Care of a normal newborn baby

Slide NC-I,2

The events during first few minutes and hours of life have an immense bearing on the immediate and long term outcome of the infant. The basic principles of care at birth are the same whether the baby is managed by a doctor or any other health professional and whether the baby is delivered at home or in the hospital. The aims of neonatal care at birth include the following:

(i) Establishment of respiration
(ii) Prevention of hypothermia
(iii) Establishment of breastfeeding
(iv) Prevention of infection
(v) Identification of at risk neonates

Slide NC-3

Care of the normal newborn can be divided in four sections.

(i) Preparations before delivery
(ii) Immediate care at birth.
(iii) Care after birth
(iv) Essential postnatal care

Slide NC-4, 5, 6,7

In our country nearly eighty percent of births take place at home. It is necessary that at least the following minimum preparations are done before birth of a baby:

Preparation for home delivery

1. Select a clean part of the home for delivery. It must be a well lighted and ventilated area.
2. Keep enough linen which has been washed and sun-dried for use at

the time of delivery of the baby. Ensure that clean and boiled water is readily available before/during delivery.

3. Ensure that a DDK (disposable delivery kit) is available (with the family) for use at the time of delivery. If not, ensure that a new boiled blade is available for cutting the cord at birth.
4. Ensure that a clean sheet is spread on the floor, the room is kept warm and free of draught.
5. Ensure that a trained health personnel is contacted before delivery so that the birth is attended by a trained personnel.
6. Provide the mother with information as to when she must seek medical help during her pregnancy.
7. Follow the 'five cleans' which must be followed to prevent infection in the newborn - Clean hands, clean cord tie, clean cord, clean surface and clean blade.

Preparation for institutional delivery

Each delivery room must have a well-lighted, well-ventilated and warm microenvironment without droughts to receive the newly born baby. This baby care area meant for the baby in the delivery room should have

(a) Warming device which may be either an overhead radiant warmer or electric heater or bakery heating lamp or simple 100 or 200 watt electric bulb kept about 18 to 20 inches (50 cm) above the baby. Preferably a room thermometer and wall clock with seconds hand may be fitted in the same corner.

(b) Clean sterile linen (preferably autoclaved) in the form of towels, bed sheets, baby caps, blankets etc should be available. At least two towels should be provided for each baby, one for drying and one for wrapping.

(c) Cord clamps, cord cutting instruments, cord tying material, cotton swabs, gauze pieces.

(d) Oxygen supply, suction device, resuscitation equipments including extra bulbs and cells for the laryngoscope, tape, scissors etc. must be checked well in advance and arranged in such a fashion that they are easily available, ready to use during emergency situations.

(e) Weighing scales, measuring tapes, identification tags, clinical

thermometers (if available, rectal and low reading one).

(f) A tray of medication may include spirit for cord dressing, distilled water / normal saline for cleaning eyes, silver nitrate, tetracycline or erythromycin ointment, Vit. K ampoules and medication needed during resuscitation i.e. epinephrine, 7.5% sodium bicarbonate, injection syringes 2cc, 5cc and insulin syringes for small dosages.

Slide NC - 8, 9, 10

Immediate care at birth

The umbilical cord should be clamped as soon as the infant is completely delivered. There should be no undue delay or unnecessary anxiety or hurry to clamp the cord. Early and immediate clamping of the cord is indicated in babies with severe birth asphyxia, cord around the neck and rhesus iso-immunization.

To determine whether the baby requires resuscitation or not, five questions regarding the state of the baby need to be asked. These questions are

1. Is the baby clear of meconium?
2. Is the baby breathing or crying?
3. Is there good muscle tone?
4. Is the baby pink?
5. Is the baby born at term?

