Indira Gandhi National Open University
SCHOOL OF HEALTH SCIENCE

CHO-0002

Primary Health Care in Common Conditions

NATIONAL HEALTH MISSION
राष्ट्रीय स्वास्थ्य मिशन
राजस्थान



Maternal Health

2

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Block

2

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Appreciation of Collaborative Efforts

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BLOCK INTRODUCTION

In order to provide effective Maternal and Child Health care, it is important to adopt integrated life cycle approach as envisaged in National Health Mission. In this approach the focus is on improvement of survival of mothers, newborn and children through various stages of life including adolescence. Pre pregnancy, pregnancy, delivery, post delivery and during neonatal and childhood period. In this context, as a Mid Level Health care provider you have a major role to play in preventing maternal and newborn mortality and morbidity to a greater extent. This block will help you to develop competency and proficiency in providing comprehensive primary health care to mother, newborn and child, identify problems and complications, make appropriate referral and provide follow up care.

This block comprises five units as given below

Unit 1 deals Introduction to Reproductive, Maternal, Newborn, Child, Adolescent Health and Nutrition

Unit 2 explains Antenatal Care Unit 3 focuses on Intranatal Care
Unit 4 describes Early Identification, Management and Referral of Complications

Unit 5 deals with Post Partum Care

We hope this block will enable you to provide maternal and newborn care more effectively and efficiently.

UNIT 1 INTRODUCTION TO RMNCAH+N PROGAMME

Structure

1.0 Introduction

1.1 Objectives

1.2 Definition and Need for RMNCAH+N Approach

- 1.2.1 Definitions
- 1.2.2 Need for RMNCAH+N Approach

1.3 Present Situation of Reproductive, Maternal, Child, Adolescent Health and Nutrition in India

1.4 Causes for Maternal and Child Deaths in India

1.5 Aims of RMNCAH+N Approach

- 1.5.1 Key Features of the RMNCAH+NStrategy
- 1.5.2 5 × 5 Matrix for High Impact RMNCAH+N Interventions

1.6 Health Systems Strengthening for RMNCAH+N Service

1.7 Strategic RMNCAH+N Interventions Across Life Stages

- 1.7.1 Adolescence
- 1.7.2 Pregnancy and Childbirth
- 1.7.3 Newborn and Childcare
- 1.7.4 Reproductive Years

1.8 Programme Management System for RMNCAH+N Services

1.9 Monitoring and Evaluation Systems

- 1.9.1 Civil Registration System
- 1.9.2 Web Enabled Pregnancy and Child Tracking System (PCTS): RCH Portal
- 1.9.3 Maternal Death Review (MDR)
- 1.9.4 Perinatal and Child Death Review
- 1.9.5 Health Management Information System (HMIS) Based Monitoring and Review
- 1.9.6 Prasav watch app

1.10 Let Us Sum Up

1.11 Model Answers

1.12 References

1.0 INTRODUCTION

In this unit you will be learning about the situation of reproductive, maternal child, adolescent health and nutrition and causes for maternal and child deaths in India, concept and key features of RMNCAH+N approach, strategic RMNCAH+N interventions across life stages, Health systems strengthening and programme management system for RMNCAH+N Services.

1.1 OBJECTIVES

After completing this unit, you should be able to:

- define the terms – RMNCAH+N, Continuum of Care;
- explain the present situation of reproductive, maternal child, adolscent health and nutrition;

- list the causes of maternal and child deaths in India;
- describe the key features of RMNCAH+N strategy;
- elaborate the strategic RMNCAH+N interventions across life stages;
- discuss the health systems strengthening for RMNCAH+N service;
- explain programme management system for RMNCAH+N service; and
- discuss the monitoring, information and evaluation systems of RMNCAH+N service.

1.2 DEFINITION AND NEED FOR RMNCAH+N APPROACH

We shall begin with definition of RMNCAH+N Approach and Continuum of Care as given below.

1.2.1 Definitions

RMNCAH+N Approach

Reproductive, Maternal, Newborn, Child, Adolescent Health and Nutrition : It is a life cycle approach adopted under NHM to improve the survival of mothers and children through intervention at various stages of life including the adolescence phase, pre pregnancy phase, during pregnancy and delivery, after child birth and then in the newborn period and childhood.

The RMNCAH+N strategy is built upon the continuum of care concept and is holistic in design, encompassing all interventions aimed at reproductive, maternal, newborn, child, adolescent health and Nutrition under a broad umbrella, and focusing on the strategic lifecycle approach.

The RMNCAH+N strategy promotes links between various interventions across thematic areas to enhance coverage throughout the lifecycle to improve child survival in India. The "plus" within the strategy focuses on:

- Inclusion of adolescence as a distinct life stage within the overall strategy.
- Linking maternal and child health to reproductive health and other components like family planning, adolescent health, HIV, gender, and preconception and prenatal diagnostic techniques.
- Linking home and community-based services to facility-based services.
- Ensuring linkages, referrals, and counter-referrals between and among various levels of health care system to create a continuous care pathway, and to bring an additive /synergistic effect in terms of overall outcomes and impact.

Continuum of Care

The “Continuum of Care” for reproductive, maternal, newborn and child health (RMNCH) includes integrated service delivery for mothers and children from pre-pregnancy to delivery, the immediate postnatal period, and childhood. Such care is provided by families and communities, through outpatient services, clinics and other health facilities. The Continuum of Care recognises that safe childbirth

is critical to the health of both the woman and the newborn child—and that a healthy start in life is an essential step towards a sound childhood and a productive life.

1.2.2 Need for RMNCAH+N strategy Approach

The Reproductive and Child Health (RCH) 1 and 2 programmes of Government of India addressed the challenge of reproductive, maternal and child health comprehensively. Reproductive health stressed more on family planning and promoted population stabilisation strategy than to improve maternal and child health outcomes. As an isolated programme it missed the important inter-linkages with interventions in maternal and child health. Maternal and Child health programmes also operated in similar manner.

The RMNCAH+N strategy approaches include:

- Health systems strengthening (HSS) focusing on infrastructure, human resources, supply chain management, and referral transport measures.
- Prioritization of high-impact interventions for various lifecycle stages.
- Increasing effectiveness of investments by prioritizing geographical areas based on evidence.
- Integrated monitoring and accountability through good governance, use of available data sets, community involvement, and steps to address grievance.
- Broad-based collaboration and partnerships with ministries, departments, development partners, civil society, and other stakeholders.

Any effort to improve the survival of mothers and children requires continuum of care with equal focus on various stages of life including the adolescence phase, pre pregnancy period, during pregnancy and delivery, after child birth and then in the newborn period and childhood. Therefore to improve maternal, child and adolescent health, an integrated life cycle approach has been adopted under NHM in the name of RMNCHA+N. This approach has linked various programme components together for integrated planning, implementation and monitoring.

Check Your Progress 1

i) Define RMNCAH+N Approach

.....

ii) What does the "plus" in RMNCAH+Nstrategy focus on?

.....

iii) What is the Continuum of Care?

.....

1.3 PRESENT SITUATION OF REPRODUCTIVE, MATERNAL AND CHILD HEALTH IN INDIA

India has made impressive progress in tackling mortality among mothers and children. In 1990, India's under-five mortality rate (U5MR) was 115 per 1,000 live birth. By 2010 it came down to 59 per 1,000 live births, just above the global average of 57. Maternal mortality also declined drastically from 560 in 1990 to 88 (SRS 2020-22). Despite these impressive reductions, because of India's very large population and annual birth cohort, it still contributes more child and maternal deaths to the global total each year.

About 56,000 mothers and 14.5 lakh children under five years, including 8.2 lakh newborns die in our country every year. India presently accounts for nearly 20% of the world's child deaths. In terms of numbers, it is the largest number of child deaths (approximately 15.8 lakh) under the age of five years in any country. Table 1.1 shows the mortality data in India.

Table 1.1: Mortality Data in India

Sl. No.	Contents	In India	In Rajasthan
1.	Infant Mortality Rate (IMR)	20/1000 live birth (SRS DATA 2020-22)	30/1000 live birth (SRS DATA 2020-22)
2.	Maternal Mortality Ratio (MMR)	88/100,000 live births (SRS 2020-22)	87/100,000 live birth (SRS 2020-22)
3.	Total Fertility Rate (TFR)	2.0 (SRS DATA 2022)	2.5 (SRS DATA 22)

Please refer SRS Data for India estimates for present year

1.4 CAUSES OF MATERNAL AND CHILD DEATHS IN INDIA

Maternal mortality results from multiple reasons, which can broadly be classified as medical, socio-economic and health system-related factors. The most common causes for death of mothers are the complications related to pregnancy and child birth. The major causes of neonatal deaths are prematurity, that is, birth of a child before 37 weeks of gestation, infections such as pneumonia and septicaemia and asphyxia, that is, inability to establish breathing immediately after birth and congenital causes. (Table 1.2)

Table 1.2: Causes of maternal death

Maternal death			Deaths of newborns (first month of life)			Deaths of children under 5 years of age		
	Abortion	8%		Pneumonia	5.1		Pre-term	27.5
	Embolism	3%		Preterm	43.8		Pertussis	0.4
	Haemorrhage	27%		Intra-partum	18.9		Intra-partum	11.5
	hypertension	14%		Sepsis	13.6		Sepsis	7.9
	Sepsis	11%		Tetanus	0.8		Tetanus	0.5
	Other direct	10%		Congenital	11.1		Congenital	9
	Indirect	28%		Diarrhoea	0.7		Pneumonia	14.9
				Other	5.9		Diarrhoea	9.8
The causes of maternal and neonatal death							Malaria	0.6
							Aids	0.3
							Measles	1.9
							Injury	3.7
							Meningitis	1.8
							Other	10.4

Preterm birth is the leading cause of neonatal death. A large number of maternal and child deaths are attributable to the 'three delays'.

A) The delay in deciding to seek care

B) The delay in reaching the appropriate health facility

C) The delay in receiving quality care once inside an institution.

The delay in deciding to seek care occurs as a result of inadequate resources, poor access to high-quality health care and lack of awareness of the importance of maternal and newborn health care at the household level. The unavailability of basic reproductive health services, including contraceptives, pre- and postnatal care and emergency obstetric and neonatal care, as well as delays in seeking institutional care and the poor quality of care provided in the health facility contribute to maternal and child deaths.

Check Your Progress 2

What are the common causes of maternal and child mortality in India?

.....

.....

1.5 AIMS OF RMNCAH+N APPROACH

The RMNCAH+N approach aims to achieve systemic change by fostering high-impact innovations to address key factors that contribute to maternal and child deaths such as early pregnancy, weak antenatal/postnatal care, unsafe deliveries, low nutrition levels, incomplete immunisation, diarrhoea and pneumonia prevalence in India.

1.5.1 Key Features of the RMNCAH+N Strategy

The RMNCAH+N strategy approaches include:

- Health systems strengthening (HSS) focusing on infrastructure, human resources, supply chain management, and referral transport measures.
- Prioritisation of high-impact interventions for various lifecycle stages.
- Increasing effectiveness of investments by prioritising geographical areas based on evidence.
- Integrated monitoring and accountability through good governance, use ofavailable data sets, community involvement, and steps to address grievance.
- Broad-based collaboration and partnerships with ministries, departments, development partners, civil society, and other stakeholders.

1.5.2 High Impact RMNCAH+N Interventions

The components of RMNCAH+N Interventions includes reproduction, maternal, newborn, child, adolescent health and nutrition as shown in Table 1.3.

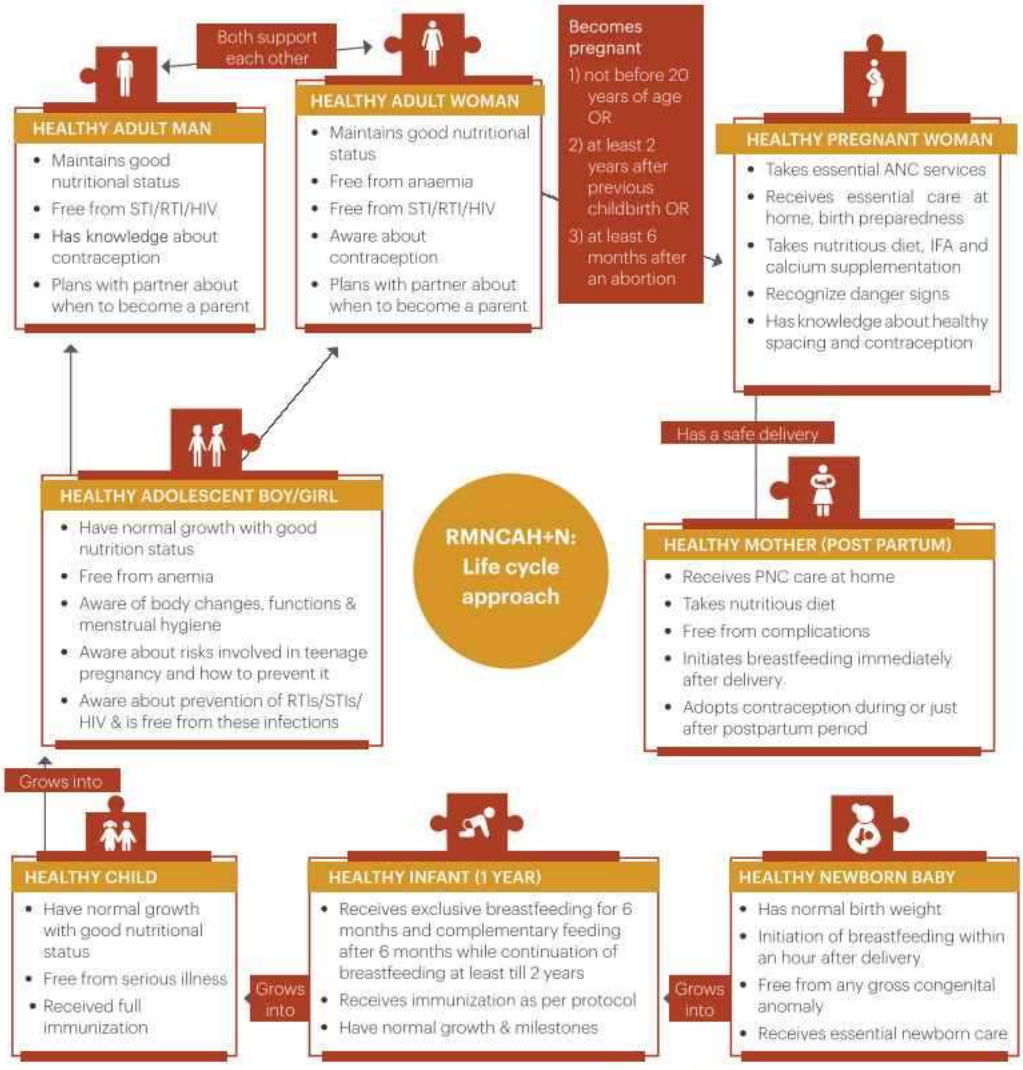


Figure 1: Interlinkages between different life stages

Health Systems Strengthening	Cross-cutting Interventions
• Case load based deployment of HR at all levels • Ambulances, drugs, diagnostics, reproductive health commodities • Health Education, Demand Promotion & Behaviour Change Communication • Supportive supervision and use of data for monitoring and review, including scorecards based on HMIS • Public grievances redressal mechanism; client satisfaction and patient safety through all round quality assurance	• Bring down out of pocket expenses by ensuring JSSK, RBSK and other free entitlements • ANMs & Nurses to provide specialised and quality care to pregnant women and children • Address social determinants of health through convergence • Focus on un-served and underserved villages, urban slums and blocks • Introduce difficult area and performance-based incentives

Check Your Progress 3

State the key features of weekly iron and folic acid supplementation scheme.

.....

.....

1.6 HEALTH SYSTEMS STRENGTHENING FOR RMNCAH+N SERVICE

The key steps proposed for strengthening health facilities for delivery of RMNCAH+N interventions are as follows:

- Prepare and implement facility specific plans for ensuring quality and meeting service guarantees as specified under IPHS.
- Assess the need for new infrastructure, extension of existing infrastructure on the basis of patient load and location of facility.
- Equip health facilities to support forty-eight-hour stay of mother and newborn.
- Engage private facilities for family planning services, management of sick newborns and children, and pregnancy complications.
- Strengthen referral mechanisms between facilities at various levels and communities.
- Provision for adequate infrastructure for waste management.

1.7 STRATEGIC RMNCAH+N INTERVENTIONS ACROSS LIFE STAGES

RMNCAH+N interventions are to have high impact on reducing mortality and improving survival. The effectiveness of these interventions is based on the availability, accessibility, actual utilisation of services and the quality of service delivered.

1.7 STRATEGIC RMNCAH+N INTERVENTIONS ACROSS LIFE STAGES

RMNCAH+N interventions are to have high impact on reducing mortality and improving survival. The effectiveness of these interventions is based on the availability, accessibility, actual utilisation of services and the quality of service delivered.

1.7.1 Adolescence

Adolescence is one of the important stages of the life cycle in terms of health interventions. Although adolescence is considered to be a healthy phase, more than 33% of the disease burden and almost 60% of premature deaths among adults can be associated with behaviours or conditions that begin or occur during adolescence. The disease burden in the age group of 10 to 19 years is significantly different for younger and older adolescents. Injuries and communicable diseases are prominent causes of disability and death in the 10 to 14 age group. Outcomes of sexual behaviours and mental health become significant for the 15 to 19 years age group. Adolescent health and nutrition status has an inter-generational effect. Therefore, adolescence is one of the important stages of the life cycle in terms of health interventions.

