



# PHYSICAL AND NEUROLOGICAL EXAM - OTHER

ID NUMBER:

FORM CODE 

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DATE: 06/01/2011  
Version 1.0

## ADMINISTRATIVE INFORMATION

0a. Completion Date:  /  /   
Month Day Year

0b. Staff ID:   
Integer

### General Instructions:

*This form is to be completed by the clinician or other trained health professional.*

## A. STRENGTH

1) Right Leg .....

- 0.....Normal
- 1.....Abnormal mild weakness(4/5)
- 2 .....Abnormal moderate weakness (3/5)
- 3 .....Abnormal severe weakness (2/5)
- 8 .....Untestable

2) Left Leg.....

- 0.....Normal
- 1.....Abnormal mild weakness(4/5)
- 2 .....Abnormal moderate weakness (3/5)
- 3 .....Abnormal severe weakness (2/5)
- 8 .....Untestable

3) Right Arm.....

- 0.....Normal
- 1.....Abnormal mild weakness(4/5)
- 2 .....Abnormal moderate weakness (3/5)
- 3 .....Abnormal severe weakness (2/5)
- 8 .....Untestable

- 4) Left Arm .....
- 0.....Normal
  - 1.....Abnormal mild weakness(4/5)
  - 2 .....Abnormal moderate weakness (3/5)
  - 3 .....Abnormal severe weakness (2/5)
  - 8 .....Untestable

**B. REFLEXES**

- 5) Deep Tendon Reflexes .....
- 0..... Normal
  - 1..... Increased in leg only
  - 2 .....Generalized increase
  - 3 .....General decrease (mostly distally)
  - 4 .....Increase proximally and depressed distally
  - 5..... Increased one side
  - 6..... Depressed or absent ankle jerks only
  - 7.....Other
  - 8.....Untestable

**C. GAZE**

**“Follow the tip of my finger as I test your eyes moving from side to side.”**

Test horizontal eye movement, moving finger across the visual field twice (right to left, and left to right).

- 6) What was the best gaze score? .....
- 0.....Normal
  - 1.....Partial gaze palsy (decreased lateral movement of one or both eyes)
  - 2.....Forced deviation, or total gaze paresis (failure of both eyes voluntarily to move to one side, or both sides, beyond the midline)
  - 8.....Not tested

**D. VISUAL**

**“During this next test, I want you to look me right in the eye. Tell me which finger is moving: left, right, or both.”** Test upper and lower quadrants separately.

Perform double simultaneous stimulation last (if extinction, score 1 and note on question 9).

- 7) What was the visual score? .....
- 0 ..... No visual field loss
  - 1 ..... Partial hemianopia (reduced vision in one quadrant, or extinction)
  - 2 ..... Complete hemianopia (reduced vision in entire half of one visual field)
  - 3 ..... Bilateral hemianopia (blindness from any cause)
  - 8 ..... Not tested

## E. FACIAL PALSY

**“Next, I am going to test the movement of your face. Look right at me. Now, give me a big smile. Show me your teeth. Now, squeeze your eyes shut tightly. Raise your eyebrows as high as you can.”** Pantomime as needed.

8) What was the facial palsy score? .....

- 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)
- 8.....Not tested

## F. LIMB ATAXIA

**“Now, I am going to test coordination in your arms and legs. First, I want you to touch my finger with your pointing finger, back to your nose, back to my finger, and back to your nose.”**

Perform with each arm. Make sure testing is performed in the participant's intact visual field. Ataxia is absent in the case of aphasia or paralysis. Ataxia is present when the subject's finger fails to accurately hit either the examiner's finger or subject's nose or when the finger oscillates noticeably (a “terminal tremor”) when it approaches either the examiner's finger or the subject's nose.

9) Limb ataxia score

a) Is ataxia present in the right arm?.....

- 1.....Yes
- 2.....No
- 3.....Amputation or joint fusion (Explain: \_\_\_\_\_)

b) Is ataxia present in the left arm?

- 1.....Yes
- 2.....No
- 3.....Amputation or joint fusion (Explain: \_\_\_\_\_)

**“Now, I am going to hold your left leg (*just below knee level*) off of the ground. I want you to take your right heel and place it on your left knee, slide your heel down your shin, and then slide it back to your knee.”** Perform with each leg. Movement should be straight along the shin. Ataxia is present when the heel cannot stay in a straight line and wobbles from side to side during the movement.

c) Is ataxia present in the right leg? .....

- 1.....Yes
- 2.....No
- 3.....Amputation or joint fusion (Explain: \_\_\_\_\_)

d) Is ataxia present in left leg?.....

