Preventive medicine in OBS, Paediatrics, and Geriatrics

1. Low Birth Weight -

Defination →

- According to WHO, a newborn is said to have low birth weight (LBW) if it weighs less than 2500g within 1 hour of birth, irrespective of the period of gestation.
- According to Indian scientists birth weight of 2kg or less is considered the criteria to call LBW, because of the widespread prevalence of maternal malnutrition.

Grading →

- Grading of newborn as per birth weight.

>3500g	– Obese
3500–2500g	– Normal birth wt
2500–2000g	– LBW
2000–1000g	– VLBW
<1000g	– Extremely LBW

Determinants of Birth Weight →

- Birth weight is determined by 2 processes:
  - i. Length of gestation period
  - ii. Intrauterine growth rate
- Accordingly there are 2 types of LBW babies:

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i. Preterm baby

ii. Small for date or Intrauterine Uterine Growth Restricted babies.

- Preterm baby is the, born after 28 completed weeks and before 37 completed weeks of gestation i.e b/w 196 to 259 days. It occurs in 30% of all LBWs in India.

- Small for date baby is a newborn, which is smaller and lighter than what it should have been for that pregnancy period due to failure in the Intrauterine growth.

Risk factors for LBW →

a) Maternal factors –

- Low maternal age (<18yrs) or high age (>35 yrs).
- Short maternal stature (<145 cm)
- Poor nutrition and low-pregnancy weight.
- Anemia, infections (TORCH), HTN, Heart disease.
- Smoking, alcohol, drug abuse
- Short birth interval and high parity.

b) Socioeconomic factors –

- Poverty
- Illiteracy
- Poor housing, sanitation & heavy physical work during pregnancy.

c) Pregnancy-related factors –

- Multiple pregnancy (twins / triplets / quadruplets)
- Placental insufficiency

. PIH, Pre-eclampsia.

Problems experienced by LBW babies →

i. Thermal regulation – Hypothermia due to large surface area, poor fat stores, immature thermoregulation.

ii. Respiratory distress syndrome (RDS), Apnea of prematurity.

iii. Feeding difficulties – Poor suck and swallow reflex → inadequate nutrition.

iv. Hypoglycemia, Hyponatremia, Hypocalcemia

v. Infections – high susceptibility due to low immunity.

vi. Jaundice, Anemia, Polycythemia

vii. High mortality and Poor survival

viii. Neurological pblms – Intraventricular hemorrhage, cerebral palsy.

ix. Growth retardation, Neurodevelopmental delay, Retinopathy of Prematurity (ROP), Chronic lung disease.

x. Hypoxia.

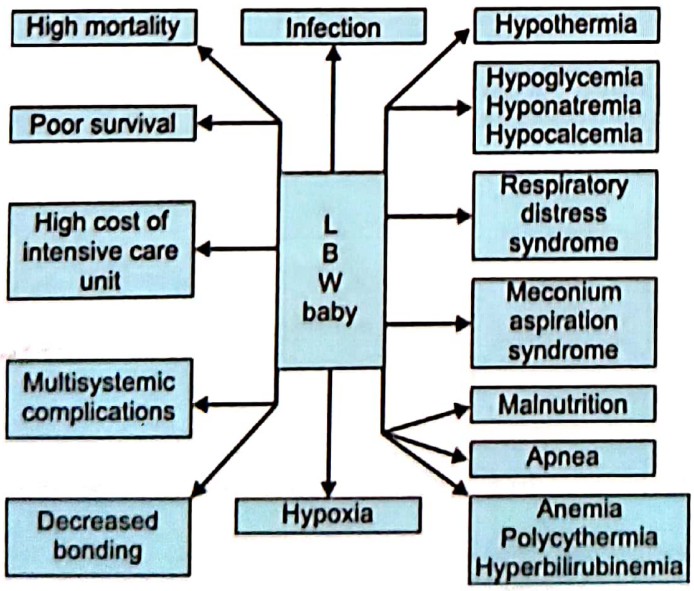

Fig. 22.5 Problems of LBW infant

Steps to prevent LBW →

a) Before conception –

- Improvment of girls health & nutrition from childhood.
- Raising age of marriage and 1st pregnancy.
- Health education, family planning to ensure adequate birth spacing.

b) During Pregnancy (Antenatal Care) –

- Adequate maternal nutrition (balanced diet, IFA supplementation).
- Early detection & treatment of maternal diseases (Anemia, PIH, infections)
- Tetanus immunization.
- Adequate rest and avoidance of heavy physical work.
- Avoidance of smoking, alcohol, drugs.
- Regular ANC checkups.

c) At community / Public health level –

- Poverty alleviation, female education, women empowerment.
- Maternity benefit schemes (Janani Suraksha Yojana, Pradhan Mantri Surakshit Matritva Abhiyan).
- Nutritional support programmes for women.

Computation of LBW →

– The extent of the problem of LBW is calculated as the % of total live births weighing less than 2500g at birth, in a given area, during a given year:

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(%) Proportion of LBW = $\frac{\text{No. of new borns with birth weight}}{\text{Total no. of live births.}} \times 100$

Magnitude of LBW →

- As per WHO criteria, the incidence of LBW in India is 33% each year (varies from 30-40%) and as per india it is only 5.5%.
- Approximately 25 million LBW babies are born every year all over the world. Out of which nearly 5 million die globally and nearly 1 million in India alone.
- LBW babies therefore represent a burden for the health and social systems globally.

2. *Maternal Mortality Rate (MMR)*-

Defination →

- "Maternal mortality rate is defined as the no. of maternal deaths due to complications of pregnancy, during childbirth and within 42 days of delivery per 1000 live births in a given year.
- Maternal mortality ratio is expressed per 1,00,000 live births.

$$MMR = \frac{\text{No. of deaths of mothers during pregnancy, childbirth or within 42 days of delivery, in a given area, during a given year}}{\text{Total no. of livebirths in the same area and year.}} \times 1000$$

- Late maternal death" is death of a woman from 43rd day of delivery to 1 year.

Causes of MMR →

i. **Obstetric causes** –

a) Antenatal – Toxemias (Pre-eclampsia ; eclampsia), ante-partum hemorrhage, placenta previa, multiple pregnancies, ectopic pregnancy, criminal abortion, incomplete abortion.

b) Intranatal – Uterine rupture, Prolonged labor, obstructed labor, amnoitic fluid embolism, anesthetic shock during C-section.

c) Postnatal – Postpartum hemorrhage, Thrombophlebitis, Puerperal sepsis.

ii. **Medical causes** – Anemia, malnutrition, associated underlying systemic diseases (cardiac, respiratory, renal).

iii. **Social causes** – These are not the cause of maternal death but they are predisposing factors making the pregnancy and childbirth a risky venture.