Priority interventions

- Adolescent nutrition; iron and folic acid supplementation
- Facility-based adolescent reproductive and sexual health services (Adolescent health clinics)
- Information and counselling on adolescent sexual reproductive health and other health issues
- Menstrual hygiene
- Preventive health checkups

Let us elaborate on each of the above interventions as given below.

i) **Adolescent Nutrition and Folic Acid Supplementation**

Adequate nutrition in adolescence is important for growth and sexual maturation. Inadequate nutrition in adolescence can enhance the risk of chronic diseases, particularly if combined with other adverse lifestyle behaviours. As part of the new adolescent health strategy, it is essential to generate awareness on consumption of balanced diet, nutritious food and inter-generational effects of malnutrition. The nutrition education sessions need to be held at the community level using School setting, Anaganwadi Centres (AWC), Nehru Yuva Kendra Sangathan (NYKS), Village Health Nutrition Day and Kishori Diwas. Nutrition education is to be included in school curriculum, establishing working linkages with 'Sakshar Bharat' Abhiyan.

a) **National Iron + Initiative**

National Iron + Initiative include adolescents (10–19 years), both in and out of school. Those in school are reached through Weekly Iron and Folic Acid Supplementation (WIFS), while 'out of school' adolescents are reached through AWCs.

b) **Weekly iron and folic acid supplementation scheme**

The Weekly Iron and Folic Acid Supplementation (WIFS) scheme is a community-based intervention that addresses nutritional (iron deficiency) anaemia amongst adolescents (boys and girls) in both rural and urban areas. It aims to cover adolescents enrolled in class VI–XII of government, government aided and municipal schools as well as 'out of school' girls. The key features of the scheme are:

- Supervised administration of prophylactic dose of weekly iron and folic acid supplements of 60 mg of elemental iron and 500 mcg folic acid
- Screening of target groups for moderate and severe anaemia and referral to an appropriate health facility
- Bi-annual de-worming (Albendazole 400 mg)
- Information and counselling for improving dietary intake and preventive actions for intestinal worm infestation.

ii) **Facility based reproductive and sexual Adolescent Health Services (Adolescent Health Clinics)**

Reproductive and sexual health information and services, including contraceptives and safe abortion services are delivered by the ANM at sub centre level in an adolescent-friendly environment to reduce incidences of STIs, unplanned and unwanted pregnancies and unsafe abortions. In addition, Adolescent Information and Counselling Centre has been made functional by the Medical Officer and ANM at the Primary Health Centre on a weekly basis. At the Community Health Centre, District Hospital/Sub District Hospital/Taluk/Area Hospital and Medical College, Adolescent Health Clinic services are provided on daily basis. A dedicated counsellor is available on all days at higher-level facilities (Community Health Centre onwards).

iii) **Information and counselling on adolescent sexual reproductive health and other health issues**

The life-skills-based adolescence education programme has been implemented through schools. It provides an opportunity to inform and educate adolescents on relevant health issues. To promote healthy lifestyle (physical activity, healthy diet) and generate awareness on risk factors for NCDs (for example, tobacco and alcohol use, junk food), school setting serves as the platform to educate and counsel adolescents on behaviour risk modification (avoidance of junk foods with high carbohydrates, sedentary life style, tobacco and alcohol).

In order to reduce adolescent pregnancy, focused messaging to individuals, families and communities (including men) are reinforced through the Life Skills Education sessions that are delivered from various adolescent centric platforms including community outreach sessions and Anganwadi centres.

iv) **Scheme for promotion of menstrual hygiene among adolescent girls in rural India**

This scheme promotes better health and hygiene among adolescent girls (aged 10 to 19 years) in rural areas by ensuring that they have adequate knowledge and information about the use of sanitary napkins. Through the scheme, high

quality and safe products are made available to the girls and environmentally safe disposal mechanisms are made accessible. The sanitary napkins are provided under NRHM's brand 'Free days'. These napkins are being sold to adolescent girls by ASHAs.

v) **Preventive health checkups and screening for diseases, deficiency and disability**

The School Health Programme addresses the need for preventive health checkups amongst school going children and adolescents. Bi-annual health screening is undertaken for students (6–18 years age group) enrolled in government and government-aided schools for defects, disease, deficiency and disability with referrals and linkages to secondary and tertiary health facilities, as required.

1.7.2 Pregnancy and Childbirth

Pregnancy and childbirth are physiological events in the life of a woman. Though most pregnancies result in normal birth, it is estimated that about 15% may develop complications, which cannot be predicted. Majority of these complications can be averted by preventive care (such as antenatal checkups, birth preparedness), skilled care at birth, early detection of risk (like with use of partographs), appropriate and timely management of obstetric complications and postnatal care.

- **Priority interventions**

a) Delivery of antenatal care package and tracking of high-risk pregnancies

b) Skilled obstetric care

c) Immediate essential newborn care and resuscitation

d) Emergency obstetric and newborn care

e) Postpartum care for mother and newborn

f) Postpartum IUCD and sterilisation

g) Implementation of PC&PNDT Act

Let us discuss each of the above priority interventions in detail.

a) **Antenatal care package and tracking of high risk pregnancies**

To monitor the progress of foetal growth and to ascertain the well-being of the mother, the antenatal care package is available through the public health system, delivered both at community outreach and health facility level. Timely identification of complications enables service providers to make timely referrals to health facilities equipped to provide emergency obstetric and newborn care. Birth preparedness in the antenatal period includes discussion with the mother/family members regarding the health facilities where skilled obstetric care is available as well as the transport facilities that are now available free of charge in the public health system.

b) **Skilled obstetric care and essential newborn care and resuscitation**

- **Operationalising delivery points:**

Health facilities located across the health system are now assessed against a minimum benchmark of performance (number of deliveries conducted per month as one of the parameters of service utilisation < 3 deliveries/

month in SC, > 10/month in PHC, > 20/month in CHC, > 50 /month in SDH/DH) and designated as 'delivery points'. The delivery points are prioritised for the allocation of resources (infrastructure and human resources, drugs and supplies, referral transport etc.) in order to ensure quality of services and provision of comprehensive RMNCH services at these health facilities.

- **Demand generation for skilled obstetric care:**

  In order to motivate women to deliver at health facilities, Janani Suraksha Yojana (JSY) has been launched as a scheme with the provision of conditional cash transfer to a pregnant woman for institutional care during delivery and the immediate postpartum period.

- **Service guarantees and elimination of out-of-pocket expenses:**

  Janani Shishu Suraksha Karyakram (JSSK) is an initiative under NRHM that aims to reduce out-of-pocket expenses related to maternal and newborn care. The scheme implemented across the country entitles all pregnant women delivering in public health institutions to absolutely free and no expense on delivery, including caesarean section.

- **Essential newborn care and resuscitation:**

  Recognising that events at the time of birth are critical to newborn survival, Newborn Care Corners have been established at delivery points and providers are trained in basic newborn care and resuscitation through **Navjaat Shishu Suraksha Karyakram** (NSSK). The saturation of all delivery points with Skilled Birth Attendance and NSSK trained personnel and functional Newborn Care Corners are the topmost priority under the national programme.

c) **Emergency obstetric and newborn care**

Sub-centres and Primary Health Centres designated as delivery points, Community Health Centres (FRUs) and District Hospitals have been made functional 24 × 7 to provide basic and comprehensive obstetric and newborn care services. Only those health facilities that have the facilities and manpower to conduct a Caesarean section has been designated as FRUs. In order to overcome the shortage of specialist doctors who can provide emergency obstetric care, multi skilling of doctors in the public health system is being undertaken. This includes:-

- Eighteen week-long training programme of MBBS qualified doctors in Life Saving Anaesthetic Skills (LSAS);
- Sixteen-week-long training programme in Obstetric Management Skills including Caesarean section;
- Ten-day-long training for Medical Officers in Basic Emergency Obstetric Care (BEmOC) and
- Three week-long Skilled Birth Attendance training for ANMs/LHVs / Staff Nurses.

d) **Postpartum care for mother and baby**

To ensure postpartum care for mothers and newborns, forty-eight hours of stay at the health facility is mandated in case of institutional delivery with dietary services so that the mother and the newborn are under medical observation during the critical period when most neonatal and maternal deaths takes place. The postnatal home visits are made by frontline workers irrespective of the place of delivery. Six visits, in case of home delivery 7 home visits need to be made within 6 weeks of delivery.

e) **Postpartum IUCD insertion**

Steps are taken to promote IUCD for spacing by placement of trained providers for postpartum IUCD (PPIUCD) insertion at district and sub-district hospital level, considering the high institutional delivery load at these facilities. A dedicated RMNCH counsellor is placed at public sector health facilities under the NHM to play a key role in increasing awareness and generating demand for the various RMNCH services being provided at the facilities.

f) **Implementation of preconception & prenatal diagnostic techniques (PC&PNDT)**

Decline sex ratio is of major concern across states in India.. The key areas for action towards this downward trend include: formation of dedicated PC&PNDT cells at State/District level, strengthening of human resources as well as trainings and establishing appropriate infrastructure at all levels. Establishment of statutory bodies under the PC&PNDT Act (State Supervisory Board, State & District Appropriate Authority, State & District Advisory Committee), strengthening of monitoring mechanisms, including the State Inspection and Monitoring Committee, online maintenance, analysis and scrutiny of records mandated under the Act and digitalisation of registration records with periodic evaluations.

g) **Preventive use of folic acid in peri-conception period**

Promoting use of folic acid (400 microgram) in planned pregnancies during the peri-conception period (3 months before and 3 months after conception) for prevention of neural tube defects and other congenital anomalies need to be adopted by states as a preventive measure against certain birth defects (neural tube defects).

1.7.3 Newborn and Childcare

The thrust areas for newborn and child health under the NRHM are

- Immediate, routine newborn care and care of sick newborns
- Child nutrition including essential micronutrients supplementation
- Immunisation against common childhood diseases
- Management of common neonatal and childhood illnesses.

Besides this, a new initiative of Child Health Screening and Early Intervention Services offering comprehensive care to children (0–5; 6–9; 10–18 years) is being introduced.

Priority interventions

a) Home-based newborn care and prompt referral

b) Facility-based care of the sick newborn

c) Integrated management of common childhood illnesses (diarrhoea, pneumonia and malaria)

d) Child nutrition and essential micronutrients supplementation

e) Immunisation

f) Early detection and management of defects at birth, deficiencies, diseases and disability in children (0–18 years)

The details of the above priority interventions are given below :

a) **Home based newborn care and prompt referral**

The home-based newborn care scheme, launched in 2011, provides immediate postnatal care especially in the cases of home delivery and essential newborn care to all newborns up to the age of 42 days of life including counselling of mothers on exclusive breastfeeding, appropriate infant and young child feeding practices and hygiene. Frontline workers (ASHAs) are trained and sensitised to provide special care to pre-terms and newborns; they are also trained in identification of illnesses, appropriate care and referral through home visits.

b) **Facility-based care of the sick newborns**

In order to strengthen the care of sick, premature and low birth weight newborns**, Special Newborn Care Units (SNCU)** have been established at District Hospitals and tertiary care hospitals. Another smaller unit known as the **Newborn Stabilisation Unit (NBSU),** a four-bedded unit providing basic level of sick newborn care, is being established at Community Health Centres/ First Referral Units.

As part of the Janani Shishu Suraksha Karyakram, all newborns requiring facility-based newborn care up to thirty days receive diagnostics, drugs and treatment free of charge at these newborn care facilities. Free Emergency Referral Transport is also to be provided for transport from home/ community to the health facility and between health facilities in case a referral is made. Follow up of the sick newborn after discharge from the newborn facilities is taken up at District Early Intervention Centers.

c) **Child nutrition and essential micronutrients supplementation**

The first two years of life is considered a 'critical window of opportunity' for prevention of growth faltering. Optimal breastfeeding and complementary feeding practices together allow children to reach their full growth potential. In order to reduce the prevalence of anaemia among children,

- All children between the ages of 6 months to 5 years must receive iron and folic acid tablets or syrup (IFA) (as appropriate) for 100 days in a year as a preventive measure.
- Weekly supplementation of iron and folic acid for children from 1st to 5th grades in government and government-aided schools.
- Weekly supplementation for 'out of school' children (6–10 years) at Anganwadi Centres.

- As part of the Government's policy for Vitamin A supplementation, children between nine months to five years are given six monthly doses of vitamin A.

d) **Integrated management of common childhood illnesses (pneumonia, diarrhoea and malaria)**

In order to address the most common causes of neonatal and child deaths in India, an integrated strategy that includes both preventive and curative interventions has been adopted. This is known as the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) provided at all levels of care: at community (ASHA package), first level care (IMNCI) and referral level care (F-IMNCI). IMNCI addresses various aspects of child nutrition, immunisation, elements of disease prevention and health promotion. Its three main components include: improvements in the case-management skills of health staff, improvements in the overall health system required for effective management of neonatal and childhood illnesses, and improvements in family and community healthcare practices. For further details, refer BNS-043, Block 6, BNS-042, Block 4, Unit 2 also.

e) **Immunisation**

Universal Immunisation Programme includes vaccines to prevent seven vaccine preventable diseases (Tuberculosis, Polio, Diphtheria, Pertussis, Tetanus, Measles and Hepatitis B).

To strengthen routine immunisation, newer initiatives include provision for Auto Disable (AD) Syringes to ensure injection safety, support for alternate vaccine delivery from PHC to sub centres as well as outreach sessions and mobilisation of children to immunisation session sites by ASHA.

6) **Child Health Screening and Early Intervention Services (Rashtriya Bal Swasthya Karyakram)**

The objective of the child health screening is to detect medical conditions at an early stage, thus enabling early intervention and management, ultimately leading to reduction in mortality, morbidity and lifelong disability. This initiative aims to reach 27 crore children annually in the age group 0–18 years, when fully implemented across the country.

Check Your Progress 4

i) Explain the thrust areas for newborn and child health under the NHM ?

.....

ii) List the priority interventions in new born and child health.

.....

iii) List the objectives of Child health screening.

.....

1.7.4 Reproductive Years

A woman's nutritional status and age at childbearing affect the outcomes of pregnancy. More frequent and multiple pregnancies result in higher morbidity and mortality in newborns and mothers. Therefore, any effort to improve the survival of mothers and children requires intervention at various stages of life including the adolescence phase, pre pregnancy period, during pregnancy and delivery, after childbirth and then in the newborn period and childhood. Reproductive health needs exist across the reproductive years and therefore access to these services is required in various life stages starting from the adolescence phase. Reproductive health services include the provision for contraceptives, access to comprehensive and safe abortion services, diagnosis and management of sexually transmitted infections, including HIV.

Priority interventions

a) Community-based promotion and delivery of contraceptives
b) Promotion of spacing methods (interval IUCD, Antara, Mala-N, Mala-D & POP etc.)
c) Sterilisation services (vasectomies and tubectomies)
d) Comprehensive abortion care (includes MTP Act)
e) Prevention and management of sexually transmitted and reproductive infections (STI/RTI)

Let us elaborate on the above priority interventions -

a) **Community based doorstep distribution of contraceptives**

The community based distribution of contraceptives through ASHAs and focused IEC and BCC efforts are being undertaken for enhancing demand and creating awareness about family planning. To improve access to contraceptives by eligible couples, the services of ASHAs are utilised to deliver contraceptives at the doorstep of households.

b) **Promotion of spacing methods (interval IUCD)**

Introduction of a new IUCD of five years duration; post-delivery IUCD insertion; counsellors in District Hospitals and high case load facilities and training of health personnel in IUCD insertion at all levels of health facilities are the key measures taken for promotion of spacing methods. Availability of IUCD 380 A (that provides protection for over 10 years) and 'fixed day services' at all facilities are to be ensured.

c) **Sterilisation services**

This service component is limited to those couples who have achieved the desired family size and does not apply to the adolescent age group.

d) **Comprehensive abortion care**

The strategies for providing safe abortion services are the provision of Manual Vacuum Aspiration (MVA) facilities and medical methods of abortion in 24 × 7 Primary Health Centres. The comprehensive Medical Termination of Pregnancy (MTP) services are to be made available at all District Hospitals and Sub-district level hospitals with priority given to 'delivery points', and also by encouraging private and NGO sector to provide quality MTP services.

e) **Management of sexually transmitted and reproductive tract infections (RTI and STI)**

Controlling STI/RTI helps decrease HIV infection rates and also provides a window of opportunity for counselling about HIV prevention and reproductive health. These services are provided at all CHCs and FRUs, and at 24 × 7 PHCs.

Check Your Progress 5

List the priority interventions under reproductive health services.

.....

.....

1.8 PROGRAMME MANAGEMENT SYSTEM FOR RMNCAH+N SERVICES

Programme management of RMNCAH+N services at various level is given below.

National Level

At the National level, the RCH Division has the provision for Deputy Commissioners, Assistant Commissioners, and a team of technical consultants. This structure along with additional officers and consultants are being appointed to provide management support and technical assistance in areas such as nutrition, capacity building, quality assurance and logistics management.

State Level

It is planned that a dedicated full-time Director for RCH will take charge at the state level. Director RCH will be supported by separate dedicated full-time directorate officials for Maternal Health, Child Health, Family Planning and Adolescent health as well as for key cross cutting functions such as facility operationalisation, training and quality assurance systems. The key technical areas of RCH will also have a dedicated/ nodal person at District level. They can be a mix of directorate staff and consultants. As a minimum, there should be a designated person for each function with supervision being provided by a directorate official.

The State Directorate will be strengthened for the management of all technical components of RMNCAH+N services including training, communication and planning. Additional expertise in community-based programmes and on quality assurance of health facilities will be provided. For each of these areas, a dedicated senior officer will lead the team, supported by a group of officers and consultants.

District and block level

At each district, the staffing level will be as follows:

- A dedicated directorate official (possibly Additional Chief Medical and Health Officer (CMHO /RCHO Officer) for RMNCAH+N

- Additional CMHO, RCH Officer to be supported by separate dedicated full-time staff for maternal health, child health, family planning and adolescent health components
- A nurse-midwife/master trainer/staff nurse who would mentor or provide supportive supervision to LHVs/ ANMs in improving quality of service delivery across maternal health, child health and family planning.
- Key cross cutting functions – facility operationalisation, training and quality assurance systems – should be under the purview of the District Programme for RMNCAH+N Service Management Unit which could be strengthened accordingly.

1.9 MONITORING AND EVALUATION SYSTEMS

The following are the various systems which will be used for monitoring and evaluation of RMNCAH+N services.

1.9.1 Civil Registration System

All efforts will be made to ensure 100% registration of births and deaths under Civil Registration System. The data/information would be captured from both public and private health facilities.

1.9.2 Web Enabled Pregnancy and Child Tracking System (PCTS): RCH Portal

The name-based tracking of pregnant women and children has been initiated under NRHM with an intention to track every pregnant woman, infant and child up to the age of three years by name, for ensuring delivery of services like timely antenatal care, institutional delivery and postnatal care for the mother, and immunisation and other related services for the child. The PCTS will be fully updated for regular and effective monitoring of service delivery, including tracking and monitoring of severely anaemic women, low birth weight babies and sick neonates.

1.9.3 Maternal Death Surveillance Response (MDSR)

The purpose of the maternal death surveillance response (MDSR) is to identifying, notifying, reviewing and responding to maternal deaths to improve the quality of care & prevent future deaths. The analysis of these deaths can identify the delays that contribute to maternal deaths at various levels and the information can then be used to adopt measures to prioritise and plan for intervention strategies and to reconfigure health services.

1.9.4 Perinatal and Child Death Review

An analysis of newborn and child deaths provides information about the medical causes of death and helps to identify the gaps in health service delivery, or the social factors that contribute to these deaths. This information can be used to adopt corrective measures and fill the gaps in community and facility level service delivery.

The Infant and Under-five Death Review need to be initiated for deaths occurring both at community and facility level. The death reports with cause of death for any child under five should be shared with district health teams on a quarterly basis.

1.9.5 Health Management Information System (HMIS) Based Monitoring and Review

Relevant, accurate and timely data is essential to facilitate improvement in operational planning and monitoring. A web-based Health Management Information System (HMIS) was initiated in 2008. At present, all 35 States and Union Territories as well as 777 Districts upload health related data on a range of outputs and service delivery indicators. Indicators that reflect key outcomes such as full antenatal care, institutional deliveries, sterilisation procedures, IUCD insertion, full immunisation, child deaths due to diarrhoea and acute respiratory infections, and maternal deaths should be regularly monitored and interpreted at National, State and District level. The process indicators such as postnatal home visits for mothers and newborns, newborns admitted to SNCUs, number of caesarean sections should be reviewed at regular intervals. The review of States and Districts based on HMIS data should be promoted so as to strengthen this system and improve the quality of data.

