Information on Standardized Assessment Tools Used in Stroke Rehabilitation

Tools in alphabetical order of purpose

NSAC Rehabilitation Task Force

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Standardized Assessments for <u>Activities of Daily Living</u>	**Primary Discipline**	**ICF Domain Body Function, Activity, or Participation**	**Purpose**	**Population Acuity (Acute, Subacute, Chronic)**	**Score Interpretation**	**Source of Information**
Barthel Index	OT PT	Activity	10 activities of daily living	All Not responsive in mild stroke	Higher score=better function. Max sore=100; Rating based on the amount of assistance required to complete each activity like the FIM	Free for non-commercial use http://www.rehabmeasures.org/ and stroke internet center
Chedoke Arm and Hand Activity Inventory (CAHAI) Three shortened versions of the CAHAI exist with either 7, 8, or 9 items	OT	Activity	Functional assessment of the upper extremity in persons with stroke; 13 functional tasks involving both upper extremities (e.g., open jar, zip, carry bag up stairs, pour glass of water, etc.)	All	Items are scored on a 7-point scale, similar to the FIM with higher scores= better function	Free Download manual at www.cahai.ca
Executive Function Performance Test (EFPT)	OT	Activity	Measures executive functions, task independence, and assistance needed for task completion through four basic tasks that are essential for self-maintenance and independent living: simple cooking, telephone use, medication management, and bill payment.	All	Results indicate if client can complete task without help, with help, or not at all.	Free http://www.rehabmeasures.org

Standardized Assessments for **Activities of Daily Living**	Primary Discipline	ICF Domain Body Function, Activity, or Participation	Purpose	Population Acuity (Acute, Subacute, Chronic)	Score Interpretation	Source of Information
Functional Independence Measure (FIM)	All disciplines	Activity	Assesses self care, sphincter control, transfers, locomotion (including stairs), communication, and social cognition	Acute Rehab	18 item assessment measure with 0-7 grade with higher scores= better function	Proprietary, need specialized training and competency exam; http://www.udsmr.org/WebModules/FIM/Fim_About.aspx
Stroke Impact Scale (SIS)	All disciplines	Body Function Activity Participation	A self-report on the a person's quality of life after a stroke, including strength, hand function, ADL's, mobility, communication, emotion, memory, thinking and participation.	Has been studied at 1, 3, and 6 months post-stroke	Scores range from 0 to 100, each item is rated in a 5-point Likert scale **Score of zero**: "Experienced No Recovery **Score of 100:** Fully Recovered" "approximately 10 to 15 points appear to represent reasonable definitions of clinically meaningful change."	Proprietary. Access to the SIS can be found at: http://www.kumc.edu/school-of-medicine/preventive-medicine-and-public-health/research-and-community-engagement/stroke-impact-scale.html Instructions for administration of the SIS 3.0 is available online at http://www2.kumc.edu/coa/SIS/Stroke-Impact-Scale.htm. http://www.rehabmeasures.org

Standardized Assessments of **Balance or Mobility**	Primary Discipline	ICF Domain Body Function, Activity, or Participation	Purpose	Population Acuity (Acute, Subacute, Chronic)	Score Interpretation	Source of Information
Berg Balance Scale (BBS)	PT OT	Activity	A 14-item objective measure designed to assess static balance and fall risk in adult populations	Highly recommended for Subacute and Chronic Recommended for acute	41-56 = low fall risk 21-40 = medium fall risk 0 –20 = high fall risk A change of 8 points is required to reveal a genuine change in function between 2 assessments.	Free http://www.rehabmeasures.org
Dynamic Gait Index (DGI)	PT	Activity	Assesses individual's ability to modify balance while walking in the presence of external demands	Acute Subacute Chronic	<19 indicates higher risk of falling in community dwelling adults Scores are based on a 4-point scale: 3: No gait dysfunction 2: Minimal impairment 1: Moderate impairment 0: Severe impairment Higher scores = better function; highest score is 24 points	Free www.missouri.edu http://www.rehabmeasures.org
Functional Gait Assessment (FGA)	PT	Activity	Assesses balance during various walking tasks	Acute Subacute	Modified the Dynamic Gait Index to improve reliability and decrease the ceiling effect. 10-item test, each item is scored on an ordinal scale from 0-3 0: Severe impairment 1: Moderate impairment 2: Mild impairment 3: Normal ambulation Highest score is 30	Free http://www.rehabmeasures.org

