Hypothermia is defined as a core temperature below 36°C. The healthy baby tries to maintain his temperature within the normal range and continues to adapt to the extra uterine life within the first week after birth. Thermoregulation in a newborn is easily disturbed because their neurological systems are not fully developed at birth. Certain characteristics such as low subcutaneous fat, exposure of baby to cold and low birth weight increase the risk of hypothermia.

Hypothermia in newborn is a worldwide problem especially during cold weather and in countries where marked difference between day and night temperature are observed. A study conducted in Nepal revealed that during the winter months over 80 percent of the infants born become hypothermic after birth and 50 percent remained hypothermic at 24 hours. Many more research evidences are available to support the role of environmental temperature in the development of hypothermia.

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Hypothermia in newborn is classified as ‘mild’ or under cold stress when its temperature at birth is 36.0 – 36.4°C (96.8-97.5°F), ‘moderate’ 36.0 – 36.1°C (96.8-97.5°F) and ‘severe’ when it is below 32°C (89.6°F).

Risk Factor and Causes
Hypothermia in newborn is due to certain factors such as variation in intrauterine temperature and birthing room temperature, evaporation of amniotic fluid from the baby’s skin, thin subcutaneous fat layer, limited ability of newborn to shiver which helps to generate heat, immaturity of hypothalamus, heat loss by conduction, convection, evaporation and radiation. Other risk factors include asphyxia, use of anaesthetic or analgesic drugs, infection or other illness of baby and inadequate measure taken to keep baby warm before and during transportation.

In hospitals, common reasons of hypothermia include: incorrect care of baby at birth, delivery room temperature cool, improper wrapping of baby after birth and leaving wet. In domiciliary deliveries, the causative factors are: lack of knowledge among families and traditional birth attendants regarding the importance of drying and wrapping of newborn immediately after birth.

Clinical Manifestations
In early signs baby look pale or mottled, cold to touch, less active, not taking feed and has a weak cry.

In later or severely hypothermic babies, sclerma, a hardening of the skin associated with reddening and oedema may occur on the back and limbs or over the whole body. The baby becomes lethargic and develops slow, shallow and irregular breathing, slow heart beat, low blood sugar, metabolic acidosis, generalised bleeding and respiratory distress. Mortality rate is increased if proper measures are not adopted during birth or after birth.

Prolonged hypothermia may cause impaired growth and make the newborn more vulnerable to infection, increase the incidence of respiratory distress, metabolic acidosis, jaundice and death of neonates regardless of weight and gestational age.

Role of Community Health Nurse in Prevention & Management of Hypothermia:
A majority of Indian population is living in rural area, where the neonatal health services are poor and disorganised. The National Rural Health Mission (NRHM) in India has set the objective of reducing infant mortality rate (IMR) to 30 per 1000 live birth by 2020. Achieving this objective will require a reduction in newborn death of over 50 percent in less than a decade. There is need to have a massive health initiative to train paramedical personnel particularly trained birth attendants, ASHA, FMPW in antenatal care, safe delivery, neonatal resuscitation, provision of asepsis, warmth and adequate feeding.

The main components of essential newborn care like prevention of hypothermia and sepsis, neonatal resuscitation, exclusive breast feed-
Essential Newborn Care (ENC) Interventions

<table>
<thead>
<tr>
<th>Provider contacts/visits</th>
<th>Skill attendance</th>
<th>Provider contacts/visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Tetanus toxoid immunisation</td>
<td>- Clean delivery</td>
<td>- Exclusive breast feeding</td>
</tr>
<tr>
<td>- Adequate diet</td>
<td>- Prevention of hypothermia</td>
<td>- Warmth</td>
</tr>
<tr>
<td>- Iron, folate ( &amp; iodine)</td>
<td>- Immediate breast feeding</td>
<td>- Hygiene, cord care</td>
</tr>
<tr>
<td>- Syphilis detection &amp; treatment</td>
<td>- Prophylactics eye care</td>
<td>- Immunisation</td>
</tr>
<tr>
<td>- Malaria prophylaxis</td>
<td></td>
<td>- Maternal nutrition</td>
</tr>
<tr>
<td>- Breast feeding counseling</td>
<td></td>
<td>- Birth spacing counselling</td>
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<td>- Birth preparedness</td>
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In Community Health Services, Midwifery services should be a priority. A trained newborn care provider is essential at birth in home deliveries. A nurse must have knowledge of baby’s transitional requirements. Provision of an optimal thermal environment is paramount in facilitating a successful transition to extra uterine life. The baby’s temperature can drop by as much as 3-4.5°C within the first minute. So a nurse first needs to assess the environment of delivery setting. It should be safe and warm place for delivery. Other tips include:
- Switch off all the fans.
- Close curtains to reduce heat loss.
- Dry the baby after birth.
- Remove wet towel. After drying wrap the baby in a dried or pre-warmed towel or in logger as done in Indian villages.
- Skin to skin contact with mother is essential.
- Bathing and weighing of baby should be postponed.
- The Mother should continue breast feeding.
- Avoid unnecessary exposure while caring baby.
- Teaching the parents the need to prevent chilling.
- In case of deterioration in child’s health, transfer the baby to hospital under safe environment.

References