The RMNCAH+N strategy emphasises the use of data for planning and implementing interventions. A new initiative for monitoring and reviewing the progress is the introduction of the 'score card". Scorecards are introduced to act as a management tool for two-way feedback at all levels. Their use helps to locate data entry and data quality issues and underscores the importance of data cleaning and quality improvement. In addition, 16 indicators from the health management information system (HMIS) were selected and used to develop quarterly service delivery dashboards for monitoring. The colour-coded dashboard identifies performance by states, districts, and blocks as good (green), promising (yellow), poor (pink), and very poor performing (red), based on a composite index and individually for the five thematic areas.

1.9.6 Prasav Watch Application:

An Android-based intrapartum monitoring and decision-support application designed to guide healthcare providers during labor. It ensures timely interventions and accurate documentation of labor room processes.

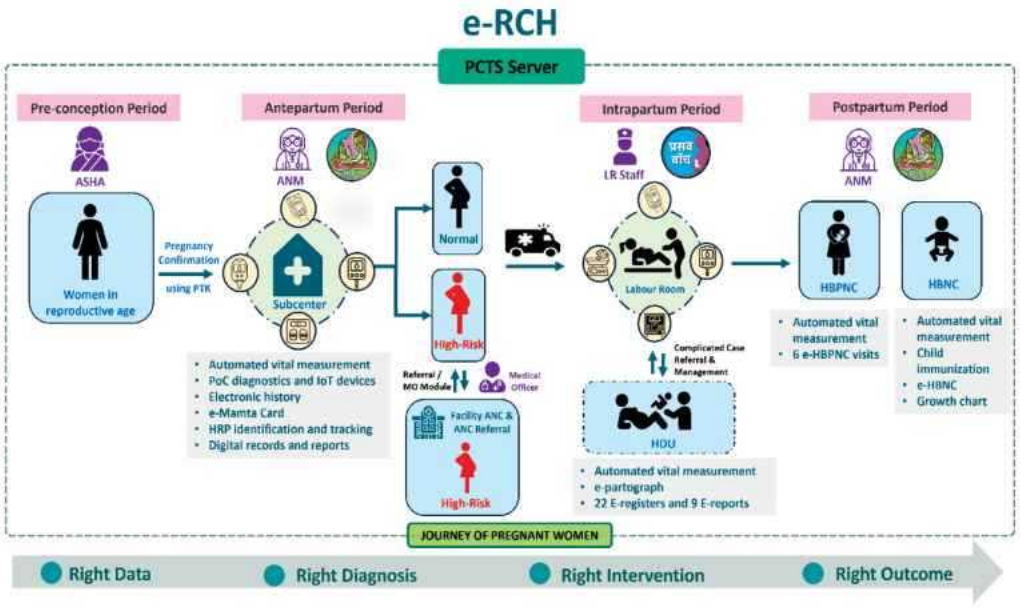
Integration and Development of eRCH framework: Continuum-of-Care

The Government of Rajasthan has proposed a joint initiative for the development of an e- RCH ecosystem that encompasses pregnant women's journey from ANC to PNC and serves as a comprehensive and connected tool.

An integrated platform that connects ANMs, CHOs, Staff Nurses, Medical Officers, and facilities to digitize maternal and newborn health services from registration through delivery and postnatal care.

Users of Digital Applications : e-RCH

Application	Users and Use Cases
PCTS	ANMs, ASHAs, CHOs, MOs, Program Managers: ANC/PNC tracking, immunization, high-risk follow-up, supervision Dashboards
Prasav Watch	Staff Nurses, Obstetricians, Facility Managers: Intrapartum monitoring, alerts for complications, clinical decision support



▯ PCTS Application:

A state-specific application to track pregnant women and children for the timely delivery of services. It captures and manages data related to ANC, PNC, immunization, high-risk follow-up and management.

▯ Prasav Watch Application:

An Android-based intrapartum monitoring and decision-support application

designed to guide healthcare providers during labor. It ensures timely interventions and accurate documentation of labor room processes.



PCTS Application



Prasav Watch Application

Role of CHOs in Strengthening CoC through Digital Platforms

As frontline care providers at Ayushman Arogya Mandir (AAMs), CHOs play a critical role:

- Support tracking and follow-up: Identify due beneficiaries using PCTS.
- Monitor high-risk pregnancies: Act on flagged alerts, coordinate referrals.
- Validate service delivery: Ensure data accuracy and completeness.
- Coordinate field workers: Facilitate data entry, address service gaps.
- Use Prasav Watch insights: Support labor room staff and educate beneficiaries during ANC.

Conclusion

Strengthening the Continuum of Care is essential for improving maternal and newborn outcomes. Rajasthan's approach through PCTS and Prasav Watch enables CHOs to ensure integrated, timely, and accountable service delivery.

What CHOs should do next:

- Log in and actively use PCTS and Prasav watch platforms.
- Attend refresher training and updates on digital tools.
- Coordinate regularly with facility and community staff.
- Support data-driven decision-making to improve service outcomes.

CHOs are not just users of technology, they are key enablers of a connected care system. By using these platforms effectively, CHOs ensure that no woman or child is left behind.

1.10 LET US SUM UP

RMNCAH+N approach was launched by MOHFW, Government of India in 2013. It is a comprehensive strategy for improving the maternal and child health outcomes, under NRHM/NHM. This approach essentially looks to address the major causes of mortality among women and children as well as the delays in accessing and utilising health care and services. The RMNCAH+N strategic approach has been developed to provide an understanding of 'continuum of care' to ensure equal focus on various life stages. This strategy encompasses various high impact interventions across the life cycle, It also introduces new initiatives like the use of Score Card to track the performance, National Iron + Initiative to address the issue of anaemia across all age groups and the Comprehensive Screening and Early interventions for defects at birth , diseases and deficiencies among children and adolescents. The RMNCAH+N appropriately directs the States to focus their efforts on the most vulnerable population and disadvantaged groups in the country.

1.11 MODEL ANSWERS

Check Your Progress 1

i) It is a life cycle approach adopted under NHM to improve the survival of mothers and children through intervention at various stages of life including the adolescence phase, pre pregnancy phase, during pregnancy and delivery, after child birth and then in the newborn period and childhood.

ii) The + indicates that the adolescence is an important stage of life, where key interventions are required and there should be a linkage between the services provided at home, community and health facilities at primary (primary health Centre), secondary (community health centre), and tertiary levels (district hospital).

iii) The "Continuum of Care" for reproductive, maternal, newborn and child health (RMNCH) includes integrated service delivery for mothers and children from pre-pregnancy to delivery, the immediate postnatal period, and childhood. Such care is provided by families and communities, through outpatient services, clinics and other health facilities. The Continuum of Care recognises that safe childbirth is critical to the health of both the woman and the newborn child—and that a healthy start in life is an essential step towards a sound childhood and a productive life.

Check Your Progress 2

Maternal mortality results from multiple reasons, which can broadly be classified as medical, socio-economic and health system-related factors. The most common causes for death of mothers are the complications related to pregnancy and child birth. The major causes of neonatal deaths are prematurity, that is, birth of a child before 37 weeks of gestation, infections such as pneumonia and septicaemia and asphyxia, that is, inability to establish breathing immediately after birth and congenital causes.

Check Your Progress 3

The Weekly Iron and Folic Acid Supplementation (WIFS) scheme is a community-based intervention that addresses nutritional (iron deficiency) anaemia amongst adolescents (boys and girls) in both rural and urban areas. It aims to cover adolescents enrolled in class VI–XII of government, government aided and municipal schools as well as 'out of school' girls. The key features of the scheme are

- Supervised administration of prophylactic dose of weekly iron and folic acid supplements of 60mg elemental iron and 500 mcg folic acid
- Screening of target groups for moderate and severe anaemia and referral to an appropriate health facility
- Bi-annual de-worming (Albendazole 400 mg)
- Information and counselling for improving dietary intake and preventive actions for intestinal worm infestation.

Check Your Progress 4

i) The thrust areas for newborn and child health under the NRHM are:

- Immediate, routine newborn care and care of sick newborns
- Child nutrition including essential micronutrients supplementation
- Immunisation against common childhood diseases
- Management of common neonatal and childhood illnesses.

Besides this, a new initiative of Child Health Screening and Early Intervention Services offering comprehensive care to children (0–5; 6–9; 10–18 years) is being introduced

ii) **Priority interventions**

- Home-based newborn care and prompt referral
- Facility-based care of the sick newborn
- Integrated management of common childhood illnesses (diarrhoea, pneumonia and malaria)
- Child nutrition and essential micronutrients supplementation
- Immunisation
- Early detection and management of defects at birth, deficiencies, diseases and disability in children (0–18 years)

iii) The objective of the child health screening is to detect medical conditions at an early stage, thus enabling early intervention and management, ultimately leading to reduction in mortality, morbidity and lifelong disability. This initiative aims to reach 27 crore children annually in the age group 0–18 years, when fully implemented across the country.

Check Your Progress 5

1) Priority interventions

- Community-based promotion and delivery of contraceptives
- Promotion of spacing methods (interval IUCD)
- Sterilisation services (vasectomies and tubectomies)
- Comprehensive abortion care (includes MTP Act)
- Prevention and management of sexually transmitted and reproductive infections (STI/RTI)

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UNIT 2 ANTENATAL CARE

Structure

2.0 Introduction

2.1 Objectives

2.2 Antenatal Care

- 2.2.1 Importance and Objectives of Antenatal Care
- 2.2.2 Components of Antenatal Care Including Counselling

2.3 Examination of Pregnant Woman

- 2.3.1 History Taking
- 2.3.2 General Physical Examination
- 2.3.3 Abdominal Examination
- 2.3.4 Laboratory Investigations

2.4 Planning and Preparing for Birth

- 2.4.1 Birth Preparedness and Complication Readiness
- 2.4.2 Identification of High Risk Cases
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2.5 Common Signs and Symptoms of Pregnant Woman and Related Actions at Sub-centre Level

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- 2.10.1 Gestational Diabetes Mellitus (GDM)
- 2.10.2 Hypothyroidism
- 2.10.3 Syphilis

2.11 Registers and Records

2.12 Let Us Sum Up

2.13 Model Answers

2.14 References

2.0 INTRODUCTION

In Unit 1 of this block you have learnt about introduction to reproductive, maternal and child health and adolescent health. One of important components of maternal health is antenatal care. It is important that appropriate antenatal care should be provided to all pregnant women to avoid any complication during pregnancy labour, child birth and during postnatal period. This will ensure maternal, foetal and child well-being and prevent maternal and child mortality and morbidity. In this unit we shall discuss about components of antenatal care, antenatal examination, antenatal care and antenatal advises. We shall also focus on care

during selected problems during pregnancy and identification and referral of complications and records and reports. You should also refer the appendix given at the end of block for care of mother during antenatal and postnatal care.

2.1 OBJECTIVES

After completing this unit, you should be able to:

- list the components of antenatal care;
- describe components and steps of antenatal examination;
- explain the signs and symptoms of pregnancy;
- discuss the care of woman at sub-centre level;
- list danger signs during pregnancy;
- describe the antenatal advises;
- explain the care of Pregnant women with selected problems; and
- discuss antenatal records to be maintained at sub-centre.

2.2 ANTENATAL CARE

Antenatal care is the care given to a woman during pregnancy. It is systemic supervision of a woman during pregnancy at regular intervals to monitor Maternal wellbeing, Foetal well-being and Progress of foetal growth.

2.2.1 Importance and Objectives of Antenatal Care

Let us begin with importance and then focus on objectives.

Importance

- Preparation of birth plan and identification of facility for delivery.
- Providing quality of care for well-being of pregnant women and the foetus.
- Early identification of maternal and foetal complications and timely referral.
- Identification of a facility for referral.

Objectives

- To promote, protect and maintain the health of the mother during pregnancy.
- To detect “high risk” cases and give them special attention.
- To foresee complications and prevent them.
- To remove anxiety and dread associated with delivery.
- To reduce maternal and infant mortality and morbidity.
- To teach the mother elements of child care, nutrition, personal hygiene, and environmental sanitation.
- To sensitise the mother to the need for family planning, including advice to cases seeking medical termination of pregnancy.
- To detect and treat any abnormality found in pregnancy as early as possible.

2.2.2 Components of Antenatal Care Including Counselling

Quality antenatal care has following components.

i) **Primary Steps** which include the following

- Registration and first check up within first trimester (12 wks)
- Minimum 4 antenatal checkups; atleast one ANC by M.O. (Preferably 3rd ANC) (Table 2.1)
- Two doses of Injection tetanus toxoid & Adult Diptheria
- Intake of atleast 100 tablets of IFA

Table 2.1: Number and timing of antenatal visits

Number of Visit	Timings of Visit
1st Visit	Within 12 weeks, preferably as soon as pregnancy is suspected
2nd Visit	Between 14-26 weeks
3rd Visit	Between 28-36 weeks
4th Visit	Between 36 weeks and term

However there may be delay in seeking MCH services due to various factors which affect service utilisation and outcome as given below in Fig 2.1.

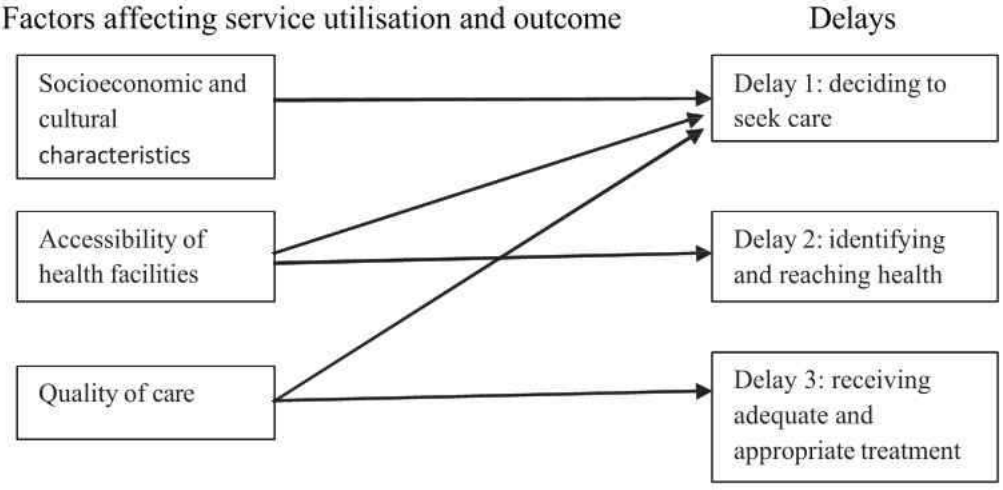


Fig. 2.1: 3 Delays in seeking Maternal and Child Health

ii) **Essential Components of Antenatal Care -** The essential components are given below:

- History taking
- Physical examination (Weight, BP, pallor, Respiratory rate, edema)
- Abdominal palpation
- Laboratory investigations (Hb, urine for sugar and proteins). For further details refer BNSL-043, Block 4, Unit 2.

iii) **Desirable Components of Antenatal Care**

The Desirable Components of Antenatal Care are given below:

- UPT
- Blood group and Rh type
- Urine test
- Haemoglobin test
- VDRL / RPR (Rapid Plasma Reagent)
- Rapid testing kits for HIV screening
  - Link with nearest ICTC/PPTCT Centre for +ve Cases
  - Referral & management of +ve cases.
- Hepatitis B and Australia Antigen testing
- Blood sugar testing/OGTT
- RDT kit for Malaria

iv) **Counselling**

- During counselling ensure privacy, maintain confidentiality and treat the woman with respect
- Counselling helps the woman to plan and prepare for birth (birth preparedness/ micro birth plan). This should include deciding on the place of delivery and the presence of an attendant at the time of the delivery. Counsel the mother/woman about the advantages of institutional deliveries and risks involved in home deliveries.
- Advise the woman on where to go if an emergency arises, and how to arrange for transportation, money and blood donors in case of an emergency.
- Educate the woman and her family members on signs of labour and danger signs of obstetric complications.
- Emphasise the importance of seeking ANC and PNC.
- Advise on diet (nutrition) and rest.
- Inform the woman about breastfeeding, including exclusive breastfeeding.
- Provide information on sex during pregnancy.
- Warn against domestic violence (explain the consequences of violence on a pregnant woman and her foetus).
- Promote family planning.
- Inform the woman about the Janani Suraksha Yojana (JSY)/any other incentives offered by the State.

Refer Appendix 1 (Counselling Booklet) on Safe motherhood for expecting mothers at the end of this block which includes Counselling about Antenatal Care and Postnatal Care including national initiative.

Check Your Progress 1

i) Explain Importance of Antenatal Care.

.....

.....

ii) List the essential components of Antenatal Care.

.....

.....

iii) Write the number of visits a pregnant woman must make to a health facility during antenatal period.

.....

.....

2.3 EXAMINATION OF PREGNANT WOMAN

You should carry out following steps to conduct general examination of pregnant woman when she visits to your centre. Details of procedure are also given in practical Course 3, Block 4, Unit 2.

2.3.1 History Taking

The detailed steps of history taking are given in Practical Course BNSL-043 Block 4, Unit 2. Let us begin with importance of history taking as given below

Importance of History Taking

- Diagnose pregnancy (first visit only)
- Identify medical or obstetric complications in present pregnancy
- Identify complications during previous pregnancies or family history Confirm that pregnancy is wanted. If not, the woman wishes for abortion then refer to FRU.

Points to be kept in mind while taking history

- Ensure privacy
- Ensure calm and quiet atmosphere
- Make the woman comfortable and relaxed
- Maintain confidentiality
- Establish rapport
- Record all facts on Mother & Child Protection (MCP) card
- Highlight abnormal findings

Ask the following from mother

- Age of woman
- Order of pregnancy
- Birth interval

Record LMP (1st day of woman's last Menstrual period)and calculate Expected Date of Delivery

EDD = First day of LMP + 9 months +7 days

- If the woman is unable to remember the exact date, encourage her to remember some major event, festival or occurrence which she might link with her LMP. A calendar with the Indian system of months and local festivals might come in handy while determining the LMP.

- If the exact date of the LMP is not known and it is late in the pregnancy, ask for the date when the foetal movements were first felt. This is known as 'quickening' and is felt at around 20 weeks of gestation. This information would give a rough idea about the period of gestation, which needs to be correlated with the fundal height to estimate the gestational age. Calculate the EDD on this basis. A special note should be made of such cases in the records.

  If the woman is not able to recollect any of the above things, encourage her to mention what she believes is her current month of pregnancy. For example, if a woman has come to the ANC clinic on 20 September and says that she completed eight months of her pregnancy 10 days ago, it becomes clear that she will be completing her ninth month on 10 October and her EDD (9 months plus 7 days) is 17 October.
- If the woman has undergone a test to confirm the pregnancy, ask her the approximate date of the test and also, after how many days of amenorrhoea it was conducted. This will also assist you in estimating her LMP.
- The LMP is used to calculate the gestational age at the time of check-up and the EDD. The following formula is used to calculate the EDD. It is based on the assumption that the menstrual cycle of the woman was regular before conception and that it was a 28–30 days' cycle.

