
Management of Low Birth Weight Babies

Low birth weight (LBW)

- **Definition** : **Birth weight <2500 g**
- **Incidence** : **30% of neonates in India**

LBW: Significance

- 75% neonatal deaths and 50% infant deaths occur among LBW infants
- LBW babies are more prone to:
 - Malnutrition
 - Recurrent infections
 - Neuro developmental delay

LBW babies have higher mortality and morbidity

Types of LBW

2 types based on the origin

Preterm

- < 37 completed weeks of gestation
- Account for **1/3rd** of LBW

Small-for-date (SFD) / intra uterine growth retardation (IUGR)

- < 10th centile for gestational age
- Account for **2/3rd** of LBW neonates

Causation: LBW

Etiology of prematurity

- Low maternal weight, teenage / multiple pregnancy
- Previous preterm baby, cervical incompetence
- Antepartum hemorrhage, acute systemic disease
- Induced premature delivery
- Majority unknown

Causation: LBW

Etiology of SFD / IUGR

- Poor nutritional status of mother
- Hypertension, toxemia, anemia
- Multiple pregnancy, post maturity
- Chronic malaria, chronic illness
- Tobacco use

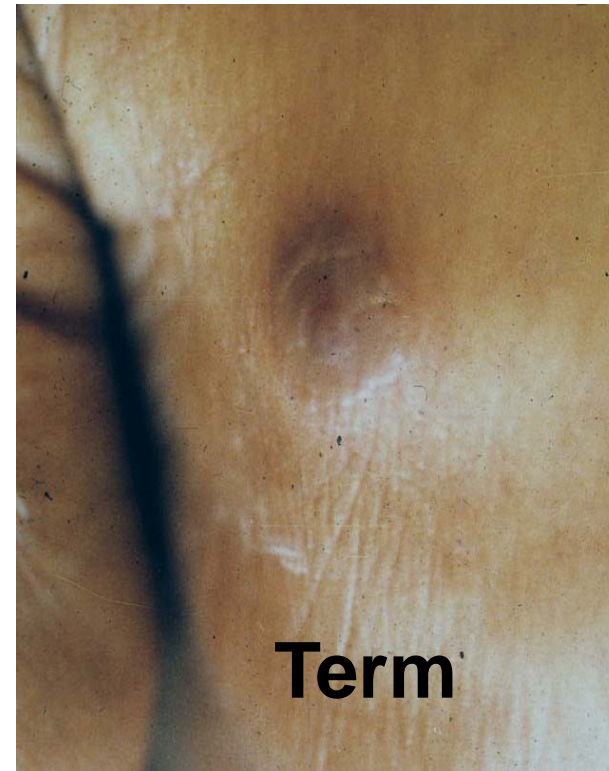
LBW: Identification of types

Prematurity

- Date of LMP
- Physical features
 - Breast nodule
 - Genitalia
 - Sole creases
 - Ear cartilage / recoil