If the answers to all these questions are in the affirmative then the baby requires only ***routine care***. Over 90 per cent of the newborn babies are vigorous term babies with no risk factors and clear amniotic fluid. They do not require any active resuscitation and hence they do not need to be separated from their mothers. These babies are provided initial steps in a modified manner by putting the baby over the mother's chest and wiping the baby dry. Now the baby and the mother are in close skin to skin contact and the duo should be covered by dry warm linen. The airway can be cleared by wiping the baby's nose and mouth if needed. Ongoing assessment of the breathing, colour and activity must be continued even as the baby is with the mother to determine need for additional interventions.

Supportive care is provided to those babies who have prenatal or intrapartum risk factors, meconium staining of the skin, cord or amniotic fluid, depressed breathing or activity, and/or cyanosis. These babies should be evaluated and managed under a warmer and should receive the initial steps as appropriate. The baby should be placed flat with 1/2 inch to 3/4 of an inch towel roll under the shoulders to maintain slight extension of the neck for ensuring open airways. The mouth should be suctioned first followed by suctioning of the nose using a 10 Fr catheter. The suction force should be gentle and intermittent with a maximum suction pressure of 100 mm of Hg (130 cm of water). Suctioning should not be for more than 2-3 seconds at a time. The baby should be dried from top to bottom and the wet linen should be discarded. Reposition the baby supine using the shoulder roll and assess for breathing/crying. If the baby is not breathing stimulate the baby by two firm flicks on the sole or two firm rubs on the back. These steps usually take around 20 to 30 seconds and by this time most babies are vigorously crying, moving actively and are pink. Centrally cyanosed baby should be provided free flow oxygen for 30 seconds. Prolonged stimulation or use of violent maneuvers like pouring cold water on the baby's face and slapping the back are not only dangerous, but useless resulting in delay in the resuscitation of the baby.

All those babies who do not start breathing after the initial steps need further resuscitation using positive pressure ventilation and/or chest compression along with/without medications and these need to be transferred into the neonatal unit for ***Ongoing care;*** *For neonatal resuscitation refer to module on Neonatal Advanced Life Support, AAP / AHA recommendations.*

Slide NC -11, 12, 13

Care after birth

After having ensured that the baby has established effective breathing, it is essential that all efforts are made to prevent the occurrence of hypothermia. The baby should be resuscitated under a radiant warmer or any heat source and should be adequately covered thereafter. A sterile disposable delivery kit should be used for each baby to prevent cross infection. The eyes should be cleaned with sterile normal saline using one

swab for each eye. When prophlyaxis against gonococcal ophthalmia is required, it can be ensured either by instillation of 1.0 per cent silver nitrate drops or 0.5 per cent tetracycline or erythromycin ophthalmic ointment. The umbilical cord should be tied using two sterile ligatures or rubber band or a disposable clamp. The clamp or ligature should be applied at least 2 to 3 cm beyond the base of the cord to avoid inadvertent incision of gut contained in minor exomphalos. **Do not apply anything on the cord.** Vitamin K 1.0 mg is administered intramuscularly to all babies weighing more than 1000 gms, and 0.5 mg to babies weighing less than 1,000 gms at birth.

Quick but thorough clinical screening is essential to identify any life threatening congenital anomalies and birth injuries. The cut end of the umbilical cord should be inspected for the number of vessels. Normally there are two umbilical arteries and one umbilical vein. The presence of a single umbilical artery is associated with internal congenital malformations in 15 to 20 per cent of cases. The commonly associated malformations include oesophageal atresia, imperforate anus and genito-urinary anomalies. Single palmar crease (Simian crease) has increased association with additional anomalies including Down Syndrome. The face and head should be closely observed for any asymmetry and dysmorphic features. While crying, if the angle of the mouth and the mandible are pulled down and the infant has asymmetric crying, it is indicative of hypoplasia of the depressor angularis oris muscle. This is a useful marker of associated cardiovascular anomalies and congenital dislocation of hips. The infant should be examined for location and patency of all the orifices because anomalies are frequently encountered around the orifices. The oral cavity must be examined to exclude cleft palate. The patency of the oesophagus should be checked by passing a stiff rubber catheter into the stomach in the following situations:

