HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

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| **Department:** | Neonatal Intensive Care Unit (NICU) | | |
| **Document:** | Departmental Policy and Procedure | | |
| **Title:** | Sarnat and Thompson Scoring | | |
| **Applies To:** | All NICU Staff | | |
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## 1. PURPOSE:

1.1 To enhance proper neurological clinical examination of the newborn to confirm the diagnosis of HIE.
1.2 It is used to assess status of a neonate following birth asphyxia.

## 2. DEFINITIONS:

2.1 **Birth asphyxia** is defined as a delay in establishing spontaneous breathing/crying immediately after birth of newborn. This results in impaired gas exchange, hypoxia and metabolic acidosis.
2.2 **Hypoxic Ischemic Encephalopathy (HIE)** is the term commonly used to describe the neurological syndrome that occur following perinatal asphyxia.it is usually by severe birth asphyxia with secondary cerebral ischemia.

## 3. POLICY:

3.1 It is recommended to use in a neonate following birth asphyxia.
3.2 Obtain arterial cord blood for analysis as per Physician order.

## 4. PROCEDURE:

4.1 Thompson score is based on features of HIE. In the scoring system, a score of 0 is normal and the maximum score is 22 which signifies the worst possible status of HIE.
- 4.1.1 Infants with score 1-10 are considered to have mild HIE.
- 4.1.2 Infants with score 11-14 have moderate HIE.
- 4.1.3 Infants with score 15-22 are considered to have severe HIE.

4.2 A score of 15 or more has shown a positive predictive value of 92%, negative predictive value of 82%, sensitivity of 71% and specificity of 96% for abnormal outcome at 12 months of age.
4.3 **The Thompson HIE score**:

| Sign | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| **Tone** | Normal | Hyper | Hypo | Flaccid |
| **LOC** | Normal | Hyperalert ,stare | Lethargic | Comatose |
| **Fits** | None | <3/ day | >2/ day | - |
| **Posture** | Normal | Fisting, cycling | Strong distal flexion | Decerebrate |
| **Moro** | Normal | Partial | Absent | - |
| **Grasp** | Normal | Poor | Absent | - |
| **Suck** | Normal | Poor | Absent ±bites | - |
| **Respiration** | Normal | Hyperventilation | Brief apnea | IPPV(apnea) |
| **Fontanelle** | Normal | Full ,no tense | Tense | - |

4.4 **Sarnat staging**, Sarnat Classification or the Sarnat Grading Scale is a classification scale for hypoxic-ischaemic encephalopathy of the newborn (HIE).

4.5 Sarnat staging is used alongside electroencephalogram findings to provide information about the prognosis for the infant.

4.6 **Modified Sarnat classification**:

| VARIABLE | Stage 1 | Stage 2 | Stage 3 |
|---|---|---|---|
| **LOC** | Alert | Lethargic | Comatose |
| **Muscle tone** | Normal or hypertonic | Hypotonic | Flaccid |
| **Tendon reflexes** | Increased | Increased | Depressed or absent |
| **Myoclonus** | Present | Present | Absent |
| **Seizures** | Absent | Frequent | Frequent |
| **Complex reflexes**<br>Suck<br>Moro<br>Grasp Oculocephalic (doll eye) | <br>Active<br>Exaggerated<br>Normal to exaggerated<br>Normal | <br>Weak<br>Incomplete<br>Exaggerated<br>Overactive | <br>Absent<br>Absent<br>Absent<br>Reduced or absent |
| **Autonomic function**<br>Pupils<br>Respiration<br>Heart rate | <br>Dilated,reactive<br>Regular<br>Normal or tachcardia | <br>Small,reactive<br>Periodic<br>Bradycardia | <br>Variable/fixed<br>Ataxic,apnoeic<br>Bradycardia |
| **EEG** | Normal | Low voltage,periodic or paroxysmal | Periodic or isoelectric |

4.7 Prognosis : mild (stage1)-survival is expected.

## 5. MATERIAL AND EQUIPMENT:

5.1 Scoring card

## 6. RESPONSIBILITIES:

6.1 Physician
6.2 Nurse

## 7. APPENDICES:

N/A

## 8. REFERENCES:


8.1 Sarnat H, Sarnat M. Neonatal encaphalopathy following fetal distress. Arch Neurol. 33:695 - 705. 1976.

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8.3 Stoll BJ, Kliegman RM. Nelson Textbook of Pediatrics. 18th ed. Philadelphia: Saunders; 2007. Hypoxia ischemia; pp. 566–68.

8.4 Thompson CM, Puterman AS, Linley LL, Hann FM, van der Elst CW, Molteno CD, et al. The value of a scoring system for hypoxic ischaemic encephalopathy in predicting neurodevelopmental outcome. Acta Paediatric. 1997;86:757–61. [PubMed]

## 9. APPROVALS:

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