Those are poverty, illeteracy, ignorance, overcrowding, poor living conditions, lack of sanitation .. etc.

Preventive and Control Measures for Reduction of MMR →

i) **Efficient ANC** → Such as early registration, minimum 4 ANC visits, provision of IFA supplements, identification of high-risk pregnancies, immunization s timely referral of high risk mothers are essential.

ii) **Efficient Intranatal Care** → Provision of safe delivery by skilled

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birth attendants, identification of danger signals, promotion of institutional deliveries, emergency obstetric care and giving special attention.

iii) Efficient PNC → Promotion of speed recovery by regular PNC checkups and postnatal advice, encouraging early ambulation, availability of blood transfusion facilities.

iv) Family welfare services → Counseling of newly married couple not to conceive before 20 yrs and after 30 yrs of age; spacing for more than 3yrs b/w the pregnancies, limiting the no. of children.

v) Health education → About nutrition, drugs, excercise, habits, personal hygiene, about taking treatment for personal illness.

vi) Other services → Encouraging female literacy & socioeconomic development of the community through active community involvment.

National Programmes Implemented to Reduce MMR in India →

- Reproductive and Child Health (RCH) Programme.
- "Janani Suraksha Yojana" (JSY) – a safe motherhood intervention under the National Health Mission.
- "Janani Shishu Suraksha Karyakram" (JSSK) – for free delivery, free drugs, diagnostics, diet and transport."
- "Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) – for assured, comprehensive and quality antenatal care."
- "LaQshya Programme – Labor Room Quality Improvement Intiative."

. "Maternal Death Surveillance and Response".
. National Health Mission (NHM) as the umbrella programme for strengthening maternal health services.

Magnitude →

- It is estimated that globally, nearly 5 lakh maternal deaths occur every year.
- About 99% of this occurs in developing countries and hardly 1% in developed countries.
- South Asia has highest MMR in the world.
- The current national MMR in India is 2.12/1000 live births (2010).

3. Childhood Mortality Rates, their Causes and Preventive

- The mortality in children reflects the socio-economic development of a country and the efficiency of its health services.
- IMR is considered a sensitive indicator of community health and the quality of maternal and child health services.
- India has made significant progress in reducing childhood mortality, yet neonatal, infant and under-5 mortality remain public health concerns.

Childhood Mortality Rates →

1) **Infant Mortality Rate (IMR) :-**

- The no. of deaths of a children below one year of age, in a given area, during a given year, per 1000 live births is called IMR.

Formula

$$\text{IMR} = \frac{\text{No. of deaths of infants, in a given area during a given year}}{\text{Total no. of livebirths in the same year}} \times 1000$$

ii) **Neonatal Mortality Rate (NMR) →**

- The no. of deaths of newborns under 28 days of age per 1000 live births in a given year.

Formula

$$\text{NNMR} = \frac{\text{No. of deaths of newborns within first 28 days of birth in a year}}{\text{Total no. of livebirths during the same year}} \times 1000$$

- Early Neonatal Mortality Rate (ENMR) – The number of deaths of newborns under 7 completed days of life per 1000 live births in a given year.

- Late Neonatal Mortality Rate (LNMR) – The no. of deaths of newborns from 7 days to under 28 days of age per 1000 live births.

iii) **Post Neonatal Mortality Rate (PNMR) →**

The no. of deaths of infants from 29 days to under 1 year of age per 1000 live births in a given year.

Formula

$$\text{PNNMR} = \frac{\text{No. of deaths of infants (children) between 29 days and one year of age in a given year}}{\text{Total no. of livebirths in the same year}} \times 1000$$

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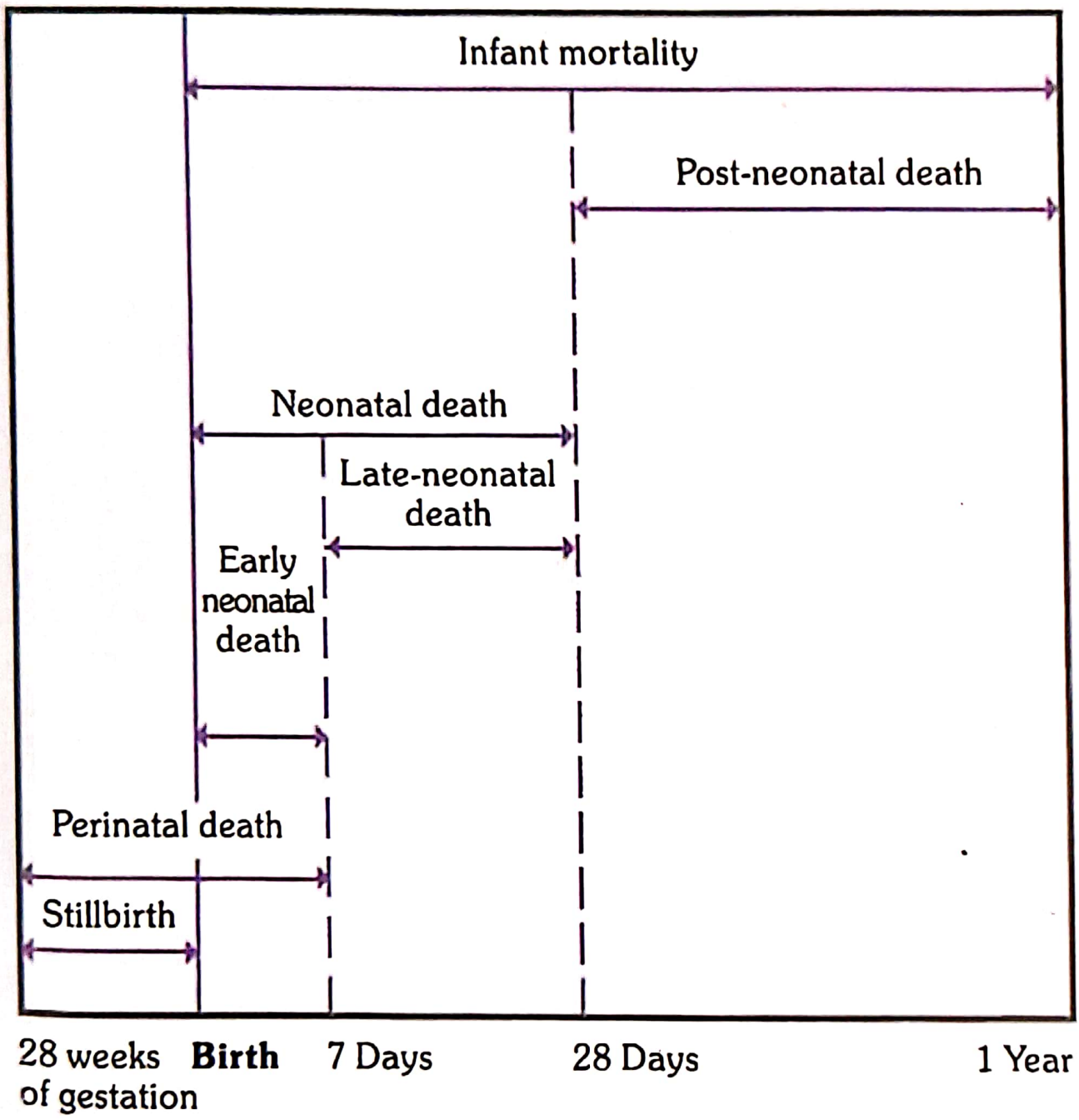

