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**STROKE
SCREENINGS
AND SEVERITY
TOOLS FOR
LARGE VESSEL
OCCLUSIONS**

KEY TAKEAWAYS:

There are multiple tools you can use to assess a stroke, but currently there are no standards set out by the AHA/ASA for the use of one tool over the other.

Identifying a large vessel occlusion or severe stroke will help you to determine if the patient needs more advanced care at a Comprehensive Stroke Center or more basic care at an Acute Stroke Ready or Primary Stroke Center.

NOTE: Distance to these facilities is an important factor in determining where the patient should be sent.

The stroke screenings and severity tools included within this quick sheet are:

PREHOSPITAL STROKE SCREENINGS

Tools Include:

- Los Angeles Prehospital Stroke Scale (LAPSS)

LVO STROKE SEVERITY SCALES

Scales Include:

- Cincinnati Stroke Triage Assessment Tool (CSTAT)
- Rapid Arterial Occlusion Evaluation Scale (RACE)
- Field Assessment Stroke Triage for Emergency Destination (FAST-ED)
- NIH Stroke Scale (NIHSS)
- Los Angeles Motor Scale (LAMS)

STROKE SCREENING TOOL: LOS ANGELES PREHOSPITAL STROKE SCALE (LAPSS)

1	Age over 45 years	YES	NO
2	No prior history of seizure disorder	YES	NO
3	New onset of neurologic symptoms in last 24 hours	YES	NO
4	Patient was ambulatory at baseline prior to event	YES	NO
5	Blood glucose between 60 and 400	YES	NO

6 EXAM: look for obvious asymmetry

	NORMAL	RIGHT	LEFT
Facial smile or grimace:	Normal	Droop	Droop
Grip:	Normal	Weak Grip	Weak Grip
	Normal	No Grip	No Grip
Arm Weakness:	Normal	Drifts Down	Drifts Down
	Normal	Falls Rapidly	Falls Rapidly



STROKE SEVERITY SCALE: CINCINNATI STROKE TRIAGE ASSESSMENT TOOL (CSTAT)

*CSTAT positive if score is 2 or greater

- | | | | |
|----------|--|-----|----|
| 7 | Based on exam, patient has only unilateral (and not bilateral) weakness: | YES | NO |
| <hr/> | | | |
| 8 | If Yes (or unknown) to all items above LAPSS screening criteria met: | YES | NO |

If LAPSS criteria for stroke met, call receiving hospital with “CODE STROKE.”
If not, then return to the appropriate treatment protocol. (Note: the patient may still be experiencing a stroke even if LAPSS criteria are not met.)

ITEM	SCALE DEFINITION
CONJUGATE GAZE DEVIATION	<p>Normal: Absent</p> <p>Abnormal: Present–2 points</p>
LEVEL OF CONSCIOUSNESS FOLLOWS COMMANDS	<p>Normal: Answers questions correctly (Age or current month) AND Follows commands (close eyes, open and close hands)</p> <p>Abnormal: Incorrectly answers at least one question AND does not follow at least one command–1 Point</p>
ARM WEAKNESS	<p>Normal: Holds arms up for 10 seconds</p> <p>Abnormal: Cannot hold arms (either right, left or both) up for 10 seconds before arm(s) falls to bed–1 Point</p>

STROKE SEVERITY SCALE: RAPID ARTERIAL OCCLUSION EVALUATION SCALE (RACE)

ITEM	INSTRUCTION	RESULT	SCORE	NIHSS EQUIVALENT
FACIAL PALSY	Ask patient to show their teeth (smile)	<p>Absent (symmetrical movement)</p> <p>Mild (slight asymmetrical)</p> <p>Moderate to Severe (completely asymmetrical)</p>	<p>0</p> <p>1</p> <p>2</p>	0-3
ARM MOTOR FUNCTION	Extending the arm of the patient 90° (if sitting) or 45° (if supine)	<p>Normal to Mild (limb upheld more than 10 seconds)</p> <p>Moderate (limb upheld less than 10 seconds)</p> <p>Severe (patient unable to raise arm against gravity)</p>	<p>0</p> <p>1</p> <p>2</p>	0-4
LEG MOTOR FUNCTION	Extending the leg of the patient 30° (in supine)	<p>Normal to Mild (limb upheld more than 5 seconds)</p> <p>Moderate (limb upheld less than 5 seconds)</p> <p>Severe (patient unable to raise leg against gravity)</p>	<p>0</p> <p>1</p> <p>2</p>	0-4
HEAD & GAZE DEVIATION	Observe eyes and head deviation to one side	<p>Absent (eye movements to both sides were possible and no head deviation was observed)</p> <p>Present (eyes and head deviation to one side was observed)</p>	<p>0</p> <p>1</p>	0-2
APHASIA (R SIDE)	<p>Difficulty understanding spoken or written words. Ask patient to follow two simple commands:</p> <ol style="list-style-type: none"> 1. Close your eyes. 2. Make a fist. 	<p>Normal (performs both tasks requested correctly)</p> <p>Moderate (performs only 1 of 2 tasks requested correctly)</p> <p>Severe (Cannot perform either task requested correctly)</p>	<p>0</p> <p>1</p> <p>2</p>	0-2
AGNOSIA (L SIDE)	<p>Inability to recognize familiar objects. Ask patient:</p> <ol style="list-style-type: none"> 1. "Whose arm is this?" (while showing the affected arm) 2. "Can you move your arm?" 	<p>Normal (recognizes arm, and attempts to move arm)</p> <p>Moderate (does not recognize arm or is unaware of arm)</p> <p>Severe (does not recognize arm and is unaware of arm)</p>	<p>0</p> <p>1</p> <p>2</p>	0-2
<p>Any score above 4 is a Stroke Alert and high likelihood of an LVO</p>				

