NEWBORN THERMOREGULATION

Beliefs, Practices, and Potential for Behavior Change to Improve Quality of Care
This program has been developed solely for the purposes of describing knowledge regarding neonatal thermoregulation, before and after participation in an online educational intervention with a one-month practice-change follow-up. The program is posted as a part of this project’s educational intervention and is intended only for such use. The study has been approved for this purpose by the Chamberlain College of Nursing Institutional Review Board. Please find the link to return to the survey at the end of the slides.
Objectives

By the conclusion of this presentation, participants will be able to:

1. Determine beliefs related to improved newborn thermoregulation
2. Describe practices related to improved newborn thermoregulation
3. Identify potential for behavior and practice change related to improved newborn thermoregulation
Randomized controlled trials demonstrate a need for improved skills, knowledge, integrative abilities specific to neonatal thermoregulation (Vohra et al., 2013). Moreover, the literature has identified a need to further facilitate thermoregulation in very low-birth-weight infants (Bissinger & Annibale, 2010; Miller, Lee, & Gould, 2011). Of additional concern, is the feasibility and effectiveness of managing infant thermoregulation in the primary care setting (Lunze, Bloom, Jamison, & Hamer, 2013; McCall et al., 2010). Research suggests a need to impact beliefs, practices, and potential for behavior change to improve thermoregulation of infants (Hill et al., 2010).
Newborn Thermoregulation

- Keeping babies warm by providing optimal thermal environments and effective interventions
- Evidence-based Practice (EBP)
- Hypothermia is often due to lack of attention by healthcare providers and continues to be very important cause of neonatal deaths & illness severity
Newborns Vulnerability to Hypothermia

- Large surface area per unit of body weight
- Decreased thermal insulation, less subcutaneous fat and reduced brown fat
- Metabolism of brown fat results in heat production, through circulation transfers heat to other parts of the body, also known as non-shivering thermogenesis
Thermal Balance:

- As newborns lose heat by *evaporation* (amniotic fluid from skin), *conduction* (contact with cold objects), *convection* (air currents causing cold air to replace warm air), and *radiation* (colder solid contact).

- The process of heat gain is by *conduction*, *convection* and *radiation* in addition to non-shivering thermogenesis (newborns cannot shiver in their first 12 hours of life).
Ideal Setting (Hospital):

“Healthy newborn babies should remain with their mothers”

- Immediately after birth, the baby requires assessment, stabilization and identification. Temperature, heart rate and respiratory rates, skin color, adequacy of peripheral circulation, type of respiration, level of consciousness, tone, and activity should be monitored and recorded at least once every 30 minutes until the newborn’s condition has remained stable for 2 hours (AAP & ACOG).

- If the mother has chosen to breastfeed, the baby should be placed at the breast within an hour of birth (AAP & ACOG)
Thermoregulation

Issues:

- Immediately after birth, initiate actions to maintain and promote an Neutral Thermal Environment (NTE), such as the following:

- Thoroughly dry the neonate and place a pre-warmed blanket over the neonate's back and a dry cap on the head.

- Provide immediate and sustained skin-to-skin contact, or Kangaroo Care, between mother and infant whenever possible.

- The premature infant who requires assistance with transition should be dried completely with pre-warmed towels and placed on a preheated radiant warmer bed with temperature controls in place.

- Assess axillary temperature within 30 minutes of life. In preterm infants, axillary temperature should be 97.7°–99.3° F (36.5°–37.4° C).
Critical Issues:

If the neonate becomes hypothermic:

- Place in Kangaroo Care, in an incubator or under a radiant warmer
- Monitor temperature every 30 minutes until it is within normal limits, and
- Review risk factors and potential signs of illness.
Newborn Thermoregulation: *Beliefs*

- Newborn drying behaviors are important in order to preserve thermoregulation.
- During which the basic metabolic rate of the baby is at minimum, oxygen utilization is least and baby thrives well.
- Maintaining a thermo neutral environment is essential to newborn care.
Newborn Thermoregulation: Practices

