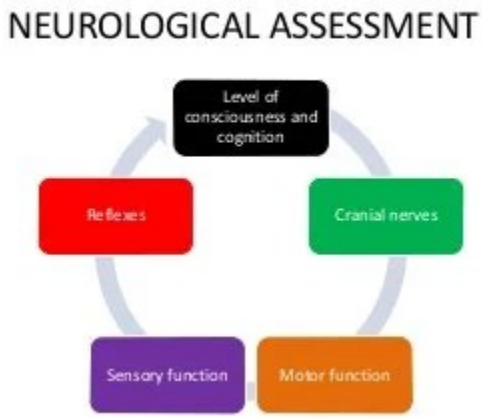
Neuro Assessment Manual

PURPOSE: A neuro assessment determines if a patient is functioning and responding appropriately. Not every patient needs a thorough neuro assessment, but its your job to figure out who does.

When assessing the neurologic system, begin with the highest level of neurologic function and work down to the lowest: starting with mental status and speech and ending with reflexes.



As a student and as a nurse, you will hear and see many different types of neuro assessments. Below you will find examples of some different types.

#1 Glascow Coma Scale (GCS). This is the most widely used assessment tool to determine a patient's *level of consciousness*. (LOC)

Glasgow Coma Scale		
Response	Scale	Score
Eye Opening Response	Eyes open spontaneously	4 Points
	Eyes open to verbal command, speech, or shout	3 Points
	Eyes open to pain (not applied to face)	2 Points
	No eye opening	1 Point
Verbal Response	Oriented	5 Points
	Confused conversation, but able to answer questions	4 Points
	Inappropriate responses, words discernible	3 Points
	Incomprehensible sounds or speech	2 Points
	No verbal response	1 Point
Motor Response	Obeys commands for movement	6 Points
	Purposeful movement to painful stimulus	5 Points
	Withdraws from pain	4 Points
	Abnormal (spastic) flexion, decorticate posture	3 Points
	Extensor (rigid) response, decerebrate posture	2 Points
	No motor response	1 Point
Minor Brain Injury = 13-15 points; **Moderate Brain Injury** = 9-12 points; **Severe Brain Injury** = 3-8 points		

#2 NIHSS: An assessment specific to strokes, the National Institutes of Health Stroke Scale (NIHSS) is a systematic tool that provides a quantitative measure of *stroke-related neuro deficit.* The NIHSS is a 15-item neuro exam stroke scale used to evaluate the effect of acute cerebral infarction on the levels of consciousness, language, neglect, visual-field loss, extraocular

movement, motor strength, ataxia, dysarthria, and sensory loss. This is generally performed by an ER or ICU nurse during a stroke alert and then during intermittently during the course of the patient's stay. This is an in-depth assessment and requires training, therefore as a student you will not be performing this test, but should be familiar with what it is as well as when and why it is used.

#3 Mini Mental Status Exam (MMSE): is a tool that can be used to assess *cognitive* function. Its used to assess a patient's orientation, attention, calculation ability, memory, and language abilities. You may see varying forms and adaptations of this exam. Over time, you will most likely adapt your own! As a bedside nurse, you will most likely ask these questions without scoring a patient's response, but by consistently asking the same questions, you will be more likely to discover changes. These exams help the nurse to determine a patient's cognitive functioning which is a person's reasoning, learning, thinking, reasoning, remembering, problem solving, decision making, and attention

Item	Maximum score
Orientation	
What is the (year) (season) (date) (month)?	5
Where are we (state) (country) (town) (hospital) (floor)?	5
Registration	
Name three objects: 1 s to say each. Ask the patients for all three. Give 1 point for each correct answer. Repeat them until all three can be repeated.	3
Attention and calculation	
Serial subtraction of 7.1 point for each correct. Stop after five answers. Alternatively: Spell "world" backwards.	5
Recall	
Ask for the three objects repeated above. 1 point for each correct.	3
Language	
Name a pencil and a watch.	2
Repeat the following: "No ifs, ands or buts"	1
Follow a three-stage command: Take a paper in your right hand, fold it in half and put into the floor"	3
Read and obey the following: "Close your eyes"	1
Write a sentence	1
Copy a design of two intersecting pentagons	1

