HEALTH HOLDING
HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Maternal Intensive Care Unit		
Document:	Departmental Policy and Procedure		
Title:	Adult Neurological Assessment		
Applies To:	All Maternity Intensive Care Unit Staff		
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1. PURPOSE:

1.1 To provide guidelines in Neurological Assessment.
1.2 To ensure proper and effective neurological care that aims to preserve and restore optimal nervous system function and prevent further deterioration or complication.

2. DEFINITIONS:

2.1 **Neurological Assessment** – is a simple quick method of assessing neurological status and may indicates the first signs of central nervous system deterioration.
2.2 **Glasgow Coma Scale (GCS)** – a method of assessing a client's neurological condition; a scoring system based on a scale 3 to 15 points. A score of less than 8 indicate coma.
2.3 **Babinski's Sign** – dorsiflexion of the great toe with fanning of the other toes which indicates an upper motor neuron lesion.
2.4 **Monoplegia** – paralysis of a single area.
2.5 **Hemiplegia** – paralysis of one side of the body.
2.6 **Nystagmus** – involuntary jerking or oscillating eye movement either laterally or vertically upon moving eyes.
2.7 **LOC** – Loss of Consciousness

3. POLICY:

3.1 All MICU nursing staff shall be competent to assess the patient's Neurological status.
3.2 In performing Neurological Assessment use of Glasgow Coma Scale which provides a standard reference in assessing or monitoring level of consciousness to a patient with a suspected or confirmed brain injury. This scale measures three (3) responses to stimuli eye opening response, Best motor Response, and best Verbal Response and assign a number to each of the possible responses within these categories. A score of 3 is the lowest and 15 is the highest. A score of 8 or less indicates coma.
3.3 Documentation shall be on the approved MICU flow sheet and included neurological assessment from utilizing the Glasgow Comma Scale.
3.4 Frequency of neurological assessment is done hourly in MICU or as per physician's orders or as indicated by any change patient's neurological status.
3.5 Detection of changing neurological status should result in immediate notification of the physician and a neurological assessment every 15 minutes until the patient is assessed by the physician.

4. PROCEDURE:

4.1 Explain the procedure to the patient even if he/she's unresponsive. Wash hands and provide privacy. Assessing LOC and orientation:
4.1.1 Assess the patient's LOC by evaluating his responses. Use standard methods such as the Glasgow Coma Scale. Begin by measuring the patient's response to verbal, light tactile (touch), and painful (nail bed pressure) stimuli. First, ask the patient his /her full name. If he responds

appropriately, assess his orientation to person, place, and date. Ask him/her where he/she is and then what day, season, and year it is. (Expect disorientation to affect the sense of date first, then time, place, caregivers and, finally, self). When he/she responds verbally, assess the quality of speech to determine if it is clear and concise. Rambling responded indicate difficulty with though processing and organization.

4.1.2 Assess the patient's ability to understand and follow one-step commands that require a motor response. For example, ask him/her to open and close his eyes or stick out his tongue. Note whether the patient can maintain his/her LOC. If you must gently shake him to keep him focused on your verbal commands, he may have sustained neurologic compromise.

4.1.3 If the patient doesn't respond to commands, apply a painful stimulus. With moderate pressure, squeeze the nail beds on fingers and toes, and note his response. Check motor responses bilaterally to rule out monoplegia and hemiplegia

4.2 **Glasgow Coma Scale**

Characteristic	Response	Score
Eye opening response	Spontaneous	4
	To Verbal Command	3
	To Pain	2
	No Response	1
Best Motor Response	Obeys Commands	6
	Localizes pain; pushes stimulus away	5
	Withdraws to Pain	4
	Abnormal Flexion	3
	Extension	2
	No Response	1
Best Verbal Response (Arouse the patient with painful stimuli if necessary).	Oriented	5
	Disoriented and Confused	4
	Uses Inappropriate Words	3
	Makes incomprehensible sounds	2
	No response	1

Using the Glasgow Coma Scale

Examining pupils and eye movement

4.2.1 Ask the patient to open his eyes. If he/she doesn't respond, gently lift his upper eyelids. Inspect each pupil size and shape, and compare the two for equality. To evaluate pupil size more precisely, use a chart showing the various pupil sizes (in increments of 1 mm, with the normal diameter ranging from 1 to 7 mm). Remember, pupil size varies considerably, and some patients have normally unequal pupils (anisocoria). Also check whether the pupils are positioned in, or deviate from, the midline.