Standardized Assessments of Balance or Mobility	Primary Discipline	ICF Domain Body Function, Activity, or Participation	Purpose	Population Acuity (Acute, Subacute, Chronic)	Score Interpretation	Source of Information
Functional Reach Test (FRT)	PT	Activity	Dynamic balance to reach forward in stance; can be modified for sitting	All	Higher score= better balance. Measured in cm or inches; fall risk is <15 cm in stroke; norms for stroke established in FRT and modified FRT	Free http://www.rehabmeasures.org/
Postural Assessment of Stroke Scale (PASS)	OT PT	Activity	Assesses balance in several functional positions	Acute and subacute	12 items of increasing difficulty; max score of 36; most responsive to change before Day 90 post.	Free, no specialized training http://strokengine.ca/assess/
Stroke Rehabilitation Assessment of Movement (STREAM)	PT	Body Function Activity	Designed to provide a quantitative evaluation of motor function in stroke. 30 items distributed across 3 domains: **Upper limb movements** (3-pt ordinal scale) **Lower limb movements** (3-pt ordinal scale) **Basic mobility** (4-pt ordinal scale)	Specifically designed to be easy to administer in a clinic setting. Better responsiveness in acute or subacute stroke	Higher score= better function. Max score= 70. Scoring: Total 20 points for each of the limb sub-scales (40 total) Total 30 points for mobility subscale Total scores are calculated using the avg of the 3 subscale scores	Free http://www.rehabmeasures.org Refer to the following for further details on scoring. http://ptjournal.apta.org/content/79/1/8.full.pdf http://www.health.utah.edu/occupational-therapy/files/evalreviews/stream.pdf
Timed Gait (3, 6, 12 min walk tests)	PT	Activity	Assesses distance walked over 3, 6, or 12 minutes as a submaximal test of aerobic capacity/ endurance	All	Time taken to complete test (recorded in minutes) Cut-off scores not established MDC noted for most populations	Free http://www.rehabmeasures.org/

Standardized Assessments of Balance or Mobility	Primary Discipline	ICF Domain Body Function, Activity, or Participation	Purpose	Population Acuity (Acute, Subacute, Chronic)	Score Interpretation	Source of Information
Timed Up and Go (TUG)	PT	Activity	Assesses mobility, balance, walking ability, and fall risk in older adults (65+)	All	Increased fall risk for stroke patients if >14 seconds to complete TUG.	Free www.rehabmeasures.org

Standardized Assessments of **Cognition**	Primary Discipline	ICF Domain Body Function, Activity, or Participation	Purpose	Population Acuity (Acute, Subacute, Chronic)	Score Interpretation	Source of Information
Allen Cognitive Assessment (Allen Cognitive Level Screen or ACLS) (Large Allen CognitiveLevel Screen or ACLS) (ADLs Placemat Screen)	OT Psychiatry Psychology SLP	Activity Participation	Determine cognitive abilities in functional settings. Measures strengths/abilities outside of caregiver assist.	Used with all acuities but not as common in acute settings; more subacute & chronic. Used often in psychiatric setting.	See separate score information attached*.	Proprietary www.allen-cognitivenetwork.org
Cognitive Linguistic Quick Test (CLQT)	SLP OT Psychology	Activity Participation	Assess 5 cognitive domains-attention, memory, executive function, language and visuospatial skills	All	Easy to score. Each domain is scored and shows the patient as Within Normal Limits or having Mild, Moderate, or Severe deficits. The severity ratings from the domains are added for a Total Composite Severity Rating. Age group (18-69, 70-89) is taken into consideration. The Clock Drawing task is given a separate severity score. This rating can be used as a quick check of progress or decline.	Proprietary http://images.pearsonclinical.com/images/Assets/clqt/clqt.pdf

