

NIHSS**1.a. Level of Consciousness**

- 0: Alert
- 1: Not alert, but arousable with minimal stimulation
- 2: Not alert, requires repeated stimulation to attend
- 3: Coma

1.b. LOC questions (ask patient the month and her/his age)

- 0: Answers both correctly
- 1: Answers one correctly
- 2: Both incorrect

1.c. LOC commands (ask patient to open/close eyes & form/release fist)

- 0: Obeys both correctly
- 1: Obeys one correctly
- 2: Both incorrect

2. Best gaze (only horizontal eye movement)

- 0: Normal
- 1: Partial gaze palsy
- 2: Total gaze paresis or Forced deviation

3. Visual Field testing

- 0: No visual field loss
- 1: Partial hemianopia
- 2: Complete hemianopia
- 3: Bilateral hemianopia (blind including cortical blindness)

4. Facial Palsy (ask patient to show teeth/ raise eyebrows & close eyes tightly)

- 0: Normal symmetrical movement
- 1: Minor paralysis (flattened nasolabial fold, asymmetry on smiling)
- 2: Partial paralysis (total or near total paralysis of lower face)
- 3: Complete paralysis of one or both sides (absence of facial movement in the upper and lower face)

5a. Motor Function – Arm Right

- 0: Normal (extends arms 90° (or 45°) for 10 seconds without drift)
- 1: Drift
- 2: Some effort against gravity
- 3: No effort against gravity
- 4: No movement
- 9: Untestable (Joint fused or limb amputated) (*do not add score*)

5b. Motor Function – Arm Left

- 0: Normal (extends arms 90° (or 45°) for 10 seconds without drift)
- 1: Drift
- 2: Some effort against gravity
- 3: No effort against gravity
- 4: No movement
- 9: Untestable (Joint fused or limb amputated) (*do not add score*)

8. Sensory (use pinprick to test arms, legs, trunk and face- compare side to side)

- 0: Normal
- 1: Mild to moderate decrease in sensation
- 2: Severe to total sensory loss

9. Best Language (ask patient to describe picture, name items, read sentences)

- 0: No aphasia
- 1: Mild to moderate aphasia
- 2: Severe aphasia
- 3: Mute

10. Dysarthria (ask patient to read several words)

- 0: Normal articulation
- 1: Mild to moderate slurring of words
- 2: Near unintelligible or unable to speak
- 9: Intubated or other physical barrier (*do not add score*)

11. Extinction and inattention (formerly Neglect) (use visual or sensory double stimulation)

- 0: Normal
- 1: Inattention or extinction to bilateral simultaneous stimulation in one of the sensory modalities
- 2: Severe hemi-inattention or hemi-inattention to more than one modality

6a. Motor Function – Leg Right

- 0: Normal (hold leg in 30° position for 5 sec without drift)
- 1: Drift
- 2: Some effort against gravity
- 3: No effort against gravity
- 4: No movement
- 9: Untestable (Joint fused or limb amputated) (*do not add score*)

6b. Motor Function – Leg Left

- 0: Normal (hold leg in 30° position for 5 sec without drift)
- 1: Drift
- 2: Some effort against gravity
- 3: No effort against gravity
- 4: No movement
- 9: Untestable (Joint fused or limb amputated) (*do not add score*)

7. Limb Ataxia

- 0: No ataxia
- 1: Present in one limb
- 2: Present in two limbs

Stroke severity**NIHSS classification**

- No neurological symptoms
- Mild neurological deficit (NIHSS 0-5)
- Moderate neurological deficit (NIHSS 6-11)
- Severe neurological deficit (NIHSS 12-18)
- Very severe neurological deficit (NIHSS 19-)

Stroke diagnosis

Ischaemic stroke

- I63.0: Cerebral infarct, large vessel disease with significant carotid stenosis (>50% NASCET)
- I63.3: Cerebral infarct, other large vessel disease
- I63.4: Cerebral infarct, cardiac emboli
- I63.5: Cerebral infarct, small vessel/lacunar
- I63.6: Cerebral infarct, sinus venous thrombosis
- I63.8: Cerebral infarct, other/unusual cause
- I63.9: Cerebral infarct, multiple/unknown cause