STROKE SEVERITY SCALE: FIELD ASSESSMENT STROKE TRIAGE FOR EMERGENCY DESTINATION (FAST-ED)

ITEM	FAST-ED SCORE	NIHSS SOURCE SCORE
FACIAL PALSY		
Normal or minor paralysis	0	0-1
Partial or complete paralysis	1	2-3
ARM WEAKNESS		
No drift	0	0
Drift or some effort against gravity	1	1-2
No effort against gravity or no movement	2	3-4
SPEECH CHANGES		
Absent	0	0
Mild to moderate	1	1
Severe, global aphasia, or mute	2	2-3
EYE DEVIATION		
Absent	0	0
Partial	1	1
Forced deviation	2	2
DENIAL/NEGLECT		
Absent	0	0
Extinction to bilateral simultaneous stimulation in only 1 sensory modality	1	1
Does not recognize own hand or orients only to one side of the body	2	2

STROKE SEVERITY SCALE: NIH STROKE SCALE (NIHSS)



1A / Level of Consciousness

- Alert; keenly responsive **0**
- Arouses to min or stimulation **+1**
- Requires repeated stimulation to arouse **+2**
- Movements to pain **+2**
- Postures or unresponsive **+3**

1B / Ask Month and Age

- Both questions right **0**
- 1 question right **+1**
- 0 questions right **+2**
- Dysarthric/Intubated/Trauma/Language Barrier **+1**
- Aphasic **+2**

1C / 'Blink Eyes' & 'Squeeze Hands' (Pantomime Commands if Communication Barrier)

- Performs both tasks **0**
- Performs 1 task **+1**
- Performs 0 tasks **+2**

2 / Test Horizontal Extraocular Movements

- Normal **0**
- Partial Gaze Palsy: can be overcome **+1**
- Partial Gaze Palsy: corrects with oculocephalic reflex **+1**
- Forced Gaze Palsy: cannot be overcome **+2**

3 / Test Visual Fields

- No visual loss **0**
- Partial Hemianopia **+1**
- Complete Hemianopia **+2**
- Patient is bilaterally blind **+3**
- Bilateral Hemianopia **+3**

Continue to next page for the remainder of NIHSS exam ►

STROKE SEVERITY SCALE: NIH STROKE SCALE (NIHSS) CONTINUED

4 / Test Facial Palsy (Use Grimace if Obtunded)

- Normal symmetry **0**
- Minor paralysis (flat nasolabial fold, smile asymmetry) **+1**
- Partial paralysis (lower face) **+2**
- Unilateral complete paralysis (upper/lower face) **+3**
- Bilateral complete paralysis (upper/lower face) **+3**

5A / Test Left Arm Motor Drift

- No drift for 10 seconds **0**
- Drift, but doesn't hit bed **+1**
- Drift, hits bed **+2**
- Some effort against gravity **+2**
- No effort against gravity **+3**
- No movement **+4**
- Amputation/joint fusion **0**

5B / Test Right Arm Motor Drift

- No drift for 10 seconds **0**
- Drift, but doesn't hit bed **+1**
- Drift, hits bed **+2**
- Some effort against gravity **+2**
- No effort against gravity **+3**
- No movement **+4**
- Amputation/joint fusion **0**

6A / Test Left Leg Motor Drift

- No drift for 5 seconds **0**
- Drift, but doesn't hit bed **+1**
- Drift, hits bed **+2**
- Some effort against gravity **+2**
- No effort against gravity **+3**
- No movement **+4**
- Amputation/joint fusion **0**

6B / Test Right Leg Motor Drift

- No drift for 5 seconds **0**
- Drift, but doesn't hit bed **+1**
- Drift, hits bed **+2**
- Some effort against gravity **+2**
- No effort against gravity **+3**
- No movement **+4**
- Amputation/joint fusion **0**

