# NIHSS Scoring Tips

**1a. Level of consciousness**

- Not UNtestable
- Use voice then touch to wake sleeping patient. May require vigorous stimulation.
- A 3 is scored only if the patient makes no movement (other than reflexive posturing) in response to noxious stimulation.

**1b. LOC questions**

- The answer must be correct. There is no partial credit for being close. The examiner should not "help" the patient with verbal or non-verbal cues.
- If their first answer is wrong and the next reply is correct, score the first answer.
- Patients will often give their date of birth in answer to the question of their age; this is wrong and needs to be scored as such.
- If the patient is non-English speaking, get a translator.
- If the patient can't speak, but is awake, ask him/her to write out the answers or point to a calendar.
- Patients unable to speak because of endotracheal intubation, orotracheal trauma, severe dysarthria from any cause, language barrier, or any other problem not secondary to aphasia are given a 1.
- Aphasic and stuporous patients who do not comprehend the questions will score 2.

**1c. LOC commands**

- The patient does not need to make a fist on both sides. Let the patient select which side to make a fist.
- Substitute another one step command if the hands cannot be used.
- Credit is given if an unequivocal attempt is made but not completed due to weakness.
- If the patient does not respond to command, the task should be demonstrated to him or her (pantomime), and the result scored.
- Only the first attempt is scored.

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**2. Best Gaze**

- Make sure the patient's eyes/face are midline and looking at you.
- Do not allow the patient to move his/her head.
- If patients have their eyes closed, hold their lids open.
- You are not testing nystagmus or vertical gaze.
- Gaze is testable in all aphasic patients.
- In patients with poor attention or who are aphasic, establish eye contact, walk around them, while trying to keep eye contact, to see if they follow you. If they follow you side to side with both eyes, their horizontal gaze is intact. Only follow with one eye = 1, gaze fixed with both eyes = 2. Trick – use a dollar bill, "snap it" and see if they will follow that side to side!

*✂-Cut out this square & use as a quick reference card.*

**NIHSS for the Aphasic Patient**

<u>1b: LOC Questions</u>
- Can write responses
- Can be given yes/no options
- Score 2 for those who do not comprehend

<u>2. Best Gaze</u>
- Establish eye contact and move around bed for tracking
- Can check by oculo-cephalic maneuver

<u>3. Visual</u>
- Testing visual quadrants "Point to hand when fingers move"
- Score 0 if they are able to look or point at the correct (moving) fingers

4<u>. Facial Palsy , 5 & 6 Limb Weakness, 7 Ataxia</u>
- Can pantomime directions

<u>7. Limb Ataxia</u>
- Score 0 if cannot understand the task

<u>8. Sensory</u>
- Can have them nod yes/no, ask if it feels the same on both sides
- Often score =0 as it is difficult to demonstrate severe/total sensory loss

<u>9. Language</u>
- Can write responses

<u>10. Dysarthria</u>
- Can have them repeat listed words after you read them
- Score of 2 if no intelligible speech or is mute

<u>11. Extinction</u>
- Have patient point to side being touched (right, left, or both)
- Have pt. point to side that finger moves for visual (right, left, or both)
- Score = 0 if they attend to both sides

- Patients with ocular trauma, bandages, pre-existing blindness, or other disorder of visual acuity or fields should be tested with reflexive movements, and a choice made by the investigator.
- You can also do the oculocephalic test in the comatose patient; this is never un-testable.
- Only horizontal eye movements will be tested. Voluntary or reflexive (oculocephalic) eye movements will be scored, but caloric testing is not done.
- If the patient has a conjugate deviation of the eyes at rest and can move the eyes laterally by voluntary or reflexive activity, the score =1.
- If the patient scored a 3 on 1A, then s/he will score a 2 here.

**3. Visual fields:**

- Cover the eye not being examined.
- Use finger counting when possible.
- Use finger wiggling for aphasic patients, less cooperative or patients who cannot see due to not having their glasses.
- If there is previous unilateral blindness or enucleation, score visual fields in the remaining eye.

**NIHSS for the Comatose Patient**

**1a = 3**
**1b = 2**
**1c = 2**
**2. Best Gaze**
- check oculo-cephalic reflex

**3. Visual**
- Use bilateral threat

**4. Facial Palsy**
- Look asymmetry and check to grimace with noxious stimulation

**5. & 6.**
- Reflexive posturing, score = 3
- no movement, score= 4

**7. Limb Ataxia**
- Untestable– score = 0

**8. Sensory**
- Arbitrary– score = 3

**9. Language**
- Arbitrary– score = 3

**10. Dysarthria**
- Arbitrary– score = 2

**11. Extinction**
- Arbitrary– score = 2

**NIHSS for the Intubated Patient**

**Sedation must be off to accurately measure*

**1a** = assess level of consciousness
**1b** = 1
**1c** = assess normally
**4** = ETT moved to the extent possible to assess
**9** = Patient may be allowed to write
**10** = Considered "untestable" score = 0
All other items tested as usual

- Visual threat / confrontation are used on obtunded or com atose patients.
- If there is extinction, patient receives a 1, and the results are used to respond to item 11.
- Score what you see. If the patient had visual deficits from a previous stroke or because s/he was blind before this encounter, do not give any "extra credit" for extenuating circumstances.
- If patient cannot open eyes, examiner may gently lift lids open for exam.

