

## Document Control

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<b>Main Contact</b> Special Care Baby Unit North Devon District Hospital Raleigh Park Barnstaple, EX31 4JB			<b>Tel: Direct Dial</b> – 01271 322610 <b>Tel: Internal</b> – <b>Email:</b>
<b>Lead Director</b> Divisional General Manager			
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## 1. Introduction

This document sets out Northern Devon Healthcare NHS Trust's best practice guidelines for Thermal care of the Neonate.

Thermoregulation is the ability to balance heat production with heat loss to maintain the body temperature within the normal neonatal range of 36.6 to 37.3 degrees centigrade. This ability is limited in the new-born.

Hypothermia can increase morbidity and mortality. Hypothermia has been strongly linked to unnecessary admissions of term infants to neonatal units (NHS Improvement, 2017), as hypothermia can lead to other harmful side effects such as hypoglycaemia, respiratory distress, hypoxia, metabolic acidosis, necrotising enterocolitis and poor weight gain (McCall et al, 2010).

The maintenance of the neural thermal environment is the ultimate aim of neonatal temperature control and management.

## 2. Purpose

The purpose of this document is to give guidance on:

- How to create and maintain a neutral thermal environment for the baby
- Minimizing the risks associated with hypothermia and hyperthermia

This guideline applies to Midwives and clinical staff on SCU and must be adhered to. Non-compliance with this guideline may be for valid clinical reasons only. The reason for non-compliance must be documented clearly in the patient's notes.

## 3. Definitions

SCU - Special Care Unit

Neutral Thermal Environment – This is the temperature range where oxygen consumption and metabolic rate is at the minimum needed to maintain normal body temperature. It depends on birth weight, gestation and whether the baby is clothed. Each infant has his/her own individualized neutral thermal environment.

Hyperthermia - > 37.5°C

Normal Temperature - 36.6°C to 37.3°C

Hypothermia - <36.5°C

Severe hypothermia <32°C

## 4. General Principles of Thermal care of the New-born

### 4.1 Pathophysiology

Premature and growth restricted infants are most at risk of hypothermia as they have less brown fat stores, poor vasomotor responses and less insulation. Their biochemical and hormonal response are immature and potentially inadequate.

The main source of heat production in the neonate is non-shivering thermogenesis- the production of heat by metabolism.

Causes of hypothermia (cold stress)

- Prematurity – large surface area to body ratio, trans epidermal water loss (thin layer of skin) less brown fat stores, poor vasomotor responses and less insulation
- Environment – Heat loss occurs when heat is transferred to the environment by these following methods:
  - Evaporation - When fluid evaporates from the skin and respiratory tract.
  - Conduction - Loss of heat to cooler objects in direct contact with the skin.
  - Convection - Heat loss to cooler surrounding air.
  - Radiation - Heat loss to cooler objects not in direct contact with the body.

### 4.2 Complications of hypothermia include:

- Increased glucose utilisation which may cause hypoglycaemia
- Increased oxygen consumption (hypoxia)
- Metabolic acidosis
- Pulmonary vasoconstriction
- Decreased surfactant production
- Disseminated intravascular coagulation
- Loss of weight or failure to gain weight

### 4.3 Signs of hypothermia include:

- Shallow breathing, apnoea

- Decreased activity and apparent lethargy
- Bradycardia or tachycardia
- Hypotonia with diminished reflexes
- Pale mottled skin – cool to touch, extremities
- Weak suck, poor feeding
- Respiratory distress, tachypnoea
- Increased capillary refill time, i.e. > 2 seconds

## 5. Methods of Measurement of Temperature in Neonates

- The axilla is the preferred site for measurement of temperature.
- The rectal temperature provides the core temperature and will only provide a late indication of cold stress and may cause trauma.
- Skin temperature may be continuously monitored by sensor or probe. The baby may lay on the probe if the mattress is not heated.
- If the infant is lying on a heated mattress then the probe should be well secured under the nappy (but not between the baby and the mattress) placed over the abdomen when supine or the back when prone avoiding bony prominences and excoriated areas.

