CARE OF AT-RISK AND SICK NEONATES

The module is designed to complement in-service education orientation and continuing education of nursing personnel involved in care of newborns.

LEARNING OBJECTIVES

At the end of this session, participants will be able to:

- **Teach the mother how to look after her baby and what to do if her baby has any health problems**
- **Identify and manage at-risk and sick neonates**

MODULE CONTENTS

The module includes following elements:

- ***Text material:*** Easy to read format for quick reproduction and essential reference material for the participants. Key messages are highlighted in the boxes.
- ***Role-play:*** Observing the procedure of 'counseling before discharge'. Participants will also be provided with opportunity to role play.
- ***Oral drill:*** You will learn how to classify neonates as normal, at-risk and sick.
- ***Self-evaluation:*** At the end of text, a self evaluation based on what has been learnt is included. Feel free to consult your text material, if you need assistance in recapitulating.

I. CARE OF AT-RISK NEONATES

1. WHO IS AN 'AT-RISK' NEONATE?

An 'at-risk' neonate has one or more of the following features:

1. Weight 1500-2499g
2. Temperature (axillary) 36.0°C-36.4°C
3. Babies with moderate or severe hypothermia who respond to warming
4. Cried late (>1min) but within 5 minutes of birth
5. Sucking poor, but not absent
6. Depressed sensorium, but is arousable
7. Respiratory rate of over 60 per minute, but no chest retractions
8. Jaundice present, but no staining of palms/soles
9. Presence of any one of the following:
   - Diarrhea or vomiting or abdominal distension
   - Umbilicus draining pus or pustules on skin
   - Fever

2. CARE OF AT-RISK NEONATES

2.1 Where should an at-risk neonate be managed?

The care of 'at-risk' neonate should be initiated at the health facility itself under direct supervision. After initial improvement, further care can be provided at home.

2.2 What care is provided to the at-risk baby at the health facility?

The care of at-risk babies is outlined below:

2.2.1 *Warmth*

The details are explained in a separate module (Refer to 'Thermal Protection' module).

The steps are dependent up on the current temperature of the baby (see below).

Temperature	Management
Normal temperature	Prevent hypothermia • Wrap the baby in layers of clothing • Cover the head and limbs • Place the baby in direct contact with mother • In winter months, the room may have to be warmed with heater, angeethi etc
Cold stress (temperature between 36.0°C and 36.4°C)	Treat hypothermia • Wrap the baby with extra layers of clothing • Cover the head and limbs • Place the baby in close contact with the mother, preferably skin-to-skin • In winter months, heat the room with a heater, angeethi etc.
Hypothermia (Temperature <36.0°C)	• Requires immediate exposure to a radiant heat source (such as radiant warmer) or heater • Other measures same as for cold stress

2.2.2. *Stabilization*

Most of these babies do not require stabilization other than prevention for hypothermia as above. If there is occasional apnea, physical stimulation may be provided.

2.2.3 *Feeds*

Feeding of at-risk infants is explained in another module (Refer to the module on 'Feeding of normal and low birth weight baby).

The baby is started on direct breast feeding. If not sucking well, she is provided expressed breast milk by spoon or paladai. Occasionally, expressed breast milk may have to be given by gavage feeding.

2.2.4 *Specific therapy*

Some simple conditions can be readily treated at the health facility and later at home.

Condition	Treatment
Umbilical redness/pus discharge	Local application of 1% gentian violet and syrup cotrimoxazole 1/3 tsf BDX5days
Skin pustules	Local application of 1% gentian violet
Pneumonia (Respiratory rate >60/min, no chest retractions)	Syr Cotrimoxazole 1/3 tsf BD x 7 days (or syrup Amoxycillin 1.25ml TDSx7days)

2.2.5 *Monitoring*

The following signs should be monitored every two hours:

Signs to be monitored	
Temperature	Convulsion
Sucking	Bleeding
Sensorium	Diarrhea
Respiration	Vomiting
Apnea	Abdominal distension
Cyanosis	

*All the signs should be monitored **2 hourly***

2.2.6 *Re-evaluation*

After stabilization and/or specific therapy, the baby has to be re-evaluated for improvement.

The two cardinal signs of improvement are:

i. The temperature will become normal (36.5°C -37.5°C) and

ii. The baby will accept feeds well.

Other signs such as rapid breathing, depressed sensorium, abdominal distention etc. will also start improving. Such a baby can be sent home after advising the mother/family regarding care at home. Prepare a brief note regarding baby's condition, treatment and advice.

On the other hand, if the baby does not improve and exhibits signs indicative of sick state, he should be referred to other hospital. The mother/family should be taken into confidence and the physician should organize efficient and stable transport of the baby.

2.2.7 *Communication*

Communication with the family, especially the mother is very important during the management of at-risk and sick neonates. Health workers should inform the mother frequently regarding the baby's condition - whether it is improving or not.