TIA

- G45.0: Vertebral artery TIA (posterior circulation)
- G45.1: Carotid artery TIA (anterior circulation)
- G45.2: Multiple/bilateral TIA
- G45.3: Amaurosis fugax/Monocular blindness
- G45.9: TIA, not able to specify

Haemorrhagic stroke

- I61.0: Intracerebral haemorrhage in cerebral hemisphere
- I61.1: Superficial intracerebral haemorrhage in cerebral hemisphere
- I61.2: Brain stem haemorrhage
- I61.4: Cerebellar haemorrhage
- I61.5: Intraventricular haemorrhage
- I61.6: Intracerebral haemorrhage, multiple location
- I61.8: Intracerebral haemorrhage, other type
- I61.9: Intracerebral haemorrhage, unknown type

Subarachnoid haemorrhage

- ICD 160.9: Unspecified

Atrial fibrillation diagnosis

Atrial fibrillation

- I48.0: Paroxysmal atrial fibrillation
- I48.1: Persistent atrial fibrillation
- I48.2: Chronic atrial fibrillation
- I48.3: Typical atrial flutter
- I48.4: Atypical atrial flutter
- I48.9: Unspecified atrial fibrillation and atrial flutter

Modified Rankin Scale

mRS score before stroke (*Baseline*)

- 0: No symptoms at all
- 1: No significant disabling symptoms
- 2: Slight disability, but does not require substantial help from other person, can walk
- 3: Moderate disability, requires substantial help from other person, can walk
- 4: Moderately severe disability, requires substantial help from other person, unable to walk
- 5: Severe disability, bedbound

mRS score (*7D/Discharge and 3M*)

- 0: No symptoms at all
- 1: No significant disabling symptoms
- 2: Slight disability, but does not require substantial help from other person, can walk
- 3: Moderate disability, requires substantial help from other person, can walk
- 4: Moderately severe disability, requires substantial help from other person, unable to walk
- 5: Severe disability, bedbound
- 6: Dead
- 7: Alive, mRS not known

Brain imaging guidelines

Baseline readings

The CT/MRI scans should be evaluated with respect to haemorrhage, any decrease in x-ray attenuation indicating a major acute ischaemic

Day 1 readings

Between 22-36 hours after start of treatment or earlier if clinically indicated.

The CT/MRI scans should be evaluated with respect to infarct size

Intracerebral haemorrhage, ICH – To be classified according to the following definitions:

- HI 1** Small petechiae along the margins of the infarct
- HI 2** A more confluent petechiae within the infarct area but without space-occupying effect
- PH 1** Blood clot(s) not exceeding 30% of the infarct area with some mild space-occupying effect
- PH 2** Blood clots exceeding 30% of the infarct area with significant space occupying effect
- PHr 1** Small or medium sized blood clots located remote from the actual infarct; a mild space occupying effect could be present
- PHr 2** Large confluent dense blood clots in an area remote from the actual infarct; significant space occupying effect may be present

Cerebral oedema, COED – To be classified according to the following criteria:

- COED 1** Focal brain swelling up to one third of the hemisphere
- COED 2** Focal brain swelling greater than one third of the hemisphere
- COED 3** Brain swelling with midline shift

If CT or MR angiography has been performed at baseline, a follow up examination is preferred at day 1

Localizations (of occlusions and stenosis)**Left side**

Left – ICA – C1 Cervical
Left – ICA – C2 Petrous
Left – ICA – C3 Lacerum
Left – ICA – C4 Cavernous
Left – ICA – C5-7 Intradural
Left – ICA – T-occlusion
Left – ICA – unspecified
Left – MCA – M1
Left – MCA – Bi/trifurcation
Left – MCA – M2 – Frontal
Left – MCA – M2 – Temporal
Left – MCA – M2 – Additional
Left – MCA – M2 – unspecified
Left – MCA – M3
Left – MCA – unspecified
Left – ACA – A1
Left – ACA – A2
Left – ACA – unspecified
Left – Vertebralis – V0 Origin
Left – Vertebralis – V1 Preforaminal
Left – Vertebralis – V2 Foraminal
Left – Vertebralis – V3 C2-Dura
Left – Vertebralis – V4 Intradural
Left – Vertebralis – unspecified
Left – PCA – P1
Left – PCA – P2
Left – PCA – P3
Left – PCA – unspecified
Left – CCA