## 6. Thermal care in the delivery room (see appendix one)

Please also see immediate care of the new born guideline.

### 6.1 The warm chain

These are a set of 10 points derived by WHO to prevent hypothermia, most should be achievable. These should be considered for every baby and particularly those at risk.

1. Warm delivery room > 25 °C. Windows and doors should be shut to minimise draughts
2. Warm resuscitation (warm towels)
3. Immediate drying

4. Skin-to-skin contact between baby and the mother (ensure mother and infant are adequately covered and the infant is not hypothermic). Alternatively, skin-to-skin contact can also be encouraged with other parent/carer (UNICEF, 2018).
5. Breastfeeding
6. Bathing and weighing postponed, *(if weighed, weigh the infant whilst wrapped. The weight of the towel must be deducted later)*
7. Appropriate clothing and bedding to environment
8. Mother and baby together
9. Warm transportation – *Dress the infant with layers of clothing and wrap in blankets for transportation to the ward. The baby's head constitutes one third of its surface area and may therefore be responsible for considerable heat loss. This fact should be taken into consideration when actively managing hypothermia and a hat applied to prevent heat loss from the head.*
10. Training/ awareness of healthcare providers

Prolonged skin to skin contact between mother and baby straight after delivery is associated with better thermoregulation of the newborn and therefore a decreased incidence of associated harmful side effects (NHS Improvement, 2017). Where medical attention is not necessary, skin to skin contact should be encouraged for at least 2 hours or until after the first feed to allow newborn thermoregulation (Unicef, 2017).

## 6.2 Monitoring the infant's temperature after birth

Within an hour of delivery record the infant's temperature. Check babies temperature with mother's observations and again at baby check

Do this sooner where the baby is at risk or showing signs that he/she may be cold.

## 7. Intervention of Hypothermia

### 7.1 Temperature 36.0 - 36.50c

- Take and record room temp and mother's temp.
- Increase room temperature if environment is cold.

- If the mother is available then the baby should be dressed in a hat and nappy only and placed skin-to-skin with mother, (do not do this if the mother is cold too). Alternatively, the baby can be placed skin-to-skin with their other parent/carer. A blanket should be used to cover the area of the baby not in contact with mother's skin
- If neither parent is available place baby either on a heated mattress or under a radiant heater with skin temp monitoring remembering to recheck temperature every 30 minutes so as not to overheat the baby.
- Recheck temperature within one hour

Temperature the same or lower - refer to a Paediatrician.

Temperature has improved - continue with intervention and retake the infant's temperature every 30 mins -1 hour until it is within normal limits.

## 7.2 Temperature 35.0 to 35.9°C

- Commence Newborn Early Warning Score and notify Paediatrician if temperature is below 36<sup>0</sup>c
- Options for treating colder babies or babies unresponsive to 'skin to skin' care
  - **Overhead heaters** - Resuscitaires have overhead heaters and temperature -probes, therefore they can be used as a temporary method of warming. However the temperature must be monitored closely as there is a risk of overheating the baby. Baby should be undressed while warming up on the overhead heater.
  - **Heated mattress** - These should be left turned on set on 37°C as they might take up to 4 hours to heat up to this temperature.
- Ensure the baby is wearing a hat, a sheet should separate the mattress from the baby
- The baby should be covered with blankets.
- The temperature should be reduced as the baby warms up to avoid overheating.
- Ensure the baby remains in the heated cot and not for example repeatedly removed from the heated mattress to breastfeed.

## 7.3 Temperature <35.0°C

Make urgent referral to paediatrician, ensuring there are no clinical signs of sepsis which would need treating and admit to SCU.