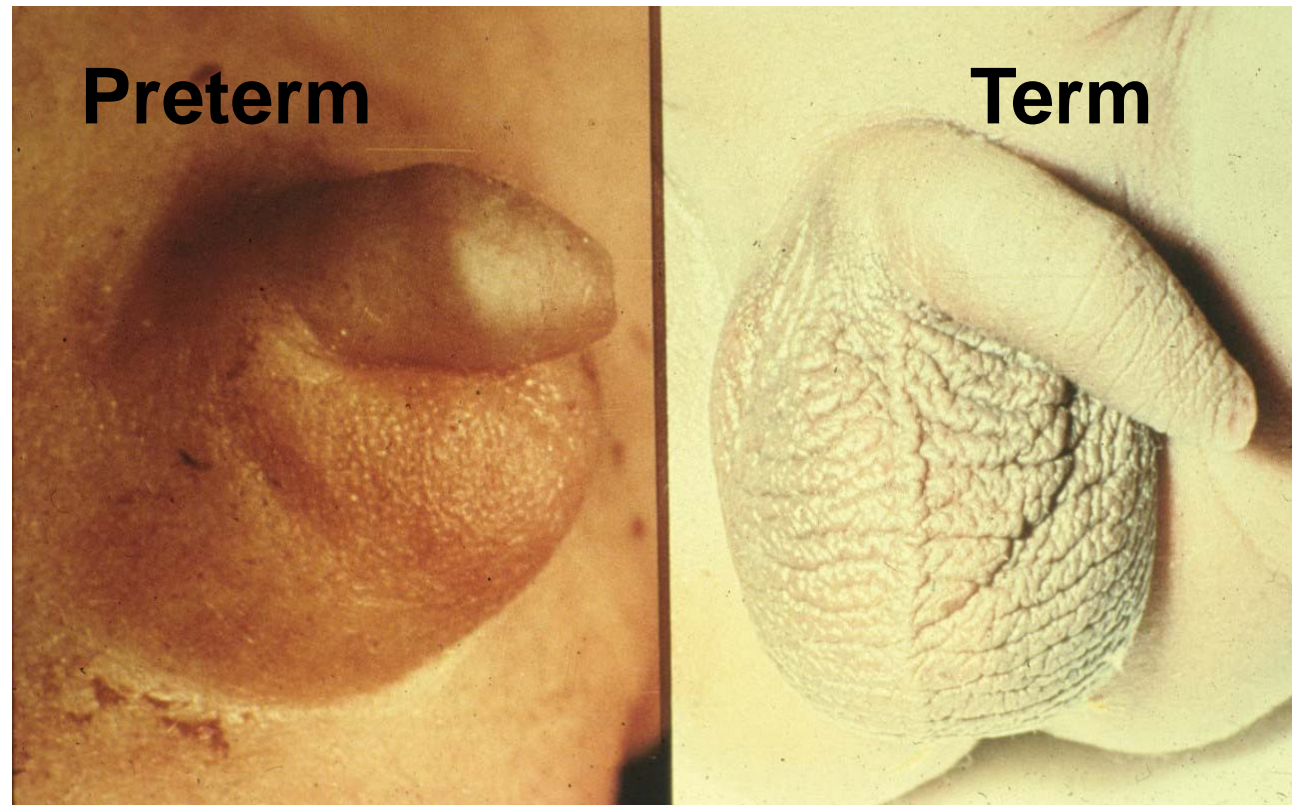
Identification: Preterm LBW

Breast nodule