1.....Yes

2.....No

3.....Amputation or joint fusion (Explain: \_\_\_\_\_)

### G. SENSORY

**“Next, I want you to close your eyes, and I will touch you lightly. I want you to tell me where you feel me touching you with my finger.”** Only arms and legs will be tested. Do not test through clothing. A different safety pin is used with each participant. Applying just enough force so that the pin will feel sharp, touch to pin to each mid-forearm 3 times, individually, and ask: **“Does that feel sharp like a pin?”**

10) What was the sensory score? .....

0.....Normal; no sensory loss

1.....Mild to moderate sensory loss; participant feels the touch of a finger but sensation is decreased in one area or one side of the body, or pin does not feel sharp.

2.....Severe to total sensory loss; participant is not aware of being touched on the arm or leg on either or both sides, with either a finger or pin.

8.....Not tested

### H. EXTINCTION AND INATTENTION (or neglect)

*Sufficient information to identify visual neglect will already be known from previous testing of vision (e.g. extinction to visual stimulation in section B). Blindness, but normal cutaneous response, is scored 0.* Using the examiner’s fingertips, touch each forearm at the same time, i.e., simultaneous stimulation) Ask, **“Which side did I touch you on - right, left, or both?”** Repeat for the legs at the outer shin, midway between knee and ankle. Identifying each side when stimulated separately, but not together, is called sensory extinction.

11) What was the Extinction and Inattention score? .....

0.....No abnormality

1.....Visual or sensory inattention or extinction to bilateral simultaneous stimulation

2.....Profound hemi-inattention or hemi-inattention to more than one modality.  
Does not recognize own hand or orients to only one side of space.

8.....Not tested

**I. BEST LANGUAGE**

*Observed from previous interactions.*

12) What was the best language score? .....

- 0.....No aphasia, normal
- 1.....Mild to moderate aphasia; some obvious loss of fluency or facility of comprehension, without significant limitation on ideas expressed or form of expression. Reduction of speech and/or comprehension, however, makes conversation about provided material difficult or impossible.
- 2.....Severe aphasia; all communication is through fragmentary expression; great need for inference, questioning, and guessing by the listener. Range of information exchange is limited; listener carries burden of communication.
- 3.....Mute, global aphasia; no usable speech or auditory comprehension.
- 8 .....Not tested

**J. BABINSKI**

13) Plantar Response.....

- 1.....Extensor (upgoing)
- 2.....Flexor (downgoing)
- 3.....No response



## INSTRUCTIONS FOR THE PHYSICAL AND NEUROLOGIC EXAM (PNE) FORM

### I. General Instructions

Prior to training for the “Physical and Neurological” Exam form, all examiners should complete the online training module for the National Institutes of Health Stroke Scale (NIHSS); the Physical and Neurological Exam form consists of many, but not all parts, of the NIHSS, and grading for those shared items is done in the same way as for the NIHSS. The online training module, offered by the American Heart Association, is at the following site:

<http://learn.heart.org/ihtml/application/student/interface.heart2/nihss.html>

Examiners should take the online training certification course, and send certificates from completion of the course to the Coordinating Center.

The Physical and Neurological Exam includes components of the neurologic exam not covered in the UPDRS, but that might indicate that an individual has had a stroke (even if he or she did not know about it). In addition, there are other examination components (that are not part of the formal NIHSS) that would identify other types of brain injury or asymmetry between the two halves of the brain.

In general, the examination should be performed with the participant seated on the edge of the examination table, with legs dangling over one side. If a participant cannot sit in this way, he or she can lie down on the examination table and be examined that way. If this portion of the examination is performed before the UPDRS, the participant should be asked to remove his or her socks and shoes before doing this examination. Other clothing can remain on.

### II. Detailed Instructions for each Item

0a. Enter the date on which the participant was seen in the clinic.

0b. Enter the staff ID for the person who completed this form.

#### A. STRENGTH

1-4. For each limb, strength is tested to determine if there is any difference between the two sides, as is sometimes seen in stroke. Although for the NIHSS online training, the participant is asked to hold an arm or leg up for 10 or 5 seconds, more detailed strength testing is required in this examination. First, ask the participant to lift his or her leg up, one leg at a time, bending at the hip, and say, “Hold your leg up as hard as you can; don’t let me push down your leg”. With one hand, the examiner should press down against the leg as hard as he or she can. The same thing should then be done for the lower part of the leg: hold the participant’s knee, and ask him or her to kick out as hard as he or she can, while pushing against the lower leg, toward the examination table (do for each leg separately). Finally, ask the participant to bend the knee back, as hard as possible, while holding the knee and trying to pull the lower leg out. The strength for these three ways to test leg strength should be scored for the weakest of the muscle groups. If the strength at the hip is much weaker than the leg, then score the item based on the hip strength, unless limitation for one of those strength tests is due to pain or arthritis or other limitation in movement: if this is the case, base strength rating on the muscles most easily and comfortably tested.