Standardized Assessments of **Cognition**	Primary Discipline	ICF Domain Body Function, Activity, or Participation	Purpose	Population Acuity (Acute, Subacute, Chronic)	Score Interpretation	Source of Information
Geriatric Depression Scale (GDS)	All disciplines	Body Function	30 items; shorter forms available;depression and suicide ideation in elderly individuals	All	0 – 9 normal; 10 – 19 mild depression; 20 – 30 severe depression	Free http://www.rehabmeasures.org/
Montreal Cognitive Assessment (MoCA)	OT Psychology Psychiatry SLP	Body Function	Detect mild cognitive impairment	All	> 26 normal < 26 mild impairment	Free (MoCA© may be used, reproduced, and distributed **WITHOUT** permission. The test should be made available free of charge to patients. Written permission and Licensing Agreement is required if funded by commercial entity.) http://www.mocatest.org/
Stroke Impact Scale (SIS)	All disciplines	Body Function Activity Participation	A self-report on the a person's quality of life after a stroke, including strength, hand function, ADL's, mobility, communication, emotion, memory, thinking and participation.	Has been studied at 1, 3, and 6 months post-stroke	Scores range from 0 to 100, each item is rated in a 5-point Likert scale[1] **Score of zero**: "Experienced No Recovery **Score of 100:** Fully Recovered" "approximately 10 to 15 points appear to represent reasonable definitions of clinically meaningful change."	Proprietary. Access to the SIS can be found at: http://www.kumc.edu/school-of-medicine/preventive-medicine-and-public-health/research-and-community-engagement/stroke-impact-scale.html Instructions for administration of the SIS 3.0 is available online at http://www2.kumc.edu/coa/SIS/Stroke-Impact-Scale.htm. http://www.rehabmeasures.org

Standardized Assessments of Fine Motor or Arm Activity	Primary Discipline	ICF Domain Body Function, Activity, or Participation	Purpose	Population Acuity (Acute, Subacute, Chronic)	Score Interpretation	Source of Information
9 Hole Peg Test	OT	Body Function Activity	Measures finger dexterity	All	Time taken to complete test (recorded in seconds) MDC for CVA: 32.8 sec MDC for PD 2.6 sec in dominant hand, 1.3 sec in non-dominant hand	Proprietary http://www.rehabmeasures.org/
Chedoke Arm and Hand Activity Inventory (CAHAI) Three shortened versions of the CAHAI exist with either 7, 8, or 9 items	OT	Activity	Functional assessment of the upper extremity in persons with stroke; 13 functional tasks involving both upper extremities (e.g., open jar, zip, carry bag up stairs, pour glass of water, etc.)	All	Items are scored on a 7-point scale, similar to the FIM with higher scores= better function	Free Download manual at www.cahai.ca

Standardized Assessments of **Motor Activity**	Primary Discipline	ICF Domain Body Function, Activity, or Participation	Purpose	Population Acuity (Acute, Subacute, Chronic)	Score Interpretation	Source of Information
Leeds Adult Spasticity Scale (LASIS)	OT PT	Activity	Measures impact of upper extremity spasticity in persons with spasticity and little or no active movement of the upper extremity	All	Items are rated between 0 - 4 according to the following criteria: 0 = No difficulty 1 = Little difficulty 2 = Moderate difficulty 3 = A great deal of difficulty 4 = Inability to perform the activity The total score is calculated as the sum of individual scores, divided by the total number of questions answered. This results in a total score between 0 - 4 that represent disability or caregiver burden.	http://strokengine.ca/assess/module_lasis_intro-en.html
Modified Ashworth Scale	OT PT	Body Function	Measure spasticity in patients with lesions of the CNS	All	Scores range from 0 to 4 with 6 choices possible (0, 1, 1+, 2, 3, 4). Score of 0 indicates no resistance, score of 4 indicates rigidity. 1+ scoring category added to indicate resistance through less than half of the movement.	Free No training required http://www.rehabmeasures.org/

Standardized Assessments of Motor Activity	**Primary Discipline**	**ICF Domain Body Function, Activity, or Participation**	**Purpose**	**Population Acuity (Acute, Subacute, Chronic)**	**Score Interpretation**	**Source of Information**
Stroke Rehabilitation Assessment of Movement (STREAM)	PT	Body Function Activity	Designed to provide a quantitative evaluation of motor function in stroke. 30 items distributed across 3 domains: **Upper limb movements** (3-pt ordinal scale) **Lower limb movements** (3-pt ordinal scale) **Basic mobility** (4-pt ordinal scale)	Specifically designed to be easy to administer in a clinic setting. Better responsiveness in acute or subacute stroke	Higher score= better function. Max score= 70. Scoring: Total 20 points for each of the limb sub-scales (40 total) Total 30 points for mobility subscale Total scores are calculated using the avg of the 3 subscale scores	Free http://www.rehabmeasures.org Refer to the following for further details on scoring. http://ptjournal.apta.org/content/79/1/8.full.pdf http://www.health.utah.edu/occupational-therapy/files/evalreviews/stream.pdf

