HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Pediatric Intensive Care Unit (PICU)		
Document:	Departmental Policy and Procedure		
Title:	Neurological Assessment – Glasgow Coma Scale		
Applies To:	All Pediatric Intensive Care Unit Staff		
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1. PURPOSE:

1.1 To obtain baseline reading and monitor patient's neurological status.
1.2 To identify abnormal alterations in the patient's level of consciousness.
1.3 To evaluate muscle strength and tone, reflexes and posture.
1.4 Identify damage in the nervous system.
1.5 To prevent complication associated with neurologic disorders in a timely response to changes in neurological status of the patient.
1.6 To obtain data for physical assessment.

2. DEFINITIONS:

2.1 **Neurological Examination** – is an essential component of a comprehensive physical examination. It is a systematic examination that surveys the functioning of nerves delivering sensory information to the brain and carrying motor demands (peripheral nervous system) and impulses back to the brain for processing and coordinating (central nervous system). It includes the assessment of Mental status, Level of consciousness, Cranial nerves, Deep tendon reflexes, Motor system and Sensory system.

3. POLICY:

3.1 Glasgow Coma Scale is used to monitor the level of consciousness and to classify the severity of Traumatic Brain Injury (TBI). It is used to monitor patients with hypoxemia, metabolic disorders, seizures, intoxication, infectious disorders, unclear or ambiguous accident history, continued post traumatic amnesia more than 1 hour (confusion), retrograde amnesia (amnesia for events preceding the trauma), trauma above the clavicle (clinical suspicion of cranial base fracture, depressed fracture), severe headache, vascular disorders, neoplasm's and degenerative disorders.
3.2 The staff nurse should receive education/ training and possess an evidence of successful in skilful competency of Neurological assessment.
3.3 Patient Glasgow Coma Scale must be assessed and re-evaluated hourly for signs of neurological deterioration.
3.4 The Physician must be notified immediately if there are changes in neurological status, decreased level of consciousness, onset of cranial nerve deficit.
3.5 Standard precaution is recommended.

4. PROCEDURE:

4.1 Prepare for complete equipment.
4.2 Obtain family history from parents to identify risk factors:
  4.2.1 Unclear or ambiguous accident history.
  4.2.2 Continued post traumatic amnesia more than 1 hour (confusion).
  4.2.3 Retrograde amnesia (amnesia for events preceding the trauma).
  4.2.4 Trauma above the clavicle (clinical suspicion of cranial base fracture and/ or depressed fracture).

4.2.5 Severe headache
4.2.6 Seizures
4.2.7 Intoxication
4.2.8 Difficulty with speech
4.2.9 Altered consciousness
4.2.10 Confusion or change in thinking
4.2.11 Disorientation
4.2.12 Early recognition of any neurological changes.

4.3 Note any current medications, medications that the patient has taken in the past as well as the response to medication.

4.4 Explain the procedure to the patient/ parent.

4.5 Perform hand hygiene.

4.6 Don disposable gloves.

4.7 Place the bed at an appropriate working height for proper body mechanics.

4.8 Assist patient in supine position if not contraindicated.

4.9 Assess patient's level of consciousness. To provide baseline of improvement and deterioration of neurologic status.

4.9.1 Alert – the patient responds immediately, fully and appropriately to visual, auditory and other stimuli, patient is active.

4.9.2 Oriented – the patient are able promptly and spontaneously to state their name, location and date or time.

4.9.3 Confused – disoriented to surroundings, may have impaired judgement, and may need cues to responds to command.

4.9.4 Drowsy – drowsiness is a condition in which the patient remains in a light sleep but can be easily aroused by touch or noise and can remain alert for some time.

4.9.5 Restless – agitated and irritable due to hypoxia and decreased cerebral perfusion.

4.9.6 Lethargic – patient is drowsy but partially awakens to stimulation; patient will answer questions and follow commands but will do so slowly and inattentively.

4.9.7 Comatose – complete unconsciousness, no purposeful response to any stimulus, may have no corneal or gag reflex and they may have no pupillary response to light.