(i) Small-for-dates baby
(ii) Single umbilical artery
(iii) Polyhydramnios
(iv) Excessive drooling of saliva

If there is no oesophageal atresia and the catheter has reached the

stomach, gastric contents should be aspirated. If gastric aspirate exceeds 20 ml in volume, it is strongly suggestive of high intestinal obstruction due to pyloric or duodenal atresia. The anomalies are concentrated over the mid-line areas in the front and back e.g. spina bifida, meningomyelocele, pilonidal sinus, ambiguous genitalia, hypospadias, exomphalos, cleft lip and cleft palate etc. The abdomen should palpated for any masses and heart examined for its position and any murmurs.

Displacement of the heart towards the right side in association with respiratory difficulty and resuscitation problems is suggestive of either diaphragmatic hernia or pneumothorax on the left side.

Slide NC-14

Essential postnatal care

(1) Nurse the baby in thermo-neutral environment. The baby should be warm to touch and soles should be pink.

(2) Check the umbilical stump

- It should be clean and dry
- The tie should be tight
- There should be no bleeding

(3) Check the skin specially at the creases i.e. neck, groin and axilla for any pyoderma.

(4) Check that the baby has good sucking. If sucking is poor, ensure correct positioning and attachment to breast.

(5) Check that the baby is crying well and, has no breathing difficulty. If baby has breathing difficulty or any other danger signals refer to appropriate healthcare facility.

(6) Advise the mother regarding the immunization schedule.

Maintenance of body temperature

Newborn babies are homeothermic but their thermoregulatory mechanisms are physiologically unsatisfactory. They are prone to develop hypothermia unless adequate precautions are taken to protect them. *For details of temperature regulation refer to topic on hypothermia in newborn.*

Slide NC -15

Care of the umbilical stump

The umbilical cord is an important portal of entry for *Clostridium tetani* in domicilliary midwifery. Health personnel must be told the importance of using a sterile disposable dai-kit to prevent the occurrence of tetanus neonatorum. Cord should be cut with a sterilized blade or a new boiled stainless steel blade. Umbilical stump must be inspected after 2 to 4 hours of ligation. Bleeding may occur at this time due to shrinkage of cord and loosening of the ligature. The use of a rubber band or disposable clamp safeguard against this hazard. Nothing should be applied on the cord. The cord must be left open without any dressing. It usually falls after 5 to 10 days but may take longer if it has been kept moist or if it gets infected and in immunocompromised babies. The stump should be inspected for any discharge or infection and kept clean and dry till complete healing takes place.

Slide NC -16

Skin care

Clean the baby off blood, mucus and meconium before presenting to the mother. Bathing of babies soon after birth is not recommended. Postpone bathing preferably for 24 hours and ensure that baby's temperature is normal before giving bath. *For details of baby bath, refer to topic on hypothermia in newborn.*

It is preferable to perform the ritual of bathing and nursing toilet of each baby by the cot-side. This would provide a unique opportunity for imparting health education and seeking active participation of the mother. Special attention should be paid to cleaning of the scalp, skin creases (neck, axillae, groins) and the diaper area. Vigorous attempts should not be made to scrub off the vernix caseosa which provides a protective covering to the delicate skin of the baby. During the procedure of bathing or sponging, the nurse should specifically look for any superficial infections like pyoderma, umbilical sepsis, conjunctivitis or oral thrush, etc. and bring them to the notice of the physician. Hand washing, barrier nursing, as also

storing separately the various articles for baby use in individual lockers, is desirable to prevent nosocomial infections.