Ask for Symptoms

Normal symptoms during pregnancy include following:

- Nausea & vomiting
- Heart burn
- Constipation
- Increased frequency of urination

These symptoms may cause discomfort to the woman.

Symptoms indicating complications include following:

- Fever
- Persistent vomiting with dehydration
- Palpitations, tiredness
- Breathlessness at rest / on mild exertion
- Generalised swelling of body / facial puffiness
- Severe headache and/ or blurring of vision
- Passing smaller amount of urine or burning micturition
- Leaking or bleeding per vaginum
- Abnormal vaginal discharge / itching
- Decreased or absent fetal movements

Obtain history related obstetric history, any current / past systemic illnesses, family history and personal history. Details are given in Practical Course BNSL-043, Block 4, Unit 2.

Check Your Progress 2

i) List the points that needs to kept in mind while taking history.

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ii) List the Normal symptoms during pregnancy.

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iii) List the Symptoms indicating complications.

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2.3.2 General Physical Examination

Look for signs and symptoms such as pallor, pulse, respiratory rate, BP, oedema, weight, jaundice, breast and other parameters and check and record various measurements. The details of physical examination are given in practical course BSNL043, Block 4, Unit 1, Section 1.7.

2.3.3 Abdominal Examination

Let us talk about Importance and components of Abdominal Examination. The details of abdominal examination and palpation is given under BNSL-043, Block 4, Unit 1.

Importance of Abdominal Examination

- Monitor progress of pregnancy and foetal growth
- Check for foetal lie and presentation
- Auscultate foetal heart sounds

Components of Abdominal Examination include following:

- Inspection
- Palpation
    - Measurement of fundal height
    - Assessment of foetal lie and presentation
    - Assessment of foetal movement
- Auscultation of foetal heart sounds
- Other relevant abdominal findings

The fundul height can be more or less than the period of gestation due to following reasons as given below in Table 2.2.

Table 2.2

Reasons of fundal height more than the period of gestation	Reasons of fundal height less than the period of gestation
• Wrong date of LMP • Full bladder • Multiple pregnancy • Large baby • Polyhydramnios • Hydrocephalous • Hydatidiform mole	• Wrong date of LMP • Intra-uterine growth restriction (IUGR) • Missed abortion • Intrauterine death (IUD) • Transverse lie • Oligohydromnios

Check Your Progress 3

i) Write the general observations you will make while taking history of pregnant woman.

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ii) List the components of abdominal palpation.

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iii) State the importance of abdominal examination.

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2.3.4 Laboratory Investigations

You can carry out following investigations at sub-centre.

- Pregnancy detection test
- Complete urine analysis
- Stool examination
- Complete blood count including Hb estimation.
- Serological examination like HIV, Syphilis & HbsAg
- Blood grouping and Rh determination.
- Rapid diagnosis malaria test.
- Oral Glucose Tolerance Test/Rapid Blood Glucose test

Details of laboratory investigations are discussed in practical Course 3, BNSL-043, Block 4, Unit 2.

2.4 PLANNING AND PREPARING FOR BIRTH

Various activities to be carried while planning and preparing for birth include

2.4.1 Birth Preparedness and Complication Readiness

Birth Preparedness includes following:

- Registration –During the first visit of mother register by following maternal and child tracking care and antenatal register.
- Identification of place of birth and a skilled birth attendant
- Encourage institutional delivery
- Locate nearest functional FRU/ 24×7 PHC for referral
- Identify and arrange for transport
- Identify support people
- Identification of blood donors if required

Complication readiness

This includes the following:

- Recognising signs of labour
  - A bloody sticky vaginal discharge (show)
  - Painful abdominal contractions every 20 min or less
  - Advise the woman to go to a health facility or contact a SBA if she has any of the above signs
- Awareness and recognition of danger signs during pregnancy, delivery and postpartum period. You should inform pregnant woman and family about danger signs and refer to appropriate health facility (Table 2.3) or advice the mother to visit the facility if the following danger signs are identified by them.
- Identification of nearest functional FRU / PHC
- Identification of transportation facilities

Table 2.3: Danger signs

Visit FRU	Visit PHC
Malpresentation	High fever with or without abdominal pain, too weak to get out of bed
Multiple pregnancy	Fast or difficult breathing
Any bleeding P/V during pregnancy and after delivery (a pad is soaked in less than 5 minutes)	Haemoglobin 7–11 g% even after consuming IFA tablets for 30 days
Severe headache with blurred vision	Excessive vomiting, unable to take anything orally
Haemoglobin <7 g%	Breathlessness at rest

Convulsions or loss of consciousness	Reduced urinary output with high BP
Decreased or absent foetal movements	High BP (>140/90 mmHg) with or without proteins in the urine
Active labour lasting longer than 12 hours in primipara and more than 8 hours in a multipara	
Continuous severe abdominal pain	
Premature rupture of membranes (PROM) before 37 weeks	
High BP (>140/90 mmHg) with proteins in the urine, and severe headache with blurred vision or epigastric pain	
Temperature more than 38°C	
Foul smelling discharge before or after delivery/abortion	
Ruptured membranes for more than 18 hours	
Oliguria <30ml/hr	
FHR >160/minute or<120/ minute	

Check Your Progress 4

i) List the danger signs that you will observe while conducting examination of pregnant woman.

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2.4.2 Identification of High Risk Cases

While continuing to provide appropriate care for all mothers, 'high risk' cases must be identified as early as possible and arrangements to be made for skilled care. Early identification of complication and management by doctor or specialist at Basic Maternal Obstetric Care (BMOC) and Comprehensive Maternal Obstetric Care (CMOC) health facility will help averting maternal and morbidity and mortality and ensure maternal and foetal well-being.

The Government of India has expanded the list of high risk pregnancy from 10 categories to 25 high risk pregnancy categories to ensure early identification and timely management of complications to reduce morbidity & mortality and ensure institutional delivery by tagging with the nearest First Referral Unit (FRU). List of the 25 high risk pregnancy (HRP)categories is

Sl. No.	High Risk Pregnancy (HRP) Categories
1	HIV
2	Syphilis
3	Severe anemia
4	Pregnancy Induced Hypertension
5	Gestational Diabetes Mellitus
6	Hypothyroidism
7	Tuberculosis
8	Malaria
9	Previous LSCS
10	Cephalo-pelvic Disproportion
11	Bad Obstetric History
12	Twins/Multiple pregnancy
13	Hepatitis B
14	Abnormal fetal heart rate
15	Teenage Pregnancy
16	High Fever
17	RTI/STI
18	H/O Still Birth
19	Congenital Malformation
20	Negative Blood Group
21	Early Primi
22	Elderly Primi
23	Grand Multipara
24	Short Stature
25	Others specify

High Risk Conditions in Pregnancy		
Based on previous pregnancy history	**Based on existing medical illnesses**	**Based on current pregnancy screening**
• More than 4 pregnancies • Caesarean Section/Any • Uterine surgery • LBW baby (Pre-term / SGA/Intra Uterine • Growth Restriction UGR)) • Early neonatal death/still birth/ birth asphyxia • Child with congenital anomalies	• Diabetes • Hypertension • Heart disease • Kidney disease • Active TB and • Leprosy	• 1st pregnancy below 18 years and above 35 years • Maternal age above 40 years • Height less than 140 cm • Severe anaemia Hb less than 7 gm% • Pregnancy Induced Hypertension (BP more than 140/90 mm of Hg)/pre-eclampsia/eclampsia • Presence of sugar and/or and nitrites/leukocytes in urine • Malaria/any high fever • Inter-pregnancy interval less than 18 months • Multiple pregnancy/multigravida • Pre-pregnancy/first trimester weight less than 45 kg
• APH/PPH • Pregnancy Induced Hypertension (PIH - Preeclampsia/eclampsia) • Repeated spontaneous abortions of more than 3 times • Conceived after long period of infertility/Artificial Reproductive Techniques • Complicated delivery including obstructed labor. • Rh negative pregnancy • Severe anaemia • GDM	• Thalassemia/Sickle • Cell disease • HIV positive • Other convulsive disorder • Syphilis • Anaemia/sickle cell anaemia • Rh negative	• Weight gain per month after 1st trimester less than 500 gm or more than 3 kg • Rh negative woman • Hepatitis B positive/Jaundice • Maternal infections like HIV /RTI/STI, TB • Bleeding PV • Premature Rupture of Membranes/Leaking P/V • Foul smelling vaginal discharge • Decreased/no fetal movements • Pre-term labor o Over distended/unusually large size of uterus o Excessive pain in abdomen during 1st trimester o Post-dated pregnancy (More than 7 days from EDD)

2.4.3 Prevention

- Administration of folic acid 5mg daily atleast one month before conception.
- By improving pre-pregnancy health of woman.
- Providing quality antenatal care.
- Screening all pregnancies for high risk.
- Provide appropriate clinical and technological care by specialist on time.
- Prevent all kinds of infection.
- Early diagnosis of malformation and termination.
- Avoidance of medication (without physician's prescription).
- Health education on MCH and FP care.

2.5 COMMON SIGNS AND SYMPTOMS OF PREGNANT WOMAN AND RELATED ACTIONS AT SUB-CENTRE LEVEL

Common signs and symptoms that can be encountered in a pregnant woman at sub-centre level (SC) and the actions you need to take are given in Table 2.4

Table 2.4: Symptoms and signs that can be encountered, probable diagnosis and action to be taken at SC level

	Symptoms	Signs/ Investigations	Most Probable Diagnosis	Action(s) to be Taken
A	Heartburn and nausea		Reflux oesophagitis	• Advise the woman to avoid spicy and oily foods. • Ask her to take cold milk during attacks.
				• If severe, antacids may be prescribed.
B	Vomiting during the first trimester	–	May be physiological (morning sickness)	• Advise the woman to eat small frequent meals; avoid greasy food; eat lots of green vegetables; and drink plenty of fluids. • If vomiting is excessive in the morning, ask her to eat dry foods, such as roti/ paratha, biscuits or toast, after waking up in the morning.
C	Excessive vomiting, especially after the first trimester	The woman may be dehydrated—dry tongue, loss	Hyper- emesis gravidarum	Start IV Ringer lactate, 500 ml, and refer the woman to the MO.
		of skin turgor, decreased urine output in severe cases. Tachy-cardia may be present.		
D	Palpitations, easy fatiguability, breath-lessness at rest	• Conjunctival and/ or pallor of the palm present • Hb	Severe anaemia	• Refer her to the MO for further manage-ment. • Advise her to have a hospital delivery.

E1	Puffiness of the face, generalised body oedema	• Check protein in urine. • Check BP. If BP >140/90 mm Hg on 2 readings and proteinuria absent	Hypertensive disorder of pregnancy	• Advise her to reduce workload and to rest. • Advise on danger signs. • Re-assess at the next antenatal visit or in one week if more than eight months pregnant. • If hypertension persists after one week or at next visit, refer to hospital or MO.
		If diastolic BP is >90 mmHg on two readings and 2+ proteinuria	Pre-eclampsia	• Refer to hospital. • Revise birth plan.
E2	• Puffiness of the face, generalised body oedema • Severe headache • Blurred vision • Epigastric pain • Reduced urine output	If diastolic BP is > 110 mmHg and 3+ proteinuria	Severe pre-eclampsia	• Give Inj. Magsulf, 5 g (10 ml), deep IM, in each buttock. • Refer urgently to hospital.
F	Increased frequency of urination up to 10-12 weeks of pregnancy		• May be physiological due to pressure of the gravid uterus on the urinary bladder.	• Re-assure her that it will be relieved on its own.
G	Increased frequency of urination after 12 weeks, or persistent symptoms, or burning on on urination	• Tenderness may be present at the sides of the abdomen and back. • Body temperature may be raised.	• UTI	• Refer the woman to the MO at the PHC.

H	Constipation		• Physiological	• Advise the woman to take more fluids, leafy vegetables and a fibre rich diet. • If not relieved, give her Isabgol (2 tablespoons to be taken at bedtime, with water or milk). • Do NOT prescribe strong laxatives as they may start uterine contractions.
I	Pain in the abdomen	• Fainting • Retropubic/ suprapubic pain	• Ectopic pregnancy • UTI	• Refer the woman to the MO at the FRU.
J	Bleeding P/V, before 20 weeks of gestation	• Check the pulse and BP to assess for shock. • Ask for history of violence.	• Threatened abortion/ spontaneous abortion/ hydatidiform mole/ectopic pregnancy • Spontaneous abortion due to violence	• If the woman is bleeding and the retained products of conception can be seen coming out from the vagina, remove them with your finger. • Start IV fluids. • Refer her to the MO of a 24-hour PHC/FRU.
				• Put her in touch with local support groups. • Do NOT carry out a vaginal examination under any circumstances.
K	Bleeding P/V, after 20 weeks of gestation	• Check the pulse and BP to assess for shock.	• Antepartum haemorrhage	
L	Fever	• Body temperature is raised • Peripheral smear for malarial parasite +ve	• Site of infection somewhere, including possible sepsis • Malaria	• Refer her to the MO. • If malaria is diagnosed, refer her to the PHC for management of malaria according to the NVBDCP guidelines.

M	Decreased or absent foetal movements	• FHS heard, and is within the normal range of 120-160/ minute.	• Baby is Normal	• Re-assure the woman • Repeat FHS after 15 minutes. • If the FHS is still out of the normal range, refer her to the MO.
		• FHS heard, but the rate is 160/ minute	• Foetal distress	• Inform the woman and her family that the baby might not be well. • Refer her to the MO.
		• FHS not heard	• Intrauterine foetal death	
N	Abnormal vaginal discharge, with or without abdominal pain	• Vaginal discharge with or without odour	• RTI/STI	• Refer the woman to the MO. • Advise her on vaginal hygiene, i.e. cleaning the external genitalia with soap and water.
O	• Leaking of watery fl uids P/V	• Wet pads/cloths	• PROM	• Refer the woman to the MO.

FRU: first referral unit; NVBDCP: National Vector Borne Disease Control Programme; FHS: foetal heart sound; BP: blood pressure; UTI: urinary tract infection; RTI: reproductive tract infection; STI: sexually transmitted infection; PROM: premature rupture of membranes; P/V: per vaginam

2.6 ANTENATAL INTERVENTION

All antenatal mothers should be given following Prophylactic interventions.

Preventive Measures				
Intervention	**Composition**	**Dose Regime**	**Timing & Duration**	**Condition**
Tablet Folic Acid	500 microgram	One tablet once a day	1st trimester (once pregnancy confirmed)	Neural tube defects in foetus
Tablet Iron Folic Acid (IFA)	60 mg of elemental Iron and 0.5 mg Folic Acid	One tablet once a day	In second and third trimester (12 weeks onwards) of pregnancy for 6 months (180 tablets) and continued for 6 months after delivery (180 tablets) taken after meals preferably after dinner	Anemia
Injection Tetanus Toxoid & Diptheria (TD)	0.5 ml TD	2 injections one month apart OR One Booster (I/M in upper arm)	1st dose at ANC registration, followed by 2nd dose after one month. Give only Booster if immunised with 2 injections in previous pregnancy within last 3 years	Maternal and Neonatal Tetanus and Diptheria
Tablet Calcium	500 mg of Elemental calcium and 250 IU Vitamin D3	One tablet twice a day (total 1 gm calcium daily)	From second trimester (14 weeks) onwards throughout pregnancy for 6 months (360 tablets) and continued for 6 months after delivery (360 tablets) taken in between meals. Iron folic acid tablet and calcium tablets should not be taken together at the same time. There should be a gap of at least 2 hours between IFA and calcium for better absorption of both. Calcium should not be taken immediately after a meal.	Pregnancy Induced Hypertension and Preterm Births
Tablet Albendazole (Deworming)	400 mg	One tablet once only (under observation)	After 1st trimester (after 12 weeks)	Worm infestation, anemia, malnutrition
Insecticide Treated Bed-Nets (ITN)				Malaria

IFA supplementation

While talking to the pregnant woman, stress the need for increased intake of iron during pregnancy and the dangers of anaemia. Besides recommending IFA supplementation, counsel the woman to increase her dietary intake of iron-rich foods, such as green leafy vegetables, whole pulses, jaggery, meat, poultry and fish. Ensure that you have adequate supplies of IFA in your stock to meet the requirements of all pregnant women registered with you.

Prophylactic dose: All pregnant women need to be given one tablet of IFA (60 mg elemental iron and 0.5 mg folic acid) every day for atleast 180 days (6 months), starting after the first trimester, at 14–16 weeks of gestation. This is the dose of IFA given to prevent anaemia (prophylactic dose). This dosage regimen is to be repeated for six months postpartum.

Therapeutic dose: If a woman is anaemic (haemoglobin less than 11 g/dl) or has pallor, she needs two IFA tablets per day for six months. This means that a pregnant woman with anaemia needs to take atleast 200 tablets of IFA. This is the dose of IFA needed to correct anaemia (therapeutic dose). This dosage regimen is to be repeated for six months postpartum in women with moderate to severe anaemia.

The haemoglobin should be estimated again after one month. If the level has increased, continue with two tablets of IFA daily till it comes up to normal. If it does not rise in spite of the administration of two tablets of IFA daily and dietary measures, refer the woman to the MO at the PHC.

Women with severe anaemia (haemoglobin of less than 7 g/dl), or those who have breathlessness and tachycardia (pulse rate of more than 100 beats per minute) due to anaemia, should be started on the therapeutic dose of IFA and referred immediately to the MO in the FRU for further management.

IFA tablets must be taken regularly, preferably early in the morning on an empty stomach. In case the woman has nausea and pain in the abdomen, she may take the tablets after meals or at night. This will help avoid nausea.

Dispel the myths and misconceptions related to IFA and convince the woman about the importance of IFA supplementation. An example of a common myth is that the consumption of IFA may affect the baby's complexion.

It is normal to pass black stools while consuming IFA. Tell the woman not to worry about it.

In case of constipation, the woman should drink more water and add roughage to her diet.

IFA tablets should not be consumed with tea, coffee, milk or calcium tablets as these reduce the absorption of iron.

IFA tablets may make the woman feel less tired than before. However, despite feeling better, she should not stop taking the tablets and must complete the course, as advised by the health care provider.

Ask the woman to return to you if she has problems taking IFA tablets. Refer her to the MO for further management.

Emphasise the importance of a high protein diet, including items such as black gram, groundnuts, *ragi*, whole grains, milk, eggs, meat and nuts, for anaemic women.

Encourage the woman to take plenty of fruits and vegetables containing vitamin C (e.g. mango, guava, orange and sweet lime), as these enhance the absorption of iron.

Antenatal Care and Skilled Attendance at Birth by ANMs/LHVs/SNs.

Counselling

Many women do not take IFA tablets regularly due to some common side-effects such as nausea, constipation and black stools. Inform the woman that these side-effects are common and not serious. Explain the necessity of taking IFA and the dangers associated with anaemia as given above.

The woman should be counselled on the issues mentioned below.