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iv) Perinatal Mortality Rate (PMR) →

• The no. of stillbirths (fetal deaths of ≥ 28 weeks of gestation) plus early neonatal deaths (deaths under 7 days) per 1000 total births.

$$PMR = \frac{\text{No. of stillbirths + No. of early neonatal deaths weighing over 1000 g at birth}}{\text{Total no. of livebirths, weighing over 1000 g}} \times 1000$$

v) Child Mortality Rate (1-4 years) →

- The no. of deaths of children 1-4 years of age per 1000 children of the same age at midyear population.

vi) Under-five Mortality Rate (U5MR) →

- The probability that a child born in a specific year will die before reaching the age of 5 years per 1000 live births.

vii) Maternal Mortality Rate (MMR) →

-The no. of maternal deaths due to complications of pregnancy, childbirth and within 42 days of delivery per 1,00,000 live births in a given year.

Causes of Neonatal Mortality →

- Prematurity and low birth weight.
- Birth asphyxia and birth injury.
- Neonatal infections (septicemia, pneumonia, diarrhoea).
- Congenital malformations.

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. Tetanus neonatorum.

Preventive Measures for NMR Reduction →

i. Improvement of maternal health and nutrition and raising age at marriage and first pregnancy.

ii. Early registration of pregnancy, minimum 4 ANC visits, IFA supplementation & TT Immunization.

iii. Identification of high risk pregnancies & timely referral.

iv. Promotion of institutional deliveries and skilled birth attendance.

v. JSS and JSSK to promote safe motherhood & institutional deliveries.

vi. Navjaat Shishu Suraksha Karyakram (NSSK) for basic newborn resuscitation and essential newborn care.

vii. "Home-based newborn care (HBNC)" by ASHA's – visits on day 1, 3, 7, 14, 21, 28 and 42."

viii. Facility-based newborn care (FBNC) through Special Newborn Care Units (SNCU), Newborn Stabilization Units (NBSU) and Newborn Care Corners (NBCC).

ix. Exclusive breastfeeding for 1st 6 months.

x. Prevention and management of neonatal sepsis, pneumonia & diarrhoea.

xi. "India Newborn Action Plan" (INAP) with target to reduce neonatal mortality to single digits by 2030."

Causes of Infant Mortality →

- Prematurity and LBW.
- Infections such as ARIs, diarrhoea, septicemia.
- Birth asphyxia.
- Congenital malformations.
- Malnutrition.

Preventive Measures for IMR Reduction →

i) Antenatal and Delivery Care –

- Skilled attendance at birth, institutional deliveries and emergency obstetric care.
- Promotion of safe motherhood und RCH, NHM.

ii) Neonatal Care →

- Essential newborn care including warmth, early intiation of breastfeeding, exclusive breastfeeding for 6 months, immunization and eavly detection of illness.

iii) Immunization →

- Universal Immunization Programme (UIP) – BCG, OPV, DPT, Hepatitis B, Pentavalent, Measles, MR, Rotavirus, JE, Hib, Pneumococcal · etc.

iv) Nutrition →

- Promotion of exclusive breastfeeding for 6 months and appropriate complementary feeding thereafter.
- Nutritional supplementation under ICDS & POSHAN Abhiyan.

v) Control of Childhood Illnesses →

- Oral Rehydration Therapy (ORT) & zinc for diarrhoea.

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- Early diagnosis & treatment of ARI.
- Integrated Management of Neonatal & Childhood Illness (IMNCI) – case management of diarrhoea, ARI, malaria, malnutrition and neonatal sepsis.

vi) Growth Monitoring.

vii) Family and Social Measures →

- Raising female literacy, poverty, alleviation, women empowerment.
- Birth spacing and family planning.

Causes of Perinatal Mortality →

- LBW and Prematurity.
- Birth asphyxia and birth injuries.
- Maternal malnutrition and Maternal Infections.
- Toxemia of pregnancy, antepartum and intrapartum hemorrhage.
- Congenital malformations.

Preventive measures to reduce PMR →

i) Pre-conception and Antenatal –

- Improvment of maternal health & nutrition, raising age at marriage and 1st pregnancy.
- Adequate ANC- IFA supplementation, TT immunization, early detection and management of maternal complications.
- Birth spacing & family planning.

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ii) Intranatal :

- Promotion of institutional deliveries
- Availability of skilled birth attendants.
- Emergency obstetric care & availability of blood transfusion facilities.
- Prevention and management of birth asphyxia.

iii) Postnatal :

- Special care for LBW and preterm babies.
- Facility based newborn care including SNCU & NICU.

iv) Community measures :

- Janani Suraksha Yojana , Janani Shishu Suraksha Karyakram , Pradhan Mantri Surakshit Matritva Abhiyaan, LaQshya programme.

4. Integrated Child Development Services (ICDS)-

- The Integrated Child Development Services (ICDS) scheme was launched in 1975 by Govt of India.
- It is the world's largest community based outreach programme , designed to improve the health, nutrition & development of children under 6 years of age and to support pregnant and nursing mothers.
- The services are delivered through Anganwadi Centres (AWCs) and supported by the sub-centres, PHCs , CHCs . etc.
- The ICDS seeks to lay a solid foundation for the developm-

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ent of the nations human resource by providing an integrated package of early childhood services. These consist of

i) Supplementary nutrition.

ii) Immunization

iii) Health check ups

iv) Medical referral services

v) Nutrition and health education for women.

vi) Non formal preschool education for children upto the age of 6 years, pregnant women & nursing mothers.

Objectives of ICDS →

a) To improve the nutritional and health status of children in the age group 0-6 years.

b) To lay the foundations for proper psychological, physical and social development of the child.

c) To reduce morbidity, mortality, malnutrition and school drop out.

d) To acheive an effective coordination of policy and implementation among the various departments.

e) To enhance the capability of the mother and nutritional needs of the child through proper nutrition & health education.