Standardized Assessments of <u>Perception and Vision</u>	**Primary Discipline**	**ICF Domain Body Function, Activity, or Participation**	**Purpose**	**Population Acuity (Acute, Subacute, Chronic)**	**Score Interpretation**	**Source of Information**
Brain Injury Visual Assessment Battery for Adults (BiVABA)	OT	Body Function Activity	Assessment of visual processing ability following adult onset brain injury; battery focuses on identifying functional limitations experienced by the client as a result of visual impairment. Battery includes standardized assessments for: •visual acuity (distant and reading) •contrast sensitivity function •visual field •oculomotor function •visual attention and scanning	All	Each sub-test contains interpretation of results. BiVABA based on 4 key premises: • Visual dysfunction should be viewed in terms of effect on function, not in relation to deviation from the norm or test scores. • Visual impairments only warrant OT if they cause functional impairment. • Visual evaluation should be done to establish visual strengths and weaknesses. Strengths should be capitalized upon and weaknesses should be minimized.	Proprietary http://www.visabilities.com/bivaba.html

Standardized Assessments of Perception and Vision	**Primary Discipline**	**ICF Domain Body Function, Activity, or Participation**	**Purpose**	**Population Acuity (Acute, Subacute, Chronic)**	**Score Interpretation**	**Source of Information**
Cognitive Linguistic Quick Test (CLQT)	SLP OT Psychology	Activity Participation	Assess 5 cognitive domains-attention, memory, executive function, language and visuospatial skills	All	Easy to score. Each domain is scored and shows the patient as Within Normal Limits or having Mild, Moderate, or Severe deficits. The severity ratings from the domains are added for a Total Composite Severity Rating. Age group (18-69, 70-89) is taken into consideration. The Clock Drawing task is given a separate severity score. This rating can be used as a quick check of progress or decline.	Proprietary http://images.pearsonclinical.com/images/Assets/clqt/clqt.pdf
Motor free Visual Perception Test (MVPT-3)	OT	Body Function	Assess five visual perceptual skills, independent of motor ability: Spatial relationships, Figure-ground discrimination, Visual discrimination, Visual closure, and Visual memory	All	Each card has a 2 dimensional, black and white line drawing example and 4 multiple choice response options, one of which matches the example Average time to complete each item is also calculated	Proprietary http://www.rehabmeasures.org http://strokengine.ca/assess/module_mvpt_indepth-en.html

Standardized Assessments for **Prognosis or Severity**	Primary Discipline	ICF Domain Body Function, Activity, or Participation	Purpose	Population Acuity (Acute, Subacute, Chronic)	Score Interpretation	Source of Information
NIH Stroke Scale (NIHSS)	All disciplines, but typically physician and nursing	Body Function	Assessment of stroke severity Part of the assessment for tPA administration Prognostic / predictive	Acute	**Disposition:** **Score ≤ 5**: d/c home **Score 6 to 13**: rehabilitation **Score >13:** long term nursing facility ***30 day mortality*[5]:** **Score 0 to 7**: 4.2% **Score 8 to 13**: 13.9% **Score 14 to 21**: 31.6% **Score 22 to 42**: 53.5%	Free, must be trained http://stroke.org/site/PageServer?pagename=NIHSS http://www.rehabmeasures.org
Orpington Prognostic Score	All disciplines Primarily OT/PT	Body Function	Assessment of stroke severity (e.g., motor deficits, proprioception, balance and cognition)	Acute Subacute	Scores range from 1.6 to 6.8, with higher scores indicating greater deficit. Mild to Moderate: <3.2 Moderate to Moderately Severe: 3.2-5.2 Severe: >5.2	Free http://www.rehabmeasures.org http://www.strokecenter.org/wp-content/uploads/2011/07/Orpington-Prognostic-Scale.pdf