#### 7.4 Preterm Infants (>32 weeks) growth restricted or compromised infants

- Wrap in a warm towel immediately
- Transfer to pre warmed radiant heater
- Dry thoroughly and remove wet towel
- Put a hat on once the head is dried
- If indicated, perform resuscitative measures

Once stable wrap up well and if appropriate give infant to parents for a cuddle. If using skin to skin contact cover the mother and infant with warm towels. If the infant needs transfer to SCU use the pre warm transport incubator or panda resuscitaire with docking station, (see neonatal transfer guidelines).

#### 7.5 Preterm infants < 32 weeks or <1500g

- Ask for ambient room temperature to be as high as possible
- Make sure that the resuscitaire is not exposed to draughts and is pre-warmed
- Pre-warm anything that will come into contact with the infant including towels, hat, plastic bag, stethoscope and surfactant
- Make sure that the heated transport incubator is available
- Deliver the infant into a plastic bag and then transfer to the radiant heater
- Dry the head and put on warmed hat
- If indicated, perform resuscitative measures
- Avoid blowing unnecessary cold air/oxygen over the body or head
- Show infant to parents and transfer to SCU

**If the infant needs transfer to SCU use the pre warmed transport incubator or panda resuscitaire with docking station.**

#### 7.6 Suspected Hypoxic Ischaemic Encephalopathy

Hypothermia is currently being used as a method of cerebral protection in the infant that has been compromised by a hypoxic insult. Term infants with suspected Hypoxic Ischaemic Encephalopathy (HIE) may be considered for treatment with cooling, (see guidelines for passive cooling).

If HIE is suspected cooling should be started as soon as possible after resuscitation is completed. Passive cooling should be initiated in the delivery room prior to transfer to SCU.

## 8. Thermal Care in SCU

### 8.1 On Admission to SCU

Follow Nursing Care Plan 2 for Temperature Control and document any individual factors

On admission:

- Admit into a nursery that is 22-26c (warmer according to prematurity of infant)
- Choose correct pre-warmed incubator/cot according to condition, gestation and weight of infant to best suit the baby to achieve and maintain a thermo-neutral environment, (see appendix three to aid choice)
- Follow guidelines for humidity for neonates
- Always have warm hands before touching the baby.
- Ensure any surfaces the infant comes into contact with are pre warmed
- Axilla temperature is checked and recorded (every 30 to 60 minutes) until the infant's temperature falls within the accepted range. The frequency of measurement is then decreased according to the condition of the infant. (see Measurement of Temperature in Neonates above).
- If infant is nursed in an incubator attach hydrogel skin temperature sensor (ensuring good contact) and record both skin and incubator temperature (including incubator set temp).
- Change environment according to temperature and condition of infant by adjusting humidity, temperature of incubator, overhead heater, mattress, hot cot or temperature of room to achieve a thermal neutral environment.
- Measure the toe core gap if applicable – By measuring the gap between the core and peripheries will give an indication of cold stress, hypervolemia, infection and iatrogenic overheating. A toe core gap greater than 2-3 °C is abnormal.

- Core and peripherals temperatures are monitored on the very sick intensive care neonate requiring retrieval or when an infant is passively cooled.
- If baby is hypo- or hyper- thermic, medical staff should be informed and axilla readings must be taken more frequently until the babies' temperature has normalized.
- If plastic bag is used remove only once procedures are finished and infant's temperature is within acceptable range.
- Observe minimal handling and keep incubator portholes closed.
- If a neonate undergoes any change of environment or increased exposure, e.g. procedures, phototherapy, new transfer to an incubator or cot, they will require checks for the first few hours until temperature is stable again.