Beneficiaries and services to them →

-To acheive the above objectives the ICDS aims at providing

the following package of services to beneficiaries.

Beneficiary	Services
Pregnant women	Heath check-up Immunization against tetanus Supplementary nutrition Nutrition and health education
Nursing mothers	Health check-up Supplementary nutrition Nutrition and health education
Other women 15–45 years	Nutrition and Health education
Children less than 3 years	Supplementary nutrition Immunization Health check-up Referral services
Children in age group 3–6 years	Supplementary nutrition Immunization, Health check-up Referral services Non-formal education
Adolescent girls 11–18 years	Supplementary nutrition Nutrition and health education

Delivery of Services under ICDS →

- Delivered through Anganwadi Centres by Anganwadi workers and supported by ANMs, ASHAs, PHCs, CHCs.

i. **Supplementary Nutrition** —

- Children 6-72 months : 500 kcal + 12-15g protein per day.
- Severely malnourished children : 800kcal + 20-25g protein per day.
- Pregnant & Lactating women : 600 kcal + 18-20g protein per day.
- Provided for 300 days /year.

- This addresses both malnutrition and micronutrient deficiencies.

ii. **Immunization** –

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- Children - vaccinated agnst 9 vaccine preventable diseases (BCG, DPT, OPV, Measles, Hepatitis B, Hib..etc).
- Pregnant women - vaccinated against Tetanus (TT).

iii. Health Check-up -

- Regular Antenatal and Postnatal Check-ups.
- Health screening of children for growth, anemia, malnutrition and infections.
- High risk pregnancies and sick children are referred.

iv. Referral services -

- Sick/ malnourished children and high risk mothers are referred to higher centres (PHC / CHC).

v. Nutrition and Health Education -

- For women 15-45 years.
- Covers diet, childcare, personal hygiene, family planning sanitation and prevention of malnutrition.
- Delivered via group talks, home visits and community meetings.

vi. Non-formal Preschool Education (PSE) -

- For children 3-6 years at Anganwadi centres.
- Prepares children for primary schools.
- Emphasizes socialization, learning, play activities and creativity.

Key points →

- 1 Anganwadi centre (AWC) – for every 400-800 population (rural / urban).
- Mini-AWC – for 150 – 400 population in remote / hilly / desert areas.
- As of 2019, there were:
  - 7075 ICDS projects
  - 13.77 lakh AWCs
  - Over 305 lakh preschool children and 830.25 lakh women & children receiving supplementary nutrition.

5. RMNCH+A (Reproductive, Maternal, Newborn, Child and Adolescent Health)-

Indicators →

i. Reproductive Health Indicators →

- Couple Protection Rate (CPR)
- Unmet need for family planning
- Maternal Mortality Ratio (MMR)
- Institutional delivery care

ii. Maternal Health Indicators →

- Antenatal care coverage (≥ 3 ANC visits)
- % of mothers receiving 100 IFA tablets.
- skilled birth attendance at delivery.

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iii. Newborn and Child Health Indicators →

- Neonatal Mortality Rate (NMR)
- Infant Mortality Rate (IMR)
- Under-5 Mortality Rate (U5MR).
- Full immunization coverage.

iv. Adolescent Health Indicators →

- Age at marriage
- Adolescent fertility rate
- Coverage of Weekly Iron Folic Acid Supplementation (WIFS).

Risk Approach →

- Risk approach is a method of identifying mothers & children who are at higher risk of complications or mortality, so that limited health resources can be directed to those who need them most.

- Components of risk factors :-
  - Maternal - Age < 18 yrs or > 35 yrs, short birth intervals (< 2 yrs), high parity (≥ 4), previous obstetric complications, anemia, malnutrition, short stature.
  - Child - LBW, prematurity, failure to thrive, incomplete immunization, recurrent infections.

- Steps :-

  Early identification of risk factors during ANC, childbirth or PNC

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Classification of high risk cases

↓

Referral to higher-level facilities

↓

Targeted follow-up and care

- **Advantages** :
  - Rational use of limited health resources.
  - Cost-effective
  - Reduces maternal and infant mortality.

Targets and Strategies →

I) Targets →

- MMR - <70 per lakh live births (by SDG target)
- NMR - <12 per 1000 live births
- IMR - <25 per 1000 live births
- Total fertility rate (TFR) - 2.1 (replacement level)
- Universal access to reproductive, maternal, newborn, child and adolescent health services.

II) Strategies →

- Continuum of care - from adolescence → pre-pregnancy → pregnancy → childbirth → postnatal → childhood.
- Integration of service delivery packages for each life stage.
- Community-based interventions : VHND, outreach through ASHAs

home-based newborn care (HBNC).

- Facility-based interventions : skilled birth attendance, SBA training, FRUs, 24x7 PHCs.
- Specific programs : JSY, JSSK, PMSMA, RBSK, WIFS.
- Strengthening referral transport (eg- 108, 102 services).

Evaluation of MCH services →

- Evaluation is based on input, process, output & outcome indicators.

i) Input indicators —

- No. of health personnel (ANMs, ASHAs)
- Availability of equipment, drugs and infrastructure.
- No. of subcentres, PHCs, CHCs.

ii) Process indicators →

- % of pregnant women registered in 1st trimester.
- % of high risk pregnancies identified and referred.
- Immunization sessions held as planned

iii) Output indicators →

- Institutional delivery rate
- % of mothers receiving complete ANC and PNC.
- % of children fully immunized.

iv) Outcome indicators →

- MMR, IMR, NMR, TFR

. Perinatal & Under-5- mortality rates

. Nutritional status of mothers and children.

Methods of Evaluation →

- Records review
- Field visits
- Surveys (NFHS, DLHS)
- Sample Registration System (SRS) data analysis.

6. Antenatal care-

- Antenatal period starts from the time of conception to the onset of labor.
- In the rural areas, antenatal care is provided by Female Health Worker.

Objectives →

- To protect her health
- To preserve the health of the mother & to maintain it.
- To preserve the physiological aspects of pregnancy.
- To prevent complications of pregnancy.
- To detect high risk mothers and to give them special attention.
- To reduce MMR and IMR.
- To prepare her for breastfeeding.
- To sensitize her the need for family planning.
- To prepare her physically and mentally ready to face pregnancy.

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Visits →

i) Once a month, till 28 weeks of pregnancy.

ii) Then twice a month till 36 weeks.

iii) Then once a week, till 40 weeks (delivery).

