between matched healthy controls and individuals with stroke (as cited in Burns et al. 2018; details in press as of mid-2018). **Other Aspects of Validity:** • Adequate concurrent validity with other measures	**Pros**: • No cost for test materials. • Has ecological validity, assesses what individual can do. • VCH has developed forms that allow for development of a MET for specific settings; & to provide instructions & scoring. • MET is recommended for assessment of executive functions in a published inventory of tests of executive function for stroke (Poulin et al, 2013). • Workshops have been offered by CAOT. **Cons**: • OT needs to develop MET for setting/shopping mall to be used; consider first creating a template that can be used to develop versions for different settings (a template is available for VCH and PHC clinicians). • Need to provide client with some money – thus OT needs a petty cash/funding source (or to develop items/version that do not require the client to make purchases). • In research, the 2 versions of the BMET-R were found to not identically assess executive deficits – thus use caution in constructing and validating alternate versions of MET (and performance-based measures in general).

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
	Clinicians must be cautious in interpreting single errors observed in individuals with cognitive deficits, being that healthy controls also make errors (Bottari, 2011). **Interpretation of score: The VCH template provides a general guideline for cut-off values for normal expected performance based on info in literature to 2010 (not updated since then). **Minimal Clinical Difference (MCD)**: *not determined to date.*	of executive dysfunction (including BADS, Wisconsin Card Sorting Test) (*healthy controls, inpatients/outpatients, community dwelling ABI*). • Adequate to excellent concurrent validity in correlating some subscores of MET with process and motor scores of AMPS. • Ecological (construct) validity: supported in that there are numerous adequate to excellent correlations with measures of executive dysfunction, function (AMPS), and participation (Mayo-Portland Participation and Adjustment Inventory). • Ecological (construct) validity: supported in that the MET is more sensitive than traditional neuropsych measures of executive function in differentiating between healthy controls and inpatients/ outpatients with ABI – i.e., individuals with ABI may do well on traditional tests but still present with dysexecutive syndrome as assessed by real-world shopping task. • Adequate concurrent validity with the EFPT (mild CVA, community dwelling). • Poor to adequate concurrent validity with a functional outcome (Social Autonomy Scale) thus provide some similar and differing measures of function (*schizophrenia*). • No correlation when compared with 2 neuropsych tests (WAIS-IV and Wisconsin Card Sorting Test), thus MET measures quite different cognitive constructs than these tests (*schizophrenia*). • MET-Home: face and content validity were established; moderate associations found with other EF tests such as SDMT, Delis-Kaplan Executive Function System, and EFPT (as cited by Burns et al. 2018; details in press as of mid-2018).	
Paced Auditory Serial Addition Test (PASAT) In-depth assessment; Impairment level *(attention/working memory, processing speed)* **Population**: Initially developed for individuals with traumatic brain injury; it has since been used with many other populations. Preliminary norms (1977) were for adults age 14-40 years. Since then, updated norms have been published for various age groups and in numerous countries (*not all of these papers are listed in reference section of this Inventory)* http://www.pasat.us/	The PASAT is frequently used by neuropsychologists in assessment of attentional processing and working memory. It is generally accepted as one of the more sensitive measures of how traumatic brain injury affects speed of information processing. The individual is presented with a series of single digit numbers and has to add the 2 most recent digits. There are different rates of presentation. PASAT is one of the major components of Multiple Sclerosis Functional Composite test (MSFC). The visual version (PVSAT) involves stimuli shown on a computer screen, and can also be used for the MSFC. (In 2010, researchers recommended replacing PASAT with SDMT in the MSFC; however, as of 2018 the PASAT continues to be a part of the MSFC.) Versions : • Original: This test originally involved use of an audiocassette; now a CD is used. • PVSAT (visual version) (Nagels 2005) • For children (CHIPASAT).	**Reliability** (original version) • Excellent internal consistency (*many studies*). • Excellent test-retest reliability (*many studies*). **Predictive Validity:** • *unknown* **Group Differences:** (original version) • Differentiates between healthy controls and: - traumatic brain injury - multiple sclerosis **Other Aspects of Validity:** (original version) • Construct validity: studies indicate that PASAT scores reflect speed of information processing, some type of attentional process, and working memory – such as was determined by correlations with other neuropsych measures (*many populations including TBI, cognitively intact, multiple sclerosis, lupus*). • Poor to adequate concurrent validity with the Environmental Status Scale, a broad measure of functional disability (*multiple sclerosis*). • Does not correlate consistently with functional indices (Barthel Index, Extended Activities of Daily Living Scale, Rating Scale of Attentional	**Pros** • If the OT requires information about attentional processing and working memory, then this may provide a fairly quick screen. • The PASAT stimuli have been translated into 27 languages (but the scoring manual is in English). • The cost of the original version (using CD) is very reasonable: $25.00 USD. Instructions/manual available at no cost on-line (see 1st column). **Cons** • May be difficult for the OT to access some/all versions including the computerized version (available to Level C assessors i.e. psychologists). • Poor correlation with measures of everyday function. • Cannot be used for test-retest scores as it is susceptible to practice effects. • Negatively affected by increased age, decreased IQ (and probably education), and low math ability. • May cause undue anxiety and frustration for the client. • Individuals with speech or language impairment are at a distinct disadvantage. • Recent research has shown it to be difficult even for the general population (Brooks et al., 2011).

