

# Children's Mild Systemic Hypothermia for Treatment of Hypoxic-Ischemic Encephalopathy

## Eligibility Criteria

Mild Systemic Hypothermia (MSH) is indicated for use in full-term infants following birth asphyxia with clinical evidence of seizures or moderate to severe Hypoxic-ischemic Encephalopathy (HIE). The therapy prevents or reduces the severity of neurologic injury associated with seizures and/or HIE.

### Patient Eligibility Criteria for Therapy

- A** Infant is  $\geq 36$  weeks gestational age,  $>1,800$  grams, and at least one of the following:
- Apgar score of  $\leq 5$  at 10 minutes after birth
  - Continued need for resuscitation, including endotracheal or mask ventilation, at 10 minutes after birth
  - Acidosis defined as either umbilical cord pH or any arterial pH within 60 minutes of birth  $< 7.0$
  - Base Deficit  $\geq 16$  mmol/L from cord or other infant blood sample within 60 minutes of birth
- B** Infant with seizures or moderate to severe encephalopathy consisting of altered state of consciousness with at least three of the following:

### Moderate to Severe Encephalopathy

Category	Moderate Encephalopathy	Severe Encephalopathy
1. Level of consciousness	Lethargic	Stupor or coma
2. Spontaneous activity	Decreased activity	No activity
3. Posture	Distal flexion, complete extension	Decerebrate
4. Tone	Hypotonia (focal or general)	Flaccid
5. Primitive reflexes		
Suck	Weak	Absent
Moro	Incomplete	Absent
6. Autonomic system		
Pupils	Constricted	Deviated, dilated, or non-reactive to light
Heart rate	Bradycardia	Variable
Respiration	Periodic breathing	Apnea

[www.childrensmn.org/nicu](http://www.childrensmn.org/nicu)

## Initiation of Cooling

Cooling should be started no later than six hours after birth. Therapy should be started as soon as the infant is deemed eligible.

## Contraindications

Infant will be excluded from therapy if:

- Birth weight < 1,800 grams
- Gestational age < 36 weeks
- Condition deemed incompatible with survival
- Inability to initiate cooling within 6 hours of birth
- Presence of known major congenital anomalies or recognized chromosomal abnormalities
- Infant is "in extremis"
- Parental consent refused

## Preparing a Baby With HIE for Transport

A Passively cool the baby as directed:

- Turn off the overhead radiant warmer
- Check the infant's rectal temperature every 30 minutes
- Place a blanket on the infant only when the infant's temperature drops to 35° C rectally
- Continue to check their temperature every 30 minutes
- Do not let the infant's temperature drop below 35° C rectally

B Continue discussion with NICU staff for ongoing management

**If you are unsure whether a baby qualifies for therapy, please call  
Children's NICU immediately for consultation.**

- Children's – Minneapolis NICU: (612) 813-6295
- Children's – St. Paul NICU: (651) 220-6650