Standardized Assessments of <u>Quality of Life</u>	**Primary Discipline**	**ICF Domain Body Function, Activity, or Participation**	**Purpose**	**Population Acuity (Acute, Subacute, Chronic)**	**Score Interpretation**	**Source of Information**
Stroke Impact Scale (SIS)	All disciplines	Body Function Activity Participation	A self-report on the a person's quality of life after a stroke, including strength, hand function, ADL's, mobility, communication, emotion, memory, thinking and participation.	Has been studied at 1, 3, and 6 months post-stroke	Scores range from 0 to 100, each item is rated in a 5-point Likert scale. **Score of zero**: "Experienced No Recovery **Score of 100:** Fully Recovered" "approximately 10 to 15 points appear to represent reasonable definitions of clinically meaningful change."	Proprietary. Access to the SIS can be found at: http://www.kumc.edu/school-of-medicine/preventive-medicine-and-public-health/research-and-community-engagement/stroke-impact-scale.html Instructions for administration of the SIS 3.0 is available online at http://www2.kumc.edu/coa/SIS/Stroke-Impact-Scale.htm. http://www.rehabmeasures.org

Standardized Assessments of Speech and Language	**Primary Discipline**	**ICF Domain Body Function, Activity, or Participation**	**Purpose**	**Population Acuity (Acute, Subacute, Chronic)**	**Score Interpretation**	**Source of Information**
Cognitive Linguistic Quick Test (CLQT)	SLP OT Psychology	Activity Participation	Assess 5 cognitive domains-attention, memory, executive function, language and visuospatial skills	All	Easy to score. Each domain is scored and shows the patient as Within Normal Limits or having Mild, Moderate, or Severe deficits. The severity ratings from the domains are added for a Total Composite Severity Rating. Age group (18-69, 70-89) is taken into consideration. The Clock Drawing task is given a separate severity score. This rating can be used as a quick check of progress or decline.	Proprietary http://images.pearsonclinical.com/images/Assets/clqt/clqt.pdf
Stroke Impact Scale (SIS)	All disciplines	Body Function Activity Participation	A self-report on the a person's quality of life after a stroke, including strength, hand function, ADL's, mobility, communication, emotion, memory, thinking and participation.	Has been studied at 1, 3, and 6 months post-stroke	Scores range from 0 to 100, each item is rated in a 5-point Likert scale[1] **Score of zero**: "Experienced No Recovery **Score of 100:** Fully Recovered" "approximately 10 to 15 points appear to represent reasonable definitions of clinically meaningful change."	Proprietary. Access to the SIS can be found at: http://www.kumc.edu/school-of-medicine/preventive-medicine-and-public-health/research-and-community-engagement/stroke-impact-scale.html Instructions for administration of the SIS 3.0 is available online at http://www2.kumc.edu/coa/SIS/Stroke-Impact-Scale.htm. http://www.rehabmeasures.org

Standardized Assessments of Speech and Language	Primary Discipline	ICF Domain Body Function, Activity, or Participation	Purpose	Population Acuity (Acute, Subacute, Chronic)	Score Interpretation	Source of Information
Western Aphasia Battery Revised	SLP	Activity Participation	WAB-R assesses the linguistic skills most frequently affected by aphasia (Spontaneous Speech, Auditory Verbal Comprehension, Repetition, Naming and Word Finding), in addition to key nonlinguistic skills (Reading, Writing Apraxia, Constructional, Visuospatial, and Calculation), and provides differential diagnosis information. Includes the Bedside WAB-R which is a shorter & quicker version for limited time constraints.	All	Aphasia quotient (AQ) is measured from the linguistic tasks. If score >93.8 patient is not aphasic, score <93.8 pt is aphasic. AQ of 0-25 is very severe aphasia. AQ of 26-50 is severe. AQ of 51-75 is moderate. AQ of 76-93.8 is mild. Language Quotient is the combination of the linguistic tasks, Reading & Writing. Cortical Quotient is the combination of all tasks, including Apraxia and Constructional, Visuospatial, and Calculation. Classifies into 8 different aphasias (global, Broca's, mixed transcortical, Wernicke's, transcortical motor, transcortical sensory, conduction, anomia).	Proprietary www.asha.org/SLP/assessment medicalspeechpathology.wordpress.com Kertesz, Andrew M.D., F.R.C.P. (C). Western Aphasia Battery-Revised Examiner's Manual. San Antonio: Pearson, 2007. Print.