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
http://pasat.us/PDF/PASAT_Manual.pdf PASAT as part of the Multiple Sclerosis Functional Composite test (MSFC): https://www.nationalmssociety.org/For-Professionals/Researchers/Resources-for-Researchers/Clinical-Study-Measures/Multiple-Sclerosis-Functional-Composite-(MSFC)	• Computerized: available through University of Victoria, but only to psychologists (Level C assessors). http://www.robertmcinerney.ca/pasat.html; • https://www.uvic.ca/socialsciences/psychology/research/clinic/index.php • There is also a virtual reality (VRPASAT) adaptation which is very different from the traditional version, for use with injured military personnel (Parsons 2012 and 2014; https://psychology.unt.edu/cns-lab-parsons/simulations/virtual-paced-auditory-serial-addition-test) **Time to administer:** original version: 20 minutes to administer, 10 minutes to score. **Scoring**: scoring options include number of correct responses, percent correct, latency of responding, & number of errors. Interpretation is based on comparison to norms. **Minimal Clinical Difference (MCD)**: *Cannot be used for test-retest as it is susceptible to practice effects.*	Behaviour) (*stroke*). • The PASAT, in combination with the Stroop Color Test and the Hopkins Verbal Learning Test-Revised, is useful to detect cognitive impairment (sensitivity 86%; specificity 75%). Specificity rises to 87% with the addition of the Action Fluency test (*persons with HIV*). • Excellent concurrent validity when comparing different versions of PASAT with different versions of PVASAT (*multiple sclerosis*). • Excellent concurrent validity when comparing PASAT to VRPASAT (*college students*).	• Take care to identify the reasons underlying any low score before interpreting it as being clinically significant. • One Multiple Sclerosis study found the PASAT3 to be less valid and reliable than the SDMT.
The Perceive: Recall: Plan: Perform (PRPP) System of task analysis In-depth assessment; Task performance level **Population**: Adults or children as they perform routines or tasks in an individual or group context Used in multiple settings where the child or adult performs daily routines and tasks (e.g., home, hospital, school, or work). Adult populations researched to date include: traumatic brain injury, schizophrenia, dementia, Parkinson's disease, HIV, and return to work for women with breast cancer. Descriptions: http://www.occupationalperformance.com/the-perceive-recall-plan-perform-prpp-system-of-task-analysis/ https://nursekey.com/perceive-recall-plan-and-perform-system-of-task-analysis-prpp/	The PRPP is a standardised, 2-stage, criterion-referenced assessment (*based upon the Australian Occupational Performance Model*). In a general sense, it provides a framework to enhance observational assessment of a client's information processing (cognitive function) during routines, tasks and sub tasks that are meaningful and relevant to the client. Performance is analysed from a cognitive processing perspective in terms of Perceive (attention and sensory perception), Recall (memory), Plan and Performance (self-monitoring). (*See Fry & O'Brien 2002 for further description.*) **Time to administer:** varies with the severity of information processing difficulty and the complexity of tasks assessed. In most cases, it takes 1-2 hours to administer 4-5 tasks. **Scoring**: • Stage 1: the OT employs a standard behavioural task analysis, breaking down everyday task performance into steps and identifying *errors in performance*. • Stage 2: a cognitive task analysis is used, directed at the *cognitive processes* underlying performance. **Minimal Clinical Difference (MCD)**: not applicable.	**Reliability**: • Adequate internal consistency (*schizophrenia*) • Adequate to excellent inter-rater reliability between trained therapists (*brain injury; schizophrenia, mild dementia*). • Adequate to excellent test-retest reliability (*adults with brain injury; children with autism*). • Poor to excellent inter-rater reliability, depending on aspect of the PRPP. Poor reliability for individual items, but adequate to excellent reliability for average test agreement – thus showing that the total PRPP is more reliable than single steps of the PRPP (*dementia*). • Higher inter-rater reliability for therapists who use the PRPP more often than monthly, than those using it less often than monthly (*adults with brain injury*). **Predictive Validity:** • *no research found to date* **Group Differences:** • *no research found to date* **Other Aspects of Validity:** • Ecological validity is supported by the PRPP being a criterion-referenced measure involving everyday activity/tasks. • Adequate concurrent validity of PRPP using a complex task (but not using a simple task) with the Independent Living Skills Survey (a questionnaire that measures community functioning in people with severe mental illness) (*schizophrenia*). • Construct validity is supported in terms of a measure of cognitive strategy use, in that there are strong parallels between a Rasch-generated	**Pros** • Developed by OTs. • Can use this framework with any functional activity selected by the client or OT (unlike the AMPS where the OT has to select from a list of tasks). • Makes use of tasks within the client's own life. • Takes into consideration: observation of task performance; contextual (environmental) influences, and cognitive component abilities. **Cons** • Training is highly beneficial to enhance the OT's competence and confidence in using the framework (and to obtain written copies of the framework/assessment). However, the trainers are based in Australia and so training is difficult to access for Canadian OTs.

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
		hierarchy of PRPP items, and conceptual models of information processing and occupational performance (*adults with brain injury*).	
The Repeatable Battery for the Assessment of Neuro-psychological Status (RBANS) Now sold as: **RBANS Update (2012)** Screening assessment; Impairment level **Population**: originally developed for dementia, but since then applied in research to other populations (schizophrenia, brain injury, etc.) **Norms**: Age 12 to 89 years. The norms in the manual are based on United States population normative standardization (and can be applied to various dementias, Huntington's disease, Parkinson's disease, depression, schizophrenia, and traumatic brain injury). Subsequent publications have examined performance for a variety of populations including other languages, and for specific populations (e.g., Iverson et al., 2009, norms for schizophrenia). *Not all of these papers are listed in reference section of this Inventory*. https://www.pearsonclinical.com/psychology/products/100000726/repeatable-battery-for-the-assessment-of-neuropsychological-status-update-rbans-update.html	This is a brief neuropsychological battery that consists of 12 subtests that provide for 5 index scores (and a Total Scale score): immediate and delayed memory, attention, language (picture naming, semantic fluency), and visuospatial/constructional skills. It contains a number of subtests that were drawn from various neuropsychology tests such as WAIS-III, Boston Naming Test, etc. It was developed for 2 purposes: • as a stand-alone, core battery for detection and neurocognitive characterization of dementia; • to detect and track neurocognitive deficits (and recovery) in a variety of disorders. There are 4 equivalent alternate forms, thus allowing for retesting. Recently an attempt was made to determine a measure of executive functioning by calculating some of the errors thought to represent "executive errors", resulting in the RBANS EE score (see Scoring below). **Time to administer**: about 30 minutes (thus, provides an extended screening assessment). **Scoring**: (See also Cautions below). The raw scores for the 12 subtests are scaled together to create 5 index scores, which are then summed to convert to a total scale score. As per the test booklet, computation of scores takes <5 minutes. RBANS EE score: calculate the sum of errors made during the list learning and recall, semantic fluency, and coding, then divide by the sum or total responses (errors and correct responses) for these subtests (Spencer et al 2018). Cautions: • The subtest data should not be used as "stand-alone" measures, but only to help interpret index (total) score performance. • Do not rely on a single source of information such as the RBANS retest scores, to conclude that there has been a significant change in the client's neurocognitive status. • Age, education, & level of cognitive function may affect the "effort index" (EI), thus significant caution is warranted when interpreting EI results in older adults with suspected dementia.	**Reliability**: • Generally adequate internal consistency for each index score and total scale (*brain injury outpatients*) • Adequate test-retest reliability (using alternate versions) (*healthy controls*) • Excellent test-retest reliability (using alternate versions) (*schizophrenia*) **Predictive Validity:** • Linear regression analyses showed that the RBANS index scores predicted results of the 6 domains of the "CDR scale", a semi-structured interview of patients & informants (domains = memory, orientation, judgment & problem solving, community affairs, home & hobbies, and personal care) – in particular for the language and immediate memory subtests (*for individuals with dementia or mild cognitive impairment*) • Across studies there are inconsistent results in terms of the RBANS's predictive validity of occupational status (i.e., working or not working) post schizophrenia. **Group Differences:** • Differentiates between older adults who may have illnesses associated with aging but no cognitive impairment, and adults with dementia. • Poor sensitivity in differentiating between adults with mild cognitive impairment (MCI) and cognitively intact peers (it differentiated only for about 50% of the subtests and index scores). • Differentiates between healthy adult controls and: -adults with bipolar disorder -adults with schizophrenia -adults post-stroke • Differentiates between healthy adolescents and adolescents with psychotic disorders. **Other Aspects of Validity:** • Concurrent validity with neuropsychological tests: - Adequate to excellent concurrent validity for most subtests and the index scores, in comparing to neuropsych tests measuring similar cognitive constructs (*brain injury inpatients and outpatients*). - Adequate to excellent concurrent validity for the RBANS Language Index in comparing various neuropsych indices specific to language skills (*diverse neurological etiologies*). • Concurrent validity with MMSE: excellent concurrent validity when the Total Scale score is compared to total MMSE score (*individuals referred for dementia assessment*). • RBANS EE score: poor to adequate concurrent validity in comparing the EE score with a number of neuropsych tests that aim to measure executive	**Pros**: • Fairly quick to administer (30 min), and can be done at bedside, no major set-up required. • Administration and scoring gets easier as you learn/practice using it. • This is a "neuropsych" style test that OTs can use (i.e. without needing to be a psychologist). • Strong correlation with more extensive neuropsych batteries. • Researchers have found RBANS to be more suitable than MMSE for detecting and tracking mild cognitive impairment (MCI) presumed to be due to dementia/ Alzheimer disease – although see Cons (below) on this issue. • May be useful in reducing amount of testing administered to a client by providing a relatively quick screen without administering a full neuropsych test battery (depending on factors such as purpose of assessment). • A study suggests that the RBANS is sensitive to the neuropsychological deficits typically found in depression (although it's not a full validity study) (Faust et al 2017). **Cons**: • A primary disadvantage when specifically compared to the MMSE is the administration time (30 min vs. 5-10 min). • Although RBANS is better than MMSE in detecting MCI, the diagnostic accuracy for MCI is significantly increased with more in-depth assessment, i.e. by including neuropsych tests that assess similar constructs as RBANS (Heyanka, 2015). • If administering RBANS as a screening where there is follow-up using neuropsych tests, then be careful that the neuropsych memory measures are not administered in same testing session as the RBANS because there is the potential of interference effects (Calamia 2017.) • RBANS does not measure executive functioning (EF) very well, although the new RBANS EE score proposed by Spencer et al (2018) may detect individuals requiring further assessment of EF. • Expensive, in particular to purchase the full kit (with all 4 versions): $699.00 USD. Less expensive for only 1 version: $290.00. Cost of additional forms: $120.00 for 25 (per version). • Cannot use the language component on non-English speakers. • Difficult to understand/interpret results without having a good knowledge of the concepts of statistical significance, bell curve, etc. • Research indicates that it does not necessarily have high specificity for cognitive impairment for individuals with schizophrenia or brain injury (being that this was developed for assessing dementia, and lacks assessment of "frontal functions").

