



NCCU CLINICAL GUIDELINES
SECTION: 4

THERMOREGULATION

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Infants in incubators
Date Revised: July 2011

Neonatology Clinical Guidelines
King Edward Memorial/Princess Margaret Hospitals
Perth Western Australia

INCUBATORS

KEY POINTS

Heat Balance program

The Heat Balance program is derived from basic physical principles and uses a simple infant model. In reality, infants are individuals and all have their own pattern of heat production and loss. This program can suggest initial incubator settings, however it is essential to have a method of continuously monitoring the infant's thermal state. For this reason, **all** infants are to be nursed with a skin temperature probe. This program is effective for those infants < 1000gms birthweight.

Infants born \leq **30 weeks gestation** or **1500gms** are to be placed into a **humidified incubator** as soon as possible following their admission. (aim for less than 4 hrs from admission) It is recommended that these infants are administered their second dose of surfactant inside an incubator.

A skin temperature probe is to be attached to the infant nursed on 'air' mode to reduce the need for handling the infant frequently when temperature control is unstable. The skin probe may be viewed as a guide and enables the nurse caring for the infant to notice any fluctuations in temperature and be proactive in management to preventing cooling or overheating

Table 1: Neutral Thermal Environment For Infants Day 1 - 5

Age	Birthweight and Temperature Range			
	1000 - 1200g +/- 0.5°C	1201 - 1500g +/- 0.5°C	1501 - 2500g +/- 1.0°C	>2500g and >36 weeks gestation
0 - 12 hrs	35.0	34.0	33.3	32.8
12 - 24 hrs	34.5	33.8	32.8	32.4
24 - 96 hrs	34.5	33.5	32.3	32.0

Table 2: Neutral Thermal Environment For Infants > 5 Days Of Age

Age	<1500g	1501 - 2500g	>2500g and > 36/40 gestation
5 - 14 days	33.5	32.1	32.0
2 - 3 weeks	33.1	31.7	30.0
3 - 4 weeks	32.6	31.4	
4 - 5 weeks	32.0	30.9	
5 - 6 weeks	31.4	30.4	

Note: Within each range, the younger the infant, and/or the lower the infant's weight, the higher the temperature required.

PROCEDURE

- Assess the neutral thermal environment required for the infant. The humidity and temperature settings should be individually assessed for each infant according to weight, gestation and the temperature recordings during the admission process
- Pre warm an incubator to 2 degrees above that required by the infant.
- **Once the infant is in position in the incubator, set the incubator to the** required air temperature in air control mode.
- If the infant is less than 30weeks gestation and requiring humidity a temperature probe **must** be used to provide a guide to infant's temperature.
- Apply the temperature probe on the lateral abdomen or the outer flank if the infant is laying prone..
- Measure and document infant's PA temperature immediately prior to transferring to an incubator
- Less than 30 weeks correlate PA temp with temperature probe. Differences of 0.5 degree are acceptable. 30 mins after transfer to incubator.
- Once accuracy of skin probe is confirmed, monitor continuously, **record hourly.**
- If the infant's axilla temperature rises above 37⁰C, reduce the air temperature 0.5⁰C every hour until the infant's temperature falls within the target range
- If the infant's temperature falls below 36⁵C, increase the incubator temperature by increments of 0.5⁰C every hour until the temperature is within the target range. Adjust humidity accordingly . Recheck within an hour of making any adjustments. The temperature probe will provide a guide during this time as to the reading of the infants temperature.

DOCUMENTATION

PA temperature 4 hourly

Incubator and temperature probe 1 hourly.

NB the infant should be observed through the portholes to reduce fluctuations in air temperature and creating drafts across the infants body.

Dressing the infant in an incubator.

All infants in incubators should be dressed and wearing a hat unless the following exists

- ***Central umbilical lines***
- ***Extreme levels of humidity***
- ***Skin condition is extremely poor***
- ***Phototherapy***

INCUBATORS FOR OTHER USES PHOTOTHERAPY / ISOLATION

Phototherapy:

1. Reduce the incubator temperature by 0.5^o when phototherapy commences; increase the incubator temperature by 0.5^oC immediately on completion of phototherapy until the infant can be dressed / GOOI.
2. If the infant's temperature >37^oC reduce the incubator temperature. May need to transfer into an open cot.
3. If overheating occurs with infants in an incubator due to isolation / observation, remove any clothes, turn setting down to minimum.
4. Do not leave portholes open.
5. Do not turn off incubator power.

Isolation:

6. Depending on the weight and age of the infant the incubator should be set at the appropriate temperature to maintain the PA temperature within the target range.
7. Peripheral temperature probes may be used to reduce handling of the infant.

CARE OF THE INCUBATOR

- daily clean the incubator with soap and water
- change incubator monthly or if otherwise soiled that creates a need for thorough cleaning.