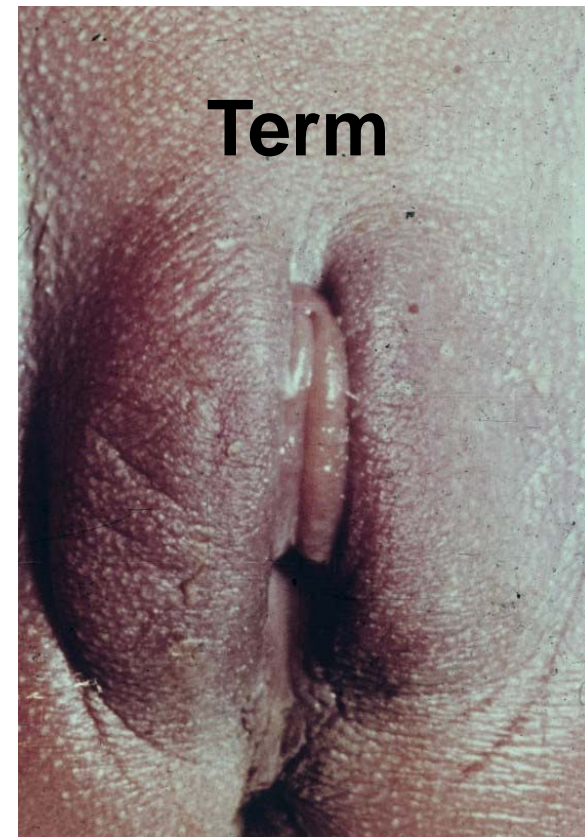
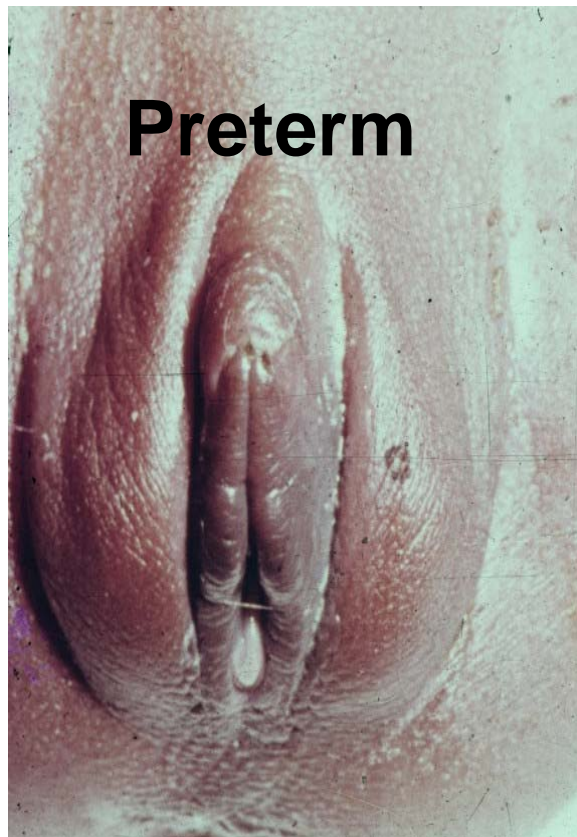
Identification: Preterm LBW