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
	• For stroke, Green (2013) recommends using a cut-off of <70 as "highly likely to have cognitive impairment" and between 70-80 as "likely to have a cognitive impairment". Those who score >80 should be assessed on more detailed neuropsych tests before concluding that there is no cognitive impairment present. • The RBANS EE score represents only a few of the types of errors that a person with executive dysfunction may make, and does not provide a comprehensive measure of executive functioning (EF), certainly not from a functional perspective – although it may identify clients who require further assessment of EF. **Minimal Clinically Important Difference (MCID)**: One study presents MCID as determined with a sample of ethnic Chinese, older adults (Phillips 2015); however, another study cautions use of the MCID approach for the RBANS (see O'Connell et al., 2017).	functioning (e.g. Trails B, Tower of London moves, Wisconsin Card sorting, etc.) (*veterans with variety of diagnoses including dementia, psychiatric illness, and TBI).*	
Rivermead Behavioural Memory Test (RBMT) *note that there are two versions most likely to be in use: RBMT-2 (2003), RMBT-3 (2008). *there is also a version for children: RBMT-C. In-depth assessment; Impairment level *(memory)* **Population**: designed for adults with acquired, non-progressive brain injury. Normative group: English speaking adults to age 89 https://www.pearsonclinical.ca/en/products/product-master/item-119.html YouTube video providing description/overview of the RBMT-3: http://www.youtube.com/watch?v=SrGe36ZqpY0	This is an assessment of memory related to functional tasks. Assesses visual, verbal, recall, recognition, immediate, delayed and prospective memory, & ability to learn new info. RBMT-3 adds "novel task". **Time to administer:** 30-40 minutes **Scoring**: RBMT-2: Screening score (max 12) or standardized profile score (SPS) (max 24) RMBT-3: Sum scaled score can be used to calculate a General Memory Index, Percentile Rank, and Confidence Interval. Subtests can be plotted on a Scaled Score Profile. **Minimal Clinical Difference (MCD)**: Not determined to date, but consider that a Standard Error of Measurement (SEM) has been determined: 5.35 for RBMT-1; 5.32 for RBMT-2. Thus, if your client scores within 5 or 6 points of a previous administration, then this might represent measurement error and not a true improvement or deterioration in their performance on the test.	**Reliability**: • Adequate parallel form reliability (*mixed sample of healthy adults and "clinical cases"*). • Excellent inter-rater reliability (*mixed sample of healthy adults and "clinical cases"*) **Predictive Validity:** • *no studies to date* **Group Differences:** • differentiates between healthy controls and: - brain injury (RBMT and RBMT-3) - Korsakoff's Syndrome /chronic alcoholics (RBMT-3) • differentiates between healthy controls, mild cognitive impairment, and Alzheimer disease (RBMT) **Other Aspects of Validity:** • Poor to adequate concurrent validity with various impairment-based tests of memory (*brain injury*). • Adequate to excellent concurrent validity between RBMT and therapists' observations of memory failures over a mean of 35 hours, thus evidence of ecological validity (*brain injury*). • Adequate concurrent validity between RBMT and relatives' ratings (*brain injury*). • Adequate concurrent validity between RBMT-3 and proxy rating of the Prospective and Retrospective Memory Questionnaire (*mixed sample of healthy adults and "clinical cases"*). • Adequate concurrent validity for some subtests of RBMT with a test of functional status, the Environmental Status Scale – a broad measure of functional disability (*multiple sclerosis*). • More research is needed on the ecological validity of the RBMT-3 in individuals with alcohol-related memory deficits as well as in other client groups.	**Pros**: • Allows comparison to norms. • Results (strengths/weaknesses for memory) allow the OT to provide more specific and individualized memory strategies. • Results are useful to include in an education session for family members. • Modest ability to predict everyday memory failures. • Parallel versions (RBMT-3) allow for test-retest (thus, evaluation of change over time). • Ecological validity is supported through use of some "task performance" elements and concurrent validity with therapists' and relatives' ratings of individuals with brain injury. **Cons**: • Client needs to have good attention to participate. • Caution in using it with clients who have limited insight about memory changes. • Cost may be prohibitive ($651.00 for complete kit; $123.00 for extra forms). • OT needs to take time to learn how to administer, and become familiar with subtests (including spatial memory task). • Quiet room required (a con if one is not available) • Administration time can be quite lengthy. Despite manual suggesting 30 minutes, it can take up to 50 minutes or longer (especially if OT not very familiar with it). • Does not detect mild memory deficits. • Caution if using with individuals who have limited English abilities (normative group = English speakers).

