

TEMPERATURE MANAGEMENT AND PREVENTION OF HYPOTHERMIA

This guideline does not apply to babies receiving therapeutic hypothermia

MEASUREMENT AND RECORDING

- Use axillary route
- Measure temperature on admission, within ≤60 min of birth, then
- Hourly until stable, then 3–4 hrly
- more frequently if required due to clinical condition
- 6-hrly when baby stable and on 3-hrly feeds
- Babies with poor perfusion (or on medical request) – monitor core peripheral temperature difference continuously using temperature probes on chest and foot
- difference of >2°C suggestive of poor perfusion

TEMPERATURE RANGES

- Normal: 36.5–37.5°C
- Hypothermia: <36.5°C
- Low grade fever: 37.6–37.9°C
- Fever: ≥38°C

ASSESSMENT

- Hypothermia, fever and temperature instability can be signs of serious illness
- If baby unwell, irrespective of body temperature, notify medical staff/ANNP
- Beware of unusual temperature behaviours e.g.:
 - hypothermia in term baby
 - fever in preterm baby

HYPOTHERMIA

Follow BAPM QI Toolkit for prevention of hypothermia in preterm babies – <https://www.bapm.org/pages/105-normothermia-toolkit>

Risks and consequences

- Babies <34 weeks' gestation, low-birth-weight, small-for-dates and sick babies are at particular risk of hypothermia
- Adverse effects associated with hypothermia include:
 - hypoglycaemia
 - hypoxia and metabolic acidosis
 - respiratory distress and chronic lung disease
 - necrotising enterocolitis
 - intraventricular haemorrhage
 - late onset sepsis
 - death

PREVENTION

Delivery suite

- Keep room 23–28°C and free from draughts, especially when delivery imminent
- Aim for room temperature on the higher side for all premature babies (particularly IUGR)
- Pre-warm resuscitaire and towels with heater at 100%

Babies <34 weeks

- Place baby into NEOHELP bag on resuscitaire
- This covers the baby's head and body so there is no need to dry the head or apply a hat
- Take temperature before moving baby to NNU – aim for a temperature of 37°C before transfer

- Transfer to NNU with suitable thermal support

Other babies

- Use pre-warmed towels. Dry immediately, discard towel and wrap in another towel and blanket
- Ensure room warm enough to enable skin-to-skin contact and early breastfeeding
- Cover exposed skin with warm blanket
- Avoid giving bath immediately after birth

Neonatal unit

- Keep at 22–26°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
- For very premature babies, use humidification in incubator (see Guideline for **Environmental Humidity for Premature Babies**)
- If respiratory support e.g. high flow oxygen therapy, CPAP or ventilation anticipated, ensure humidifiers are turned on and set temperature of 37°C
- Do not leave incubator portals open for longer than necessary
- Avoid excessive wrapping/clothing of babies in cots

Incubator temperature during 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 may require higher temperatures, occasionally >37°C
- If baby’s temperature remains within normal limits for 24 hr, reduce incubator temperature according to baby’s needs
- When baby’s weight reaches approximately 1600 g, transfer to open cot