**4. Facial Palsy**

- Count teeth and wrinkles when you have difficulty telling if there is a deficit.
- Score symmetry of grimace in response to noxious stimuli in the poorly responsive or non-comprehending patient.
- If facial trauma/bandages, ETT, tape or other physical barriers obscure the face, these should be removed to the extent possible.
- Score a 2 if the patient can't open his/her mouth.
- Score 2 for mild upper and lower face weakness.
- Score a 3 if the patient doesn't do anything.

**5. Motor arm**

- Test each side separately.
- The examiner can/should assist the limb into the appropriate position. This item is testing if the patient can keep his/her arm there, not if s/he can lift it.
- Make sure you are in the patient's field of vision and have his/her attention before explaining/demonstrating the task.
- Make sure you give the patient verbal and visual cues with counting down (out loud) with your fingers.
- If the patient's arm falls immediately to the bed, ask the patient to try and lift his/her arm, wiggle fingers or shrug shoulder. This will help you distinguish between a 3 and a 4.
- If there is severe arthritis or a broken arm, you still need to test this. Score what you see, not what you think. Different observers will allow different degrees of 'extra credit' for pain, so to improve inter-rater reliability, just score what the patient actually does, regardless of the cause of the limited movement.
- If there is a contracture, don't try to straighten it out, just raise the limb to the appropriate degrees.
- The aphasic patient is encouraged using urgency in the voice and pantomime, but not noxious stimulation.

- Only in the case of amputation or joint fusion at the shoulder, the examiner should record the score as untestable (UN), and clearly write the explanation for this choice.

**6. Motor leg**

- Most of the same tips from #5 apply.
- If the patient's leg falls immediately to the bed, ask the patient to try and lift his/her leg, wiggle toes. This will help you distinguish between a 3 and a 4.
- Only in the case of amputation or joint fusion at the hip, the examiner should record the score as untestable (UN), and clearly write the explanation for this choice.

**7. Ataxia**

- If the patient scored a 2 or higher on weakness, s/he won't get points for ataxia.
- **Ataxia must be out of proportion to the weakness in order to be present.**
- Ataxia will usually be bilateral, whereas weakness is usually unilateral.
- Weakness comes from middle cerebral artery or anterior cerebral artery lesions; ataxia comes from posterior or basilar artery lesions. It's unlikely that the patient will have both. That's why ataxia has to be out of proportion to weakness in order to be present.
- Only in the case of amputation or joint fusion, the examiner should record the score as untestable (UN), and clearly write the explanation for this choice.
- In case of blindness, test by having the patient touch nose from extended arm position.
- Ataxia is absent in the patient who cannot understand or is paralyzed.

**8. Sensation:**

- This item is never untestable.
- Can be done with eyes open or closed. If the pt. closes his/her eyes, tell him/her which side you are touching.
- Use a blunt tipped needle or a "neuro-tip."
- For patients with limited speech, you may have to ask leading questions or even have them gesture with their hands.
- Test on upper arms and upper legs rather than hands and feet so if a patient has neuropathy, that condition won't interfere with the findings.
- With obtunded or receptive aphasic patients, use grimace or withdrawal to pinprick or other noxious stimuli to test.
- Keep it simple. No deficit is a 0 and severe deficit in arm plus leg is a 2. Everything else is a 1.
- Only sensory loss attributed to stroke is scored as abnormal and the examiner should test as many body areas (arms [not hands], legs, trunk, face) as needed to accurately check for hemisensory loss.

**9. Language:**

- Comprehension is judged from responses from these 3 pages (kitchen, objects, sentences), as well as to all of the commands in the preceding general neurological exam.
- The "tongue twister" page is saved for item 10 (dysarthria).
- Make sure the patient has his/her glasses on and is wearing hearing aids if needed.
- If the patient is illiterate or cannot read without his/her glasses, DO NOT have the patient repeat the sentences after you. You will have to omit reading the sentences. Repetition tests dysarthria (item #10) not the ability to process language.
- All language tests have an element of cultural bias in them. If the patient identifies the "cactus" as a "plant," that is ok.
- If visual loss interferes with the tests, ask the patient to identify objects placed in the hand, repeat, and produce speech.
- The intubated patient should be asked to write or point to the object being named.
- The comatose patient (item 1a=3) will automatically score 3 on this item.
- The examiner must choose a score for the patient with stupor or limited cooperation, but a score of 3 should be used only if the patient is mute and follows no one-step commands.
- Sometimes it helps to resort to a very simple rule: normal is 0, mute is 3, and everything else is either 1 or 2 depending on severity. You may have to score a 1 even though you suspect the cause is a nonstroke issue.

