

HYPOTHERMIA

DEFINITION

- Skin temperature $<36.0^{\circ}\text{C}$ on admission from delivery suite

ASSESSMENT

Babies at risk

- Preterm <30 wk gestation
- Low birth weight <1500 g
- The sick baby
- Small for dates

Consequences ($<36.0^{\circ}\text{C}$)

- Hypoglycaemia
- Metabolic acidosis
- Hypoxia with increased oxygen demands

Consequences ($<35.5^{\circ}\text{C}$)

- Increased metabolic rate
- Clotting disorders
- Shock
- Apnoea
- Intraventricular haemorrhage
- Persistent fetal circulation
- Decreased surfactant production

Causes of heat loss

- Radiation – heat lost to cooler objects in the room
 - in cold environment, whether in incubator or not, excessive heat may be lost
 - in excessively hot environment or in direct sunlight, baby could overheat in incubator
- Conduction – heat lost to cooler surfaces baby is placed on
- Convection – heat lost due to drafts
- Evaporation – heat lost through water evaporating from skin

PREVENTION

Delivery suite

- Keep room $23-28^{\circ}\text{C}$ and free from draughts, especially when babies are due to be delivered

Babies <30 wk

- Dry head and put on hat
- Do not dry remainder of baby but
- Place in polythene bag immediately after transfer to resuscitaire and keep inside the bag until placed in pre-heated pre-humidified incubator

Other babies

- Use pre-warmed towel, dry immediately after delivery
- Discard towel and wrap in another pre-warmed towel and blanket
- The room must be adequately warm to enable skin-to-skin contact and early breast feeding
- Cover exposed skin with warm blanket

Neonatal unit

- Keep at $24-25^{\circ}\text{C}$ to avoid cooling from radiant heat loss, and 'misting' (condensation) in incubators
- Keep incubators and cots away from windows to prevent radiation heat loss

- Nurse babies requiring intensive care in pre-warmed incubator
- Babies <29 wks must have humidification >60% for first 2 weeks

Incubator temperature during the first 3 days

Birth weight (g)	Incubator temperature (°C)
1000	35
1500	34
2000	33.5
2500	33.2
3000	33
4000	32.5

- Babies <1000 g require even higher temperatures, occasionally >37°C
- If baby's temperature remains within normal limits for 24 hrs, lower the incubator temperature by 1°C according to baby's needs
- When baby's weight reaches about 1600 g, transfer to an open cot

Rainout may occur if the difference between the temperature in the incubator and room temperature is greater than 5°C: ensure room temperature kept at locally agreed level

Babies not at risk of hypothermia

- If not requiring observation of respiratory status or excessive invasive procedures, babies may be:
 - dressed
 - kept wrapped
 - placed in a cot
- Mild hypothermia can be managed with the addition of:
 - hats
 - cot lids
 - heated mattresses
- If baby's temperature <36.0°C consider:
 - use of incubator, if available
 - increasing humidity, if appropriate for gestational age
 - bubble wrap

REWARMING OF HYPOTHERMIC BABIES

- Rewarm in incubator
- >1200 g – rewarm at 1°C per hour
- <1200 g – rewarm more slowly

Take care not to overheat babies. Aim for 36.5–37.2°C