Male genitalia



Identification: Preterm LBW

Female genitalia



Identification: Preterm LBW

Sole creases

Preterm



Term

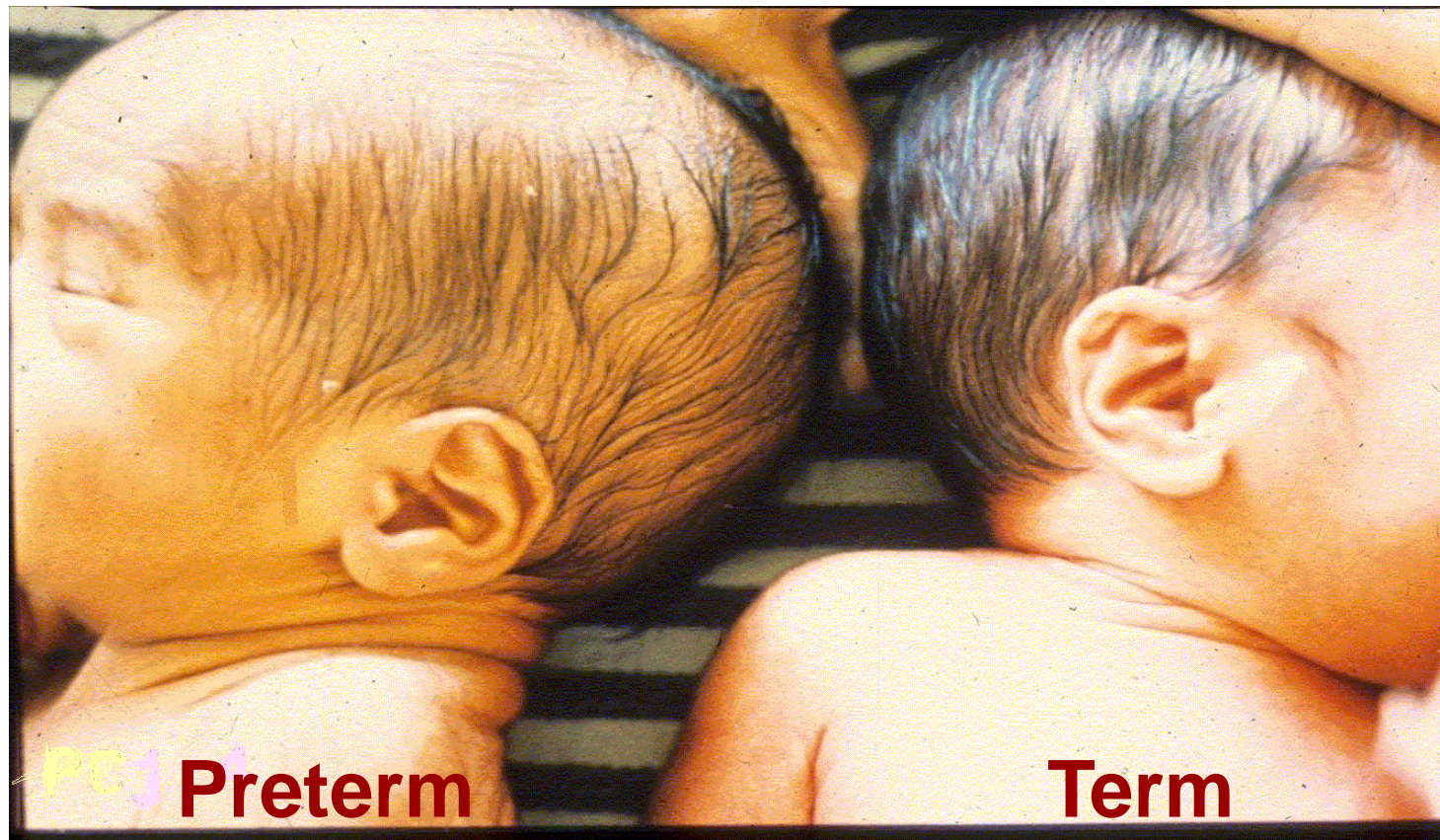


Teaching Aids: NNF

LBW-11

Identification: Preterm LBW

Ear Cartilage

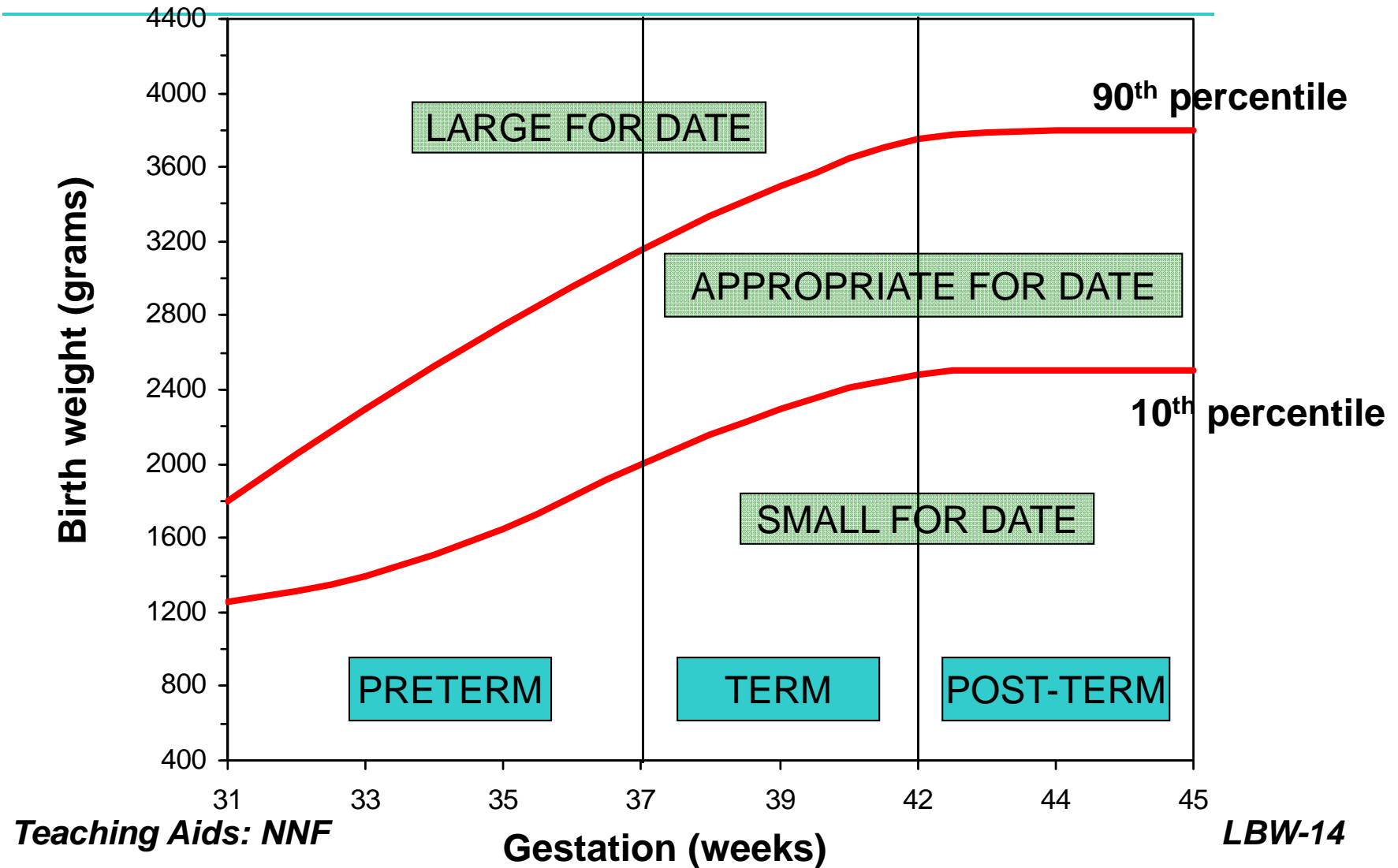


LBW: Identification of types

SFD / IUGR

- Intrauterine growth chart
- Physical characteristics
 - Emaciated look
 - Loose folds of skin
 - Lack of subcutaneous tissue
 - Head bigger than chest by >3cm

Intrauterine growth chart



Identification: SFD / IUGR

2.1 Kg - IUGR



Teaching Aids: NNF

3.2 Kg - AFD



LBW-15

LBW (Preterm) : Problems

- Birth asphyxia
- Hypothermia
- Feeding difficulties
- Infections
- Hyperbilirubinemia
- Respiratory distress
- Retinopathy of prematurity