If the condition improves, the family has to be reassured; mother should be explained about the care of the baby at home. A note has to be made regarding the baby's condition and care.

If the condition does not improve, the family needs to be explained regarding the need for referral and transport. They should be guided about where to take the baby for further treatment. Mother has to be counseled regarding the care during transport.

Communication with the family

1. Reassure the mother and family.
2. Prepare a note regarding baby's condition and care.
3. If baby improves and is to be sent home, explain care of the baby at home.
4. If baby does not improve or worsens, explain the need for referral and care during transport.

3. FOLLOW - UP

3.1 Advice about follow-up visits

Mother has to be advised regarding the time of follow-up visit, whether the baby is referred or sent home (See table).

As we can see from the table, one visit by the health worker at home is a must after discharge. This improves the relationship between the family and the health worker and also leads to better understanding of the home environment.

Condition	Time of follow-up visit
If sent home	***Health worker:*** *to visit next day* ***Mother (with the baby):*** *to be called after two and seven days*
If referred	***Health worker:*** *to visit one day after discharge from hospital* ***Mother (with the baby):*** *to be called after two and seven days of discharge from hospital*

3.2 What advice should you give to mother and family regarding home care?

3.2.1. Keep the baby warm

Baby should be kept well clothed taking care to cover the head and limbs. He should be dried quickly if urine or stool is passed. Maternal contact, preferably skin to skin should be practiced. This not only provides warmth from mother's body, but also promotes lactation and close mother-baby bonding. Warming of the room with heater or angeethi may be required in winter. Baby should be bathed only when the weight of the baby is over 2000g and that also if the baby has no other features that characterize him at-risk. Bathing an 'at-risk' baby may aggravate his condition severely.

3.2.2. Provide exclusive breast milk feeding

Baby should be provided only breast milk. Often an at-risk baby can suck adequately on the breasts. Some babies, however, may not suck well for a few days. These babies may be provided expressed breast milk by spoon/paladai. It should be emphasized that baby must be put on the breast first, to provide stimulus for lactation. This should be followed by expression of breast milk and assisted feeding with spoon or paladai. The mother should be explained the method of manual expression of breast milk and feeding with spoon.

3.2.3. Continue the prescribed treatment

If the baby has been advised local gentian violet application on the cord for umbilical sepsis or on skin for pustules, that advice should be followed at home also. Babies prescribed oral cotrimoxazole for mild pneumonia should be administered the medication regularly.

3.2.4. Observe progress of baby

The mother / family should be explained that signs of well being of the 'at-risk' neonate are: (i) the baby accepts feeds well and (ii) (s)he has warm trunk, warm and pink soles and palms.

The baby should also be monitored for any danger signs described above.

In case any of these features are present or persistent or have reappeared, the baby should be re-evaluated without delay.

3.2.5. Counsel and educate the mother and family

The doctor & nurses team should explain the condition of the baby to the mother

and the family. They should be reassured and educated regarding the care at home. Emphasis should be laid on keeping a careful vigil for signs of improvement and of worsening. It should be stressed upon them that a baby may require re-evaluation any time if the progress is not satisfactory or if there is worsening. Above all, the health care provider must encourage the mother/family to gain confidence in looking after the baby.

3.2.6. Follow-up

A home visit by the health worker one day after evaluation at hospital is desirable. Thereafter the baby should be seen again after 2 and 7 days by health worker.

At follow up baby's weight should be taken. A gain of 10-15 g/kg per day is expected after 7 to 10 days of age. Immunization should be provided as for other neonates.

SELF EVALUATION

1. An 'at-risk' neonate will have:
   a. Birth weight: _____
   b. Sensorium: _____
   c. Respiratory rate:_____
   d. Yellowness of skin, but no_____

2. The staff nurse should monitor the following signs every 2 hourly in 'at-risk' neonates:

_____	_____
_____	_____
_____	_____
_____	_____

3. Follow-up care of 'at-risk' neonate includes:

Condition	Time of follow-up visit (for health worker)	Time of follow-up visit (for mother)
If sent home	_____	_____
If referred	_____	_____

4. Signs of well-being in an 'at-risk' neonate include:

_____

_____

_____

_____

5. Where is 'at risk' neonate managed?

_____

_____

6. What advice you give for home care of 'at risk' baby?

_____

_____

You will be given individual feedback after you have evaluated yourself.

II. CARE OF SICK NEONATES

1. WHO IS A 'SICK' NEONATE?

A sick neonate is the one who has any of the following features:

1. Weight <1500 g
2. Temperature <36°C despite warming for one hour
3. Cried after 5 minutes of birth
4. Absent sucking
5. Not arousable
6. Respiratory rate more than 60/min with chest retractions
7. Apnea or gasping respiration
8. Central cyanosis
9. Jaundice staining palms/soles
10. Convulsions
11. Bleeding
12. Major malformation
13. Presence of two of the following
    - Diarrhea or vomiting or abdominal distension
    - Umbilicus draining pus
    - Multiple skin pustules
    - Fever

Also remember that if an 'at-risk' neonate does not improve while being observed under your care, he is also considered a sick neonate.

