Checklist for therapeutic hypothermia

If baby has a perinatal event and/or acidosis and meets the criteria below, therapeutic hypothermia may be indicated.

Call Retrieval Services Queensland immediately on 1300 799 127 to discuss the need for transfer and therapeutic hypothermia with a neonatologist.

Therapeutic hypothermia criteria

- ❑ Evidence of acidosis or depression at birth, as indicated by at least **one** of the following:
  - ❑ Apgar score ≤ 5 at 10 minutes
  - ❑ pH < 7.00 or a base excess equal to or worse than minus 12 mmol/L on a cord/arterial/venous/capillary blood gas obtained within 60 minutes of birth
  - ❑ Mechanical ventilation or ongoing resuscitation for ≥ 10 minutes

AND either of:

- ❑ Evidence of moderate or severe encephalopathy at any time from 1–6 hours of age (use modified Sarnat assessment)

  OR:
- ❑ Seizures (witnessed by medical officer/nurse/midwife or as seen on aEEG/EEG)

AND

- ❑ No absolute contraindications to therapeutic hypothermia:
  - ❑ Uncontrolled critical bleeding
  - ❑ Uncontrolled hypoxia due to persistent pulmonary hypertension
  - ❑ Imminent withdrawal of life support planned

AND

- ❑ Meets the following criteria:
  - ❑ ≥ 35 weeks
  - ❑ Birth weight ≥ 1800 grams
  - ❑ Able to begin cooling before 6 hours of age
  - ❑ Assessment of relative contraindications (e.g. uncontrolled pulmonary hypertension, critical bleeding or coagulopathy, major congenital abnormalities)
  - ❑ Not moribund and with plans for full care

Adapted from: Jacobs SE, Berg M, Hunt R, Tarnow-Mordi WO, Inder TE, Davis PG. Cooling for newborns with hypoxic ischaemic encephalopathy. Cochrane Database of Systematic Reviews. 2013; Issue 1. Art.No.: CD003311. DOI: 10.1002/14651858.CD003311.pub3:CD003311.
Shankaran S, Laptook AR, Ehrenkranz RA, Tyson JE, McDonald SA, Donovan ER, et al. Whole-body hypothermia for neonates with hypoxic - ischaemic encephalopathy. N Engl J Med 2005:353(15);1574-84

Abbreviations: ≥ :greater than or equal to; **<:** less than; **≤:** less than or equal to; **aEEG:** amplitude integrated electroencephalograph; **EEG:** Electrocenephalograph

Queensland Clinical Guideline: *Hypoxic-ischaemic encephalopathy (HIE)*. Flowchart version: F16.11-1-V9-R21

Assessment of encephalopathy severity

Assess baby's signs against each criterion and record the encephalopathy severity as normal **(n)**, mild **(mild)**, moderate **(mod)** or severe **(s)** each hour during the first 6 hours of life. If criterion is not assessable record as not applicable **(N/A)**.

Modified Sarnat Criteria

Assessment Criteria	**Encephalopathy severity** Record severity each hour				**Hours from birth** Record actual time of assessment and severity for each sign (**n/mild/mod/s or N/A**) each hour					
	Normal (N)	**Mild (Mild)**	**Moderate (Mod)**	**Severe (S)**	**1h**	**2h**	**3h**	**4h**	**5h**	**6h**
Level of consciousness	Alert/arouses appropriately	Hyperalert	Lethargic	Stupor or coma						
Spontaneous activity	Normal	Normal or increased	Decreased activity	No activity						
Posture	Normal	Normal	Distal flexion, complete extension	Decerebrate						
Tone*	Normal	Normal or increased in trunk and extremities	Hypotonia (focal or general)	Flaccid						
Suck reflex	Normal	Normal or incomplete suck	Weak suck	Absent						
Moro reflex	Strong	Strong, low threshold	Incomplete Moro	Absent						
Autonomic system	Pupils equal and reacting to light; normal heart rate and respirations	Pupils equal and reacting to light; normal heart rate and respirations	Pupils constricted; bradycardia or periodic/irregular breathing	Pupils deviated/ dilated/ non-reactive; variable heart rate or apnoea						

*Assess tone in both limbs and trunk/neck. Presence of hypotonia in either meets the criteria.

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