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
Rowland Universal Dementia Assessment Scale (RUDAS) Screening assessment; Impairment level **Population**: designed for adults with suspected dementia. Normative group: seniors. https://www.dementia.org.au/resources/rowland-universal-dementia-assessment-scale-rudas (provides description; score sheets; administration and scoring guide)	The RUDAS is a short cognitive screening test that aims to minimise the impact of the client's culture and language. It was developed in Australia as a simple method for detecting dementia in a primary care setting, to be valid across cultures. The 6 items screen for memory (2 items), body orientation, praxis, drawing, judgement, and cognitive language. The administration guide directs the evaluator to encourage the client to "...communicate in the language with which they are most competent and comfortable...". **Time to administer:** 10-20 minutes **Scoring**: Maximum 30. Cut point is 23/30 (a score < 23 indicates cognitive impairment). **Minimal Clinical Difference (MCD)**: *not determined to date*.	**Reliability**: • Excellent inter-rater and test-retest reliability (community-dwelling elderly, >50% with low education) **Predictive Validity:** • The RUDAS is significantly linked to functional performance as is measured by the FIM for individuals presenting with suspected dementia, but only partially explains the FIM scores. **Group Differences:** • Accurate in identifying individuals with dementia including mild dementia (*seniors at a memory clinic*). **Other Aspects of Validity:** • Excellent convergent validity with MMSE, in the context of one aspect of assessing for dementia (*community-dwelling elderly; and inpatient elderly*). (*Note: A number of articles present studies/ psychometrics for various language/cultural groups such as Danish, Turkish immigrants, Chinese, Thai, Malay, etc. – these were not reviewed or referenced for this Inventory.*)	**Pros**: • Less language-based than MMSE and MoCA, thus much easier to use with an interpreter or with a client with English as second language. • Easily available (at no cost) including forms and *Administration and Scoring Guide*, and online DVD (downloadable) – see link in first column. • The *Administration and Scoring Guide* provides very clear instructions, including as relate to use of an interpreter. • The training required takes little time (40 minutes, by video). • Some tasks screen for executive functioning (a major limit to the MMSE). • In general it does not appear to be influenced by language, education, gender, culture: although the "Tips Sheet" (see references) notes some exceptions. • Simple to translate/interpret to other languages. **Cons**: • For OTs: this assessment was developed to assist in the diagnosis of dementia, and does not (cannot) predict function such as for discharge destination. • It only partially predicts function as measured by FIM scores, thus therapists must also use functional measures. "...It is also important to note that many other factors also impact on an individual's occupational function and performance in addition to cognitive skills..." (Joliffe et al., 2015). • Psychometrics are limited to seniors with suspected dementia.
Swanson Cognitive Processing Test S-CPT In-depth assessment; Impairment level *(information processing, working memory)* **Population**: Norms for age 5 to adult. To date, research has focused on use in educational settings (i.e., learning disabilities).	A battery of 11 information processing/working memory subtests: semantic association and categorization; auditory digit, nonverbal, and picture sequencing; phrase recall, story retelling, rhyming; spatial organization, directions, and mapping skills. An abbreviated version has 5 subtests. A systematic cuing system is used, to allow measurement of the client's potential competence when provided with probes/hints (considered 'dynamic assessment'). Results therefore represent the client's "processing potential" which is the difference between their actual performance level and what they can achieve with probes. **Time to administer:** 3+ hours (sometimes 4-5 hours) **Scoring**: 7 composite scores representing mental processing ability, 'probe score', processing difference score, etc. **Minimal Clinical Difference (MCD)**: *not determined to date*.	**Reliability**: • Adequate to excellent internal consistency (*initial norm group of USA and Canadian children and adults; college students*) **Predictive Validity:** • *No studies found to date*. **Group Differences:** • Differentiates between learning disabled and non-learning disabled (*children, college students*). **Other Aspects of Validity:** • *No information seen.*	**Pros** • Some OTs have found this test useful with higher level clients who wish to return to school (for example, to help identify strategy use, strengths & weaknesses in working memory, connect performance to academic achievement). • Can use all 11 tests or selected subtests; can administer in 1 or 2 sittings. • Allows OT to come up with ideas for interventions. • A dynamic tool in that the OT can provide hints; thus demonstrates learning, strategies used. **Cons** • The manual/forms may be difficult to find. • Takes a very long time to administer plus extra time to prepare. • Research has focused on use of this test in educational (not health care) settings. • Clinically, appears to be more sensitive to higher functioning clients. • Query sensitivity to different ethnic/cultural groups. • Not easy to learn; needs practice beforehand. • May be a little overwhelming for client and therapist. • No recent published studies.

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
SIMARD-MD (**Screen for the Identification of Cognitively Impaired Medically At-Risk Drivers, a Modification of the DemTect**) Screening assessment; Impairment level *(pre-driving)* **Population**: Community dwelling elders referred for driving assessment https://www.ualberta.ca/medically-at-risk-driver-centre/simard-md	This is a brief pencil-and-paper screening tool developed for use by physicians to identify drivers who are cognitively impaired and, therefore, at risk for driving. Use CAUTION when interpreting findings (see Psychometrics and Cons). **Time to administer:** Less than 7 minutes **Scoring:** Easy to score, with cut-off points to identify those who would very likely pass or fail a driving assessment. *(Note: *cut-off points do not have 100% sensitivity, thus, there is potential for false positive results)*. • 0-30: predicted to fail on-road driver test. • 31-70: unable to determine – need to be referred for driving assessment. • 71-130: predicted to pass on-road driver test. **Minimal Clinical Difference (MCD)**: *not determined to date*.	**Reliability**: • *No information to date* **Predictive Validity:** • Findings by Bedard et al. 2013 state that the SIMARD-MD lacks sufficient precision to provide clear recommendations about fitness to drive; recommendations that are solely based on this test place many seniors at risk of losing their license or incurring unnecessary stress and costs to prove they are safe to drive. **Group Differences:** • Differentiated between individuals who are likely vs. unlikely to pass an on-road driver test, but not with 100% sensitivity/specificity (*healthy & cognitively impaired older adults living in community)* **Other Aspects of Validity:** • Support for construct validity: a regression analysis identified test items from the DemTect which, when used together with the SIMARD-MD, could potentially predict pass/fail outcome for an on-road evaluation. • No concurrent validity (no association) in comparing a geriatrician's clinical decision regarding driving fitness (using usual practice methods including MMSE, MoCA, driving history, functional status, caregiver concerns) with results of SIMARD later administered by the same geriatrician. The study therefore supports the literature that a single assessment is not ideal for assessing fitness to drive (see Wernham et al, 2014) (*individuals with mild cognitive impairment or mild dementia*).	**Pros:** • May be helpful as one tool in a battery for driver screening (but not comprehensive driver evaluation). See cautions under Psychometrics and Cons. • No training required for the clinician • The test (and information about it) is readily accessible via website, at no cost. • Quick and easy to administer to English speaking clients. **Cons:** • Only one research study to date supports use of SIMARD for purpose of screening fitness to drive (Dobbs & Schopflocher, 2010); a subsequent study (Wernham et al. 2014) found no evidence that the SIMARD is a valid tool in the assessment of fitness to drive when comparing it to a geriatrician's clinical decision. (Of interest is that the Wernham study is not listed as a reference on the SIMARD-MD website.) • It does not provide for a comprehensive driver evaluation; it only helps to screen who is likely to fail a road test and who might pass and therefore the client should undergo further testing (*older adults; not yet researched with other populations*). • There is controversy on the validity of the SIMARD: Michel Bedard (Director, Centre for Research on Safe Driving) identifies the authors' claims as overstated; no independent research has been conducted; there is a possible conflict of interest due to DriveABLE connection (Bedard 2013). See Dobbs & Schopflocher (2011) for their response to this critique. • Poor screening discrimination because 50-80% of clients need to be sent for further testing (e.g. DriveABLE is then recommended). • Highly language-based test.
Symbol Digit Modalities Test (SDMT) Screening assessment; Impairment level *(attention, visual scanning)* **Population**: Children and adults age 8 to 78 (norms available). Normative data is categorized for age groups and gender. The manual and subsequent research indicate that SDMT can be used for many different populations e.g. acquired brain injury, dementia, multiple sclerosis, schizophrenia etc.	The SDMT is a screening tool that was developed to identify cerebral dysfunction in children and adults ages (age 8 plus) – involving attention, visual scanning, and (if a written response is required) motor speed. The client is presented with a series of geometric figures and, with reference to a key, indicates which geometric figure matches which number (from 1 to 9). The client can provide written or spoken responses. This test is optimally not used on its own, but as part of a battery of cognitive (neuropsych) tests. There is a written version and oral version. A computerized version is available (c-SDMT) – initially developed to be used during fMRI research. There have also been alternate forms developed for use by researchers to try to eliminate practice effect with repeated use (Benedict et al., 2012). More recently a tablet version has been developed, T-SDMT, with a number of changes in terms of the visual presentation to help reduce random errors and	**Reliability**: • Excellent test-retest reliability for SDMT (*normal controls, schizophrenia*). • Excellent test-retest reliability for c-SDMT (*healthy controls and multiple sclerosis*). • Practice effect shown if administered 1 week apart (*schizophrenia*). • Excellent test-retest reliability using alternative forms of the SDMT (*multiple sclerosis*), • Excellent test-retest reliability for T-SDMT (*outpatient stroke; schizophrenia*). **Predictive Validity:** • (*no studies to date relevant to OTs*) **Group Differences:** • differentiates between healthy controls and: - multiple sclerosis (C-SDMT more sensitive than paper version) - traumatic brain injury - acute stroke - mild cognitive impairment (MCI) - schizophrenia	**Pros**: • May be useful as an initial screen of attention and visual scanning for some populations (*esp. stroke, traumatic brain injury, multiple sclerosis*) – but without prediction of function. • Can be administered in a group format. • Easy for the client to understand the results, and therefore may be empowering such as may help the client to develop awareness of cognitive skills, e.g. for someone returning to school. **Cons**: • Avoid test-retest, especially as soon as 1 week, owing to potential practice effect. • Recommended to be used as part of a more extensive cognitive battery, thus not likely very useful on its own. • May be perceived by client as a math test and may be off-putting. • Does not provide specifics about functional problems but may provide a place to start. • Cost for manual (about $60.00) and test forms (about $50.00 for each package of 25).