2. CARE OF THE SICK NEONATE

2.1 Where is sick neonate managed?

A sick neonate is looked after in a district or small hospital.

2.2 What can be done at the hospital?

At smaller health facility, only immediate care is provided. The principles of care at this level are:

2.2.1. Warmth

The guidelines for provision of warmth have been covered in the Module on 'Thermal Protection'.

2.2.2. Stabilization (Refer to the modules on 'Emergency Triage in common procedures')

The sick neonate may need physical stimulation, bag and mask ventilation or oxygen if there is respiratory failure. If necessary, an intravenous access has to be established and the following medications administered (as per the doctor's orders):

- Inj. Dextrose (10%) 2ml per kg IV stat followed by drip

- Inj. Normal saline 10 ml per kg IV slowly over 10 minutes if pulses are poor or capillary refill time is over 3 seconds.
- Inj. **Vit. K 1 mg IM** (If not given at birth)

2.2.3. Feeds (Refer to the module on 'Feeding of normal and low birth weight baby)

In a sick newborn, oral feeding should not be insisted upon. (s)he shall be started on intravenous fluids depending upon the level of sickness. Once the baby becomes stable, he should be put on the mother's breast and allowed to breast feed. If he is unable to do so, he should be given expressed breast milk by either gavage or spoon/paladai. Intravenous fluids should be stopped as early as possible.

2.2.4 Specific therapy

Doctor will order for the first dose of antibiotics:

- Inj Ampicillin 50 mg/kg IV stat
- Inj Gentamicin 2.5 mg/kg IV stat
- Vitamin K and anticonvulsants, if indicated

Oxygen may be started in a baby with respiratory distress or central cyanosis.

2.2.5. Monitoring

The following signs should be monitored every one hour by staff:

Signs to be monitored	
Temperature	Convulsion
Sucking	Bleeding
Sensorium	Diarrhea
Respiration	Vomiting
Apnea	Abdominal distension
Cyanosis	Capillary refill time
*All the signs should be monitored **hourly***	

2.2.6 Communication

- Explain condition of the baby, reassure parents
- Explain need for referral, if doctor feels that baby cannot be managed
- Explain care during transport

2.2.7 Organize transport (Refer to the module on 'Common Procedures: Transport of Neonates')

Doctor will write a precise note. Following guidelines should be followed:

- Encourage mother to accompany
- If possible, let a health care provider accompany the baby
- Ensure warmth on the way

Explain family the care to be provided during transport (keep baby's trunk and palms / sole warm to touch, keep airway open, physical stimulation if apneic)

Take baby to nearest facility by fastest mode of transport by the shortest route

SELF EVALUATION

Let us see how much you have learnt about 'AT RISK' and 'SICK' Neonate:

1. What are the signs you will monitor in a sick neonate?

   _____

   _____

2. What is the immediate care given for a sick baby?

   _____

   _____

3. How frequently would you monitor

   a) At risk neonate : _____

   b) Sick neonate : _____

4. Mark (✓) for 'sick' neonate
   a. Weight 1800g
   b. Jaundice staining plams/soles
   c. Cried after 5 minutes of birth
   d. Axillary temperature 36.2°C
   e. Respiratory rate >60/mt without retractions

5. Organization of transport for 'sick neonate' must ensure.

   _____

   _____

   _____

   _____

You will be given individual feedback after you have evaluated yourself.

ORAL DRILL

There will be an oral drill by the facilitator.

Clinical	Normal Neonate	'At Risk' Neonate	Sick Neonate
Weight	≥2500g	1500 - 2499g	<1500g
Temperature	36.5-37.5°C	36.0-36.4°C	<36°C
Cry after birth	<1 min	1-5 min	>5 min
Sucking	Good	Poor	Absent
Sensorium	Active	Depressed	Non arousal
Respiration	Rate <60/min	Rate ≥60/min but NO retractions	Retractions/ Apnea/Gasping
Jaundice	Absent	Present without staining of palms/soles	Staining of palms/soles
• Diarrhea • Vomiting • Abdominal distension • Umbilical discharge (pus) • Multiple skin pustules • Fever	None	Presence of any one	Presence of two
• Central cyanosis • Convulsions • Bleeding • Major malformation	None	None	Presence of any one

Note: If the baby has multiple signs, (s)he gets classified into the sickest category

Recommended reading

- Postnatal Care of the mother & newborn , WHO HQ's recommendations 2013.
- Standard Treatment Protocols for management of common newborn conditions at small hospitals , WHO SEARO 2013.