

Thermoregulation of neonate in Transport setting

Thermoregulation is one of the most important principles in neonatal care. The maintenance of the neonate's temperature in the transport setting is primary responsibility of the transport team. The neonate needs to be kept in a neutral thermal environment. The neutral thermal environment is where the neonates' body temperature is maintained within a normal range with minimal metabolic rate and oxygen consumption.

The reasons for problems in thermoregulation during transfer include

- Increased amount of handling
- Lack of incubator humidity
- Lack of humidified inspired gases
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Neutral thermal environment

- the environment in which the neonates body temperature is maintained within a normal range with minimal metabolic rate and oxygen consumption
- Normal neonatal body temperature should be 36.7 to 37.2°C
- Neonates with conditions at risk from thermal instability include low birth weight, impaired neurologic function and endocrine systems, cardio respiratory distress and congenital abnormalities.
- Monitoring the neonate's temperature during transport is crucial. The effects of thermoregulatory instability can cause
 - Acidosis
 - Reduced surfactant production
 - Circulatory failure
 - Is Increased risk of physiological morbidity/mortality
- The axilla is the site of choice when taking a temperature. Continuous monitoring via the integral incubator temperature probe alleviates the need to disturb the neonate and consequently effect the neutral thermal environment in the transport incubator.
- Rectal temperature monitoring is not the mode of choice at this time.
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Solutions

- Pre heat the transport incubator to within the required parameters for at least 30 minutes while plugged into the mains.
- Avoid non-essential procedures prior to transfer
- Ensure adequate temperature of baby prior to leaving referring unit (ie at least 36°C and increasing).
- Minimise exposure to cool air during transfer into incubator, turn off any air conditioning/fans.
- Keep doors on incubator closed as much as possible.
- Avoid unnecessary re-weighing
- Ensure close collaboration with receiving hospital staff for optimal receipt of baby.
- Ensure the temperature probe is positioned correctly and is in good working order
- Ensure the neonate is wearing a hat

- Use a Transwarmer mattress as appropriate (for all infants under 30 weeks gestation), use a thin cover only to protect the infants skin. Remove the transwarmer when cools.
- Liaise with the ambulance team and have the heating at the appropriate level in the vehicle. Ambulance doors and windows should be shut prior to loading the transport incubator
- Use a piece of bubble wrap to cover the neonate to maintain the body temperature. Ensure the bubble wrap is clean and if unsure clean with an alcohol wipe.
- If heat stress is suspected then remove all blankets and open the portholes in the transport incubator.

References

Handbook of Pediatric and Neonatal Transport Medicine (Second Edition)
David G. Jaimovich MD and Dharmapuri Vidyasagar, MD, MSc.
Hanley & Belfus, Inc. Philadelphia 2002

Before the transport team arrives: Neonatal Stabilisation
Jenine D. Wright, RNC,MN
The Journal of Perinatal and Neonatal Nursing Vol 13(4) March 2000 p87-107