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
http://www4.parinc.com/Products/Product.aspx?ProductID=SDMT	practice effect (Tung et al., 2016). Researchers suggest clinicians consider replacing PASAT with SDMT in the Multiple Sclerosis Functional Composite because of the slightly better predictive validity & easier administration. **Time to administer:** usually 5-10 minutes total (including instructions) with 90 seconds for the actual test. **Scoring:** Scoring is simple, conducted using the "autoscore" form that is part of the test form. **Minimal Clinical Difference (MCD)**: not determined to date. Note: practice effects are found if test-retest is one week apart.	**Other Aspects of Validity:** • As part of a neurobehavioural screening battery, it may help predict post-concussion syndrome (*mild traumatic brain injury*) and may help predict employment status (*multiple sclerosis*). • Adequate concurrent validity with a test of functional status, the Environmental Status Scale, which is a broad measure of functional disability (*multiple sclerosis*). • T-SDMT: excellent concurrent validity with SDMT (*outpatient stroke; schizophrenia*). • Ecological validity: adequate validity was demonstrated for both the SDMT and T-SDMT in comparing with a measure of ADL (the self-report Activities of Daily Living Rating Scale III) (*schizophrenia*).	• Relies on visual system which is often compromised e.g. for MS, ABI. Thus, failure on SDMT may reflect impairment in visual processing as well as mental processing speed. • Limited evidence to support SDMT as a predictor of everyday function (although together with other neuropsych tests may help predict employment status for individuals with multiple sclerosis).
Test of Everyday Attention (TEA) In-depth assessment; Impairment level *(working memory, attention)* **Population**: Youth to elderly with cognitive difficulties, in particular individuals who may have impaired attention and/or impaired working memory. The norm group is a sample of 154 healthy subjects, age 18-80. Norm groups are divided into 4 age ranges (18-34, 35-49, 50-64, 65-80). A 2017 study explores use for adults age 80+ (van der Leeuw et al., 2017) http://www.pearsonclinical.com/education/products/100000182/test-of-everyday-attention-the-tea.html	The TEA has 8 subtests to measure different aspects of attention. As per the factor analysis these are: visual selective attention/speed; attentional switching; sustained attention; and auditory-verbal working memory. As per the test description in the manual, it also tests for divided attention. There are 3 versions (A, B, C). Note: children's version is also available (TEA-Ch). **Time to administer:** 45-60 minutes, sometimes as long as 75-90 minutes. Two sessions may be required to ensure sufficient time for repetition of the practice trials. **Scoring:** Score for each subtest: • Option 1: Plot *raw* scores on the tables provided in the manual (appendices) to determine *scaled-score* for each subtest, which depends on client's age range. If *scaled-score* falls within shaded area, then performance is likely abnormal. • Option 2: Use Table 9 in manual to compare the *scaled-score* with a *percentile* range (e.g., *scaled-score* 10 = 43.4th-56.6th *percentile*); or use tables provided in Appendices to convert *raw score* to an approximate *percentile*. *In interpreting scores, the test manual recommends referring to the aspects of attention identified in the factor analysis. **Minimal Clinical Difference (MCD)**: *not determined to date*.	**Reliability**: • Adequate to excellent test-retest reliability for subtests, except poor test-retest reliability for the "dual-task decrement subtest" (perhaps due to learning effect?) (*normal adults and stroke*). • Generally adequate to excellent test-retest reliability for subtests except "telephone search while counting", which had poor reliability (*chronic stroke*). **Predictive Validity:** • *not determined to date; see below re: concurrent validity with some functional measures* **Group Differences:** • Differentiates between healthy controls and: - brain injury (in particular the map and telephone search subtests) - stroke • Differentiates between mild cognitive impairment and dementia. **Other Aspects of Validity:** • Adequate concurrent validity (although ranges from poor to excellent for various subtests) with neuropsych measures such as Stroop, PASAT, and SDMT (*healthy controls and traumatic brain injury*) • Adequate concurrent validity with test of functional status, the Environmental Status Scale – a broad measure of functional disability (*multiple sclerosis*). • Poor concurrent validity between some TEA subtests and 3 measures of function (Barthel Index, Extended Activities of Daily Living Scale, Rating Scale of Attentional Behaviour) – although better than some neuropsych tests of attention (Stroop Test, PASAT, backward digit span and others) which did not correlate consistently with these measures of function (*at 2 mos post stroke*)	**Pros**: • There are 3 parallel thus allows for test-retest (although there may be practice effects with the telephone search dual tasks, i.e. the "dual-task decrement", a measure of divided attention). • Assesses auditory & visual attention (but bias is auditory). • May be useful for high level clients but who have limited insight. • Evidence of ecological validity (e.g., there is some concurrent validity with measures of function). • For older adults (age 80+): With some modifications and cautions, the TEA can be used with this population: for example, the arrows on the Visual Elevator test may need enlarging, and this test could be portrayed on 1 long wide sheet to reduce confusion; be cautious that the elevator up/down concept may be too difficult to grasp; and to prevent fatigue, abbreviate the introduction and/or provide only the most practical information during instructions throughout (see van der Leeuw et al., 2017). **Cons**: • Quiet room required + some extra materials required (stopwatch, CD player). • Quite high level, can be quite challenging. • Need to take time (about an hour) to try it out yourself prior to attempting to administer. • Interpretation of scores can be time-consuming. • Ceiling effects for some subtests for some age groups. • Caution in using with individuals with hearing or visual impairment (and see Pros above for older adults).

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)

Trail Making Test A & B (TMT)
 	
Screening assessment; Impairment level *(working memory, visual attention, cognitive flexibility)*
 	
Population: children and adults. Studies with many populations including dementia, acquired brain injury, depression, schizophrenia.
 	
Trail-Making A and B: easy to access on internet (search for Trail Making Test)
 	
Comprehensive Trail Making Test (CTMT): https://www.parinc.com/Products/Pkey/74
 	
https://www.proedinc.com/Products/10430/ctmt-comprehensive-trailmaking-test.aspx (*includes description of the 5 trails tests involved*)
 	
Color Trails Test (CTT): https://www.parinc.com/Products/Pkey/77
	This is a screening test of visual attention, working memory and task-switching/mental flexibility. Trail making tests are typically part of a neuropsych battery. A variation of TMT B is included as part of the MoCA. Trail making tests may be included as part of a pre-driver screen battery.
	
	Versions:
	• Trail Making A and B (TMT A and B): pencil and paper-tests where the client is required to connect numbers (A) or numbers and letters (B).
	• Comprehensive Trail Making (CTMT): developed to improve upon TMT A and B. There are 5 trails tests based on TMT A and B, some which include distracters. There is a large norm sample of 1,664 (age 8-74, with demographics matched to US Census).
	• Color Trails Test (CTT-1 and CTT-2) and Children's Color Trails Test (CCTT).
	• Other:
	  • An eye-tracking version is available (Hicks et al., 2013), which has good correlation for speed with TMT B.
	  • Attempts have also been made to develop an oral version (OTMT-A, OTMT-B), but a review paper advises caution in administering and interpreting the oral TMT (Kaemmerer & Riordan, 2016).
	