- Apneic spells
- Intraventricular hemorrhage
- Hypoglycemia
- Metabolic acidosis

LBW (SFD) : Problems

- Birth asphyxia
- Meconium aspiration syndrome
- Hypothermia
- Hypoglycemia
- Infections
- Polycythemia

LBW: Issues in delivery

- Transfer mother to a well-equipped centre before delivery
- Skilled person needed for effective resuscitation
- Prevention of hypothermia - topmost priority

LBW: Indications for hospitalization

- Birth weight <1800 g
- Gestation <34 wks
- Unable to feed*
- Sick neonate*

*** Irrespective of birth weight and gestation**

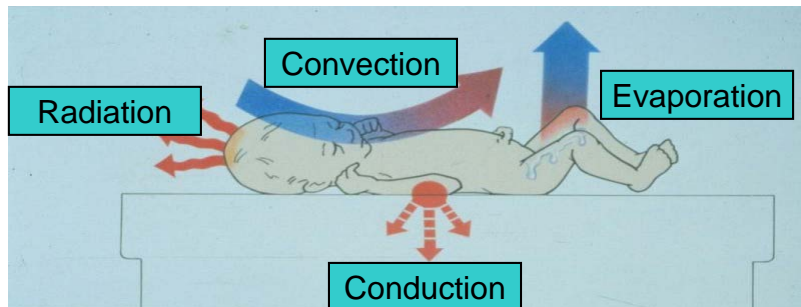
LBW: Keeping warm at home



Skin-to-skin contact

Birth weight (Kg)	Room temperature (°C)
1.0 – 1.5	34 – 35
1.5 – 2.0	32 – 34
2.0 – 2.5	30 – 32
> 2.5	28 - 30