Another Version:

Question	**Function**
What's your name?	Orientation to person
What's your mother's name?	Orientation to others

What year is it?	Orientation to time
Where are you now?	Orientation to place
How old are you?	Memory
Where were you born?	Remote memory
What did you have for breakfast?	Recent memory
Who's currently the U.S. president?	General knowledge
Can you count backward from 20 to 1?	Attention span

#4 Cranial Nerve Assessment: This is a critical component of the nursing assessment of the patient as it can identify neurological impairment. The assessment of the cranial nerves provides information for both the motor and sensory systems as well as gait, coordination, and reflexes.

Table 1: The 12 Cranial Nerves

Nerve no.	Nerve name	Rhyme	Function
1	Olfactory	On	Smell (not usually tested)
2	Optic	Old	Visual acuity
3	Oculomotor	Olympus'	Opening of eyelids, eye movement (upward/medial, upward/lateral, medial, downward/lateral)
4	Trochlear	Towering	Eye movement (downward/medial)
5	Trigeminal	Top	Facial sensation, chewing movements
6	Abducens	A	Eye movement (lateral)
7	Facial	French	Facial muscle movement (except chewing muscles) and eyelid closing
8	Auditory (vestibulocochlear)	And	Hearing and balance
9	Glossopharyngeal	German	Taste on the posterior third of the tongue (not usually tested)
10	Vagus	Viewed	Uvula (palate muscles) and swallowing
11	Accessory	A	Shoulder shrug
12	Hypoglossal	Hop	Tongue movement

So now that we have listed different types of neuro exams, what do you need to know? After reviewing them, do any pieces look familiar?

Much of what we do in our head to toe assessment encompasses parts of each of these neuro exams. What each nurse needs to do is this:

1. **Develop a systematic means of assessing a patient's neuro status**. That means that you perform the assessment the same way every time, much like your head to toe assessment. When assessments are done systematically, there is a lesser chance of error or omission.

2. A nurse must **recognize a patient's deviation from normal** and understand what to do when it happens.

3. Neuro **checklist** (know what you are assessing and why)

    - LOC
    - Pupil check
    - Orientation and cognition
    - Tongue midline
    - Speech
    - Strength
    - Coordination, gait
    - Sensation

4. **Toolkit**. The "toolkit" is fictional but what is contains is this:
    a. Patient report
    b. Patient's baseline neuro function
    c. Stethoscope, pen light
    d. Diagnostic results
    e. Vital signs

Let's start your neuro exam!

Your best skill is NOTICING!

1. Greet your patient. Note his or her response. (Notice, this can be documented in meditech expanse under the neurological exam.) While greeting your patient and discussing the plan of care, you can note the items listed below such as, does your patient respond right away? Does you patient verbalize response and move around appropriately while talking to you. If he or she does not, did you have to shout? Were their words comprehensible? Did you have to illicit pain to get a response such as a sternal rub? If this was a new finding for your patient, what might you do?

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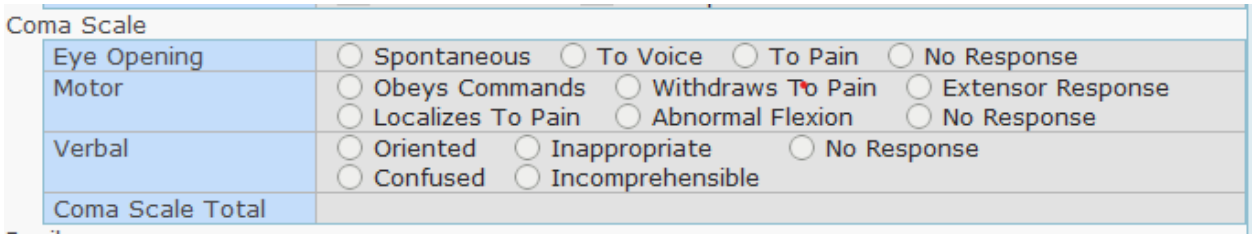
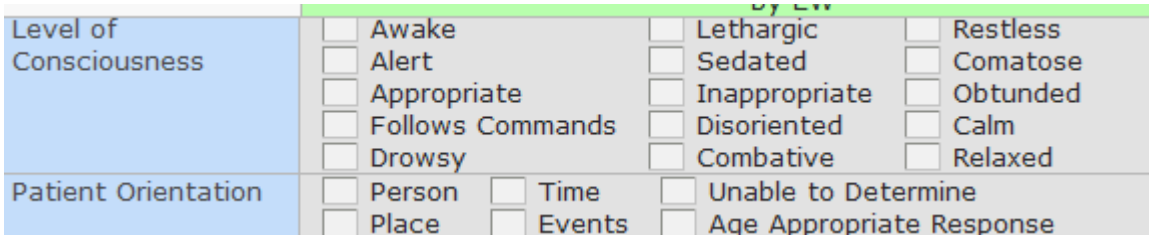
MEDITECH