## 8.2 Re-warming a cold infant on SCU

- Determine the cause of low temperature and treat appropriately. Hypothermia may be due to environmental conditions or an underlying disease process
- If Infant is nursed in an incubator
  - Maintain the ambient temperature 1 to 1.5°C higher than the infant's temperature
  - Check humidity is correct for gestation
  - Temperature should be checked every 30 minutes to assess the effectiveness of the intervention, use a skin probe to monitor continuous skin temperature.
  - Increase air temperature hourly by 1°C until the infant's temperature is stable in the normal range. (*Rapid re-warming can provoke apnoeic episode and hypotension or even seizures*)
  - Remove plastic wraps, caps, etc. whilst re-warming as these can trap cold air.
  - Reduce the temperature slowly as the baby warms up
  - Continuously monitor oxygen saturations and administer oxygen as indicated.
  - Check blood sugars regularly to monitor any hypoglycaemia.
- If infant is nursed in a cot consider transferring to:

- a humidified incubator (see above)
- a overhead heated open incubator controlled by skin temperature sensor
- babytherm
- a hot cot/warm mattress

## 9. Weaning from an Incubator to a hot cot

Indicators for weaning are:

- At least 32 weeks gestational age
- Weight of 1500g
- Ambient temperature  $\leq 32^{\circ}\text{C}$  for 24 hours and maintaining a normal temperature with clothing/blanket/hat.
- Medically stable condition with absence of further medical concern
- Consecutive weight gain appropriate to age and gestation
- Tolerating enteral feeds

## 10. Hyperthermia

Hyperthermia rarely occurs in a neonate by means of anything other than an external source. In an actual febrile state the rectal temperature should be higher than a distal temperature. The reverse is true with over heating.

### 10.1 Risk factors for hyperthermia include:

- Over enthusiastic re-warming
- Warming and phototherapy lamps
- Sepsis in the older infant
- Neonatal abstinence syndrome
- Prostaglandin therapy
- Brain damage to areas of thermoregulatory control
- Thyrotoxicosis
- Maternal pyrexia

## 10.2 Signs and symptoms of hyperthermia

- Tachypnoea and apnoea
- Tachycardia
- Increased oxygen requirements
- Metabolic acidosis
- Hypotension
- Lethargy, hypertonia and extended posture
- Irritability
- Flushing

## 10.3 Management of Hyperthermia:

- Document full set of NEWS/ Special Care observations
- Consider any environmental factors e.g. radiant heat source, too many blankets.
  - Check environmental temperature and reduce by 0.5°C at 30-60 minute intervals where possible
  - Remove excess layers and clothing
  - If under a Babytherm, turn radiant heater off and choose the extended lower range (<35°C)
  - Turn the temperature down by 0.5° at 30-60 minute intervals

(Parsons, 2017)

- Discuss with Paediatric medical team if temperature over 37.3°C and rising.
- If the cause is not thought to be environmental, consider infection/ sepsis (please see Sepsis Management Guidelines (early and late onset) for Neonates).

## 11. Associated Documentation

- [Admission of a Baby to SCU Guideline](#)
- [Incubator Humidity in Neonates Guideline](#)
- Newborn Early Warning Score
- [Passive Cooling Guidelines for Neonatal Encephalopathy](#)
- [Transfer of Neonates Standard Operating Procedure](#)
- Care of the Newborn Immediately [After](#) Birth Guideline
- [Sepsis Management Guidelines \(early and late onset\) for Neonates](#)

## 12. Education and Training

Education and training will be provided during orientation and preceptorship and through formal study days and informal training on the ward. Competencies will be assessed and written confirmation issued.

## 13. Standards / Key Performance Indicators

Special Care Unit uses:

- Nice Neonatal Quality Standards
- NHS Toolkit for High Quality Neonatal Services
- National Neonatal Audit Programme
- NHS Standard Contract for Neonatal Critical Care as their Key Performance indicators on which to base care.
- ATAIN – NHS Improvement - Reducing harm leading to avoidable admission of full-term babies into neonatal units

## 14. Process for Implementation & Monitoring Compliance and Effectiveness

- Staff are informed of revised documentation. There is an expectation that staff are responsible to keep updated on any improvements to practice and deliver care accordingly. Data is collected by use of Badger data base and can be used to generate output for clinical and operational benchmarking.