Standardized Assessments of **Swallow**	Primary Discipline	ICF Domain Body Function, Activity, or Participation	Purpose	Population Acuity (Acute, Subacute, Chronic)	Score Interpretation	Source of Information
Mann Assessment of Swallowing Ability (MASA)	SLP Physician	Body Function	Bedside assessment of swallowing function.	All	See separate score information attached**.	Proprietary http://shop.dysphagiasupply.com/searchquick-submit.sc?keywords=masa
Modified Barium Swallow Impairment Profile (MBSImP)	SLP	Body Function	Videofluoroscopy assessment of swallowing function.	All	SLP must complete specialized coursework and be certified in order to complete this assessment.	Proprietary www.northernspeech.com/MBSImp/
Swallowing Ability and Function Evaluation (SAFE)	SLP	Body Function	Bedside assessment of swallowing function.	All		Proprietary http://www.proedinc.com/customer/productView.aspx?ID=2162

*ALLEN COGNITIVE LEVELS

LEVELS 4 AND 5, TEACHING PATIENTS AND FOCUSING ON REHABILITATION, STRATEGIES, NEW LEARNING

Allen Level 5.6-6.0 (High 5; 6) = Independent

- Multitasking
- Understands secondary effects of actions
- Driving
- Planning ahead
- Abstract thinking

Allen Level 5.0-5.4 (Low 5) = Standby assist

- Trial and error problem solving, decreased generalization of new learning
- Lack of planning, may look somewhat impulsive at first
- Follows simple written instructions
- Self-centered socially

- Employable, with room for errors
- No driving; may need support for living at home

Allen Level 4.6-4.8 (High 4) =Min cognitive assist or intermittent verbal cues

- Follows calendar/schedule
- Striking, highly visible, bold cues in environment are helpful
- New learning of skills only if highly valued
- Reading comprehension is good but may skip portions
- Can live alone with daily check-ins, and in a structured routine

Allen Level 4.0-4.4 (Low4) = Min cognitive assist or intermittent verbal cues

- Very goal-directed and very routine; success with highly familiar tasks; pretty rigid in their activities
- Understands beginning, middle, end of activity
- Decent attention
- May ask for assistance when problems arise
- Responds to striking visual cues in visual space (2-4 feet and person next to them)

TEACHING STAFF AND CAREGIVERS AT LEVEL 3.8 AND UNDER, INSTEAD OF REHABILITATION WITH PATIENTS

Allen Level 3.6-3.8 (High 3) = Mod cognitive assist or constant/intermittent verbal cues and intermittent visual and/or tactile cues

- Sorts objects
- Notes results of actions
- Senses completing of an activity when materials are used up, but not before
- Poor processing

Allen Level 3.0-3.4 (Low 3) = Mod cognitive assist or constant verbal cues and intermittent visual and/or tactile cues

- Uses hands to manipulate objects
- Names familiar objects
- Uses different grasps appropriately
- Sustains action for at least a minute
- Poor processing
- Tunnel vision—visual field is about 14 inches directly in front of person

Allen Level 2.0-2.8 = Max assist or constant verbal, visual and tactile cues

- Sits unsupported; stands,walks, rocks, marches; uses objects for support when up
- Sings with intonation
- Slow performance
- Responds to yes/no regarding self and environment, comfort, hunger, etc.
- Need to gain the person's attention prior to any task

Allen Level 1.0-1.8 = Total assist or constant verbal, visual and tactile cues

- Responds to high contrast in senses
- Turns head to track
- Moves in bed to prevent discomfort
- Raises body parts from bed
- Needs very simple language from caregivers

****MASA SEVERITY GROUPINGS FOR DYSPHAGIA AND ASPIRATION**

	Dysphagia	Aspiration
Nil Abnormality Detected	≤ 178-200	≤170-200
Mild	≤ 168-177	≤149-169
Moderate	≤ 139-167	≤148
Severe	≤ 138	≤140