No side

Basilaris – Proximal 1/3
Basilaris – Middle 1/3
Basilaris – Distal 1/3
Basilaris – unspecified

Territories**Left side (CT)**

Left – MCA territory
Left – ACA territory
Left – PCA territory
Left – Internal border zone infarcts
Left – Cortical border zone infarcts

Left side (MR)

Left – MCA territory
Left – ACA territory
Left – PCA territory
Left – Internal border zone infarcts
Left – Cortical border zone infarcts
Left – Pial artery territory infarcts
Left – Small cortical and/or subcortical infarcts
Left – Deep penetrating artery territory infarcts

Right side

Right – ICA – C1 Cervical
Right – ICA – C2 Petrous
Right – ICA – C3 Lacerum
Right – ICA – C4 Cavernous
Right – ICA – C5-7 Intradural
Right – ICA – T-occlusion
Right – ICA – unspecified
Right – MCA – M1
Right – MCA – Bi/trifurcation
Right – MCA – M2 – Frontal
Right – MCA – M2 – Temporal
Right – MCA – M2 – Additional
Right – MCA – M2 – unspecified
Right – MCA – M3
Right – MCA – unspecified
Right – ACA – A1
Right – ACA – A2
Right – ACA – unspecified
Right – Vertebralis – V0 Origin
Right – Vertebralis – V1 Preforaminal
Right – Vertebralis – V2 Foraminal
Right – Vertebralis – V3 C2-Dura
Right – Vertebralis – V4 Intradural
Right – Vertebralis – unspecified
Right – PCA – P1
Right – PCA – P2
Right – PCA – P3
Right – PCA – unspecified
Right – Truncus
Right – CCA

Right side (CT)

Right – MCA territory
Right – ACA territory
Right – PCA territory
Right – Internal border zone infarcts
Right – Cortical border zone infarcts

Right side (MR)

Right – MCA territory
Right – ACA territory
Right – PCA territory
Right – Internal border zone infarcts
Right – Cortical border zone infarcts
Right – Pial artery territory infarcts
Right – Small cortical and/or subcortical infarcts
Right – Deep penetrating artery territory infarcts

Type of stenosis/occlusion

Types

Atherosclerotic
Dissection
Other (please specify which)
Unknown

TICI score

Before intervention (*Baseline, Treatment, Free*)

Occlusion (Grade 0/1)
Partial filling (<50%) of the entire vascular territory (Grade 2a)

After intervention (*Treatment*)

No perfusion (Grade 0)
Penetration with minimal perfusion (Grade 1)
Partial filling (Grade 2)
Partial filling (<50%) of the entire vascular territory (Grade 2a)
Partial filling (50-100%), may be slowed distal filling (Grade 2b)
Complete perfusion (Grade 3)

After intervention (*24h*)

Occlusion (Grade 0/1)
Partial filling (<50%) of the entire vascular territory (Grade 2a)
Perfusion (Grade 2b/3)

TIBI score

Absent (Grade 0)

- Absent flow signals are defined by the lack of regular pulsatile flow signals despite varying degrees of background noise

Minimal (Grade 1)

- Systolic spikes of variable velocity and duration
- Absent diastolic flow during all cardiac cycles based on a visual interpretation of periods of no flow during end diastole.
Reverberating flow is a type of minimal flow

Blunted (Grade 2)

- Flattened systolic flow acceleration of variable duration compared to control
- Positive end diastolic velocity and pulsatility index < 1.2

Dampened (Grade 3)

- Normal systolic flow acceleration
- Positive end diastolic velocity
- Decreased mean flow velocities (MFV) by >30% compared to control

Stenotic (Grade 4)

- MFV of >80 cm/s AND velocity difference of >30% compared to the control side or
- if both affected and comparison sides have MFV <80 cm/s due to low end-diastolic velocities, MFV >30% compared to the control side AND signs of turbulence

Normal (Grade 5)

- <30% mean velocity difference compared to control
- Similar waveform shapes compared to control