2. Assess cognition and orientation. (Think MMSE!) Ask your patient a couple of questions as listed in the exam. However, if your patient has not had changes, asking a few is all that is necessary. If something seems off, ask them all. Below is how it might be documented in Meditech.



***Look at these terms: sedated, obtunded, lethargic. In your own words could you describe them. If you asked someone else, you might get a different interpretation of the meaning. The best thing to do is if your patient falls outside of the norm in this assessment, its good practice to write a nurse's note describing the patient's LOC so that there is not misinterpretation. ***

Sedated: calm, relaxed state resulting from or as if from the effect of a sedative drug

Obtunded: having diminished arousal and awareness, often as the result of intoxication, metabolic illness, infection, or neurological catastrophe.

Lethargic: mild impairment of consciousness resulting in reduced alertness and awareness; this condition has many causes but is ultimately due to generalized brain dysfunction.

Comatose: a state of unresponsiveness, even to painful stimuli.

3. Cranial Nerves. Depending on the patient condition, you may perform all or some.

This is a helpful video in learning the cranial nerves: https://www.youtube.com/watch?v=NZJ41sXUW3Y

I. **Olfactory**: rarely assessed. Have patient close their eyes, put coffee grounds, oranges, etc.. under their nose and see if it can be identified.

II. **Optic**:
Visual acuity, Snellen chart (think eye exam)

Visual field: Position yourself 2 ft. from the patient and have him or her look directly at your nose. The patient then needs to indicate when an object such as a pen presented from his or her periphery is seen.

III. **Cranial nerves III, IV, VI** are tested together.
- Ask the patient to hold his or her head steady while tracking the movement of your pen through six positions (think the letter H.) A normal response is parallel tracking of the object with both eyes.
- Check for pupillary constriction and accommodation. PEARLA

IV. See above (under cranial nerve III)

V. **Trigeminal:** When testing the trigeminal nerve, you are testing the ophthalmic, maxillary, and mandibular branch.
Have pt. close eyes and identify light touch (cotton wisp) and pin prick (safety pin) on the forehead, upper jaw, and chin on both sides. Patient needs to tell you when he or she feels the touch.
Next, have the patient clench his teeth and attempt to move his mouth side to side.
Then have the patient look up and away while lightly touching the cornea from the other side with a cotton ball. Look for normal blink reaction from both eyes. Repeat on the other side.

VI. See above (under cranial nerve III)

VII. **Facial:** Ask the patient to smile, frown, puff cheeks, raise eyebrows, close eyes tightly, and not let the examiner open them.

VIII. **Vestibulocochlear:** check for hearing by rubbing fingers close to the pt.'s ear or by whispering.

IX. **Glossopharyngeal:** tested with the vagus nerve because they both innervate the pharynx. Test the gag reflex with a tongue blade.
Have the patient say "ah" and note the bilateral symmetry of the soft palate.

X. See above

XI. **Accessory**: Have the patient shrug the should and turn head to either side against resistance. Muscles should contract smoothly. Note symmetry or atrophy.

XII. **Hypoglossal:** Have the patient protrude the tongue. It should protrude midline. Note asymmetry, atrophy.

**Hopefully this manual helps as an introductory to neuro assessment! Remember, not everyone needs a thorough assessment. Your job is to detect and report changes!