- Micro birth plan - regular checkup and institutional delivery
- Nutrition- Prevention of Anaemia – Breastfeeding - Complementary feeding
- Incentives schemes – JSSK, JSY
- Free referral and transport

Administration of TD injection

The administration of two doses of TD injection is an important step in the prevention of maternal and neonatal tetanus & diphtheria (tetanus of the newborn).

The first dose of TD should be administered as soon as possible, preferably when the woman registers for ANC.

The second dose is to be given one month after the first, preferably atleast one month before the EDD. If the woman skips one antenatal visit, give the injection whenever she comes back for the next visit.

If the woman receives the first dose after 38 weeks of pregnancy, then the second dose may be given in the postnatal period, after a gap of four weeks.

If the woman has been previously immunised with two doses during a previous pregnancy within the past three years, then give her only one dose as early as possible in this pregnancy.

The dosage of TD injection to be given is 0.5 ml. Tetanus toxoid & Adult Diphtheria to be administered by deep intramuscular injection. It should be given in the upper arm, and not in the buttocks as this might injure the sciatic nerve.

Inform the woman that there may be a slight swelling, pain and/or redness at the site of the injection for a day or two.

Malaria prophylaxis and treatment

No prophylaxis is recommended, but insecticide-treated bed nets or Long-Lasting Insecticidal Nets (LLIN) should be given on a priority basis to pregnant women

in malaria-endemic areas. These women should be counselled on how to use the LLINs.

Check with the MO of your PHC whether your area is malaria-endemic or not.

In non-endemic areas, all clinically suspected cases as per the National Vector-Borne Disease Control Programme (NVBDCP) guidelines should preferably be investigated for malaria with the help of microscopy or a Rapid Diagnostic Kit (RDK), if these are available with you.

In high malaria-endemic areas, pregnant women should be routinely tested for malaria at the first antenatal visit. Screen the woman for malaria every month by conducting the rapid diagnostic test even if she does not manifest any symptoms of malaria. If a pregnant woman shows symptoms of malaria at any time, she should be tested. If the result is positive, refer her to the PHC for treatment.

Micro-birth planning

The Janani Suraksha Yojna (JSY) is a centrally sponsored demand promotion scheme for promoting institutional delivery among poor pregnant women. The scheme integrates cash assistance with delivery and post-delivery care. The objective of the scheme is to reduce maternal and neonatal mortality through institutional care. The details of the JSY are given in Annexure II.

Microbirth planning is an integral part of the JSY.

Under the scheme, ANMs have to draw up a micro-birth plan or birth preparedness plan for each pregnant woman in their area. It is necessary to draw up the micro-birth plan in advance to prepare the pregnant woman and her family for any unforeseen complications and to prevent maternal morbidity and mortality due to delays.

Micro-birth planning has the following components:

- **Registration of pregnant woman** and filling up of the Maternal and Child Protection Card and JSY card/below poverty line (BPL) certificates/necessary proofs or certificates for the purpose of keeping a record.
- **Informing the woman** about the dates of antenatal visits, schedule for TD injections and the EDD.
- **Identifying the place** of delivery and the person who would conduct the delivery.
- **Identifying a referral** facility and the mode of referral.
- Taking the necessary steps to arrange for transport for the beneficiary.
- Making sure that funds are available to the ANM/ASHA.

Management of Normal Pregnancy, Labour and the Post-partum Period

As a mid level worker, you have to help the ASHAs to bring pregnant women to you as early as possible to ensure that a birth plan is prepared for each pregnant woman. This will help you to track down these women for the provision of regular ANC, referral in case of emergency and counselling to convince them to opt for institutional delivery. The Maternal and Child Protection Card should be correctly and completely filled by you. Counsel the woman to bring this card along with her every visit.

Check Your Progress 5

i) How many does of tetanus toxoid & Diptheria should be given to an antenatal mother and a what interval?

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ii) Write the dose and duration for iron and folic acid supplementation during antenatal period.

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iii) List the Micro – birth Planning component

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2.7 ANTENATAL ADVISES

A major component of antenatal care is health education and prenatal advice. The mother is more receptive to advice concerning herself and her baby at this time than any other time. A woman during pregnancy needs to know about her nutrition, personal hygiene, rest and sleep, exercise, use of drugs, warning signs etc. Pregnancy can be both an exciting and worrying time for the mother and her partner. Part of the role of the health care professionals (usually fulfilled by the community midwife and general practitioner) caring for the mother is the provision of information about everyday activities that may or may not be affected by or have an effect on the pregnancy.

Diet During Pregnancy

- A balanced and adequate diet is of utmost importance during pregnancy and lactation to meet the increased needs of the mother, and to prevent nutritional stress.
- You need to eat one extra meal a day during pregnancy.
- Take milk and diary products like curd, butter milk, paneer – these are rich in calcium, proteins and vitamins.
- Eat fresh/seasonal fruits and vegetables as these provide vitamins and iron. Cereals, whole grains and pulses are good source of proteins.
- Green leafy vegetables are a rich source of iron and folic acid.
- A handfull (45 grams) of nuts and at least two cups of dal provide daily requirement of proteins in vegetarians.
- For non-vegetarians, meat, egg, chicken or fish are good sources of proteins, vitamins and iron.
- A well balanced diet consisting of a variety of food helps in the growth of the baby and prevent anaemia and are listed below –

- Iron – green leafy vegetables, whole grains, cereals, dry fruits, nuts, meat, jiggery.
- Calcium – milk, milk products, sesame seeds, almonds, soya milk, turnip, egg.
- Vitamins – orange and dark green vegetables, amla, vegetables, meat, fish, eggs, sunlight, milk and milk products, soya products.
- Proteins – paneer, milk and other milk products, combined grains, seeds, nuts, egg, meat, poultry, soya beans.
- Butter, ghee, oild, nuts.

Personal Hygiene

- Advice regarding personal hygiene is equally important.
- During pregnancy sweet glands become more active so advice for bathing atleast once a day, preferably twice but clean clothes should be used daily.
- The need to bath everyday and to wear clean clothes should be explained.
- The hair should also be kept clean and tidy.

Care of Teeth

The usual care after eating should continue. A dental check is advisable and any dental carries should be treated. Use soft brush in this period.

Rest and Sleep

- A pregnant woman needs sufficient rest.
- She should do less and lighter work.
- She must have 8–10 hours of sleep every night.
- She needs to take short nap 2 hrs., preferably during the day.
- As the pregnancy advances, the mother requires more frequent short rests during the day.
- She should avoid strenuous work, carrying heavy loads or weights e.g. bringing water from long distance, drawing of water from a well etc.
- Rest is important for the maintenance of good health.
- She should need adequate rest and relaxation.
- Relaxation of the mind produces relaxation of the muscle and a relaxed lower uterine segment and pelvic floor makes it easier for the baby to be born.

Physical Work

A job provides satisfaction, self-esteem and confidence, along with financial peace of mind.

Women can continue working in pregnancy as long as they wish and as long as they and their baby remain well.

Avoidance of exposure to hazardous chemicals, Smokey environments, excessive lifting and exercise and at least an 8- hour rest at night is recommended.

Exercise

- Exercise in pregnancy should be encouraged; through with advancing gestation physical constraints may limit sporting activities.
- Exercise can improve cardiovascular function, lower blood pressure and improve self-esteem and confidence.
- Consider decreasing weight – bearing exercises like jogging, running and concentration non weight bearing activities such as swimming, cycling or stretching.
- Advise her to avoid risky activities such as surfing, mountain climbing and skydiving.
- Limit activity to shorter intervals.
- Mild Exercise for 10 to 15 minutes; rest for 2 to 3 minutes, then exercise for another 10 to 15 minutes. The exercise should be decrease as the pregnancy progresses.

Comfortable Clothing and Shoes

- It is advisable to wear loose and comfortable cotton clothes, not too tight such as blouse.
- Brassier which supports the breasts should be advised, but must not be too tight so as to flatten the nipples but lift the breast well.
- A support for the abdomen is sometimes required, especially in a multigravida who has pendulous abdomen so the pregnant mother should advise to support her whole abdomen with a light belt.
- Pregnant should avoid high heeled shoes. She should wear flat shoes to maintain centre of balance and to prevent backache to some extent.

Smoking

- It should be strongly discouraged in pregnancy.
- The target should be cessation of smoking, but if not possible, then cutting down to as few as possible is advisable.
- Smokers (especially those smoking > 20/day) have a slightly higher incidence of miscarriage, a slightly higher perinatal death rate (20% increase in 20/day smokers, and 35% increase if > 20/day) and babies of smokers are 150 to 300 gm lighter than babies of non smokers.
- Furthermore, smoking is associated with a three-fold increase in risk of cleft palate. Smoking during pregnancy, however, doesn't affect long term mental or motor development.

Alcohol

- An expectant mother should be advised to avoid drinking alcohol as drinking alcohol is injurious to the fetus and also to her own health.
- It leads to low birth weight and retardation.

Breast Care

- The mother should be advised to clean her breast during bath.

- If the nipples are anatomically normal, nothing is to be done beyond ordinary cleanliness, but if nipples are retracted, correction should be done.
- For this mother is taught about nipple care.
- She should wash her breast, with soap and water.
- To toughen the nipples, it should be massaged by using soap and water and then roll them between the forefinger and thumb and draw them out everyday during the last two months. This should be done three times a day.
- After massage, the nipples should be dried and an oily substance applied to make them supple. Advise mother to wear a well fitting and supportive brassiere.

Drugs

- The mother should be advised not to take any medicine unless it is prescribed by the doctor.
- As far as possible, medicine should be avoided for the first three months unless very essential.
- The mother must inform to the doctor about pregnancy when seeking any treatment from the doctor or health personnel.
- The use of drugs that are not absolutely essential should be discouraged.

Radiation

- Exposure to radiation is a positive danger to the developing foetus.
- The most common source of radiation is abdominal X-ray during pregnancy.
- Studies have shown that mortality rates from leukaemia and other neoplasm were significantly greater among children exposed to intrauterine X-ray.
- Congenital malformations such as microcephaly are known to occur due to radiation.
- Hence, X-ray examination in pregnancy should be carried out only for definite indications.

Protections from Infections and Illnesses

- Infections in pregnancy are responsible for significant morbidity and mortality.
- Some consequences of maternal infection last a life time.
- Education and counselling are important aspects of care for the prevention of maternal infections. Adolescents mothers are at high risks because of earlier partners.
- An expectant mother must be instructed to protect herself from the risk of any infection especially measles, German measles and syphilis because these infections can cause spontaneous abortion, malformation, mental retardations, still-birth, perinatal death etc.
- The child may develop congenital syphilis. If the mother is found having syphilis she must get herself treated by the trained health personnel especially from health center/hospital.

Sexual Activities

- The mother should be advised to avoid coitus during the first three months and the last two months.

- In the first three months it increases the risk of abortion.
- The risk of abortion is more in mothers who have previous history of abortion. In late pregnancy it predisposes to infection.

Travel

- The mother should be instructed to avoid travel during the first three and last two months of pregnancy especially long and tedious journey.
- If travelling for long distances, periods of activity and rest should be scheduled. While sitting, the woman can practice deep breathing, foot circling, and alternating contracting and relaxing different muscle groups. Fatigue should be avoided.

Reporting of untoward Signs and Symptoms

The expectant woman must be instructed to report to health personnel the following signs and symptoms.

- Unusual pain, bleeding from vagina.
- Swelling in the feet, hands or face.
- Headache, dizziness, blurred vision at times. These symptoms indicate the onset of high blood pressure which is very dangerous and can prove fatal if timely care is not given.
- High fever
- Baby's movements not being felt.
- Any other sigh or symptom which is considered unusual.

Child Care

- The mother should be educated on various aspects of child care.
- Mother craft classes can be arranged if possible to train the mother regarding care during pregnancy, child bearing, breast feeding, weaning and child nutrition, growth and development of child, clothing, immunisation, care during minor ailments, family planning etc.
- Mothers attending antenatal clinics must be given mother craft education that consists of nutrition education, hygiene and childrearing, childbirth preparation and family planning information.

Family Planning

Family planning is related to every phase of the maternity cycle. Educational and motivational efforts must be initiated during the antenatal period. If the mother has had two or more children, she should be motivated for puerperal sterilisation. The mother should be educated and motivated for small family norm and spacing of children. Effective Family planning methods enclosed in appendix.

2.8 SCREENING FOR COMPLICATIONS

The identification of high risk cases has already been discussed under Sub-section 2.3.6. We shall focus on screening of following complications:

Toxemias of Pregnancy

The presence of albumin in urine and increase in blood pressure indicates toxaemias of pregnancy. Such antenatal cases should be referred for further follow up in higher health facility.

Diabetes

Complete assessment of the diabetic status and associated complications is done to find out if she is fit to go through pregnancy. Evaluation of thyroid function is also recommended in type 1 diabetes as hypothyroidism is frequently encountered in these women. Those on oral hypoglycaemic agents should be switched to insulin therapy preferably before conception.

Tetanus & Diphtheria Protection

As already discussed two doses of tetanus Diphtheria are mandatory during antenatal period. First dose can be given during the first contact with mother or at twelve weeks of gestation and the second dose is given with the interval of one month preferably one month prior to the expected date of delivery.

Rubella

Rubella infection suffered by the mother, especially in early pregnancy can have devastating consequences for the fetus. In an attempt to reduce the incidence of congenital rubella defects, vaccination has been undertaken.

HIV Screening

Prenatal testing for HIV infection should be done as early in pregnancy as possible for pregnant women who are at risk (if they or their partners have multiple sexual partners, have sexually transmitted disease or use illicit injectable drugs).

Hepatitis B

Screening for hepatitis B aims to determine whether the patient has ever been exposed to the virus, and whether is immune to the virus or whether she is a potential risk of transmitting the infection to the neonate, her partner and to health care professionals. A combined course of active and passive immunisation can then be undertaken in the neonate at risk after birth.

Syphilis

Screening for syphilis should be performed for the prevention of congenital syphilis in the neonate and can benefit the mother and prevent development of cardiovascular and neurological complications of the advanced stages of the disease. Blood should be tested for syphilis (VDRL) at the first visit and late in pregnancy. Congenital syphilis is easily preventable. Ten daily injections of procaine penicillin (600,000 units) are almost always adequate.

German Measles

Rubella infection contracted during the first 16 weeks of pregnancy can cause major defects such as cataract, deafness and congenital heart diseases. Vaccination of all women of child bearing age, who are seronegative, is desirable. Before vaccinating, it is desirable that pregnancy is ruled out and effective contraception be maintained for eight weeks after vaccination because of possible risk to the foetus from the virus, should them other become pregnant.

Rh Status

It is a routine procedure in antenatal clinics to test the blood for Rhesus type in early pregnancy. If the woman is Rh-negative and the husband is Rh-positive, she is kept under surveillance for determination of Rh-antibody levels during antenatal period. The blood is further examined at 28th week and 34th to 36th week of gestation for antibodies. Rh anti – D immunoglobulin should be given at 28th week of gestation so that sensitisation during the first pregnancy can be prevented. If the baby is Rh positive, the Rh anti-D immunoglobulin is given again within 72 hours of delivery. It should also be given after abortion. Post maturity should be avoided. Whenever there is evidence of haemolytic process in foetus in utero, the mother should be shifted to an equipped center specialised to deal with Rh problems. The incidence of hemolytic disease due to Rh factor in India is estimated to be approximately one for every 400–500 live births.

Prenatal Genetic Screening

Screening for genetic abnormalities and for direct evidence of structural anomalies is performed in pregnancy in order to make the option of therapeutic abortion available when severe defects are detected. Typical examples are screening for trisomy-21 and severe neural tube defects. Women aged 35 years and above, and those who already have an afflicted child are at high risk.

2.9 CALCIUM SUPPLEMENTATION IN PREGNANCY

The daily recommended dietary allowances (RDA) for calcium in pregnancy and lactation is **1200 mg per day**. The National Nutrition Monitoring Bureau (NNMB) - 2012 data from 10 Indian states shows that the daily calcium intake during pregnancy and lactation for Indian women is less that 30% of RDA (which means it is only 400 mg/d).This shows that most pregnant and lactating women in India have low dietary calcium intake.

Aim: To contribute to the reduction of maternal morbidity and mortality

Objective: To reduce the incidence of hypertensive disorders of pregnancy by routine calcium supplementation.

2.9.1 Protocol for Calcium Supplementation

- All pregnant and lactating women to be counselled about intake of calcium rich foods.
- Oral swallowable calcium tablets to be taken twice a day (total 1g calcium/ day) starting from 14 weeks of pregnancy up to six months postpartum.
- One calcium tablet should be taken with the morning/afternoon meal and the second tablet with the evening/night meal. It is not advisable to take both calcium tablets together as > 800 mg calcium interferes with iron absorption. Calcium tablets should not be taken empty stomach since it causes gastritis.
- Calcium and Iron Folic Acid (IFA) tablets should not be taken together since calcium inhibits iron absorption. IFA tablets should be taken preferably two hours after a meal.

- Each calcium tablet should contain 500 mg elemental calcium and 250 IU vitamin D3. The preferred formulation for calcium is calcium carbonate. The rationale for inclusion of Vitamin D is to enhance the absorption of calcium.

2.9.2 Specifications of Calcium and Vitamin D3 from IP

- Calcium carbonate salts to be used.
- Swallowable tablets of 500 mg elemental calcium and 250 IU Vitamin
- D3 in each tablet to be taken with meals two times a day.

2.9.3 Side Effects and Contraindications

- None, within the recommended limit (1gm/d).
- A small proportion of women may experience mild gastritis so calcium tablets should be taken with meals.
- Excessive consumption of calcium (>3 gm/d) may increase the risk of urinary stones and Urinary Tract Infection (UTI) and reduce the absorption of essential micronutrients.

Check Your Progress 6

i) Write the specification of calcium and Vitamin D3.

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ii) Side effects of calcium supplementation.

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2.10 MANAGEMENT OF SELECTED PROBLEMS DURING PREGNANCY

We shall discuss gestation diabetes hypothyroidism and syhphilis in this section.

2.10.1 Gestational Diabetes Mellitus (GDM)

Gestational Diabetes Mellitus (GDM) is defined as Impaired Glucose Tolerance (IGT) with onset or first recognition during pregnancy. Worldwide, one in 10 pregnancies is associated with diabetes, 90% of which are GDM.

Undiagnosed or inadequately treated GDM can lead to significant maternal & foetal complications. Moreover, women with GDM and their offsprings are at increased risk of developing type 2 diabetes later in life.

Consequences of GDM

- **Maternal risks** of GDM include polyhydramnios, pre-eclampsia, prolonged labour, obstructed labour, caesarean section, uterine atony, postpartum

haemorrhage, infection and progression of retinopathy which are the leading global causes of maternal mortality.

- **Foetal risks** include spontaneous abortion, intra-uterine death, stillbirth, congenital malformation, shoulder dystocia, birth injuries, neonatal hypoglycaemia and infant respiratory distress syndrome.
- **Immediate and long-term clinical effects of GDM** are important contributors to the burden of non-communicable diseases in many countries.
- **Timely diagnosis of GDM** will allow initiation of appropriate treatment to prevent & minimise the ill effects of uncontrolled GDM on the mother & child in the short term & long term.