Components →

i) Antenatal Registration –

- Done after confirming pregnancy (after 12 weeks in rural areas)
- Antenatal card prepared with personel, obstetric & health details.
- Helps in monitoring, evaluation and vital statistics.

ii) Antenatal History –

- Gynecological history: Menstrual details, LMP, EDD calculation.
- Obstetric history: Age at marriage, gravida, para, abortions, stillbirths, living / dead children.

iii) Antenatal Examination –

- Physical: Built, BP, edema, anemia, breast examination, WHPI.
- Systemic: CVS, CNS, RS, Genitourinary, GIT systems.
- Abdominal examination: Fetal growth, lie, position, FHS.
- Pelvic examination: Done last to exclude cephalopelvic disproportion.

iv) Alternate Investigations –

- Urine : Albumin, sugar, microscopy
- Blood : Hb%, VDRL, ABO & Rh typing, HIV (Tridot), HBsAg.
- Stool : Ova & cysts
- Special tests : AFP, ultrasound, NT scan, amniocentesis, chorionic villi biopsy.

v) Antenatal Advice –

- Nutrition: Balanced diet (2200 kcal/day), avoid spicy food, gain 1.5 kg/month.
- Hygiene: daily bath, oral cave, clean clothes.
- Rest: 2 hr after lunch, 8 hr at night
- Excercise: light work, walking, antenatal yoga, dance therapy.
- Drugs: no self medication; avoid teratogenic drugs and X-rays.
- Habits: no smoking or alcohol
- Sexual relations: restricted at last trimester.
- Warning signs: Bleeding, headache, blurred vision, loss of fetal movement, convulsions.

vi) Antenatal services –

- Nutritional: supplementary food under ICDS (600kcal + 20g protein/day).
- Immunization:

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- Tetanus toxoid (2 doses or booster).
- Rh -ve mothers : Anti-D immunoglobulin
- Rubella vaccine before pregnancy.
- Hepatitis B vaccine as indicated.

– Medicinal : IFA tablets (100mg Fe + 50 ug folic acid), mebendazole, if VDRL+.

– Family welfare : Counselling on contraception or sterilization.

– Educational : Guidance on health problems & child care.

7. Under-5 clinic-

– The Under-5 Clinic is a centre that provides preventive, promotive, curative, referral, and educational health services to children below 5 years of age under one roof.

– The services are mainly delivered by trained nurses or health workers, making it an economical example of primary health care.

– It operates weekly at Subcenters or PHCs & daily in hospital pediatric OPDs.

Importance →

– Under-fives are given special attention because they form about 15% of the population, are nutritionally vulnerable and represent the future human resource of the nation.

Aim →

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- To provide comprehensive, integrated & economic health care to children under 5 years through trained nonmedical personnel, ensuring survival, normal growth & development.

Functions →

i) Curative services –

- Treatment of common illnesses such as diarrhoea & respiratory infections.
- Distribution of ORS & pediatric cotrimoxazole; referral if no improvment.

ii) Promotive services –

- Growth monitoring using the Road to Health card.
- Regular weight checks, early detection & correction of malnutrition.

iii) Preventive services –

- Routine immunization, Vit A prophylaxis, & IFA tablets (20mg Iron + 100ug folic acid) for anemic children.

iv) Family welfare services –

- Family planning counselling for mothers who accompany their children, promoting maternal & family health.

v) Health education –

- Education on breastfeeding, nutrition, ORT, hygiene, immunization, and family planning.
- Encourages mothers to adopt healthy practices for themselves

& their children.

Additional services →

- Referral for serious cases.
- Recording and reporting for follow-up.
- Community participation encouraged for better health awareness.

8. *Immediate care of newborn-*

i. Care of the Eyes →

- Immediately after the birth, eyes are wiped gently from medial to lateral side using sterile, wet cotton swabs (one for each eye).
- 1 drop of 1% silver nitrate is instilled to prevent conjunctivitis & opthalmia neonatarum.
- Any eye discharge is considered pathological.

ii. Care of the Nose and Throat →

- The nose and mouth wiped clean with separate sterile gauze to clear the airway & help establish breathing.
- As the baby cries, lungs expand & normal breathing begins.

iii. Care of the Umbilical cord →

- The cord continues to pulsate for a few minutes after birth, supplying extra blood to the baby.
- After the pulsation stops, the cord is squeezed toward the

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child, tied 2½" inches from the umbilicus and a second knot tied 1 inch beyond the first.

- The cord is cut b/w the knots with a clean blade.
- The stump is left clean & dry, no medication or dressing applied.
- It dries by aseptic necrosis & falls off in about a week.

iv. **Care of the Rectum →**

- Patency of anus is checked by inserting a gloved little finger about ½ inch.
- Helps exclude imperforate anus, a congenital emergency.

v. **Care of the Skin →**

- The baby's body is wiped clean from head to toe to remove vernix, meconium, and blood.
- Wrapped in a dry, warm cloth and head covered to prevent heat loss.

vi. **Recording of Delivery notes →**

- Date, time, place and nature of delivery.
- Name of person conducting delivery.
- Sex of the baby and cry status.
- Condition of placenta & congenital defects.
- Birth weight, length, head/chest circumference.
- Apgar score (color, heart rate, respiration, muscle tone, reflexes).

Apgar score →

0–3 → severe depression

4–6 → mild depression

7–10 → no depression (normal)

score < 5 = 'At risk' newborn, needs special care.

vii. Breastfeeding and Bedding in →

- Breastfeeding should start within ½–2 hrs after birth (or 4 hrs after C-section).
- Rooming-in: keeping baby's crib near mother.
- Bedding in (warm chain): keeping baby on mother's bed for warmth and bonding.

9. High risk pregnancy and At risk infant-

High risk pregnancy →

- A high risk pregnancy is one in which the mother, fetus or neonate has an increased chance of morbidity or mortality before, during or after delivery.

a) Common risk factors in Pregnancy –

- Maternal age:
  - < 18 years (too young) and > 35 yrs (too old)
- Parity:
  - Primigravida at extremes of age
  - Grand multipara (≥4)

- Past Obstetric history :
  - Previous stillbirth or neonatal death
  - Previous C-section.
  - Recurrent abortions or preterm labor.
- Current Pregnancy Complications :
  - Antepartum hemorrhage
  - PIH / eclampsia
  - Malpresentation
  - Multiple pregnancy.
  - Polyhydroamnios or oligohydroamnios.
- Maternal Health Problems :
  - Anemia (Hb < 11g/dL)
  - Heart disease, HTN, Diabetes
  - TB, HIV, Malaria
- Nutritional & Anthropometric :
  - Height < 145 cm
  - Malnutrition, Underweight.

b) Identification of High Risk Pregnancy →

- Early registration of pregnancy (preferably ≤ 12 weeks).
- Screening during every ANC visit.
- Use of risk scoring or checklist.
- Referral to higher centre (CHC/FRU) for management and delivery.

c) Management of High Risk Pregnancy →

. Increased frequency of antenatal visits.
. Institutional delivery with skilled birth attendant
. Timely referral of complications.
. Management of anemia, HTN, infections.
. Postnatal follow-up & family planning.