Warm room, fire or heater



Prevent heat losses



Baby warmly wrapped

LBW: Keeping warm at home

Well covered newborn



LBW: Keeping warm in hospital

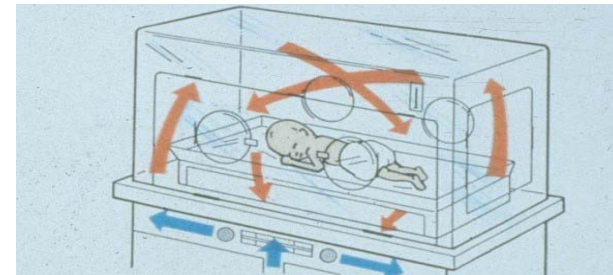
- Skin-to skin method
- Warm room, fire or electric heater
- Warmly wrapped



Radiant warmer



Heated water-filled mattress



Air-heated Incubator

LBW: Keeping warm in hospital

Overhead Radiant warmer



Teaching Aids: NNF

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LBW: Fluids and feeding

Weight <1200 g; Gestation <30 wks*

- Start initial intravenous fluids
- Introduce gavage feeds once stable
- Shift to katori-spoon feeds over next few days. Later on breast feeds

*** May try gavage feeds, if not sick**

LBW: Fluids and feeding

Weight 1200-1800 g; Gestation 30-34 wks*

- Start initial gavage feeds
- Katori-spoon feeding after 1-3 days
- Shift to breast feeds as soon as baby is able to suck

* May need intravenous fluids, if sick

LBW: Fluids and feeding

Weight >1800 g; Gestation > 34 wks*

- Breast feeding
- Katori-spoon feeding, if sucking not satisfactory on breast
- Shift to breast feeds as soon as possible

LBW: Feeding schedule

- Begin at 60 to 80ml/kg/day
 - Increase by 15ml/kg/day
 - Maximum of 180-200ml/kg/day
- First feed at 2 hrs of age then every 2 hourly

LBW: Feeding

Gavage feeding



LBW: Feeding

Katori-spoon feeding



Guidelines for fluid requirements

- First day 60-80 ml/kg/day
- Daily increment 15 ml/kg till day 7
- Add extra 20-30 ml/kg for infants under radiant warmer and 15 ml/kg for those receiving phototherapy

Fluid requirements (ml/kg)

Day of life	Birth Weight	
	>1500 g	1000 – 1500g
1	60	80
2	75	95
3	90	110
4	105	125
5	120	140
6	135	155
7 onwards	150	170

LBW: Adequacy of nutrition

Weight pattern*

- Loses 1 to 2% weight every day initially
- Cumulative weight loss 10%; more in preterm
- Regains birth weight by 10-14 days
- Then gains weight up to 1 to 1.5% of birth weight daily

Excessive loss or inadequate weight

- Cold stress, anemia, poor intake, sepsis

*** SFD - LBW term baby does not lose weight**

LBW: Supplements

- Vitamins : IM Vit K 1.0 mg at birth
Vit A* 1000 I.U. per day
Vit D* 400 I.U. per day
- Iron : Oral 2 mg/kg per day from
8 weeks of age

***From 2 weeks of age**

Danger signals (Early detection and referral)

- Lethargy, refusal to feed
- Hypothermia
- Tachypnea, grunt, gasping, apnea
- Seizures, vacant stare
- Abdominal distension
- Bleeding, icterus over palms/soles

Transportation of LBW baby

- Adequate warmth
- Life support
- With mother
- Referral note

Prognosis

- Mortality
 - Inversely related to birth weight and gestation
 - Directly related to severity of complications
- Long term
 - Depends on birth weight, gestation and severity of complications