Protocol for Investigation

- Testing for GDM is recommended twice during ANC.
- The first testing should be done during first antenatal contact as early as possible in pregnancy.
- The second testing should be done during 24–28 weeks of pregnancy if the first test is negative.
- There should be atleast 4 weeks gap between the two tests.
- The test is to be conducted for all PW even if she comes late in pregnancy for ANC at the time of first contact.
- If she presents beyond 28 weeks of pregnancy, only one test is to be done at the first point of contact.
- If the test is positive at any point, protocol of management should be followed.

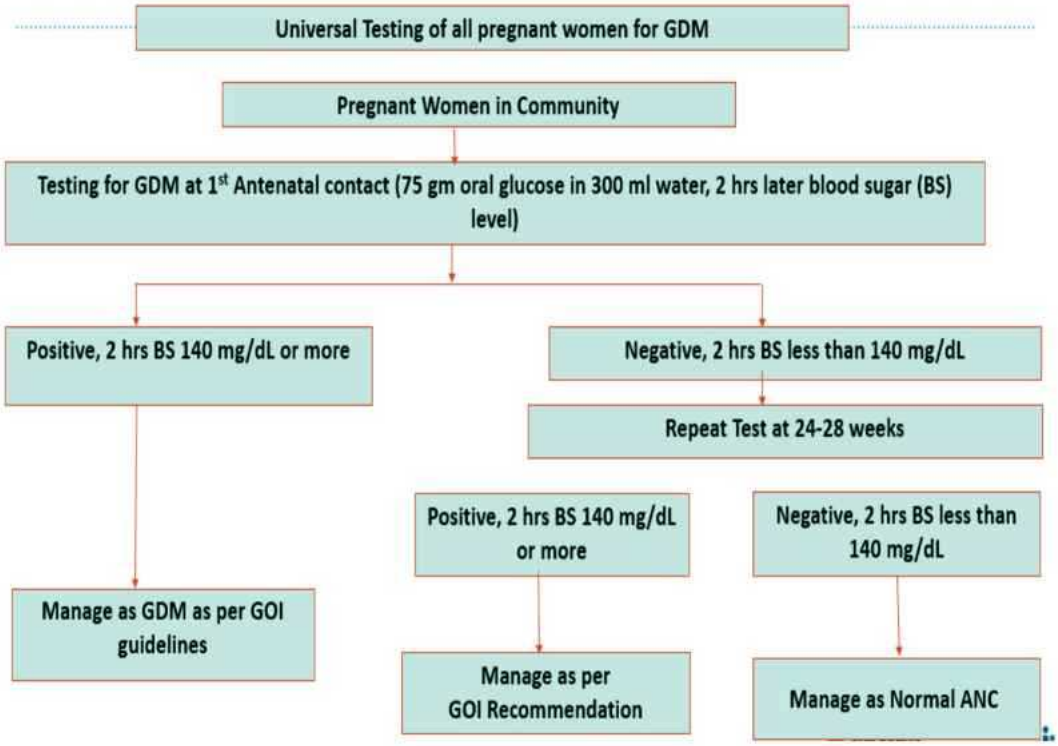
Test for Diagnosis

- Single step testing using 75 g oral glucose & measuring plasma glucose 2 hour after ingestion. 75g glucose is to be given orally after dissolving in approximately 300 ml water whether the PW (pregnant woman) comes in fasting or non-fasting state, irrespective of the last meal. The intake of the solution has to be completed within 5 min.
- A plasma standardised glucometer should be used to evaluate blood glucose 2 hours after the oral glucose load.
- If vomiting occurs within 30 min of oral glucose intake, the test has to be repeated the next day, if vomiting occurs after 30 minutes, the test continues.
- The threshold plasma glucose level of e”140 mg/dl (more than or equal to 140) is taken as cut off for diagnosis of GDM.

Instrument used for Diagnosis

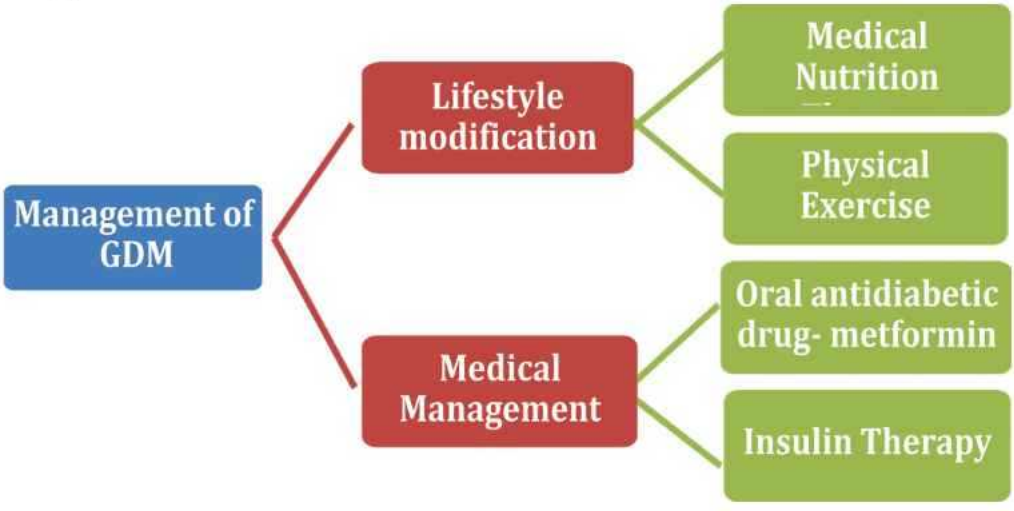
- For this programme, it has been decided that a plasma calibrated glucometer should be used for diagnosis of GDM instead of a semiauto-analyser or auto-analyser or any other testing methodology as it may lead to delay in getting the results immediately.
- Since it will be difficult for PW (pregnant woman) to come another day just to collect the result, testing facility with a glucometer should be available at all facilities in the ANC clinic itself.
- This facilitates getting the result immediately so that necessary advice may be given the same day.

- A glucometer should also be available in the labour room for close monitoring of GDM cases during labour.
- Pregnant Woman in Community Testing for GDM at 1st Antenatal visit (75 g oral glucose- 2 hr Plasma Glucose value) Positive (2 hr PG > 140 mg/ dl). Management should be done as GDM.
- Negative (2 hr PG <140 mg/dl) Manage as Normal ANC. Repeat Testing at 24–28 weeks If 2hr (Post Parandial Plasma Glucose) PPPG <120 mg/dL, repeat test every 2 weeks in second trimester & every week in third trimester. If 2 hr PPPG >120 mg/dl medical management (Insulin Therapy) to be started.



Management of GDM - Medical Nutrition Therapy and Physical Exercises (Lifestyle Modification)

Main goal of treatment of GDM is to achieve normal blood sugar level (FBS less than 95 mg/dl and PPBS less than 120 mg/dl) throughout pregnancy, during labor, delivery and in postpartum period. This can be achieved by lifestyle modification and medical therapy.



Medical Nutrition Therapy (MNT)

Principles of MNT

Healthy Eating during Pregnancy

- All pregnant women with GDM should get Medical nutrition therapy (MNT) as soon as diagnosis is made. MNT for GDM primarily involves a carbohydrate controlled balanced meal plan which promotes Optimal nutrition for maternal and foetal health Adequate energy for appropriate gestational weight gain, Achievement and maintenance of normoglycemia

  The importance of the individualised nutrition assessment in GDM.

- Nutrition assessment in GDM should be individualised to allow an accurate appraisal of the woman's nutritional status. This assessment includes defining her Body Mass Index (BMI) or percentage of desirable pre-pregnancy body weight and optimal pattern of weight gain during pregnancy.

Calories and GDM

- Individualisation is important when determining energy requirement, and adjustments should be made based on weight change patterns.
- Energy requirement during pregnancy includes the normal requirement of adult and an additional requirement for fetal growth plus the associate increase in the body weight of pregnant woman.

Thus, GDM is managed initially with MNT and if it is not controlled with MNT, insulin therapy is added to the MNT.

- Energy requirement does not increase in the first trimester unless a woman is underweight.
- Energy requirement increases during second and third trimester.
- Energy intake should be adequate enough to provide appropriate weight gain during pregnancy.
- As per Indian ICMR guidelines for an average weight gain of 10–12 kg, an addition of 350 Kcal/day above the adult requirement is recommended during second and third trimester.
- Equations proposed by ICMR (1989) expert group can be used to calculate adult energy requirement which are as follows:

l Energy requirement (Kcal/d)= BMR × PAL

[BMR= Basal metabolic rate & PAL= Physical activity level]

l BMR (Kcal/d) for adult females (18–30 yrs) = 14×B.W (kg) + 471

l BMR (Kcal/d) for adult females (30–60 yrs) = 8.3×B.W (kg) + 788

[B.W= body weight]

- Ideal body weight can be taken in to consideration when calculating the requirement. PAL values proposed by ICMR expert group (2009) are as follows:-
  - Level of activity PAL value
  - Sedentary work 1.53
  - Moderate work 1.8
  - Heavy work 2.3

An addition of 350 Kcal can be made after calculating the energy requirement for adults as stated above.

- Maternal weight gain is the important measure in follow up visits to determine whether energy intake is adequate to support foetal growth. Weight gain targets for pregnancy are based on women's pre-pregnancy Body Mass Index (BMI).
- Hypocaloric diets in obese women with GDM can result in ketonemia and ketonuria. However, moderate caloric restriction (reduction by 30% of estimated energy needs) in obese women with GDM may improve glycemic control without ketonemia and reduce maternal weight gain.

Select Carbohydrates Carefully

- Carbohydrate foods and daily intakes Carbohydrate foods are essential for a healthy diet of mother and baby.
- Once digested, carbohydrate foods are broken down to glucose which goes into blood stream. The type, amount and frequency of carbohydrate intake has a major influence on blood glucose readings.
- Foods sources of carbohydrate include cereals (wheat, bajra, ragi, corn rice etc.) and its products (suji, refined flour, breads, pasta, noodles etc), pulses (green gram, bengal gram, black gram etc.), starchy vegetables (potato, sweet potato, corn tapioca etc), fruits, sweets, juices etc.
- Large amounts of carbohydrate foods eaten at one time will lead to high blood glucose level and should be avoided.
- Spreading carbohydrate foods over the day will help to prevent this.
- It is better to spread carbohydrate foods over 3 small meals and 2–3 snacks each day than taking 3 large meals.
- Complex carbohydrates (like whole-grain cereals like oats, bajra, jowar, ragi, whole pulses, vegetables and fruits with skins) should be preferred over simple carbohydrates like food with lots of added sugar or honey, or foods that are made from refined white flour.
- Some examples of simple carbohydrates include sweets, cakes, puddings, sweet biscuits, pastry, juice, soft drinks, chips, white bread, naan, pizza etc
- Counting the number of carbohydrate serves that a mother eats during the day will help her to eat the right amount of carbohydrate. As a guide, aim should be for 2–3 carbohydrate serves at each major meal and 1–2 carbohydrate serves at each snack. One serve = approximately 15 grams of carbohydrate.

- Understanding Fat Intake during Pregnancy Saturated fat intake (sources - ghee, butter, coconut oil, palm oil, red meat, organ meat, full cream milk etc) should be less than 10% of total calories and dietary cholesterol should be less than 300 mg/d. In obese and overweight patients, a lower-fat diet overall can help slow the rate of weight gain.
- Ways to trim the fat from your diet. Use less fat in cooking and avoid frying of foods Using to low-fat dairy products in place of whole milk or full cream products. Choosing low fat snacks like substituting fresh fruit for high-fat snacks such as cakes, biscuits, chocolates and pastries. Using lean meat in place of red meat.
- Protein: Protein requirement in pregnancy is increased (additional 23 g/d) to allow for foetal growth. Atleast 3 serving of protein foods are required every day to meet the increased demand.
- Sources of protein are milk and milk products, egg, fish, chicken, pulses (dal), nuts etc.
- Fiber: High fibre foods especially soluble fibre may help control blood sugar by delaying gastric emptying, retarding the entry of glucose into the bloodstream and lessening the postprandial rise in blood glucose.
- Soluble fibre in flax seed, psyllium husk, oat bran, legumes (dried beans of all kinds, peas and lentils), and pectin (from fruit, such as apples) and forms in root vegetables (such as carrots) are helpful.

Pregnant Woman with GDM

Medical Nutrition Therapy (MNT)

Monitor 2 hr PPPG Up to 28 wks: Once in 2 weeks

After 28 wks: Once a week

Monitor (Fasting Blood Glucose) FBG & 2 hr PPPG every

3rd day or more frequently

Medical Management (Insulin Therapy)

- Insulin therapy is the accepted medical management of pregnant women with GDM not controlled on MNT in 2 weeks.
- Oral tablets for diabetes treatment in pregnancy- not to be given before 20 wks of pregnancy as they are not safe. Metformin can be safe after 20 wks of pregnancy. The dosage of metformin is 500mg BD.
- All PW in whom MNT fails to achieve a 2 hr PPG <120 mg/dl are started on insulin, along with MNT.
- Any PW on insulin therapy should be instructed to keep sugar/jaggery/ glucose powder handy at home to treat hypoglycemia if it occurs very high 2 hr PPPG.
- If 2hr PPPG is >200 mg/dl at diagnosis, starting dose of insulin should be 8 units pre-mixed insulin.
- The dose to be adjusted on follow-up and at the same time MNT has to be followed.

- If PW requires more than 20 units insulin/day, she should be referred to higher health-care centre.
- Site of Insulin Injection: Front/Lateral aspect of the thigh or over abdomen Insulin injection is to be given subcutaneously only.

Insulin Injection Sites

- Details of Insulin injection and Syringe. Only Injection Human premix insulin 30/70 is to be administered Insulin syringe – 40 IU syringe is to be used Insulin vial – 40 IU/ml is to be used.
- Storage of insulin vial & syringe: Insulin vials have to be made available along with disposable syringe to the pregnant women for use.
- Appropriate arrangement should be made for storage of insulin in refrigerators at 4°–8°C (in the door of the refrigerator) and battery backup in areas with an erratic supply of electricity.
- Vial should never be kept in freezer compartment of refrigerators. If by mistake, vials are stored in freezer and frozen, they should be not be used at all and discarded.
- At PHCs, stock of insulin vials should be stored in refrigerators.
- Insulin vials should not be exposed to direct heat/sunlight, and are stable up to 250-300°C.
- Open insulin vials (in current use) should be stored in refrigerator or in dark and cool place.
- If refrigerator is not available, the vial should be kept in earthen pots filled in water or kept in cool place (near drinking water storage).
- Once opened, an insulin vial should be used within one month. If not used within one month, it should not be used and discarded.
- Insulin syringe-Single insulin syringe can be used safely for 14 injections if capped & stored properly.
- Before use, check syringe every time whether needle is straight or not. Never clean needle with spirit or any other disinfectant. It will make needle blunt.
- Tip of needle should not come in contact with anything else except cleaned skin
- After use, place the cap over needle carefully without touching the tip of needle
- Syringe in use can be stored at room temperature without direct exposure to sunlight or heat. There is no need to store in refrigerator.

Check Your Progress 7

i) Determine the calorie requirement of a 28 years of age sedentary active preganat woman in 2nd trimester with height = 153 cm, current weight 60 kg, and pre-pregnancy weight = 54 kgs.

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2.10.2 Hypothyroidism

Primary maternal hypothyroidism is defined as the presence of elevated Thyroid Stimulating Hormone (TSH) levels during pregnancy. Hypothyroidism can be Overt (OH) or Subclinical (SCH). In overt hypothyroidism, S.TSH levels are elevated and S.T4/Free T4 (FT4) levels are low. S.TSH ≥ 10 mIU is taken as OH irrespective of FT4 levels. In SCH, the TSH level is elevated ($\leq$10mIU/l) with normal Serum T4/FT4.

Positive thyroid antibody titers suggest autoimmune thyroid disease. Euthyroid patients with positive Thyroid Peroxidase Antibody (TPO) titers have high chances of developing hypothyroidism. The foetus is dependent on maternal trans-placental thyroid hormone supply in the first trimester. This, along with other factors, leads to an increased thyroid hormone demand during pregnancy.

To meet the increased demands, the thyroid hormone production increases by 50%. India is known to be a relatively iodine sufficient belt, however, iodine deficiency is still prevalent in certain pockets like the hilly regions and foothills. Moreover, iron deficiency is common in India, and this also contributes to hypothyroidism. Autoimmune thyroiditis contributes significantly towards hypothyroidism in iodine sufficient regions and may be associated with other autoimmune disorders.

Screening of Hypothyroidism during Pregnancy

Hypothyroidism results in preterm births, intrauterine growth restriction, intrauterine foetal demise, respiratory distress and increased perinatal mortality (PNM). In newborns, it leads to cognitive, neurological and developmental impairment. Thyroid hormone is critical for foetal brain development.

High risk factors for hypothyroidism

- Residing in an area of known moderate to severe iodine insufficiency (according to area mapping)
- Obesity (pre-pregnancy/first trimester Body Mass Index (BMI) < 30 kg/m^2) [BMI= weight in kg/height in m^2]
- History of prior thyroid dysfunction or prior thyroid surgery
- Symptoms of thyroid dysfunction or the presence of goiter
- History of thyroid dysfunction in first degree relative (parents/siblings/ children)
- History of diagnosed mental retardation in family/previous births
- Known case of autoimmune diseases like Type I diabetes/Systemic Lupus Erythematosus (SLE)/Rheumatoid Arthritis (RA)/Addison's disease/Celiac disease, etc.
- History of recurrent miscarriages, pre-term delivery, intrauterine demise, pre-eclampsia/eclampsia, abruptio placentae
- History of infertility (inability to conceive after one year of unprotected intercourse)
- Use of amiodarone or lithium, or recent administration of iodinated radiologic contrast

Diagnostic criteria in pregnancy

TSH levels during pregnancy are lower as compared to TSH levels in a non-pregnant state. Pregnancy-specific and trimester specific reference levels for TSH are as follows:

Ist trimester - 0.1-2.5 mIU/l

IInd trimester - 0.2-3 mIU/l

IIIrd trimester - 0.3-3 mIU/l

Hence, in pregnancy, SCH is defined as a serum TSH between 2.5 and 10 mIU/l with normal FT4 concentration and OH is defined as serum TSH>2.5–3 mIU/l with low FT4 levels. TSH>10 mIU/l irrespective of FT4 is OH.