At-Risk Infant →

- These are newborn babies, which are at a very high risk of dying, due to underlying 'risk factor' contributing significantly to neonatal mortality rate, thus to infant mortality rate.

a) Risk factors in infants →

- Perinatal and Neonatal factors:
  . LBW (<2500g), Preterm birth (<37 weeks), birth asphyxia, meconium aspiration, twin or multiple births.
- Maternal factors:
  . High risk pregnancy, poor antenatal care, anemia or maternal infections.
- Neonatal conditions:
  . Congenital malformations, neonatal jaundice, sepsis, failure to cry immediately after birth.
- Environmental and Socioeconomic factors:
  . Home delivery without skilled birth attendant, malnutrition,

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poverty and poor hygiene, incomplete immunization.

b) Identification of At-Risk Infant →

- Birth weight measurement and APGAR score.
- Neonatal examination at birth.
- Identification of feeding or breathing problems.
- Follow-up visits (HBNC).

c) Management of At-Risk Infant →

– Essential Newborn Care:
  - Early initiation of exclusive breastfeeding.
  - Prevention of hypothermia
  - Cord care and eye care.

– Timely referral to SNCU / NICU if indicated.

– Follow-up and Monitoring:
  - Home Based Newborn Care (HBNC)
  - Growth monitoring.
  - Immunization as per schedule.

– Special care for LBW and Preterm:
  - Kangaroo Mother Care
  - Temp regulation & feeding support.

10. Juvenile Delinquency-

- According to the Children Act, 1960, juvenile delinquency refers to an offence committed by a child – a boy below 16 yrs or a girl below 18 yrs of age.
- In a broad sense, it includes not only crimes but also deviations from normal behavior, such as:
  - Disobedience to parents
  - Running away from home
  - Mixing with immoral persons.
  - Antisocial acts like stealing, lying, gambling, burglary, cruelty, sexual offences & destructiveness.
- The incidence is higher among boys & is increasing due to industrialization and urbanization.

Causes →

- Genetic causes : Recent studies have shown that chromosomal anamoly such as XXY might be associated with delinquency (i.e extra Y chromosome)
- Usually the social causes predispose for the occurence of delinquency, such as broken homes, disturbed home conditions.
- Other causes include the influence of cinemas, television, immoral friends, etc.

Prevention →

- Improvment of the family life, such as cordial relation among them, meeting the needs of the children by the parents, showering love and tender care on the children.
- Schooling helps in ordering the behavior of the children & also it helps in maintaining the decency & discipline in the life.
- Social welfare services like recreation facilities, parent counselling, child placement in juvenile homes, etc.

11. School Health Service-

- School Health Service is an important part of community health aimed at promoting and maintaining the physical, mental and social well-being of school children through organized health programs.

Historical development →

- Started in India in 1909.
- Bhore committee (1946) - reported services were almost non-existent.
- School Health Committee (1960) - gave recommendations for improvment.
- Now included in many State and National health programs.

Health Problems of School Children →

i. Malnutrition

ii. Infectious diseases

iii. Intestinal parasites.
iv. Diseases of skin, eye and ear
v. Dental caries.

Objectives →

i. Promotion of Positive health.
ii. Prevention of diseases.
iii. Early diagnosis and treatment.
iv. Health awareness in children.
v. Provision of a healthful environment.

Main aspects of School Health Service →

i. Health appraisal – periodic medical checkups for students & staff.
ii. Remedial measures and follow up – treatment & referral for detected cases.
iii. Prevention of communicable diseases – immunization & record keeping.
iv. Healthful school environment – good sanitation, ventilation, lighting, water supply, and proper building standards.
v. Nutritional services – mid-day meal program and applied nutrition programs.
vi. First aid and emergency care – trained teachers & first-aid facilities.
vii. Mental health – guidance, counselling & stress-free environm-

ent.

viii. Dental health- annual dental checkups & hygiene education.

ix. Eye health- detection & correction of visual defects.

x. Health Education- promoting hygiene, environmental cleanliness and family life education.

xi. Education of handicapped children.

xii. Maintaining School Health Records.

12. FRU for Safe motherhood-

- First Referral Unit (FRU) plays a crucial role in the Safe Motherhood Programme. It is a health facility (usually a CHC or Sub-district hospital) that provides comprehensive emergency obstetric and newborn care (CEmONC) services.

Functions of FRU →

- An FRU must be equipped and staffed to provide following minimum services.

i. 24-hour delivery services, including normal & C-section.

ii. Emergency Obstetric Care- management of complications like eclampsia, obstructed labor, hemorrhage & sepsis.

iii. Newborn care, including management of birth asphyxia and premature infants.

iv. Blood storage facility or linkage to a nearby blood bank.

v. Family Planning Services, including sterilization.

vi. Safe abortion services as per the MTP Act.

vii. Referral services – for cases requiring higher-level care.

Importance in Safe Motherhood →

- FRUs ensure timely management of obstetric emergencies, thereby reducing neonatal & maternal morbidity and mortality.
- They form a link b/w primary care & tertiary hospitals, ensuring continuum of maternal & child health care.

13. Child Labour -

- Child Labour refers to the employment of children in work that deprives them of their childhood, education, and health.
- It is major and social health problem, particularly among children of poor-socioeconomic backgrounds in rural & urban areas.
- Working at a young age adversely affects physical & mental development & exposes child to occupational hazards.
- According to the Children Act (1960) & International conventions, childhood must be protected from exploitation.
- The ILO set 15 yrs as the minimum age for employment, allowing light work from age 13 that does not harm health or schooling.

Forms of Exploitation →

- Child labour includes domestic service, debt bondage, agricultural work and industrial labour.

- Children working as domestic servants are often hidden from public view, poorly paid & subjected to physical & psychological abuse.
- Debt bondage traps children under moneylender's control, amounting to modern slavery.

Child Labour in India →

- India has the largest no-of child laborers in the world, with about 8.22 million in 2014.
- Child labour contributes nearly 20% of India's GNP.
- Common industries include agriculture, carpet weaving, beedi-making, mining, construction, cashew processing and cloth dyeing.
- Jammu and Kashmir has the highest rate, especially in the carpet industry.

The Child Labour (Prohibition and Regulation) Act, 1986 →

- This Act bans employment of children below 14 yrs in hazardous occupations such as railway transport, carpet weaving, cement manufacturing, construction, printing, match & fireworks production, beedi-making, mica cutting, cashew processing, & others.
- Exceptions are made only for family-based or school-based work.