- Data is used for the following purposes, BAPM neonatal dataset (2012), Neonatal Critical Care Minimum Data Set, National Neonatal Dashboard, National Neonatal Audit Programme, Mothers and Babies Reducing Risk through Audits and Confidential Enquiries (MBBRACE) Dataset and South West Neonatal Network Dashboard.
- Admission temperature data is collected and monitored by the South West Neonatal Network dashboard and by the Neonatal Critical Care dashboard.
- Non-adherence to the guideline and moderate to severe hypothermia is reported by use of the Datix system. Incidents are monitored and reviewed by the maternity and neonatal governance teams and action plans made if required.
- Further discussion and reviews occur at Directorate meetings, Maternity/Neonatal/Paediatric Governance meetings and Ward meetings. Learning and action plans are cascaded at these meetings and improvements implemented. Key findings and learning points will be disseminated to relevant staff.

## 15. References

- Born too soon, the global action report on preterm birth. (2012) World Health Organization
- East of England neonatal benchmarking group, clinical guideline: thermoregulation. [www.neonatal.org/documents/5089](http://www.neonatal.org/documents/5089) May 2011
- GOSH. (2014). [Online] Available at: Thermo-regulation for Neonates. <http://www.gosh.nhs.uk/health-professionals/clinical-guidelines/thermoregulation-for-neonates/#References> [Accessed 25/8/14]
- Hackman P (2001). Recognising and understanding the cold-stressed term infant. Neonatal Network, Volume 20, No8
- Jenson, A. (2011) late preterm babies-their problems and care. Infant Volume 7 issue 4
- Karsten, L and Davidson, H. March (2012). Thermal protection of the newborn in resource limited environments. Journal of perinatology 10 (1038) 1-8
- McCall, E.M., Alderdice, F., Halliday, H.L., Jenkins, J.G. and Vohra, S. (2010) Interventions to prevent hypothermia at birth in preterm and/or low birthweight infants. [Cochrane Neonatal Group](#).

- NHS Improvement. (2017). Reducing harm leading to avoidable admission of full-term babies into neonatal units. [Online] Available at: [https://improvement.nhs.uk/uploads/documents/Reducing\\_term\\_admissions\\_final.pdf](https://improvement.nhs.uk/uploads/documents/Reducing_term_admissions_final.pdf) [Accessed 16/1/2018]
- Parsons, H. [2017]. Thermoregulation for neonates. [Online] Available at: <https://www.gosh.nhs.uk/health-professionals/clinical-guidelines/thermoregulation-neonates#Rationale> [Accessed 16/10/2018]
- Plymouth NICU (2010). Thermal Care of the Newborn Guidelines
- Resuscitation Council (UK) (2006) Resuscitation at birth the newborn lie support providers manual. London, Resuscitation Council
- Rennie, J. and Robertson (2012) Rennie and Robertson's textbook of neonatology. 5th Edition. Churchill Livingstone: London
- Turnbull, V. and Petty, J. (2013) Evidence-based thermal care of low birthweight neonates, Part one. Nursing Children and Young People, 25 (2), pp. 18-22.
- UNICEF. (2017). Guide to the Unicef UK Baby Friendly Initiative Standards. [Online] Available at: <https://www.unicef.org.uk/babyfriendly/wp-content/uploads/sites/2/2014/02/Guide-to-the-Unicef-UK-Baby-Friendly-Initiative-Standards.pdf> [Accessed 16/1/18]
- UNICEF. (2018). The Baby Friendly Initiative: Skin to skin contact. [Online] Available at: <https://www.unicef.org.uk/babyfriendly/baby-friendly-resources/implementing-standards-resources/skin-to-skin-contact/> [Accessed 11/10/18]
- Waldron, K and Mackinnon, R. (2007). Neonatal thermoregulation, Infant Volume 3 issue 3
- WHO (1997) Thermal Protection of the Newborn: a practical guide. Maternal and Newborn Health/Safe Unit. Geneva