Slide NC -17

Care of the eyes

The eyes should be cleaned at birth and once every day using sterile cotton swabs soaked in sterile water or normal saline. Each eye should be cleaned using a separate swab. The cultural practice of instillation of human colostrum in the eyes has been found to be useful in reducing the incidence of sticky eyes. The practice of applying kajal in the eyes is not recommended because it may cause trauma, transmit infections like trachoma or may even cause lead poisoning. Tetracycline 1% or erythromycin 0.5% ointment is recommended for prophylaxis of gonococcal opthalmia. If the eyes are sticky they can either be managed by frequent cleaning using sterile cotton swabs soaked in normal saline or by instillation of 10% sulphacetamide eye drops every two to four hours. Some neonates may develop persistent epiphora due to blockage of nasolacrimal duct by epithelial debris. The mother should be advised to massage the nasolacrimal duct area (by massaging the outer side of the nose adjacent to the medial canthus) 5 to 8 times a day, each time before she feeds the baby.

Slide NC -18

Summary: Home care

1. Keep the umbilical stump clean and dry
   Do not apply anything on the cord stump
2. Protect the baby from cold\heat by wrapping\clothing according to the climate.
   - If baby is cold to touch, rewarm by skin-to-skin contact and thereafter dress in appropriate clothing including cap and stockings
   - If baby is too warm, undress the baby
3. Exclusively breastfeed the baby till 6 months frequently day and night. (Do not give the baby any other food, including water, give only breast milk).
   - Feed the baby on demand day and night
4. Do not apply anything in the eyes

Slide NC -19

Weight change pattern in term baby

Most healthy term babies lose weight during the first 2 to 3 days of life. The weight loss is usually upto 5 to 7 per cent of birth weight. The weight remains stationary during next one to two days and birth weight is regained by the end of first week. There is no need to monitor early weight changes in a healthy newborn baby because it can cause unnecessary anxiety to the mother and may lead to lactation failure. Babies who are adequately fed, are contented, playful, have good sleep and are satisfied for atleast two to three hours after a feed. An adequately fed baby passes urine at least 5 to 6 times in a day while babies pass urine (even stools) after each feed during the first 3 months of life. The average daily weight gain in term babies is around 30 g, 20g and 10g during the first, second and third, 4-month periods respectively during the first year of life. Normally a baby gains about 800 gms per month during the first 3 months.

Slide NC -20

Early identification of disease (Danger signs)

Most mothers observe their babies carefully and are often concerned about minor physical peculiarities and problems which are of no serious consequence. She must be adequately informed and appropriately advised regarding the innocuous nature of these minor problems to allay her anxiety. The infant should be closely watched for following danger signs which should be brought to the attention of the physician for prompt management.

Lethargy, bleeding from any site, appearance of jaundice within 24 hours of age or yellow staining of palms or soles, failure to pass meconium within 24 hours or urine within 48 hours, persistent vomiting or diarrhea, poor feeding, excessive weight loss (>10% in term and 15% in preterm), undue lethargy or excessive crying, drooling of saliva or choking during feeding, respiratory difficulty, apneic attacks or cyanosis, sudden rise or fall in body

temperature, seizures and evidences of superficial infections such as conjunctivitis, pustules, umbilical sepsis or oral thrush. *Refer topic on Danger signs.*

Slide NC -21

Follow up

Each baby should be followed up in the well baby clinic for assessment of growth and development, early diagnosis and management of illnesses and health education of parents. Follow up visits should be made to coincide with immunization schedule as far as possible.

Slide NC -22

Immunizations

It is recommended to give BCG, Hepatitis B and a dose of oral polio vaccine as early as possible, preferably within the first week of life. The mother should be explained that the child must receive all the vaccinations at the proper time as recommended in the National Immunization Schedule (Table I).

TABLE 1: Schedule of immunization

Age	Vaccine	Optional
0-7 days	BCG, OPV, Hepatitis B	-
6 weeks	OPV, DPT, Hepatitis B	Hib
10 weeks	OPV, DPT, Hepatitis B*	Hib
14 weeks	OPV, DPT, Hepatitis B	Hib
9 months	Measles	-
15 months	MMR	
18 months	OPV, DPT	Hib
School entry		
(4-5 years)	OPV, DT	-
10 years	Tetanus toxoid (every 5 years)	

* If first dose is not given at birth then this dose of Hepatitis B vaccine needs to be given