4.9.8 Sedated – when patient had been given any sedative and/ or with ongoing sedation for any procedure or as part of treatment.

4.9.9 Paralysed – when patient is medically induced with paralytic and neuromuscular blocking agent in aid for clinical course of treatment.

4.10 Assess the Glasgow Coma Scale.

4.11 Classify the severity of Traumatic Brain Injury (TBI):

4.11.1 Mild TBI: GCS 13 – 15
4.11.2 Moderate TBI: GCS 9 – 12
4.11.3 Severe TBI: GCS 8 or less

4.12 Examine cranial nerve reflex to assess for brain stem dysfunction.

4.13 Assess pupil size, shape, symmetry and reaction to light. Use a pen torch with a bright narrow beam to test both pupils individually.

4.13.1 Look at the size of both pupils at rest (before light is shone into the eye). The average size is 2 to 5mm in diameter.

4.13.2 Look at the shape of pupil. The normal shape of pupils is round. Abnormal shapes are oval or irregular and can indicate brain damage.

4.13.3 Look if both pupils are equal in size. If one pupil becomes larger than the other (dilates), this is a serious sign of raised intracranial pressure. It is important to include this as some drugs, such as atropine, dilate the pupil.

4.13.4 Look if both pupils react to light. Close the light and with the use of a torch observe for constriction of pupil in response to light. There should be a consensual reaction where both eyes constrict as the light is shone.

4.13.4.1 Pinpoint pupils are observed in positioning, widely dilated and reactive pupils are seen after seizure. Dilated pupils may be due to eye trauma, dilated and non-reactive pupils are seen in hypothermia, anoxia and ischemia.

4.13.4.2 Assess extra ocular movements and reflex eye movements (Oculocephalic response). Oculocephalic reflex testing not applicable for the patients known or suspected to have cervical spine injury.

4.14 Assess for facial pain, blink, eye closure and grimace.

4.15 Assess for gag, swallowing reflex, tongue protrusion and ability to handle secretion.

4.16 Assess deep tendon reflexes; evaluates tone for spasticity, rigidity and paratonia (abnormal resistance increasing throughout flexion and extension, indicating frontal lobe dysfunction).

4.17 Examine head for signs of trauma and mouth, nose and ears for evidence of edema, blood and cerebrospinal fluid (CSF) may indicate basilar skull fracture.

4.18 Examine body surface for the presence of injury, needle marks, petechial, bites and sticks. The skin may offer clues to the cause of unconsciousness. Evidence toxic substances may be found on the hands, face, mouth and clothing in small children

4.19 Assess motor function. Voluntary versus reflexive movement.

4.19.1 Voluntary movement

4.19.2 Normal complex movement

4.19.3 Localization

4.19.4 Withdrawal

4.19.5 Reflexive movement

4.19.5.1 Decorticate posturing – adduction of the arms at the shoulder, the arms being flexed on the chest with the wrists flexed and the hands fisted and the lower extremities being extended and abducted. The posture is seen with severe dysfunction of cerebral cortex.

4.19.5.2 Decerebrate posturing – characterized by rigid extension and pronation of the arms and legs. The posture is signs of dysfunction at the level of the mid brain.

4.19.5.3 Mixed posturing

4.19.5.4 Flaccid

4.20 Assess for limb movement. It can give vital information of a developing hemiparesis in the arm or leg. A developing hemiparesis can result from increasing intracranial pressure due to an expanding lesion in the brain, such as extradural hematoma.

4.20.1 Arms – Instruct patient to flex biceps against your resistance (attempt to pull the arm into an extended position.

4.20.2 Legs – Ask the patient to raise the knees up so the hips are flexed and provide resistance against the thighs.

4.20.3 If patient cannot follow commands, assess movement in response to painful stimuli.

4.20.4 Criteria for grading motor power:

Normal power	Patient is able to match resistance applied by the observer to any joint movement.
Mild weakness	Patient is able to move against resistance but is easily overcome
Severe weakness	Patient is able to move his or her limb but not against resistance.
Flexion extension, no response	These responses are all tested using peripheral pain if no spontaneous movement is detected on application of central painful stimulus.