## Appendix One - Classifications of core body temperature for newborns with actions in the Delivery Suite

(adapted from WHO 1997 for management of newborns)

Classifications of core body temperature for newborns with actions in the Delivery Suite			
TEMP	CLASSIFICATION	MANAGEMENT	ACTIONS
36.6-37.3 <sup>0</sup> c	Normal	Skin to skin, breast feed	Normal care
36-36.5 <sup>0</sup> c	Mild Hypothermia or Cold Stress (cause for concern)	Dress in thin layers, place in hot cot at 37 <sup>0</sup> c (cover not swaddle with warm blankets), until warm, monitor temperature	Consider informing Paediatrician and commencing NEWS observations
35 -35.9 <sup>0</sup> c	Moderate Hypothermia (danger, warm baby)	As above	Inform Paediatrician commence NEWS obs. Complete datix incident
32-34.9 <sup>0</sup> c	Moderate Hypothermia (danger, warm baby)	Admission to SCU	Inform Paediatrician Complete datix incident
<32 <sup>0</sup> c	Severe Hypothermia (outlook grave, skilled care urgently needed)	Admission to SCU	Inform Paediatrician Complete datix incident

### Note

**If babies temperature is below 36.60c on delivery suite or post natal ward, take and record mum's temperature and room temperature also.**

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## Appendix Two – Use of Hot Cot

### Hot cots

#### *Advantages:*

The hot cot is a simple device that is effective at preventing and treating hypothermia in the delivery suite or special/transitional care unit. It is as effective as an incubator for nursing the well preterm infant and enhances bonding with the parents as a physical wall is not interposed between them.

#### *Disadvantages:*

If used to warm near term infants, the hot cot should be removed once the temperature has stabilized as the infant may become too warm and start to sweat, inducing further hypothermia.

#### How to use

1. Pre-warm the mattress 37°C
2. Dress the baby in two thin layers of clothing and cover baby with blankets (ensure baby is not separated from the hot cot by swaddling, blankets etc.)
3. Monitor the infants' temperature regularly
4. As the baby's temperature increases, this is managed by changing the amount of blankets that cover the baby and secondly by changing the temperature in 0.50°C increments.
5. When the lightly dressed and covered baby is maintaining body temperature with a water temperature of about 35.5 - 36°C, then the baby is usually ready for a standard cot that has no warming.

**Appendix Three - Choice of Incubator**

Gestation/weight of infant	Type of Incubator/Cot according to gestation, weight and condition of infant					
<32 weeks gestation or <1500g	Double walled humidified incubator	Giraffe Omnibed				
32-36 weeks gestation or >1500g	Double walled humidified incubator	Giraffe Omnibed	Overhead heated open incubator	Baby Therm	Hot Cot	
>36 weeks gestation		Giraffe Omnibed	Overhead heated open incubator	Baby Therm	Hot Cot	Normal Cot

**Incubators**

- Incubators are now specifically designed to minimize heat losses by radiation, convection, conduction and evaporation whilst allowing clear visibility and access to the neonate. Ambient temperature and humidity are easily controlled. Any neonate less than 1.5 kg should be nursed within an enclosed incubator (Turnbull and Petty 2013)
- Before admission pre heat the incubator temperature according to the specific age and gestation and adjust incubator temperature according to individual response
- Alter set temperature according to the neonate's temperature and adjust by 0.5-1°C every 15-30 minutes, depending on the extent of temperature instability
- Do not leave a neonate inside a switched off incubator
- Do not expose an incubator to direct sunlight. Care and interventions, e.g. suction and nappy care, should be carried out via portholes, avoiding opening the side or roof completely
- The incubator should be changed every seven days, this is recorded in the nursing documentation