4.2.2 Test the patient's direct light response. First, darken the room. Then hold each eyelid open in turn. Swing the penlight from the patient's ear toward the midline of the face. Shine the light directly into the eye. Normally, the pupil constricts immediately. When you remove the penlight, the pupil should dilate immediately. Wait about 20 seconds before testing the other pupil to allow it to recover from reflex stimulation.

4.2.3 Now test consensual light response. Hold both eyelids open, but shine the light one eye only. Watch for constriction in the other pupil, which indicates proper nerve function of the optic chiasm.

4.2.4 Brighten the room and have the conscious patient open his eyes. Observe the eyelids for ptosis or drooping. Then check extra ocular movements. Hold up one finger, and ask the patient to follow it with his eyes track together to follow your finger (conjugate gaze). Watch for nystagmus.

4.2.5 Check accommodation. Hold up one finger midline to the patient's face and several feet away. Have the patient focus on your finger. This should cause his eyes the converge and both pupils to constrict equally.

4.2.6 Test the corneal reflex by touching a wisp of cotton ball to the cornea. This normally causes an immediate blink reflex. Repeat for the other eye.

4.2.7 Of the patient is unconscious, test the oculocephalic (doll's eye) reflex hold the patient's eyelids open. Then quickly but gently turn his head to one side and then the other. If the patient's eyes move in the opposite direction from the side to which you turn the head, the reflex is intact.

4.2.8 **Nursing Alert:** Never test the doll's eye reflex on a awake, alert patient or if you know or suspect that the patient has a cervical spine injury.

4.3 Evaluating motor function

4.3.1 If the patient is conscious, test his grip strength in both hands. Extend your hands, ask him to squeeze your fingers as hard as he can, and compare the strength of each hand. Grip strength is usually slightly stronger in the dominant hand.

4.3.2 Test arm strength by having the patient close his eyes and hold his arms straight out in front of him with the palms up. See if either arm drifts downward or pronates (pronator drift), indicating muscle weakness.

4.3.3 Test leg strength by having the patient raise his legs, one at a time, against gentle downward pressure from you hand. Gently push down on each leg at the midpoint of the thigh to evaluate muscle strength.

4.3.4 **Nursing Alert!** If decorticate or decerebrate posturing develops in response to stimuli, notify the physician immediately.

4.3.5 **Pediatric Alert!** A positive Babinski's sign is normal in patient younger than 2 years old.

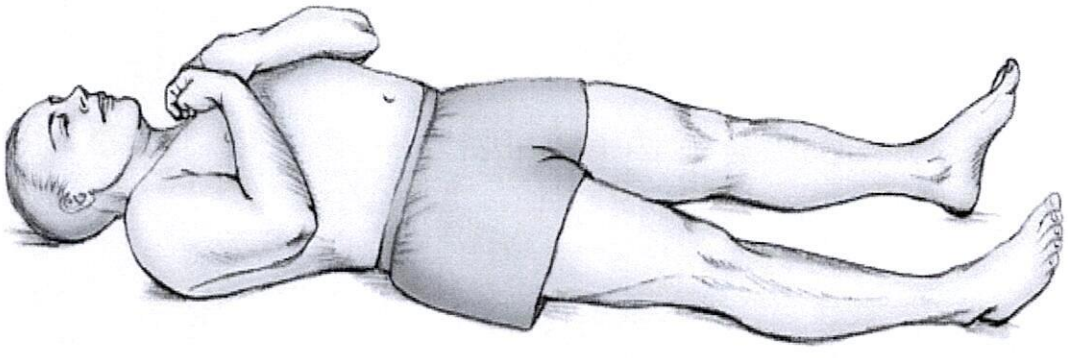
4.3.6 Flex and extend the extremities on both sides to evaluate muscle tone.