7 / Test Limb Ataxia (FNF/Heel-Shin)

- No Ataxia **0**
- Ataxia in 1 limb **+1**
- Ataxia in 2 limbs **+2**
- Does not understand **0**
- Paralyzed **0**
- Amputation/joint fusion **0**

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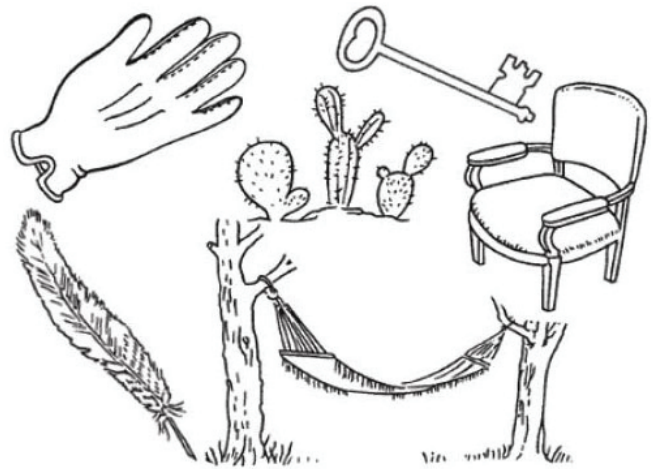
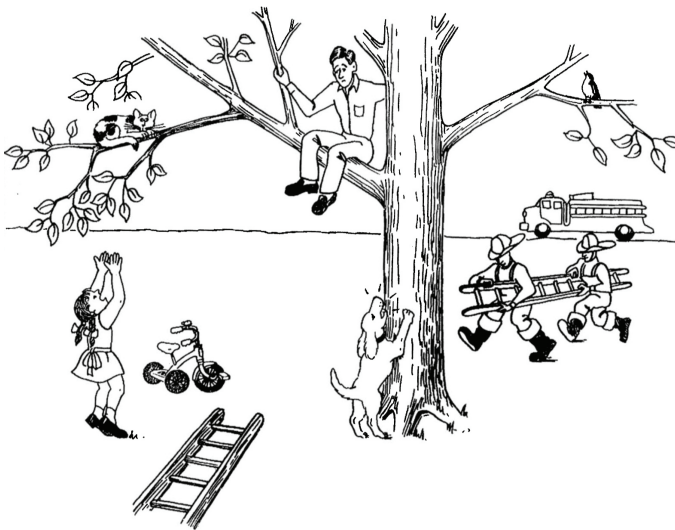
STROKE SEVERITY SCALE: NIH STROKE SCALE (NIHSS) CONTINUED

8 / Test Sensation

- Normal; no sensory loss **0**
- Mild-moderate loss: less sharp/more dull **+1**
- Mild-moderate loss: can sense being touched **+1**
- Complete loss: cannot sense being touched at all **+2**
- No response and quadriplegic **+2**
- Coma/unresponsive **+2**

9 / Test Language/Aphasia

Describe the scene; name the objects; read the sentences.



You know how.

Down to earth.

I got home from work.

Near the table in the dining room.

They heard him speak on the radio last night.

- Normal; no Aphasia **0**
- Mild-moderate Aphasia: some obvious changes, without significant limitation **+1**
- Severe Aphasia: fragmentary expression, inference needed, cannot identify materials **+2**
- Mute/global Aphasia: no usable speech/auditory comprehension **+3**
- Coma/unresponsive **+3**

Continue to next page for the remainder of NIHSS exam ►

STROKE SEVERITY SCALE: NIH STROKE SCALE (NIHSS) CONTINUED

10 / Test Dysarthria. Read the words.

MAMA

TOP – TOP

FIFTY – FIFTY

THANKS

HUCKLEBERRY

BASEBALL PLAYER

- Normal **0**
- Mild-moderate Dysarthria: slurring but can be understood **+1**
- Severe Dysarthria: unintelligible slurring or out of proportion to Dysphasia **+2**
- Mute/Anarthric **+2**
- Intubated/unable to test **0**

11 / Test Extinction/Inattention

- No abnormality **0**
- Visual/tactile/auditory/spatial/personal inattention **+1**
- Extinction to bilateral simultaneous stimulation **+1**
- Profound hemi-inattention (ex: does not recognize own hand) **+2**
- Extinction to >1 modality **+2**

STROKE SEVERITY SCALE: LOS ANGELES MOTOR SCALE (LAMS)

ITEM	SCALE DEFINITION	SCORE
FACIAL DROOP	Absent = 0 Present = 1	
GRIP STRENGTH	Normal = 0 Weak Grip = 1 No Grip = 2	
ARM DRIFT	Absent = 0 Drifts Down = 1 Falls Rapidly = 2	

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