For arm strength, ask the participant to hold up his or her arms out to the sides, and demonstrate how you would like it done: with elbows flexed, out like chicken wings. Ask the participant to keep them up as hard as he or she can, and then press down against the arms, trying to push them towards the participant’s sides. Then ask the participant to “make a muscle”, holding the arms, one at a time, in front, with the elbows flexed. The examiner should put one

hand on the participant's elbow and use the other to resist the participant's movements: first, ask him or her to pull the arm in as if he or she were making a muscle, and then ask him or her to straighten the arm out, while trying to push it in. Again, the total strength should reflect the weakest muscle group, unless testing is limited of that one group for mechanical or pain reasons.

Scoring of muscle strength is on the following scale: if strength is normal (the examiner cannot overcome the participant's strength at all), it is rated as "normal". If there is some weakness, but still a significant effort beyond that just of gravity, so that the examiner can overcome the participant's effort, it should be rated as abnormal mild weakness (4/5). If the participant can overcome gravity (for instance, lift the legs up at the hip), but cannot overcome any resistance from the examiner at all, it should be rated as a 3/5 (abnormal moderate weakness). If there is some movement of the muscle but it can only be detected if the participant turns so that he or she doesn't have to overcome gravity (for instance, the participant can't pull the arm up into a muscle with flexion at the elbow, but if the examiner holds up the elbow and turn the lower part of the arm inwards, the participant can bend the elbow that way), it should be rated as a 2/5 (abnormal severe weakness). It should only be rated as "untestable" if there is a mechanical reason why limb strength cannot be tested. In the event a participant has an above-knee amputation, the hip strength can still be tested on that side.

## **B. REFLEXES**

5. Deep tendon reflexes are the typical automatic reflexes that go through the spinal cord, never passing signal through the brain. When someone has a stroke or any other kind of brain or spinal cord injury, however, the reflexes can be affected because normally the brain inhibits the activity of a spinal deep tendon reflex. For this examination, reflexes can be tested in 3 places, using a reflex hammer (preferably a Babinski hammer): 1) the knees; 2) the back of the ankles; and 3) the inside of the elbow (the biceps tendon). The participant should be asked to completely relax, and then the examiner should feel at the participant's knee for the patellar tendon, which extends down from the kneecap, and then the reflex hammer should be gently tapped on this tendon. A normal response is extension of the leg. To test the ankle reflex, with the legs hanging down, the examiner should very gently dorsiflex the foot (bending whole foot so toes point upwards- should be a very small movement) and then gently tap with the reflex hammer on the Achilles tendon at the back of the ankle. A normal reflex should cause the foot to plantar flex (the foot should bend down as if stepping on the gas). Many older people have absent ankle jerk reflexes. Finally, the examiner should feel for the biceps tendon on the inside of the elbow, place his or her finger over that tendon, and tap onto the finger, which should lead to the muscle to contract by bending the arm at the elbow. Scoring is based on the pattern of reflexes overall: normal means all reflexes tested respond normally. A "hyperactive" or increased reflex means that the reflex leads to a continued jumping of the joint being tested, or testing a reflex on one side leads to one on the other side or at another joint to also contract (for instance, tapping the right knee leads to both knees extending out). Some people have jumpier reflexes than others, but to be considered abnormally active, one of these things just described has to occur. If the reflexes are absent, the participant can be asked to clench his or her jaw, and then the reflex should be retested, because sometimes reflexes can be brought out more that way: that would be rated as a "decreased" reflex, as would an absent reflex at a joint.

## **C. GAZE**

6. Only horizontal eye movements will be tested. Voluntary eye movements will be scored. The examiner should ask the participant to look at his or her finger, which should be raised about 1-1.5 feet in front of the participant, in the center, and then slowly moved from side to side.

Remind the participant to keep his or her eye on the finger if the participant is not cooperating. If the participant is not able to cooperate at all, the examiner should establish eye contact with the participant and then move about the participant from side to side to see if gaze follows the examiner in all directions of movement. To rate the gaze as “normal”, the eyes should be able to reach all the way to the sides, in both directions.

#### **D. VISUAL FIELDS**

7. Ask the participant to look directly at the nose of the examiner, and keep gaze fixed there. The examiner should lift up one pointer finger on each hand, and lift them up towards the sides of the participant, approximately one foot away from the participant. First the examiner should test the lower visual fields (fingers can be approximately chest-high), wiggling one finger and then the other, and asking the participant to point to or state on which side the finger is moving. Then move the fingers up, to above head-level, and do the same thing. Test for left, right, and both. If the participant correctly states “left” and “right”, each, but when both wiggle only says or points to the “left” or “right”, score a “visual or sensory inattention or extinction” for item H. Extinction and Inattention. Many participants need to be reminded to look straight at the examiner’s nose, and not look in the direction of the wiggling fingers.