4.21 Check patient's vital signs. Alterations in patient's neurological condition can result in change in vital signs.

4.22 Remove gloves and discard in infectious waste bin.

4.23 Perform hand hygiene.

4.24 Place the bed in the lowest position.

4.25 Record the observation in the sheet using blue or black pen. Document the findings accurately. Use appropriate symbol:

4.25.1 Put the corresponding score for Glasgow Coma Scale and classify according to TBI severity.
4.25.2 Use (C) in eye opening to denote closed eye, or if the patient is unable to open an eye due to swelling, nerve palsy or eye dressing.
4.25.3 Use (T) in verbal response to indicate the presence of an endotracheal tube or a tracheostomy tube.
4.25.4 Use the following for level of consciousness: (A) Alert; (O) Oriented; (C) Confused; (R) Restless; (D) Drowsy; (L) Lethargic; (Ct) Comatose; (S) Sedated; (P) Paralyzed.
4.25.5 Use the following for responses: (1) Responds Verbally ;(2) Moves to command; (3) Withdraws to pain; (4) Responds to deep stimuli; (5) Decorticate; (6) Decerebrate; (7) No response.
4.25.6 Use the following for limb movement: (S) Strong; (W) Weak; (A) Absent. If there is any difference between the two sides, record on the designated 'Right/Left limb' column the observed movement.
4.25.7 Record the number to indicate the size of the pupil as observed.
4.25.8 The pupil reaction is recorded as (N) Reacts normally, (S) sluggish reaction and (F) Fixed reaction.

4.26 Evaluate by comparing the neurological status with the previous reading if available and identify any changes.
4.27 Monitor any changes in neurologic status and report changes as indicated. A change in GCS of 2 or more points may be significant and requires investigation. If patient demonstrate deterioration, notify physician immediately to provide immediate intervention.
4.28 Review the history on attainment of development milestones, including progression or onset of regression. Consider attainment of rolling, sitting, crawling, walking, language development, and bladder / bowel control.
4.29 Observe the head shape, size mobility. Head circumference should be measured over the prominent bones of the skull.
4.30 Document the findings accordingly.

5. MATERIAL AND EQUIPMENT:

5.1 Penlight
5.2 Reflex hammer
5.3 Disposable gloves

6. RESPONSIBILITIES:

6.1 Physician
6.2 Nurses

7. APPENDICES:

7.1 Nurses Progress Notes

8. REFERENCES:

8.1 Ministry of Health, General Directorate of Nursing, Manual of Nursing Policy and Procedure, 2013.
8.2 Janice L Hinkle, Kerry Cheever, Brunner and Siddhartha's Textbook of Medical Surgical Nursing, Lippincott Williams and Wilkins, Philadelphia, 13th edition, 2014.
8.3 Kingdom of Saudi Arabia, Ministry of Health Baish General Hospital, 2018.

9. APPROVALS:

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Ministry of Health

Hospital: _____ مستشفى

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Dept./Unit: _____ القسم/الوحدة

MRN: | | | | | | | | | | | رقم الملف الطبي:

Name: _____ الاسم

Nationality: _____ الجنسية

Age: _____ سنة Years ☐ شهر Months ☐ يوم Days ☐ العمر

Date of Birth: ____ / ____ / 14____ H ____ / ____ / 20____ تاريخ الميلاد

Gender: ☐ Male ☐ Female الجنس

NURSES PROGRESS NOTES FORM

DATE &TIME	NURSES NOTES (D-data A-action R-response)	REGISTERED NURSE INITIAL WITH ID NUMBER

Note: Write the time in each entry & affix your initial at the end of each paragraph. Document your complete Name, Initial, Job number, Date & Time at the closure of your documentation. Draw a line across empty spaces.

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Name: الاسم	MRN: رقم الملف الطبي

NURSES PROGRESS NOTES FORM

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