Methodology for Diagnosis

- Blood/sample collection: Venous blood samples should be taken with other antenatal care (ANC) investigations in a single sitting
- Equipment: Auto-analyser/semi auto-analyser
- Analysis: Samples will be analysed using Chemiluminiscence assay/auto-analyser/semi auto-analyser

Protocol for Management of Hypothyroidism

- Drug of choice for treatment is Levothyroxine. Levothyroxine Sodium is available in market as 'tablets' in different strengths. Levothyroxine is to be taken orally, in the morning empty stomach, the patient should be asked not to take anything orally for at least half an hour after intake of the medicine. The strength required for this programme is 25, 50, 100 µg.
- It has to be supplied in moisture tight packages and should be stored as room temperature. Exposure to direct sun light or heat should be avoided at all times Levothyroxine Sodium belongs to category A for use during pregnancy and can be used safely during pregnancy and lactation without any adverse effect on mother or foetus.
- If dose is missed on one day, the patient may take the same as soon as she remembers and should not eat anything for the next half hour.
- If she misses the tablet altogether, she should take double the dose on the next morning.
- A complete bottle of Levothyroxine tablets to be provided to patients (25/50/75/100 mcg).
- Contraindications – nil.
- Side effects of treatment – in the suggested/recommended doses, this drug does not have any side effect.

Treatment Plan

- All treatment steps are based on S. TSH level. National Guidelines for Screening of Hypothyroidism during Pregnancy
- If TSH level is <2.5mIU/1 in first trimester and <3 mIU/1in second and third trimester, no further management is required and pregnant woman will continue routine pregnancy care

- If TSH is between 2.5 mIU/1 to 10, pregnant women will be started on 25 mcg of levothyroxine per day
- If TSH is >10, pregnant woman will be started on 50 mcg of levothyroxine per day.
- If initial TSH was less than 10 mIU/1, treatment is to be stopped after delivery but if it was >10 mIU/1, treatment will continue in same dose after delivery.
- If pregnant woman is already taking treatment before this pregnancy, treatment will continue during pregnancy with same target range.
- Once treatment has started, TSH levels should be repeated after 6 weeks of starting date of treatment
- Dose of thyroxine should be adjusted depending upon TSH levels

Treatment Delivery

- Adequacy of hypothyroid treatment will be monitored by repeat TSH after 6 weeks of initiation of treatment and dose will be titrated accordingly. Once the dose is titrated, women may follow up at the concerned Community Health Centre (CHC)/Primary Health Centre (PHC) to get the next packet of Levothyroxine tablets.
- Levothyroxine treatment is to be started by physician/ specialist at or any facility that fulfills the prerequisite criteria of implementation.
- Deliver uncomplicated cases at PHC/CHC under supervision of Medical Officer (MO).
- Refer cases with associated complications at a higher centre for delivery under the supervision of an obstetrician.
- Postpartum treatment will be continued at recommended doses for those with TSH>10 mIU/l.
    - For women with TSH between 3–10 mIU/l, treatment to be discontinued after delivery.
    - Women diagnosed with hypothyroidism before pregnancy and on treatment to resume pre-pregnancy doses after delivery. TSH to be repeated 6 weeks postpartum and further treatment to be done accordingly.

Check Your Progress 8

i) List the risk factors of hypothyroidism.

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2.10.3 Syphilis

Syphilis is a sexually transmitted infection caused by the spirochaete bacterium Treponema Pallidum, subspecies Pallidum. The primary route of transmission is through sexual contact; it may also be transmitted from mother to foetus during pregnancy or at birth resulting in congenital syphilis.

Technical Guidelines on Testing and Management of Syphilis during Pregnancy Goal

- To reduce maternal and newborn morbidity and mortality and move towards detection and treatment of maternal syphilis and elimination of congenital syphilis.

Objectives

- To ensure early screening of all pregnant women for syphilis, preferably in the first trimester;
- To detect and manage syphilis infection in pregnant women and their partners;
- To ensure institutional delivery at (FRUs/higher level institutions) of all syphilis-positive pregnant women;
- To prevent the transmission of syphilis from mother to child.

Protocol for Investigation and Management of Syphilis

- All pregnant women should be tested for syphilis in the first ANC visit itself, which should be as early as possible, by a POC (Point-of-Care) test at the sub-centre level or at any other facility where the woman visits for ANC, where laboratory facilities for RPR are not available, irrespective of her previous syphilitic status.
- Those women who go for ANC check-up at health care facilities where testing for RPR is available should be Tested by RPR [Rapid Plasma Reagin (Test) method (qualitative and quantitative)].
- Ideally, all women who test positive for syphilis through POC should undergo testing by RPR also for confirmation of diagnosis and assessment of the antibody titres. The latter is important not just for ensuring appropriate treatment for the woman but also for deciding on the line of treatment for the newborn.
- Those found positive either by POC or RPR should be treated for maternal syphilis as per the defined treatment protocol explained in this guideline.
- Women who are at high risk for syphilis, those who live in areas of high prevalence of syphilis, those who have had adverse outcomes of pregnancy previously or those who were untested earlier, should be screened again in the third trimester or at the time of delivery.
- Testing of spouse/partner of syphilis-positive women should be mandatory followed by treatment as per protocol for those found positive.

Pregnant women considered to be at high risk for acquiring STIs, including Syphilis:

- Women with current or past history of STI
- Women with more than one sexual partner
- Sex workers
- Injecting drug users

Treatment Regimen for Syphilis-positive Pregnant Women and their Partners Treatment of maternal syphilis

Although severe allergy to penicillin is rare, the provider should rule out history

of allergy before administering penicillin. The emergency drugs for managing anaphylaxis should be kept ready prior to administering penicillin.

- In the early stage (primary and secondary syphilis of <2 years' duration; RPR titre <1:8 approximately), a single intramuscular injection of 2.4 million IU benzathine benzyl penicillin is sufficient.
- In the late stage (tertiary > 2 years or unknown duration, RPR titre >1:8 approximately), a total of three intramuscular injections of 2.4 million IU benzathine benzyl penicillin once a week for 3 weeks need to be given.
- For all syphilis-positive women detected during ANC by either POC or RPR, their newborns should be tested by RPR.

Ensure readiness of emergency tray for management of anaphylactic reactions:

- The tray should be kept in the day-care room.
- Every morning the tray should be checked for replenishment of used drugs and for expiry dates of drugs on the tray.
- List of drugs and consumables that should always be available on the tray: Inj. Adrenaline, Inj. Chlorpheniramine Maleate, Inj. Dexamethasone, Inj. Hydrocortisone succinate, Inj. Deriphylline, Inj. Furosemide, Inj. Dopamine, Inj. Sodium bicarbonate, Oxygen, Ringer Lactate, disposable needles, gloves, cotton swabs.

Alternative Regimen for Penicillin-allergic Pregnant women Key points:

For the treatment of syphilis during pregnancy, NO PROVEN ALTERNATIVES TO PENICILLIN exist. You should be familiar with the treatment so that you can educate the mothers and provide follow up care.

All infants of pregnant women treated with a non-penicillin regimen should be treated at birth as if mother was not sufficiently treated.

- Alternative to penicillin should be considered ONLY for those syphilis positive pregnant women who have a history of severe penicillin allergy (e.g. anaphylaxis).
- Erythromycin estolate is contraindicated because of drug-related hepatotoxicity. Only erythromycin base or erythromycin ethyl succinate should be used. The partner or spouse should be treated with the same regimen.

Regimen 1

- *Early-stage syphilis*: Erythromycin, 500 mg orally, 4 times daily for 15 days
- *Late-stage syphilis*: Erythromycin, 500 mg orally, 4 times daily for 30 days

Regimen 2

Primary syphilis (syphilitic chancre): Azithromycin, 2 g orally as a single dose.

Follow-up

Follow-up should be done during postnatal care (PNC) visits and in addition, at 6 months and 24 months after the treatment is administered.

Syphilis screening of pregnant women using POC test and treatment of maternal syphilis at health care settings without laboratory support.

Criteria for repeat test:

- Pregnant women considered to be at high risk for acquiring STI (those with current or past history of STI, women with more than one sexual partner, sex workers and injecting drug users);
- Pregnant women with history of repeated abortions, stillbirths, past history of delivery of premature babies, preterm babies and neonatal deaths;
- Women living in areas of high prevalence of syphilis;
- Testing at the time of delivery will also be required to detect re-infection, particularly in those syphilis positive women whose partners were not treated;

Case Definitions

Suspected case of congenital syphilis

A stillborn or live-born baby of syphilis-reactive mother who has been inadequately treated.

Confirmed case of congenital syphilis

A live born child with serum quantitative RPR titre that is four-fold higher than the mother's titre.

OR

A child within first 2 years of life with clinical evidence of syphilis and reactive syphilis serology irrespective of mother's serology.

Check Your Progress 9

i) Explain the protocol for investigation and management of syphilis.

.....

.....

ii) List the risk factors which can pre-dispose the pregnant women to acquire syphilis

.....

.....

2.11 REGISTERS AND RECORDS

Maintenance of records is essential for evaluation and further improvement of MCH/FP services. The antenatal card is prepared at the first examination. It is generally made of thick paper to facilitate filing. It contains a registration number, identification data, previous health history, and main health events. The record is kept at the MCH/FP centre. A link is maintained between the Antenatal card, Postnatal card and under- fives card.

Current maternal and child health is being monitored through RCH Portal and Pregnancy and Child Tracking System (PCTS) tracking services. Sample of Maternal and Child Protection (MCP/ Mamta) card is given (Fig. 2.2).



Fig. 2.2: MCP/ Mamta Card

2.12 LET US SUM UP

Antenatal care as you have studied the systematic supervision of women during pregnancy to monitor the progress of foetal growth and to ascertain the well being of the mother and the foetus. Antenatal care to mother helps to identify complications of pregnancy such as anaemia, pre-eclampsia and hypertension etc. In this unit you have studied objectives, components, examination, general and abdominal examination, identification and screening of complication, calcium supplementation, gestational diabetes, hypothyroidism, syphilis, birth planning and counseling

We hope this knowledge will help you to provide appropriate antenatal care to pregnant mother.

2.13 MODEL ANSWERS

Check Your Progress 1

i)
- Preparation of birth plan and identification of facility for delivery.
- Providing quality of care for well being of pregnant women and the foetus.
- Early identification of maternal and foetal complications and timely referral.
- Identification of a facility for referral.

ii) The essential components are given below:
- History taking
- Physical examination (Weight, BP, pallor, Respiratory rate, oedema)
- Abdominal palpation
- Laboratory investigations (Hb, urine for sugar and proteins)

iii)

Number of Visit	Timings of Visit
1st Visit	Within 12 weeks, preferably as soon as pregnancy is suspected
2nd Visit	Between 14-26 weeks
3rd Visit	Between 28-36 weeks
4th Visit	Between 36 weeks and term

Check Your Progress 2

i)
- Ensure privacy
- Ensure calm and quiet atmosphere
- Make the woman comfortable and relaxed
- Maintain confidentiality
- Establish rapport
- Record all facts on Mother & Child Protection (MCP/Mamta) card
- Highlight abnormal findings

ii)
- Nausea & vomiting
- Heart burn
- Constipation
- Increased frequency of urination

These symptoms may cause discomfort to the woman

iii)
- Fever
- Persistent vomiting with dehydration
- Palpitations, tiredness
- Breathlessness at rest / on mild exertion
- Generalised swelling of body / facial puffiness
- Severe headache and/ or blurring of vision
- Passing smaller amount of urine or burning micturition
- Leaking or bleeding per vaginum
- Abnormal vaginal discharge / itching
- Decreased or absent foetal movements

Check Your Progress 3

i)
- Check for Pallor
- Pulse
- Respiratory Rate
- BP

- Ocdema
- Weight
- Jaundice
- Breast

ii)
- Measurement of fundal height
- Assessment of foetal lie and presentation
- Assessment of foetal movement
- Auscultation of foetal heart sounds
- Inspection for scars
- Other relevant abdominal findings

iii)
- Ensure privacy
- Examination room should be well lit and airy
- Woman is asked to empty her bladder
- Explain the women about the procedure/process
- To make her comfortable, keep talking to her
- She lies supine with legs partially flexed
- Stand on her right side
- Palpate the uterus with warm hands

Check Your Progress 4

i) **Danger signs**

Visit FRU	**Visit PHC**
Malpresentation	High fever with or without abdominal pain, too weak to get out of bed
Multiple pregnancy	Fast or difficult breathing
Any bleeding P/V during pregnancy and after delivery (a pad is soaked in less than 5 minutes)	Haemoglobin 7–11 g% even after consuming IFA tablets for 30 days
Severe headache with blurred vision	Excessive vomiting, unable to take anything orally
Haemoglobin <7 g%	Breathlessness at rest
Convulsions or loss of consciousness	Reduced urinary output with high BP
Decreased or absent foetal movements	High BP (>140/90 mmHg) with or without proteins in the urine
Active labour lasting longer than 12 hours in primipara and more than 8 hours in a multipara	
Continuous severe abdominal pain	

Premature rupture of membranes (PROM) before 37 weeks	
High BP (>140/90 mmHg) with proteins in the urine, and severe headache with blurred vision or epigastric pain	
Temperature more than 38°C	
Foul smelling discharge before or after delivery/abortion	
Ruptured membranes for more than 18 hours	
Oliguria <30ml/hr	
FHR >160/minute or<120/ minute	

Check Your Progress 5

i) A pregnant woman must get two injections of Tetanus Toxoid & Adult Diphtheria during the first ANC contact (ideally during registration). These protect the mother and baby both from the risk of tetanus & Diphtheria. The 2nd dose should preferably be given after 1 month of 1st dose. If a woman is registered late then in that case even one injection will do.

ii) It is being found that 50-60 per cent of pregnant women are anaemic due to iron deficiencies. Anaemia is also aggravated in pregnancy. It is therefore important to take one tablet containing 60 mg. of elemental iron and 500 mg of folic acid three times daily after third month of pregnancy till 6 months after child birth if the mother is found having anaemia. During pregnancy, the mother requires extra iron and folic acid due to changes taking place in the body and growth of fetus in the womb. Therefore each mother is given one tablet of iron and folic acid twice a day for atleast 100 days to prevent anaemia in mother and to promote proper growth of foetus. Anaemia is common in pregnancy and low-income group. It is a major cause of maternal and foetal mortality.

iii) Registration of pregnant woman and filling up of the Maternal and Child Protection/Mamta Card and JSY card/below poverty line (BPL) certificates/necessary proofs or certificates for the purpose of keeping a record.

- Informing the woman about the dates of antenatal visits, schedule for TD injections and the EDD.
- Identifying the place of delivery and the person who would conduct the delivery.
- Identifying a referral facility and the mode of referral.
- Taking the necessary steps to arrange for transport for the beneficiary.
- Making sure that funds are available to the ANM/ASHA

Check Your Progress 6

- Calcium carbonate salts to be used.
- Swallowable tablets of 500 mg elemental calcium and 250 IU Vitamin D3 in each tablet to be taken with meals two times a day within the recommended limit (1gm/d).
- A small proportion of women may experience mild gastritis so calcium tablets should be taken with meals.
- Excessive consumption of calcium (>3 gm/d) may increase the risk of urinary stones and Urinary Tract Infection (UTI) and reduce the absorption of essential micronutrients.

Check Your Progress 7

i) 1) First calculate the BMI

BMI (kg/m^2) = weight in kg/Height in meter square

= 54/1.53*1.53

= 23.06 kg/m^2

BMI is in normal range

2) Calculate BMR

l BMR (kcal/d)for adult females (18–30 yrs) = 14×B.W(kg) + 471

= 14 ×53 + 471

= 1213 kcal

3) Identify PAL

PAL of sedentary activity is 1.53

4) Total energy requirement of adult = BMR×PAL

= 1213×1.53

= 1856 kcal

5) Total energy requirement in pregnancy = Total energy requirement of adult+350 kcal/d

=1856+350 = 2206 kcal per day

Check Your Progress 8

i)
- Residing in an area of known moderate to severe iodine insufficiency (according to area mapping)
- Obesity (pre-pregnancy/first trimester Body Mass Index (BMI) 30 kg/ m^2) [BMI= weight in kg/height in m^2]
- History of prior thyroid dysfunction or prior thyroid surgery
- Symptoms of thyroid dysfunction or the presence of goiter

- History of thyroid dysfunction in first degree relative (parents/siblings/ children)
- History of diagnosed mental retardation in family/previous births
- Known case of autoimmune diseases like Type I diabetes/Systemic Lupus Erythematosus (SLE)/Rheumatoid Arthritis (RA)/Addison's disease/ Celiac disease, etc.
- History of recurrent miscarriages, pre-term delivery, intrauterine demise, pre-eclampsia/eclampsia, abruptio placentae
- History of infertility (inability to conceive after one year of unprotected intercourse)
- Use of amiodarone or lithium, or recent administration of iodinated radiologic contrast

Check Your Progress 9

i)
- All pregnant women should be tested for syphilis in the first ANC visit itself, which should be as early as possible, by a POC (Point-of-Care) test at the sub-centre level or at any other facility where the woman visits for ANC, where laboratory facilities for RPR are not available, irrespective of her previous syphilitic status.
- Those women who go for ANC check-up at health care facilities where testing for RPR is available should be Tested by RPR [Rapid Plasma Reagin (Test) method (qualitative and quantitative)].
- Ideally, all women who test positive for syphilis through POC should undergo testing by RPR also for confirmation of diagnosis and assessment of the antibody titres. The latter is important not just for ensuring appropriate treatment for the woman but also for deciding on the line of treatment for the newborn.
- Those found positive either by POC or RPR should be treated for maternal syphilis as per the defined treatment protocol explained in this guideline.
- Women who are at high risk for syphilis, those who live in areas of high prevalence of syphilis, those who have had adverse outcomes of pregnancy previously or those who were untested earlier, should be screened again in the third trimester or at the time of delivery.
- Testing of spouse/partner of syphilis-positive women should be mandatory followed by treatment as per protocol for those found positive.

ii)
- Women with current or past history of STI
- Women with more than one sexual partner
- Sex workers
- Injecting drug users

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UNIT 3 INTRANATAL CARE

Structure

3.0 Introduction

3.1 Objectives

3.2 Normal Labour

- 3.2.1 Causes of Onset of Labour
- 3.2.2 Stages of Labour
- 3.2.3 Premonitory Signs of Labour
- 3.2.4 Difference between True and False Labour
- 3.2.5 Essential Factors Influencing Labour
- 3.2.6 Normal Vaginal Delivery

3.3 First Stage of Labour

- 3.3.1 Physiological Changes (Major Events)
- 3.3.2 Monitoring and Management of First Stage of Labour
- 3.3.3 Partograph

3.4 Second Stage of Labour

- 3.4.1 Physiological Changes
- 3.4.2 Mechanism of Labour
- 3.4.3 Management during Second Stage of Labour
- 3.4.4 Episiotomy

3.5 Third Stage of Labour

- 3.5.1 Active Management of Third Stage of Labour (AMTSL)
- 3.5.2 Immediate Care of Newborn Baby
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3.6 Fourth Stage of Labour

- 3.6.1 Care of Women during Fourth Stage of Labour (In Labour Room)
- 3.6.2 Care of Women after Delivery (Postnatal Ward)

3.7 Maintaining Records and Reports

3.8 Let Us Sum Up

3.9 Keywords

3.10 Model Answers

3.12 References

3.0 INTRODUCTION

In Unit 2, you have learnt about antenatal care. Pregnancy is a unique, exciting and often joyous time in a women's life. It has been a long wait for nine months when an expecting mother wants to see little bundle of job by giving birth to a child. The fear and anxiety about child birth often prevents most women from enjoying the experience However, an adequate knowledge about signs of labour and delivery in general can create feeling of confidence and a sense of well-being which is very crucial in ensuring a successful labour and child birth. In this unit you will learn about normal vaginal delivery, normal labour, stages of

labour, mechanism and management of first, second, third and fourth stages of normal labour.