4.3.7 Test the plantar reflex in all patients. To do so, stroke the lateral aspect of the sole of the patient's foot with your thumbnail or another moderately sharp object. Normally. This elicits flexion of all toes. Watch for a positive Babinski's sign.

4.4 Identifying Warning Postures

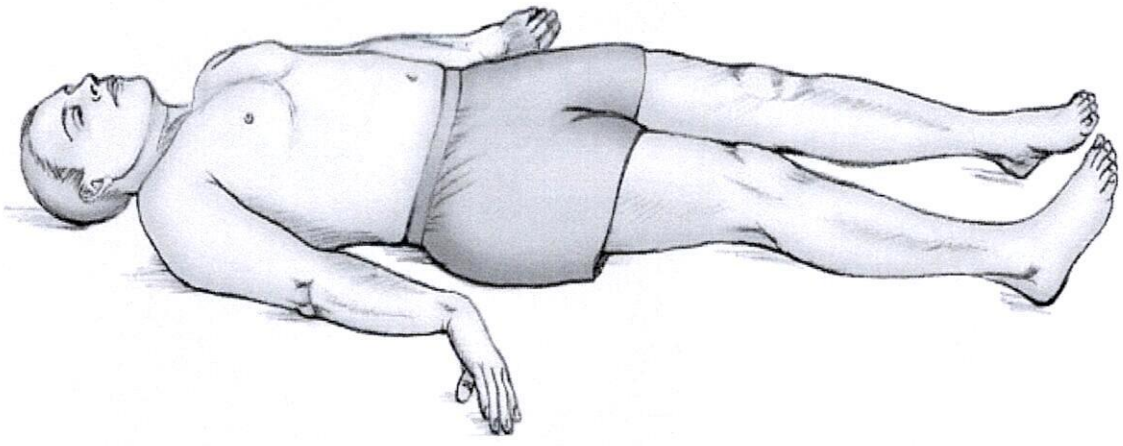
Decorticate and Decerebrate postures are ominous signs of central nervous system deterioration.

4.4.1 Decorticate (Abnormal Flexion) – in the decorticate posture, the patient's arms are adducted and flexed, with the wrist and fingers flexed on the chest. The legs may be stiffly extended and internally rotated, with plantar flexion of the feet.



4.4.2 The decorticate posture may indicate a lesion of the frontal lobe, internal capsule, or cerebra peduncles.

4.4.3 Decerebrate posture (extension) – In the decerebrate posture, the patient's arms are adducted and extended with the wrists pronated and the fingers flexed. One or both of the legs may be stiffly extended, with plantar flexion of the feet. The decerebrate posture may indicate lesion of the upper brain stem



4.4.4 Completing the neurologic examination

4.4.4.1 Take the patient's temperature, pulse rate, respiratory rate, and blood pressure. The difference between systolic pressure and diastolic pressure is especially important because widening pulse pressure can indicate increasing ICP.

4.4.4.2 Nursing Alert: If a previously stable patient suddenly develops a change in neurologic or routine vital signs, further assess his condition, and notify the physician immediately.

5. MATERIAL AND EQUIPMENT:

5.1 Penlight
5.2 Thermometer
5.3 Sterile cotton ball or cotton-tipped applicator
5.4 Stethoscope
5.5 Sphygmomanometer
5.6 Pupil Size Chart
5.7 Optional: Pencil or Pen

6. RESPONSIBILITIES:

6.1 Physician
6.2 Nurse

7. APPENDICES:

N/A

8. REFERENCES:

8.1 Guidelines for Adult ICU Care/ Ministry of Health, General Directorate of Health Centers- Riyadh, 2013

9. APPROVALS:

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