	Versions and/or normative data are also available for other languages/countries, for example Spanish-speaking, Chinese-speaking, Australia, Turkey, etc. (*references not included in this Inventory*)
	
	Time to administer: 5-15 minutes, depending on version used.
	
	Scoring: simple scoring. Don't use original cut-off scores because age and education affect the scores; instead, use the 2004 norm data available on-line (see Reference List).
	
	A systematic review (Mononita & Molnar, 2013) reveals that for the Trails B, a cut-off of 3 minutes or 3 errors represents the best evidence-informed cut-off available to date.
	
	Minimal Clinical Difference (MCD): Cannot use for test-retest due to practice effects. Do not use alternate versions (e.g. TMT, CTT) as test-retest.
		Reliability:
		• Excellent inter-rater reliability (*population unknown*).
		• TMT A and B: excellent test-retest reliability (*major depression*) – but other studies caution of practice effects.
		• CTM: excellent internal consistency, adequate test-retest reliability.
		
		Predictive Validity:
		• Construct validity: a battery of neuropsych tests (including TMT) was found to be associated with functional outcomes (with 37% of variance shared) (*schizophrenia*)
		• Specific to fitness to drive:
		  • A systematic review indicates methodological limitations in research studies that aim to determine clinically useful cut-off scores in determining fitness to drive (Roy & Molnar, 2013).
		  • Subsequent studies provide mixed results in terms of TMT's ability to predict fitness to drive; the general findings are that the TMT is not specific enough for clinicians to justify driving cessation without other evaluations (Vaucher et al., 2014), although it may be helpful as a screen or part of a screen (e.g., Papandonatos et al., 2015; Choi et al., 2016).
		
		Group Differences:
		• Sensitive to normal age-related declines in cognition.
		• Differentiates between individuals with Parkinson's disease and healthy controls.
		• One study found no significant difference on TMT-B between individuals with and without frontal dysfunction.
		• CTMT: adequate concurrent validity with other neuropsych tests.
		
		Other Aspects of Validity:
		• Construct validity: TMT-A requires mainly visuoperceptual abilities and TMT-B reflects primarily working memory and task-switching ability, in correlating with other neuropsych measures (*healthy subjects*).
		• Construct validity: TMT A and B measure cognitive impairment as supported by poor to excellent concurrent validity with other variations of trail-making tests (college students).
		• Excellent concurrent validity of OTMT-B with TMT-B, but poor concurrent validity of OTMT-A with TMT-A (healthy adults).
			Pros:
			• Simple, quick.
			• Easy to access forms for TMT A and B on-line at no cost.
			• There is a cost for other versions (including CTMT and CTT) although it's a fairly low cost. However, only Level C assessors can order these versions (e.g. psychologists) (see links in Column 1).
			
			Cons:
			• Be cautious in drawing conclusions from performance of TMT-B to detect frontal executive dysfunction.
			• For clinical populations, there is very little research to date associating TMT results with measures of everyday function including driving – the best evidence is for neuropsych batteries that include TMT, and not a TMT on its own.
			• Cannot use for re-testing due to practice effects.
			• TMT and CTT may not be equivalent – so do not use as alternative versions for test-retest.
			• Be careful what norms are used (depends on part what test is used – TMT, CTMT, CTT, OTMT). Norms of TMT A and B may no longer be applicable to current US population (the CTMT was developed to overcome this and other limitations).
			• Requires the client to have knowledge of the numbers and letters used in the English language.
			• As above, CTT and CTMT are available only to Level C assessors (i.e. psychologists).

Test for Nonverbal Intelligence (TONI) *Do not confuse with the CTONI (Comprehensive*	This test is described as a language-free measure of cognitive ability. It is a neuropsych measure focusing on a small piece of the construct of "fluid intelligence" (purporting to measure aptitude, abstract reasoning, problem solving).It was designed for use with children	**Reliability**: • Poor to excellent internal consistency (various populations). • Excellent test-retest and parallel form reliability for an earlier version (children). • *No additional published research could be found*	**Pros**: • Completely non-verbal. • Simple instructions; can be administered by anyone who follows instructions carefully and has some formal training in assessment. • Detailed directions for administering, scoring, and

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
Test of Nonverbal Intelligence). Screening assessment; Impairment level *(intelligence)* **Population:** recommended for use with children or adults (age 6-89) when a measure of intelligence is required and where traditional intelligence tests are inappropriate (language impaired, hearing impaired, non-English speakers). http://www.pearsonclinical.com/psychology/products/100000612/test-of-nonverbal-intelligence-fourth-edition-toni4.html?pid=TONI-4&Community=CA_Ed_AI_Ability	and adults. There are 2 parallel versions (A and B). All items are abstract/figural; verbal or non-verbal instruction is provided; and the evaluee responds with simple but meaningful gestures such as pointing, nodding or blinking. The most recent version is the TONI-4, with updated norms. TONI-4: Test directions available in: English, Spanish, French, German, Chinese, Vietnamese, Korean and Tagalog. The TONI-4 manual contains new norms to help ensure proper representation of demographic changes in the U.S. population. **Time to administer**: 15-20 minutes. **Scoring:** Raw scores can be converted to age-based percentiles or index (standard scores) and compared to norms. **Minimal Clinical Difference (MCD)**: *not determined to date*.	*including for TONI-4; manual unavailable for review*. **Predictive Validity:** • *No published research on validity could be found on TONI-3 or TONI-4; manuals unavailable for review*. **Group Differences:** • *No published research on validity could be found on TONI-3 or TONI-4; manuals unavailable for review*. **Other Aspects of Validity:** • *No published research on validity could be found on TONI-3 or TONI-4; manuals unavailable for review*.	interpretation (in the manual). • A 20-year body of reliability and validity research is cited and summarized in the test manual. • Good for pre- and post-test application. • Low cultural loading. **Cons**: • A review of an early version of the TONI recommends exercising extreme caution in interpreting results of this test as a measure of intelligence, in part because it is a non-verbal test (Shelly, 1982). • There is limited published research on current and recent versions (TONI-3, TONI-4); need test manual to review psychometrics. • Accessible research literature focuses primarily on use of the TONI as a measure of intelligence (for adults and children), without addressing any concurrent or predictive validity for measures of everyday function. • Cost is about $380.00 for initial kit, and then $60.00 for each subsequent package of 50 test forms.
Texas Functional Living Scale (TFLS) Screening assessment (more so than in-depth); Task performance level **Population**: Originally developed for people with dementia, but has expanded to other groups including adults with intellectual disability, schizophrenia, traumatic brain injury. **Normative Data**: The norms provided in the manual (2009) are for various diagnostic groups: probable Alzheimer disease- mild severity, mild and moderate intellectual disability, major depressive disorder, TBI, schizophrenia, autistic disorder. Aged 16-90, 800 examinees included in normative sample. http://www.pearsonclinical.com/therapy/products/100000222/texas-functional-living-scale-tfls.html	The TFLS is comprised of 24 items assessing cognition in the context of specific impairment as well as various IADLs. It is divided into 4 subscales assessing ability to use analog clocks and calendars, perform calculations involving time and money, utilize basic communication skills in everyday activities, and memory. The 4 subscales are: time, money & calculation, communication, memory. **Time to administer**: approx 20 minutes. Can be administered across more than 1 session, as long as item #22 is done in 1st session. **Scoring**: Raw scores are converted into cumulative percentages and the total raw score can then be converted into a T-score. The manual provides qualitative descriptors (categories) for cumulative percentages and T-Score (from "severely impaired" to "high average"). The manual also provides suggestions for score cut-offs to suggest whether the person has adequate functional competence for independent living; assisted living; or a special care unit. ***However***, it is cautioned: "…Recommendations about level of care should not be based on a single score but should include multiple aspects of assessment and information sources…". Therefore, avoid using these cut-off values. **Minimal Clinical Difference (MCD)**: *not determined to date*. Be aware of potential practice effects.	**Reliability**: • Adequate to excellent internal consistency (*Alzheimer disease*). • Excellent inter-rater reliability (*for normative sample*). • Excellent test-retest reliability at 1 month (*Alzheimer disease*). • Practice effects: there is slightly higher performance when tested the 2nd time due to practice effects (roughly a ¼ standard deviation of the T-Score) suggesting relatively consistent performance over time – but the OT should be aware of this. **Predictive Validity:** • *Nothing found to date*. **Group Differences:** • Differentiates between healthy controls and adults with Alzheimer`s disease, and dementia in general. • Does not differentiate between normal controls and mild cognitive impairment (MCI). **Other Aspects of Validity:** • Excellent concurrent validity in comparing TFLS to the Independent Living Scales (ILS), although only adequate concurrent validity in comparing the memory subscales (*dementia*). • Excellent convergent validity in comparing with the MMSE (*dementia*). • Adequate convergent validity in comparing with an informant-rated measure of daily functioning, the Blessed Dementia Rating Scale (BDRS) (*Alzheimer disease*). • As expected, poor correlation in comparing TFLS with a dementia behaviour rating scale, thus	**Pros**: • Provides a fairly quick screen of cognition in the context of IADLs. • In considering the excellent convergent validity with the MMSE, the TFLS can be used to assess overall level of cognitive impairment while providing clinical information that is ecologically valid (i.e. relating to function). • Test items are easily obtained (e.g. a current calendar, stopwatch, telephone etc.). • Allows OT to provide prompts to the client to obtain best score. • Direct observation reduces patient/caregiver reporting bias. • Memory subscale assesses 3 aspects of memory: immediate recall, delayed recall, prospective memory. • May be quicker to administer than ILS. • Relatively affordable (compared to other measures): less than $200.00. **Cons**: • Money and calculation subscale use US $ including $1 bills (need to adapt for this); and pennies are also used (need to adapt for this). • Communication subscale uses tasks that may not be familiar to your client (especially younger adults): cheque writing, use of phone book, addressing envelope. • Test results alone are NOT conclusive – must use clinical reasoning taking into consideration other assessment activities/tests.