Causes and Control →

- The root causes of child labour are poverty, unemployment,

illeteracy & lack of social security.

- Total abolition is difficult, but protection, regulation & rehabilitation are essential.
- Strengthening education, enforcing laws & reducing poverty are key measures.
- A comprehensive child welfare code is recommended to unify all laws protecting children.

14. Growth Chart under ICDS-

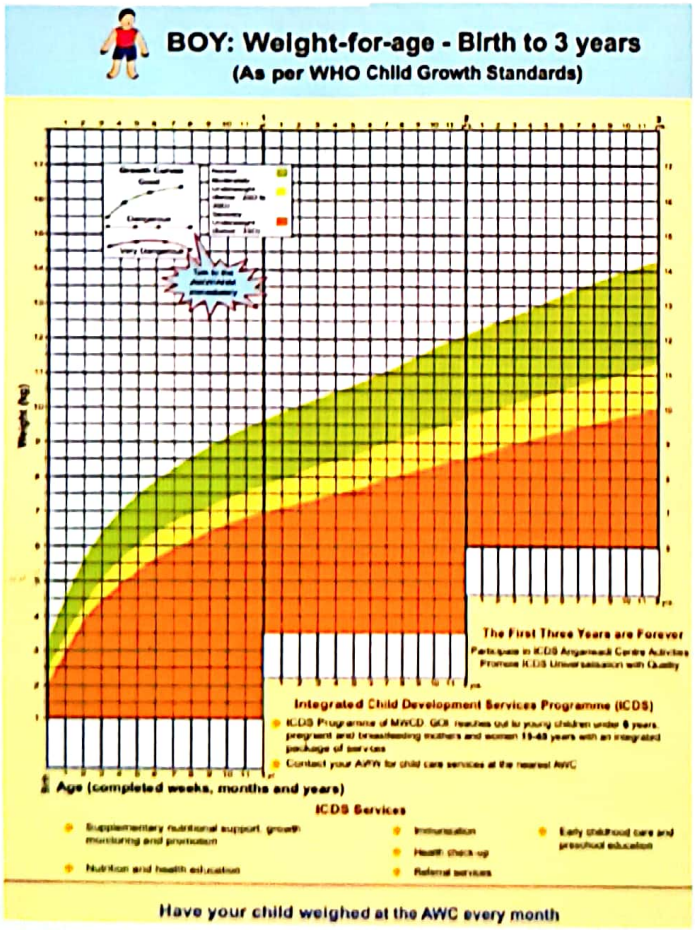
- India adopted the WHO Child Grocoth Standards (2006) in Feb 2009 under the ICDS and NRHM for monitoring the growth & development of children below 5 yrs.
- A joint Mother and Child Protection (MCP) Card is used, which records details of pregnancy, delivery, immunization, breastfeeding, nutrition, milestones & child growth.
- It is maintained by the mother and brought during health visits.
- The grocoth chart shows :
  - Normal zone (healthy - weight for age)
  - Undernutrition (below −2SD)
  - Severe underweight (below − 3SD)

- The direction of the growth curve is more important than than position of dots - a flattening or doconward curve indicates grocoth failure & early malnutrition.

Uses of Growth Chart →

1. Growth monitoring of children.
ii. Diagnosis of malnutrition & identification of high risk children.
iii. Planning and Policy making for child health programs.
iv. Education tool for mothers to understand child care.
v. Action tool for health workers for timely intervention or referral.
vi. Evaluation of Child health programs.
vii. Teaching aid to promote proper feeding & hygiene practices.

∴ Thus, the growth chart serves as a 'passport to child health' helping in early detection & prevention of malnutrition and ensuring overall child well-being.



15. Additional dietary requirements in pregnancy -

- During pregnancy, a woman's nutritional needs increase to support fetal growth, placental development, & maternal health.

i. Energy-
- Extra +250 kcal/day from the 2nd trimester onwards.
- Helps in maternal weight gain (~10-12 kg total)

ii. Protein-
- Additional +25 g/day (total ≈ 1.1 g/kg body weight).
- Needed for fetal tissue, placental growth & maternal tissue growth.

iii. Iron-
- Requirement increases to 27 mg/day.
- Prevents anemia and supports red cell mass expansion.

iv. Folic acid - 400-600 ug/day ; prevents neural tube defects.

v. Calcium - 1000 mg/day for fetal bone & tooth formation.

vi. Iodine - ensures proper brain development ; use iodized salt.

vii. Vitamins (A, D, B_{12}, C) - important for immunity, metabolism, bone health and tissue repair.

viii. Water and Fibre - Increased fluid and fibre intake to prevent constipation.

ix. Fats - include healthy fats (especially omega-3) for brain and eye development.

16. Health problems in ages/elderly-

- Ageing is a natural process that brings about gradual deterioration in the body's vitality and efficiency, known as senescence.
- The problems of old age can be grouped into 3 main categories-

a) Problems due to ageing process →

i. Senile cataract and glaucoma causing visual impairment.
ii. Nerve deafness & failure of special senses.
iii. Osteoporosis leading to decreased mobility & bone fragility.
iv. Emphysema affecting respiration
v. Changes in mental outlook, such as reduced adaptability & slower response.

b) Problems associated with long-term illnesses →

- Chronic diseases are more common in the elderly due to physiological wear and tear.
  - Cardiovascular diseases – Atherosclerosis and HTN.
  - Cancer – common sites are breast, prostate, & GI tract.
  - Diabetes mellitus due to metabolic changes, seen in 75% of elderly.
  - Diseases of locomotor system- arthritis, spondylitis, gout and rheumatism cause pain and disability.
  - Respiratory illnesses : chronic bronchitis, asthma, & emphysema are common.
  - Genitourinary disorders: prostate enlargement, urinary urge-

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ncy and nocturia are frequent complaints.

c) Psychological problems →

. Medical changes – poor memory, rigidity, & resistance to change are frequent. Financial difficulties after retirement can worsen stress.

. Sexual adjustment: menopause in women & decreased sexual activity in men can lead to irritability & emotional imbalance.

. Emotional disorders: loneliness, depression, anxiety & social maladjustment are common. Inability to adapt to ageing may lead to withdrawl or even suicide.

17. Kangaroo mother care-

– Kangaroo mother care (KMC) was introduced in Colombia in 1979 by Dr. Hector Martinez and Dr. Edzar Rey to reduce high infection and mortality rates among LBW babies caused by hospital overcrowding. It is now an essential component of neonatal care worldwide.