- Newborn drying behaviors should occur: immediately following delivery by drying or warm resuscitation.
- Newborn wrapping behaviors should occur once the infant assessed, stable and/or with sustained skin-to-skin contact.
- Assists in maintaining newborns temperature, facilitates breastfeeding, and improves bonding.
Newborn Thermoregulation

“Bathing Behaviors”

- Keep the bath duration as short as possible.
- Use a sponge bath or swaddled bath.
- Ensure that the bath water temperature is appropriate 98.6 - 99.5°F (37 - 37.5°C) (Consider using a thermometer to test water temperature before bathing).
- Minimize or avoid drafts in the room.
- Ensure that the minimum room temperature is between 69.8° and 71.6°F (21° and 22°C).
- Use pre-warmed towels for drying.
- Dry the newborn immediately after bathing, place a diaper and dry cap on the baby, and wrap her in warm blankets.
Newborn Thermoregulation: 

**Potential for Practice Change**

- Delivery room management that focuses on the adaptation of the infant as well as early interventions that improve long-term outcomes may emphasize the "golden hour" of care and improve outcomes in this extremely vulnerable population.

- **Golden Hour: 1st hour of life**
Newborn Thermoregulation: Cultural Beliefs

- Cultural beliefs impact neonatal thermoregulation
- Understanding of current behaviors & beliefs is beneficial to helping make changes especially for home births, or setting where resources are limited
- Knowledge building to overcome behavioral change barriers is key to learning effective interventions to prevent newborn hypothermia and to improve outcomes
Newborn Thermoregulation:

*Cultural Practices*

- Cultural practices impact neonatal thermoregulation
- Community interventions for thermal care of the newborn is a key component to reduce infant morbidity & mortality around the globe
- Do Not: Wait for the delivery of the placenta, this practice delays drying and wrapping
Implementation of Evidence-Based Practice

**Best Practice Recommendations:**

- **Transitional (First 6–12 Hours After Birth) and Ongoing Assessment and Care**

- Assess gestational age and determine whether the infant is small for gestational age, appropriate for gestational age, or large for gestational age.

- Monitor respiratory rate, type of respiration, tone, and activity at least every 30 minutes until the newborn’s condition has remained stable for 2 hours. Continue respiratory status assessment at least every 4 hours for the first 24 hours and then once per shift with routine assessments.

- Monitor heart rate, perfusion, and muscle tone at least every 4 hours for the first 24 hours of life and then once per shift with routine assessments.

- Encourage rooming in and Kangaroo Care whenever possible.

- Maintain a neutral thermal environment (NTE).
Quality Improvement

Goals & Objectives:

- Recognize that there is a gap between care and optimal care, practice should be evidence-based to decrease practice variation and maximize outcomes for newborns.

- It is important to pay attention to thermal stability of each newborn from all aspects of care.

- Understand and implement improvement interventions that can change the nature of newborn thermal care beliefs & practices.
Translating Research Evidence into Practice

- Reduce heat loss after birth
- Minimize heat loss during care
- Promote thermal stability

The Evidence-Based Clinical Practice Guideline was developed for AWHONN, the Association of Women's Health, Obstetric and Neonatal Nurses, as an informational resource for nursing practice. The Guideline does not define a standard of care, nor is it intended to dictate an exclusive course of management. It presents general methods and techniques of practice that AWHONN believes to be currently and widely viewed as acceptable, based on current research and recognized authorities.
References


Proper care of individual patients may depend on many individual factors to be considered in clinical practice, as well as professional judgment in the techniques described in the original guideline document. Variations and innovations that are consistent with law, and that demonstrably improve the quality of patient care, should be encouraged.

Copyright Statement:

Some of this summary is based on the original guideline which is copyrighted by the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) and protected by copyright law. This summary is available for public use and may be downloaded from the NGC Web site and/or transferred to an electronic storage and retrieval system for personal use. Notification of AWHONN for any use of the summary is appreciated but not required.


“Change is the end result of all true learning”

(Leo Buscaglia)
Thank you for participating in this project! Please slowly drag your mouse over the live link below to activate and then click on the URL to return to the post-test (you may need to wait briefly for the link to connect):

https://www.surveymonkey.com/s/SCXRS92