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
		demonstrating the expected discriminant validity (i.e., showing that the tests measure different constructs: the TFLS assesses functional skills, and the rating scale taps emotional and behavioral disturbance) (*Alzheimer disease*).	
UCSD Performance-based Skills Assessment: UPSA-2, UPSA-Brief (UPSA-B), computerized UPSA (C-UPSA) In-depth assessment; Task performance level. **Population**: UPSA was developed for use with adults with severe mental illness. It has been studies with individuals with schizophrenia, schizoaffective disorder, bipolar disorder, and depression. As per the results of a literature search, UPSA is not (yet) formally validated for stroke or other acquired brain injuries, or for mild cognitive impairment. **Normative Data**: one study indicates norms are not applicable because this is a disability measure, and disabilities are not present in a healthy population; however, another study has developed norms for UPSA-B (Vella 2017). https://www.neurocogtrials.com/resources-and-tools/upsa/ (*Contact information is provided for purposes of obtaining permission to obtain and use UPSA; request the UPSA-2-VIM version.*) https://eprovide.mapi-trust.org/instruments/university-of-california-san-diego-performance-based-skills-assessment YouTube video showing tutorial for UPSA-2-VIM: https://www.youtube.com/watch?v=QGRfOAl84jU&feature=youtu.be	The UPSA and subsequent/modified versions were initially developed for use in research/clinical trials, to assess basic everyday living skills in adults with schizophrenia; but is now available for clinical purposes (recommended version for Canadian OTs is UPSA-2-VIM). It is a performance-based ("role playing") assessment: • The original UPSA consists of performance tasks that represent 5 domains of functioning felt to be essential to an older adult's ability to function independently in the community: (1) financial skills (counting change, bill paying); (2) communication (including telephone tasks relating to a medical appointment); (3) comprehension & planning (planning a trip to the beach/zoo); (4) transportation (reading a bus route); and (5) household management (reading a recipe, completing a shopping list) (*See a more detailed description of the original items in Patterson et al., 2001; and updated information in YouTube video given in column 1 for UPSA-2-VIM*). • UPSA-1 was updated to become UPSA-2. Modifications included adding a medication management task (later removed for UPSA-2-VIM). The UPSA-2ER (extended range) has the same subscales but additional questions to increase level of difficulty for each. **UPSA-2-VIM (2009) is a version modified for the Canadian population and for use by Vancouver Coastal Health for clinical purposes. It is recommended that Canadian OTs use this version. Obtain permission (see website in first column).** Other versions: • The UPSA-brief (UPSA-B) contains only 2 domains: communication and finance (see further details in Mausbach 2007). It is widely used in research. • The C-UPSA contains 4 of the original domains: planning recreational activities, finances, communication, and transportation. It is more portable and takes less time to administer than the original UPSA. It appears to be highly related to the original UPSA for individuals with schizophrenia (see Moore et al., 2013).	**Reliability**: • UPSA: Excellent interrater reliability (schizophrenia and schizoaffective disorder); adequate test-retest reliability over periods up to 36 months (*schizophrenia*). • UPSA-B: Poor to excellent (but mostly adequate) test-retest reliability (*schizophrenia, schizoaffective disorder, delusional disorder*). **Predictive Validity:** • Higher scores on UPSA and UPSA-B are generally associated with higher ratings of functioning in daily living skills and work skills (*schizophrenia, schizoaffective disorder, bipolar disorder*) (Mausbach 2008, 2010, 2011). • UPSA-B total scores were found to be unrelated to self-reported IADL independence vs. dependence (*HIV positive*). **Group Differences:** • The UPSA differentiates between normal controls and middle-aged & older outpatients with schizophrenia and schizoaffective disorder, even when accounting for age differences (Patterson et al., 2001). • However another study found that there were no significant group differences for 2 of the subscales (household management and transportation) (Heinrichs et al., 2006). • UPSA differentiates between outpatients with bipolar disorder and healthy controls. • C-UPSA differentiates between healthy controls and schizophrenia for total score and for 2 of the subtests: finances and transportation. • Initial research shows a trend (but not statistical significance) for UPSA-B to discriminate between HIV+ and HIV- individuals; more research needed. **Other Aspects of Validity:** • Excellent concurrent validity of UPSA-B with UPSA. • Multiple studies indicate performance on UPSA and UPSA-B is not related (or is poorly related) to negative-positive symptoms (schizophrenia) or mood symptoms (*major depression, bipolar disorder*). • UPSA, criterion validity: - Concurrent validity with cognitive measures: Adequate to excellent concurrent validity in comparing with tests such as MMSE, RBANS, and a number of neuropsych tests (for example as per review in Silverstein et al, 2011). - Concurrent validity with functional measures: Excellent concurrent validity in comparing with DAFS (a performance-based measure developed for use with dementia) (*schizophrenia*	**Pros**: • The primary strength is as a measure of function for mental illness. • Holds some promise for use with other populations but more research is needed. • Many clinicians are using UPSA instead of ILS because of the stronger focus on organization and planning skills vs. knowledge-based items. • No cost for manual (once permission to use it is obtained). Low cost to set up the items required (coins and replica money, unplugged telephone, copy the various paper items from the manual including utility bill, recipe, maps etc.). • Ease of use: not cumbersome to carry/store; can be broken up over 2+ sessions; questions are clear. • Has been adapted for Canadian population (including specifically for use by Vancouver Coastal Health). • Together with other measures (such as observational assessment during real-life activities, and collateral information) plus clinical reasoning, the UPSA can help the OT in determining likelihood of success for independent living. **Cons**: • Users need to obtain written permission from the developer to use the UPSA. (Note: Vancouver Coastal Health has obtained this permission.) • The authors who developed this measure recommend that several hours of training is required; yet it is not easy to find/access this training. However, clinicians feel that an orientation can be provided by a peer who is familiar with the test. • UPSA cannot determine specifically whether cognition is the primary limiting factor for everyday function versus (or in combination with) other factors. Another factor is inexperience with independent living (community living skills). • Some of the role play tasks are primarily verbal in nature, thus would not be appropriate for individuals with verbal/language difficulties. • One study raised the possibility of a ceiling effect limiting the power of UPSA subscales to discriminate between healthy controls and outpatients with schizophrenia. • Clinician feedback relating to ecological and predictive validity: - Not all situations are realistic and/or relevant. - The client might do well overall on testing, but present with poor judgment, planning & decision making in real life. - The grocery list task, financial management task (making change), and bus route/