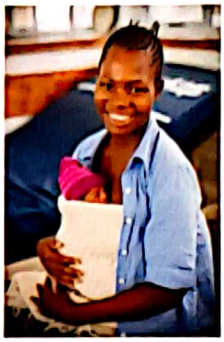
Main components of KMC →

i. Skin to skin contact: Baby is kept upright on the mother's bare chest for warmth and bonding.

ii. Adequate nutrition: Exclusive breastfeeding encouraged for proper growth.

iii. Early discharge and ambulatory care: promotes home based continued care under supervision.

iv. Family support : Guidance and counselling for the mother's family to care for the baby confidently.



Intensive care for LBW babies :

a) Incubatory care :

- Maintains optimal temp, humidity and oxygen.
- Hypoxia may cause cerebral palsy; excess oxygen can cause retrolental fibroplasia, so oxygen levels are carefully monitored.

b) Feeding :

- Direct breastfeeding often difficult; expressed breast milk is preferred.

c) Infection Prevention :

- Infection is the greatest danger; respiratory infections can cause death within hours.
- Strict hygiene and aseptic measures are vital in ICUs.

Leading Causes of Death in LBW babies →

i. Atelectiasis (collapsed lungs).
ii. Congenital malformations.
iii. Pulmonary hemorrhage.
iv. Intracranial bleeding due to anoxia or trauma.
v. Pneumonia and infections.

Facility-Based Newborn Care →

- Includes Newborn Care Corners (NBCC), Newborn Stabilization Units (NBSU) & Special Newborn Care Units (SNCU).

. These units, often attached to obstetric and perinatal intensive care units, have significantly reduced neonatal mortality through improved monitoring & management of low-birth weight babies.

18. Problems faced by children of age 1-5 years-

i. Malnutrition – underweight, stunting, wasting, due to inadequate diet.

ii. Vitamin & Mineral deficiencies – especially Iron (anemia), Vit A and Iodine.

iii. Diarrhoeal diseases due to contaminated food & water.

iv. Respiratory infections like pneumonia & common cold.

v. Vaccine preventable diseases – measles, polio, DPT-related infs.

vi. Dental problems – dental caries

vii. Delayed growth & development.

viii. Accidents and injuries : burns, falls & choking hazards.

ix. Parasite infestations : Intestinal worms causing anemia and growth retardation.

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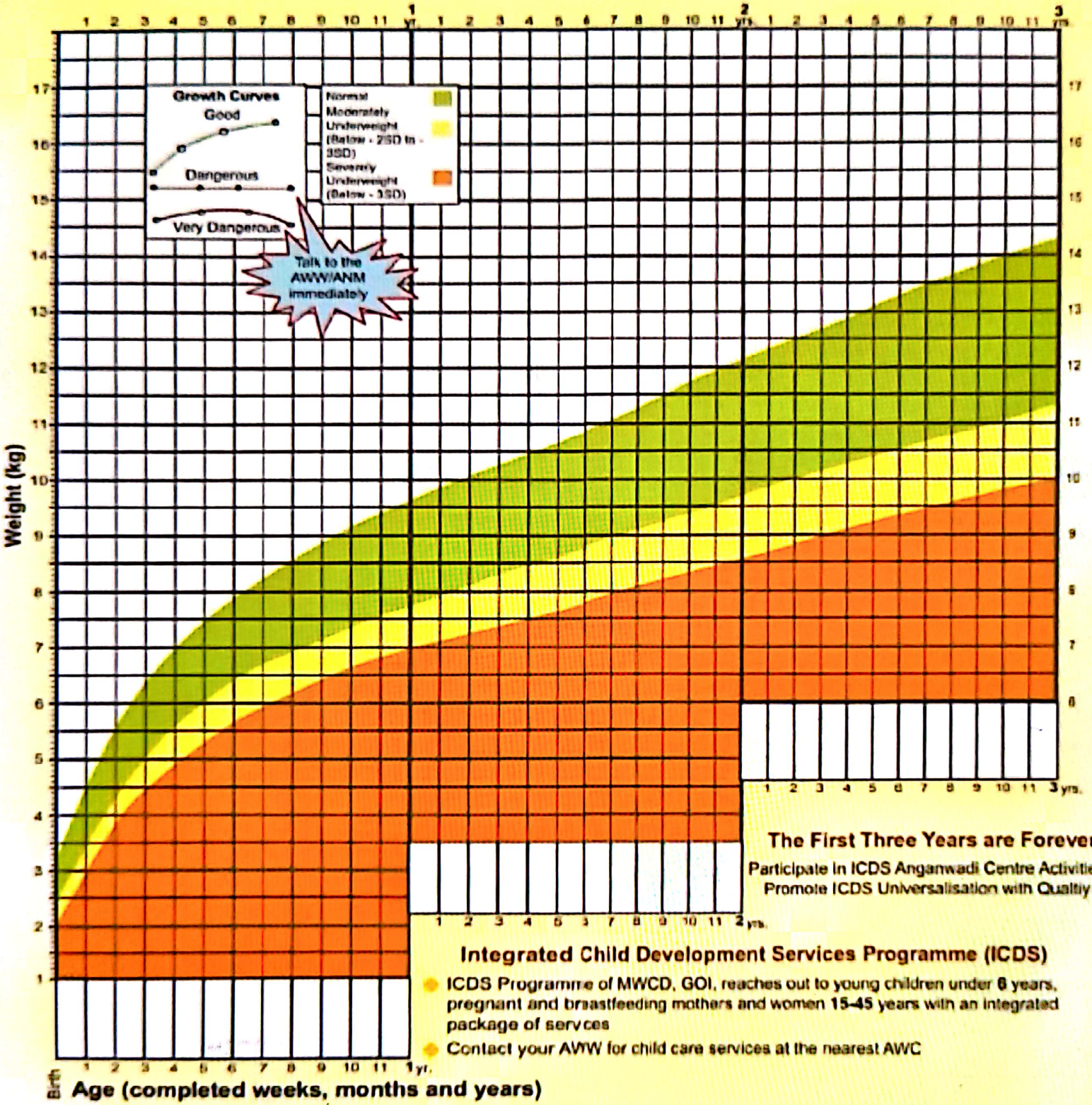
BOY: Weight-for-age - Birth to 3 years

(As per WHO Child Growth Standards)



The First Three Years are Forever

Participate in ICDS Anganwadi Centre Activities
Promote ICDS Universalisation with Quality

Integrated Child Development Services Programme (ICDS)

- ICDS Programme of MWCD, GOI, reaches out to young children under **6** years, pregnant and breastfeeding mothers and women **15-45** years with an integrated package of services
- Contact your AWW for child care services at the nearest AWC

ICDS Services

- Supplementary nutritional support, growth monitoring and promotion
- Nutrition and health education
- Immunization
- Health check-up
- Referral services
- Early childhood care and preschool education

Have your child weighed at the AWC every month