**10. Dysarthria:**

- Use the “tongue twister page” that starts with “Mama” to test this item.
- This item tests for clarity of speech—the actual motor function of getting the words out.
- Only if the patient is intubated or has other physical barriers to producing speech, the examiner should record the score as untestable (UN), and clearly write an explanation for this choice.
- Do not tell the patient why s/he is being tested.
- If the patient wears dentures and can wear them, ensure the dentures are in place to test this item.
- Score what you hear. If the patient had slurred speech from a previous stroke, s/he still scores for slurred speech. If the patient wears dentures and left them at home, score what you hear. You can always chart a comment that the family states, “This is what he sounds like without his dentures.” When the dentures are brought to the hospital, a comment can be added then to explain the improvement.
- For aphasic patients who can’t read the words or name things, listen to what words they are able to say to see if those are slurred.
- Especially living in the South, what you think may be slurred may just be an accent, so use those specific words on the form – you are often surprised it is not dysarthria, but just an accent.

**11. Neglect (Inattention or extinction):**

- You may use the information gained in Visual (3) or kitchen picture (9) and Sensory (8) to score this item, but if you are unsure, go ahead and repeat the test.
- If the patient can’t see out of a visual field, but tries to turn his/her head or attend to that side, the score is normal.
- If the patient is aphasic, you can have him/her point to/or touch the side(s) you are tapping or the side where a finger is moving.
- Make sure the eyes are closed when you are testing tactile stimuli.
- If the patient scored a 3 on 1A, s/he scores a 2 here.
- If the patient has aphasia but ***does*** appear to attend to both sides, the score is normal.
- The presence of visual spatial neglect or anosagnosia (condition in which an ill patient is unaware of her own illness or the deficits resulting from her illness) may also be taken as evidence of abnormality.
- Since the abnormality is scored only if present, the item is never untestable.

# NIH STROKE SCALE IN PLAIN ENGLISH

| Item | Scoring | Score |
|---|---|---|
| **1a. Level of Consciousness** | 0= Alert<br>1= Sleepy but arouses<br>2= Can't stay awake<br>3= No purposeful response | |
| **1b. Questions**<br>(month, age) | 0=Both correct<br>1=One correct /intubated<br>2=Neither correct | |
| **1c. Commands**<br>(Close eyes, make fist) | 0= Obeys both<br>1= Obeys one<br>2= Obeys neither | |
| **2. Lateral Gaze**<br>(Eyes open. Eyes follow examiners fingers/face side-to-side.) | 0= Normal side-to-side eye movement<br>1= Partial side-to-side eye movement<br>2= No side-to-side eye movement | |
| **3. Visual Fields**<br>(Cover 1 eye at a time, count 1/2/5 fingers/detect movement, 4 visual fields | 0= Normal visual fields<br>1= Blind upper **or** lower field one side (quarter)<br>2= Blind upper **&** lower field one side(half)<br>3= Blind in 1 or both eyes/4 fields | |
| **4. Facial Weakness**<br>(Smile/grimace, raise eyebrows, squeeze eyes shut) | 0= Normal<br>1= Mild one sided droop with smile<br>2= Partial (mild upper and lower)<br>3= Complete paralysis 1 or both sides | |
| **5a. Arm Weakness– Left**<br>**5b. Arm Weakness– Right**<br>(Pt. holds arm at 900 if sitting, 450 if supine for 10 sec.) | 0= No drift<br>1= Drifts down, does not hit bed<br>2= Drifts down to hit bed<br>3= Can move but can't lift<br>4= No movement<br>X=Untestable-joint fused/amp | Lt.<br>Rt. |
| **6a. Leg Weakness– Lt**<br>**6b. Leg Weakness– Rt**<br>(Pt. holds leg straight out if sitting, 300 if supine) 5 sec. | 0= No drift<br>1=Drifts down, does not hit bed<br>2= Drifts down to hit bed<br>3= Can move but can't lift<br>4= No movement<br>X= Untestable, joint fused, etc | Lt.<br>Rt. |
| **7. Ataxia (Coordination)**<br>Finger-to-nose, heel-to-shin. Score only if not caused by weakness. | 0= Normal or **no movement**<br>1= Clumsy in one limb*<br>2= Clumsy in two limbs*<br>*Out of proportion to weakness | |
| **8. Sensation (feeling)**<br>(Pin prick face, arm, leg – compare sides) | 0= Normal<br>1= Decreased sensation<br>2= Can't feel, no pain withdrawal | |
| **9. Speech (content)**<br>(Name objects, describe kitchen picture, read sentences.) Intubated pt can write. Give blind pt objects to name. | 0= Correct full sentences<br>1= Wrong or incomplete sentences<br>2= Words don't make sense<br>3= Can't speak at all | |
| **10. Speech (slurring)**<br>Slurring. (Listen to patient read/repeat tongue twister words) | 0= No slurring X= Intubated/physical barrier<br>1= Slurs but you can understand<br>2= Slurs and you can't understand **or** mute | |
| **11. Neglect**<br>(Ignores one side of body; test vision then test touch on both sides at once) | 0= Sees & feels when both sides tested at once.<br>1= Doesn't see **or** feel one side when tested at once<br>2= Doesn't see **&** feel one side when tested at once | |
| **Total Score:** | | |