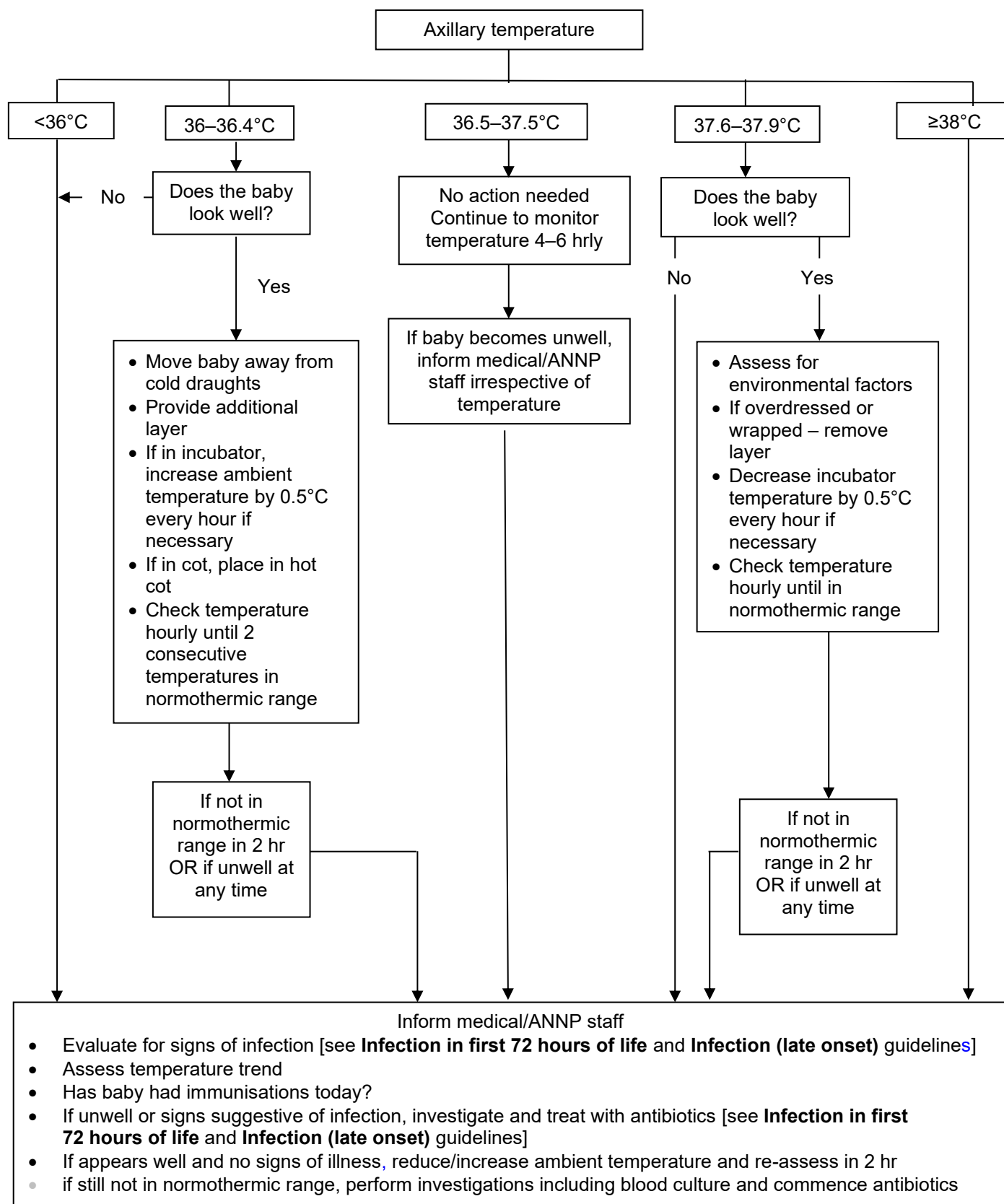
Rainout may occur if the difference between temperature in incubator and room temperature is >5°C: ensure room temperature kept at 22–26°C

Babies not at risk of hypothermia

- If not requiring observation of respiratory status or invasive procedures, babies may be dressed, wrapped and placed in a cot

Take care not to overheat babies. Aim for 36.5–37.5°C

EVALUATION AND MANAGEMENT OF TEMPERATURE INSTABILITY



MANAGEMENT OF HYPOTHERMIA

- Mild hypothermia can be managed with the addition of:
 - hat
 - heated mattress
- If baby's temperature $<36.0^{\circ}\text{C}$, ensure baby is well and hypothermia is not a manifestation of illness
- In a well hypothermic baby, consider:
 - use of incubator, if available
 - increasing humidity, if appropriate for gestational age
 - bubble wrap
 - skin-to-skin
- Recheck temperature in 1 hr
- Baby to be reviewed by medical team

REWARMING OF HYPOTHERMIC BABIES

- Rewarm in incubator
- ≥ 1200 g, rewarm at 1°C/hr
- <1200 g, rewarm more slowly

CAUTION DURING USE OF TRANSWARMERS

- **Heated pads (Transwarmer) should not be used if another heat source (incubator heater, radiant heater, heated mattress etc.) is already in use**
- If units choose to use Transwarmers in conjunction with other heat sources to prevent newborn hypothermia, strict vigilance must be given to:
 - ensuring skin integrity
 - avoiding hyperthermia by continuous temperature monitoring
 - limiting duration of use