Paediatric Neurological Observation Chart with Modified Glasgow Coma Score (GCS) for infants less than 4 months

Name:						DOB:						Ward:			
Hospital Number:						Consultant:									
Date															
Time															
Frequency of Observations															
Dot the response of the Glasgow Coma Scale															
Modified Glasgow Coma Scale – Eyes Open	Alert and awake or gentle stimulus =4														Eyes closed due to swelling = C
	To rocking /startle response =3														
	Response to painful stimuli =2														
	None =1														
Best Vocal or Grimace Response	Alert/normal cry =5														
	Less than usual/irritable but consolable =4														
	Abnormal high pitch /inconsolable cry =3														
	Weak cry/moans or grunts to pain =2														
	None =1														
Best motor response	Spontaneous movement, normal primitive reflexes = 5														Record the best limb's response
	Responds only to touch or stimulus moves limb/ change in face expression, weak primitive reflexes =4														
	Withdraw to pain =3														
	Abnormal posturing to pain =2														
	None =1														
	Total Score														
Pupils – Right	Size														+ reaction - nil reaction S reacts sluggish C eyes closed
	Reaction														
Left	Size														
	Reaction														
1 2 3 4 5 6 7 8															Pupil Scale (mm)
Limb Movement – Arms	Normal power														Record right (R) and Left (L) separately if there is a difference
	Hypertonic														
	Hypotonic														
	No response/ flaccid														
Legs	Normal power														
	Hypertonic														
	Hypotonic														
	No response/ flaccid														
Assessor's Initials															

See over for scoring

Eye Opening	
4	**Spontaneous eye opening.** Alert and spontaneous eye movement or opens eyes on gentle stimulus. If the infant is sleeping they may not open eyes but will have some motor response to touch or gentle stimulus
3	**Eyes open on rocking movement:** If baby's eyes do not open eyes on gentle stimulus, perform gentle rocking motion of the head to see the response. Also observe facial expression and motor response.
2	**Eyes open to painful stimuli.** If the infant does not respond to verbal stimuli, use tactile stimulus by touching the infant's hand/shoulder and gently shaking. If no response, then painful stimulus can be applied by applying pressure to the side of the 3rd or 4th finger to evoke the eye open response.
1	**No eye opening to painful stimuli.** No response to pain stimulus
C	If Infant's eyes are closed – document clearly due to swelling or puffy as normal after birth or swollen and not opening due to injury/trauma score C.
Vocal or grimace response	
5	**Alert/normal cry.** Spontaneous normal facial / oromotor activity.
4	**Less than usual ability and / or spontaneous irritable cry.** Less than usual spontaneous grimace or infant has a spontaneous irritable cry which is consolable.
3	**Abnormal high pitch inconsolable cry.** Infant has an abnormal cry and cannot be consoled.
2	**Weak cry, moans or grunts to pain.** Infant moans or grunts or has weak cry in response to pain.
1	**None.** There is no vocal or grimace response to pain.
Motor Response	
5	**Infant has normal spontaneous movements and normal primitive reflexes.** Includes suck, gag and grasp.
4	**Withdraws to painful stimuli/normal flexion.** The infant flexes arm at elbow without wrist rotation in response to painful stimulus. Best motor response is spontaneous and reflex flexion.
3	**Withdraws to pain.** Only responds to strong painful stimuli – weak withdrawal to pain/ abnormal flexion of arm and wrist with clenched fist and extended legs
2	**Abnormal posturing to pain.** Abnormal flexion (decorticate) or extension (decerebrate) to pain. Response to pain is slow with flexion of the arms with wrist rotation, clenched fists and extended legs **and/or** arms rolled inward on the body with wrist and fingers bent and held on chest **and/or** rigid extension of the arms at the elbow with the inward rotation and extended leg.
1	**No response to pain.**

Triggers for Alerting Immediate Medical Review

Clinical Signs of raised intracranial pressure

- Early signs: Decrease in level of consciousness> 5 minutes (NICE, Sept 2019)
- Late signs: Fall in respiratory rate, decrease in heart rate, rise in blood pressure
- Pupil changes (dilated, unequal or non-reacting)
- Persistent vomiting
- New or evolving neurological signs e.g. pupil inequality, asymmetry of limbs, facial movements
- Abnormal posturing and /or Seizures
- Development of agitation or abnormal behaviour/irritability
- Tense bulging fontanelle

Practical tips:

1. Grading the severity of head injury: Minor head injury (GCS score = 13-14), moderate HI (GCS score = 9-12) and severe HI (GCS score ≤8).
2. For more accurate grading other important factors must be taken into consideration, like mechanism of injury (e.g. the height of fall, surface of fall etc.), loss of consciousness, vomiting, and posttraumatic seizures.
3. Request immediate Paediatric review if any drop of one or more points in the eye/ verbal (Grimace)/motor points.
4. Clinical management decisions should not be based solely on the GCS score in the acute setting.
5. There is limited evidence to validate use of GCS in this age group. However, this scale is adapted for use in this age group through multi-professional group consensus, from the evidence available and local guidelines from the units using GCS to monitor babies following neurosurgery.
6. With limited evidence and validity, use of modified GCS alone cannot be recommended, either as a means of assessing severity or prognosis of brain injury. However, it is a useful tool for monitoring and should supplement detailed neurological examination of newborn but not replace it.
7. Distinction between normal and abnormal flexion may be challenging, especially for the non-specialist. (Reilly 1991)