Assessment Name	Overview	Psychometrics – Reliability & Validity	Pros & Cons (from literature & clinicians)
	• There are also versions in other languages/ countries (e.g. Spanish, Japanese, Brazil) (*references not listed on this Inventory*). **Time to administer**: UPSA, about 30 minutes; UPSA-B, about 10-15 minutes; C-UPSA about 15 minutes; UPSA-2, about 45 minutes; UPSA-2ER, about 60 minutes. **Scoring** (UPSA-2-VIM): Using a score sheet, the raw scores are converted to allow for a total score ranging from 0-100, with higher scores representing higher level of everyday function. The lower the score, the lower the person's function. The UPSA-2-VIM is best used to determine who cannot live independently, than to determine who can live independently: • <75: likely unable to live independently • ≥75 may or may not be able to live independently; further information needs to be considered in order to make recommendations. **Minimal Clinical Difference (MCD)**: One study indicates the estimated MCD for UPSA is 6 to 7 points (Harvey et al., 2017, major depression).	*and schizoaffective disorder*). - Concurrent validity with other types of measures: Poor in comparing with QWB (a self-report health-related quality of life measure – thus these measures appear to assess different constructs (*schizophrenia and schizoaffective disorder*). • UPSA-B, criterion validity: - Concurrent validity with cognitive measures: Adequate when overall cognitive functioning is measured by the Dementia Rating Scale (schizophrenia); and adequate when measured by a neuropsych test battery (*HIV positive*). - Concurrent validity with functional measures: generally poor to adequate (*schizophrenia, schizoaffective disorder, delusional disorder*). • C-UPSA, criterion validity: - Excellent concurrent validity with UPSA and UPSA-B (*schizophrenia*). - Concurrent validity with cognitive measures: excellent with RBANS for schizophrenia but no correlation for healthy controls. - Concurrent validity with functional measures: generally poor to adequate (*schizophrenia, schizoaffective disorder, delusional disorder*).	transportation task don't necessarily help provide a measure of real life skills or independent living. - Some tasks are not very useful for specific age groups (e.g. trip to the water park not applicable to seniors; bus schedules not applicable for individuals who use their phone for trip planning). - There are no health and safety questions (thus it may help to supplement UPSA with the ILS Health & Safety questionnaire). - Although the cut-off score may help predict someone who cannot live independently (i.e. <75/100), a score ≥75/100 does not accurately predict that they can live independently. - Caution: never make recommendations for housing & supports based solely on results of UPSA; the OT must combine with observational assessment (real life community navigation, shopping, cooking etc.) and collateral information (family, friends, other clinicians).

OCCUPATIONAL THERAPY COGNITIVE ASSESSMENT INVENTORY – REFERENCE LIST/BIBLIOGRAPHY

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Paced Auditory Serial Addition Test (PASAT)	Manual: http://pasat.us/PDF/PASAT_Manual.pdf Psychometrics/other: (*There are many additional references available including use of psychometrics/norms/use of PASAT for many different populations/countries.*) Brooks, J. B. B., Giraud, V. O., Saleh, Y. J., Rodrigues, S. J., Daia, L. A., & Fragoso, Y.D. (2011). Paced auditory serial addition test (PASAT): A very difficult test even for individuals with high intellectual capability. *Arquivos de Neuro-Psiquiatria, 69*, 492-484. Higginson, C. I., Arnett, P. A., & Voss, W. D. (2000). The ecological validity of clinical tests of memory and attention in multiple sclerosis. *Archives of Clinical Neuropsychology, 15*, 185-204. Moore, D.J., Roediger, M.J., Eberly, L.E., Blackstone, K., Hale, B., Weintrob, A., Ganesan, A., Agan, B.K., Letendre, S.L., Crum-Cianflone, N.F. (2012). Identification of an abbreviated test battery for detection of HIV-associated neurocognitive impairment in an early-managed HIV-infected cohort. *Plos One,* 7 (11), pp.e47310. Date of Electronic Publication Nov. 8, 2012. Nagels, G., Geentjens, L., Kos, D., Vleugels, L., D'hooghe, M. B., Van Asch, P. et. al (2005). Paced visual serial addition test in multiple sclerosis. *Clinical Neurology and Neurosurgery,107*, 218-222. Robertson, I. H., Ward, T., Ridgeway, V., & Nimmo-Smith, I. (1994). *The Test of Everyday Attention Manual*. London (England): Pearson Assessment. *(re: lack of correlation between PASAT and functional indices)* Parsons, T. D., Courtney, C., Rizzo, A. A., Armstrong, C., Edwards J., & Reger. (2012). Virtual reality Paced Serial Assessment Test for neuropsychological assessment of a military cohort. *Medicine Meets Virtual Reality, 19*, 331-337. Parsons, T. D., & Courtney, C. G. (2014). An initial validation of the Virtual Reality Paced Auditory Serial Addition Test in a college sample. *Journal of Neuroscience Methods, 222*, 15-23. Sonder, J.M.,Burggraaff, J., Knol, D.L., Polman, C.H., Uitdehaag, B.M. (2013). Comparing long-term results of PASAT and SDMT scores in relation to neuropsychological testing in multiple sclerosis. *Multiple Sclerosis,* Date of Electronic Publication Sep 9, 2013. Tombaugh, T. N. (2006). A comprehensive review of the Paced Auditory Serial Addition Test (PASAT). *Archives of Clinical Neuropsychology, 21*, 53-76.
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The Repeatable Battery for the Assessment of Neuro-psychological Status (RBANS)	Following are some selected papers. See the website for a long and comprehensive list of papers (http://www.rbans.com/publications.html), including a summary of papers demonstrating clinical validity: http://www.rbans.com/clinicalvalidity.html - although does not seem to have been updated since about 2009. Calamia, M., Roye, M., & Lemke, A. (2017). Does prior administration of the RBANS influence performance on subsequent neuropsychological testing? *Applied Neuropsychology: Adult,* 1-4. http://dx.doi.org/10.1080/23279095.2017.1299736 Dickerson, F B., Stallings, C., Origoni, A., Boronow, J. J., Sullens, A., & Yolken, R. (2008). Predictors of occupational status six months after hospitalization in persons with a recent onset of psychosis. *Psychiatry Research, 160,* 278-284. Duff, K., Hobson, V. L., Beglinter, L. J., & O'Bryant, S. E. (2010). 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