#### **E. FACIAL PALSY**

8. The examiner should ask, or pantomime for the participant, to smile and show teeth or raise eyebrows and close eyes. The participant should be asked to squeeze his or her eyes shut as tightly as possible, as if keeping soap out, and the examiner should try to pull the eyelids open. If strength is full, the examiner should not be able to pull the eyelids open if the participant is giving full effort. This should be rated based on extent of symmetry.

#### **F. LIMB ATAXIA**

- 9a-d The examiner should ask the participant, with both eyes open, to touch his or her nose, and then touch the examiner’s finger, which should be placed in front of the participant, and then back to nose and back to finger. Each side should be done separately. The examiner’s finger should be placed a full arm’s length away so the participant has to fully extend his or her arm to touch it. If the participant does not understand or is paralyzed, the ataxia score should be scored as “no”. Ataxia is rated as “present” when the participant’s finger fails to accurately hit either the examiner’s finger or the participant’s nose, or when the finger oscillates noticeably when it approaches either of these targets.

To test for ataxia in the legs, the participant should be asked to lift his or her right heel, touch it to the left knee, and then slide it down the shin and then back up to the knee. The same should be done for the opposite side. If the heel cannot stay in a straight line, it should be scored as a “yes” for ataxia in that leg.

#### **G. SENSORY**

10. The examiner should state, “Next, I want you to close your eyes, and I will touch you lightly. I want you to tell me where you feel me touching you”, and touch skin (not through clothing) with a light touch with the examiner’s fingers. Then repeat using a safety pin ( a different pin for each participant). This should be examined on each foot, each shin, and each arm.

#### **H. EXTINCTION OR INATTENTION (OR NEGLECT)**

11. This can be scored as present based on the visual field testing, if the participant fails to identify a finger wiggling when there is one on the other side being wiggled at the sametime. Extinction and neglect occur, usually when a patient has a stroke in the nondominant parietal lobe of the brain, and refers to decreased awareness of one side of one’s body in space. Profound hemiattention would be detected by casual observation (the participant not paying any attention



to one side of the room or him or herself, only looking in the other direction), and in addition, more subtle extinction can be tested. The examiner should ask the participant to close his or her eyes, and lift up the hand that is being touched. Touch one hand, and then the other, and then touch both. Sensory extinction is coded as present if the participant can feel the touch when only the one hand is touched, but no longer seems to feel it when both hands are touched.

## **I. BEST LANGUAGE**

12. A great deal of information about comprehension will be obtained during the preceding sections of the examination. The participant is asked to describe what is happening in a standard picture, to name a set of a standard items, and to read from a list of a standard sentences. Have the participant name all items and read all sentences. Comprehension is judged from responses here as well as to all of the commands in the preceding general neurological exam. If visual loss interferes with the tests, ask the participant to identify objects placed in the hand, repeat, and produce speech. The examiner must choose a score in the participant with stupor or limited cooperation but a score of 3 should be used only if the participant is mute and follows no one step commands.

Comments: It is anticipated that most examiners will be ready to score this item based on information obtained during the history taking and the eight prior items. This test therefore should be used to confirm your impression. It is common to find unexpected difficulties when the formal testing is done, and therefore every participant must be tested with the picture, naming sheet, and sentences. The score of 3 is reserved for the globally mute participant. Mild aphasia would score a 1. To choose between a score of 1 or 2 use all the provided materials; it is anticipated that a participant who missed more than two thirds of the naming objects and sentences or who followed only very few and simple one step commands would score a two. This item is an exception to the rule that the first response is used, since several different tools are used to assess language.

## **J. BABINSKI**

13. The Babinski response (reflex) is a primitive reflex (present in newborn babies) that, if present in adults, indicates injury somewhere in the brain or spinal cord. People who have had strokes occasionally have a Babinski reflex. To elicit the reflex, the bottom of the foot should be scraped, usually with the bottom tip of the reflex hammer. Tell the participant that it may tickle, and then, on the bare foot, gently scrape starting on the outer edge of the sole of the foot, moving towards but not to the toes, and then cross over just under the toes towards the inner part of the sole of the foot. See below: a "positive" Babinski, also called an "Extensor" response (on our form) is when the big toe points upwards, and an absent Babinski is a flexor response, or downgoing toe. If the person is very ticklish and pulls the whole leg away, this would not represent an "extensor" or positive reflex.