3.1 OBJECTIVES

After completing this unit, you should be able to:

- explain normal and assisted vaginal delivery;
- define and explain indications and contraindication of vaginal delivery;
- define and explain normal labour and process of labour;
- explain causes and stages of normal labour;
- describe signs of labour and factors influencing labour;
- explain physiological changes in first, second, third and fourth stages of normal labour;
- demonstrate mechanism of normal labour;
- describe management of first, second, third and fourth stages of labour; and
- explain immediate care of newborn at birth.

3.2 NORMAL LABOUR

Labour is the process by which the foetus, placenta and membranes are expelled through the birth canal.

Normal Labour: Labour is said to be **normal** when:-

- It occurs at term (between 37 and 42 completed weeks of gestation).
- Onset is spontaneous.
- Foetus presents by vertex.
- Completed without undue prolongation (within 18 hours).
- No complications to mother or baby.

Process of Labour: Process of labour involves four components commonly called 4p's. These are:

- Power (or the force) – the involuntary uterine contractions to push the fetus out.
- Passenger (or the foetus) – must be of a size and shape to negotiate through the varying dimensions of the birth canal e.g. size, position and presentation of fetus.
- Passage (or the birth canal, or maternal pelvis) – must be of an adequate size, shape to allow descent, rotation and expulsion of the foetus.
- Psyche (or maternal Psychological response) – psychology of birth can adversely affect maternal fear intention.

3.2.1 Causes of Onset of Labour

Labour is a coordinated sequence of involuntary intermittent uterine contractions.

Labour occurs due to:

- **Uterine stretch theory** – The uterus which is a hollow muscular organ becomes stretched due to growing foetal structures. In return the pressure increases causing psychological changes (uterine contraction) that initiates labour.
- **Oxytocin theory** – Pressure on cervix stimulates to release oxytocin from maternal posterior pituitary gland. As pregnancy advances, the uterus becomes more sensitive to oxytocin. Presence of this hormone causes initiation of the labour.
- **Progesterone Deprivation theory** – A decrease in progesterone production may stimulate prostaglandins synthesis and hence the effect of estrogen which has a stimulating effect on uterine muscle. In later pregnancy rising foetal cortisol levels inhabits progesterone production from placenta reduces progesterone formation which initiates labour.
- **Prostaglandin theory** – In late pregnancy, foetal membranes and uterine decidua increase prostaglandin levels. A decrease in progestin level also elevates the prostaglandins which causes uterine contraction and labour is initiated.
- **Theory of Ageing Placenta -** Advance placental age decrease blood supply to the uterus which triggers uterine contractions and starts labour.

3.2.2 Stages of Labour

There are four stages of labour as given below:

First Stage: It is the stage of dilatation. It starts from the onset of true labour pains and ends with fully dilatation of cervix (10 cm). This is usually the longest stage. It consists of three phases. Early, Active and Transitional phase.

Early Phase: The cervix starts to open and widen. It will go from been close to being about 3 cm. Contractions are mild and short, lasting 20 to 40 seconds.

Active Phase: Contractions are longer and more frequent. The cervix opens from 4 cm to 7 cm. Contractions are more powerful, usually starts, gradually build up to a peak intensity. Lasting 40 to 60 seconds and occurs every 3 to 5 mts. Show and rupture of membranes may occur.

Transitional Phase: Contractions reach peak in intensity, occur every 2 to 3 mts with a duration of 60 to 90 seconds and causing maximum dilatation of 8 to 10 cm and there is an urge to push.

Second Stage: Stage of expulsion of fetus. It starts from full dilatation of cervix to expulsion of foetus from birth canal. Contractions push the foetus down the birth canal and mother feels intense pressure, Similar to an urge to have a bowel moment.

It has two phases. Propulsive phase and Expulsive Phase

Propulsive phase: It starts from full dilatation of cervix upto the descent of the presenting part to pelvic floor.

Expulsive Phase: It starts by maternal bearing down efforts and ends with delivery of the baby.

Third Stage: It is the stage of Separation and expulsion of placenta and membranes. It starts with birth of the baby and ends with complete expulsion of placenta and membranes (after birth). The uterus continues to contract to push out the placenta and membranes.

Fourth Stage: It is the stage of recovery. It is the stage of observation for at least one hour. After the expulsion of after birth. During this period the general condition of women and behavior of uterus are to be carefully watched.

The stages of labour are summarised in following Table 3.1.

Table 3.1: Stages of labour

First stage	This is the period from the onset of labour pain to the full dilatation of the cervix, i.e. to 10 cm. This stage takes about 12 hours in primigravidas and 6–8 hours for multigravidas. It is divided into the latent and active stages. • Latent stage (not in active labour): • Cervix is dilated <4 cm • Contractions weak (less than 2 contractions in 10 minutes) • Active stage: Cervix is dilated >4 cm
Second stage	This is the period from full dilatation of the cervix to the delivery of the baby. This stage takes about two hours for primigravidas and about half an hour for multigravidas.
Third stage	This is the period from after delivery of the baby to delivery of the placenta. This stage takes about 15 minutes to half an hour, irrespective of whether the woman is a primagravida or multigravida.
Fourth stage	This is the first two hours after the delivery of the placenta. This is a critical period as PPH, a potentially fatal complication, is likely to occur during this stage.

Average duration of stages of labour

	First stage	Second Stage	Third Stage
Primi	12 hours	2 hours	15 minutes
Multi	06 hours	30 minutes	10 minutes

3.2.3 Premonitory Signs of Labour

A short time previous to the commencement of labour where certain symptoms manifest themselves which are looked upon as indications of the approaching event is termed as premonitory stage of labour.

Premonitory stage begins 2 or 3 weeks before the onset of true labour and consists the following.

- **Lightening (Dropping, sinking of the uterus):** Few weeks prior to the labour in primigravida the presenting part is settling into the pelvis. It is due to active pulling up of the lower pole of uterus around the presenting part which

diminishes the fundal height and minimizes the pressure from the diaphragm. The mother experiences the sense of relief from the cardio respiratory embarrassment.

- **Frequency of micturition:** Due to pressure of gravid uterus on the bladder, the mother feels urge in passing urine.
- **Low back ache:** As baby gets heavier and drops lower resulting some aches and pains in the lower back and pelvis as uterine and pelvis ligaments are stretched.
- **Cervical Ripening (Softening, effacing, thinning out and dilating):** A ripe cervix is soft less than 1.7 cm in length, admits a finger easily and is dilatable.
- **Increase vaginal secretion:** An increase beyond the increase that occurred throughout the pregnancy. The mucous is more slippery and viscous.
- **Mucous plug expelled:** With the softening and effacement of the cervix, the cervical mucous plug (operculum) is expelled resulting in a small amount of blood loss from exposed cervical capillaries known as show.
- **Braxton Hicks Contraction:** Irregular contraction that usually cause discomfort in lower abdomen occur throughout pregnancy now become more powerful intermittent and are associated with pain in back.
- **Nesting Syndrome:** 1 to 2 weeks before child birth, the women begins to create most comfortable atmosphere for her future baby, cleans the house, keeps newborn clothes ready, rearranges house hold things, prepares herself for admission to hospital.
- **Weight Loss:** During last weeks of pregnancy the weight falls one to two kg's because swelling decreases or sometimes related to loose stools.

3.2.4 Difference between True and False Labour

Now you need to know the signs and symptoms of true and false labour.

True labour pain versus false labour pain: True labour pain has the following features and can be clearly differentiated from false labour pain: Table 3.2

Table 3.2: True Vs False labour pain

True Labour Pain	False Labour Pain
Begins irregularly but becomes regular and predictable	Begins irregularly and remains irregular
Felt first in the lower back and sweeps around to the abdomen in a wave pattern	Felt first abdominally and remains confined to the abdomen and groin
Continues no matter what the woman's level of activity	Often disappears with ambulation or sleep
Increases in duration, frequency and intensity with the passage of time	Does not increase in duration, frequency or intensity with the passage of time
Accompanied by 'show' (blood-stained mucus discharge)	Show absent
Achieves cervical effacement and cervical dilatation	Does not achieve cervical effacement and cervical dilatation

3.2.5 Essential Factors Influencing Labour

Essential Factors influencing Labour are given below: These are 3Ps

- **The Passenger:**
  - Foetal head
  - Shoulder and Pelvic girdle
  - Foetal Lie
  - Presentation
  - Attitude
  - Position
- **The Passage Way:**
  - Pelvis
  - Soft Tissues
  - Cervix
  - Vagina
- **The Power:**
  - Uterine contraction
  - Voluntary bearing down efforts
  - Implication of nursing care
- **The Psyche:**
  - Mother's confidence in her ability
  - Support from care givers
  - Labour environment
  - Psychological stress of labour pains

3.2.6 Normal Vaginal Delivery

You have already learn about pregnancy and its management. Pregnancy ends in to a process of delivery. You will now learn about delivery. We shall begin with Normal vaginal delivery.

Before discussing about vaginal delivery, you need to know about the labour room requirement where delivery is to be conducted. The details of Labour Room are given in Practical course BNSL-043, Block 4, Unit 2.

Definition and types

Definition

Normal vaginal delivery is the birth of offspring through vagina. It is a natural method of birth.

Spontaneous Vaginal Delivery (SVD): It is the one when a pregnant female goes into labour without use of drugs or technique to induce labour and deliver her baby in a normal manner, without forceps, vacuum extraction or a cesarean section.

Assisted Vaginal Delivery (AVD):

It is the one when a pregnant female goes into labour (with or without a use of drugs or techniques to induce the labour) and requires the use of special instruments such as forceps or vacuum extractor to deliver her baby vaginally.

Instrumental Vaginal Delivery (IVD):

Is another term for assisted vaginal delivery in which the instruments are used to deliver her baby.

Indications and Contradictions

Indications

- Spontaneous Labour mediated by pituitary and placental hormones
- Rupture of amniotic and chorionic membranes
- Induction of labour
- Ripening of cervix

Contradictions

These are the risk factors where normal vaginal delivery is contradicted.

- Cord prolapse
- Brow presentation
- Face presentation
- Breech presentation
- Malposition
- Twin pregnancy
- Higher order birth
- Multiple prior caesarian deliveries more than two
- Non reassuring foetal heart rate pattern
- Macrosomia

Check Your Progress 1

i) Define Normal vaginal delivery?

.....

ii) Explain normal labour?

.....

iii) List Premonitory signs of labour?

.....

iv) Describe the role of oxytocin in the onset of labour?

.....

3.3 FIRST STAGE OF LABOUR

You have already learnt in Section 2.3.6 that first stage of labour is from the onset of two labour pains to fully dilatation of cervix. You will now learn the physiological changes that take place in the first stage of labour.

3.3.1 Physiological Changes

It is important to make observations while caring a women in labour. This knowledge about physiological changes will help for the effective management. The following are the physiological changes.

Fundal Dominance: Uterine contraction starts from the fundus of uterus and moves downwards. Contractions of the funds are strong, intense and lasts for a longer time. This pattern permits the cervix to dilate and fundus to expel the foetus.

Polarity: It is the neuro muscular harmony between upper and lower uterine segment. Contractions of the uterus takes place at the upper pole and there is slight contractions and dilatation of the cervix taking place at the lower pole.

Contraction and retraction of uterine muscles: (Fig 3.1)

- **Uterine Contraction:** It is the temporary shortening of the uterine muscles. During labour the uterine muscles becomes short and the space in uterus becomes less so pressure is increased in the uterine cavity. This pressure push down the fetus in the lower portion of the uterus and force the foetus to deliver.
- **Uterine Retraction:** Retraction is the phenomenon of the uterus in labour in which the muscle fibres are not permanently shortened or relaxed but retain some of the contraction, resulting in shortening and thickening of the upper uterine segment which helps in the progressive expulsion of the foetus.

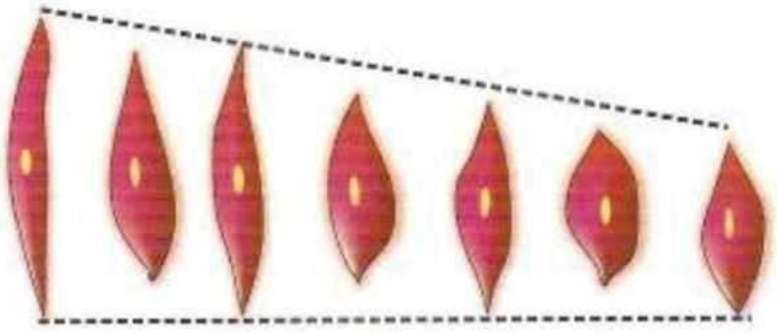


Fig. 3.1 : Contraction and retraction of uterine muscle

Characteristics of Uterine contraction: These include following Fig 3.2

- **Intensity** (Degree of peak, tightness or hardness): It describes degree of uterine systole, intensity changes as labour progresses in the beginning it can be like mild cramp.
- **Frequency:** It is measured from beginning of one contraction to the beginning of very next contraction. This not only includes the duration of one contraction but also the rest period between the two, Examples: if contraction starts at 8 PM and then another contraction is at 8:15 PM so contraction has a frequency of 15 min.

- **Duration:** It is the time from the beginning of one contraction to the end of that same contraction. During labour duration of contraction will start out short (25 to 35 seconds long) and ultimately gets to 70 to 90 seconds.
    - **Increment:** means when uterine muscles contract and force increase in strength.
    - **Acme:** It is the peak of intensity.
    - **Decrement:** Gradual decrease in strength until the muscles are relaxed.

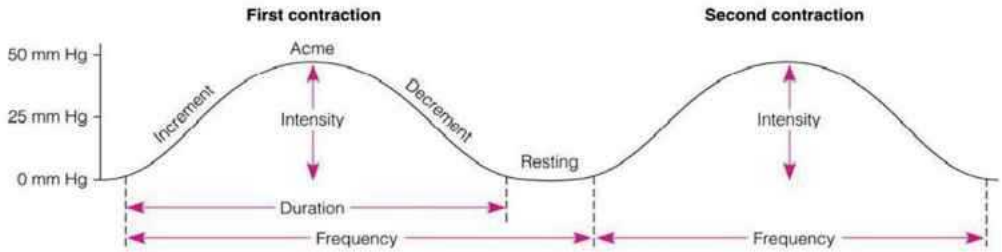


Fig. 3.2 : Characteristics of Uterine Contraction

- **Formation of upper and lower uterine segment:** The uterus forms a thick upper segment and thin lower muscular layer. The upper longitudinal muscles pull on the lower circular muscles situated in the lower uterine segment which will aid in the descent of the presenting part.
- **Retraction Ring:** This is a ridge formed between the upper and lower uterine segment. It is normal if it is not visible over the symphysis pubis. If it is visible as a depressed ridge running transversely or slightly oblique across the abdomen above the symphysis pubis it is called **bundles Ring**.
- **Cervical Effacement:** Effacement is a process by which the muscular fibres of cervix are pulled upwards and merge with fibres of lower uterine segment. It is a thinning out of the cervix. It is expressed in terms of percentage. 100% effacement means that the cervix is fully effaced. In primi effacement precedes the dilatation of cervix. In multigravida both occurs simultaneously.
- **Cervical dilatation:** It is the process of enlargement of the external os which is tightly closed aperture to an opening large enough to permit the passage of foetal head. This is expressed in centimeters and ranges from 0 to 10 centimeter.
- **Presence of show:** As the cervix dilates, the operculum is discharged out with light blood stains called show. This is due to rupture capillaries of the decidua, where the chorion detaches due to dilatation of the cervix.
- **Formation of bag of membranes:** As the chorion detaches, a loosen sack of amniotic fluid buldges downwards into the dilating internal os. In case of complete flexion where the presenting part gets completely fixed, fluid cuts into two compartments, one compartment with foetus and some fluid called hind water and another compartment with fluid in front of the presenting part called fore waters.
- **Rupture of membranes:** It occurs at the end of first stage of labour when cervix is fully dilated and no longer supports the bag of fore waters. It may occur at any time during labour or even before labour starts.
- **Fetal axis pressure:** At each uterine contraction, the uterus rears forwards (become upright) and the force of fundal contraction is transmitted to upper

pole of the uterus down the long axis of the fetus and is applied by the presenting part of the cervix.

3.3.2 Monitoring and Management of First Stage of Labour

Principles of Management:

- To have safe vaginal delivery.
- To carefully monitor vital signs for early detection of any deviation from the normal.

The Monitoring and Management of first stage of labour is summarised in Table 3.3 below.

Oxytocin drugs for inducing/accelerating labour should not be administered before delivery as their use is associated with a high incidence of rupture of the uterus.

Table 3.3: Monitoring and management of first stages of labour

Monitoring	Action/Management
Latent stage, i.e. not in active labour Monitor the following every one hour: • Contractions: • Frequency–how many contractions in 10 minutes • Duration–for how many seconds each contraction lasts • FHR: Normal FHR is between 120 and 160 beats/ minute • Presence of any sign of an emergency (difficulty in breathing, shock, vaginal bleeding, convulsions or unconsciousness) • **Monitor the following every four hours:** • Cervical dilatation (in cm) • Temperature • Pulse • Blood pressure	• Record time of rupture of membranes and colour of amniotic fluid. • Never leave the woman alone. • Allow her to remain mobile. • Let her choose the position in which she is comfortable. • If after eight hours, the contractions are stronger and more frequent but there is no progress in cervical dilatation, with or without rupture of the membranes, it indicates nonprogress of labour. Refer the woman urgently to an FRU. • If after eight hours, there is no increase in intensity/ frequency duration of contractions, the membranes are not ruptured and there is no progress in cervical dilatation, ask the woman to relax. Advise her to come/send for you again when the pain/discomfort increases, and/or there is vaginal bleeding, and/or the membranes rupture.
Active stage	
Monitor the following every 30 minutes: • Maternal pulse • Contractions—frequency and duration	• Never leave the woman alone. • Start maintaining a partograph when the woman reaches active labour.

Monitoring	Action/Management
• FHR • Presence of signs such as meconium blood-stained amniotic fluid, prolapsed cord. **Monitor the following every four hours:** • Cervical dilatation (in cm) by P/V • Temperature • Blood pressure	• Re-assess the woman and consider criteria for referral. • Call a senior person, if available. Alert emergency transport services. • Encourage the woman to empty her bladder. • Ensure adequate hydration but omit solid foods. • Encourage her to maintain an upright position and walk, if she wishes. • Monitor intensively, using the partograph. Refer immediately if there is no progress. Parto

Promotion of physical well-being: The woman is allowed to ambulate if not contraindicated as in case of bleeding, rupture of membranes, pregnancy induced hypertension, cardiac disease or any medical problem. Ambulation may decrease the need for analgesics, shortens labour and decreases incidence of foetal heart rate abnormalities.

- Allow the mother to assume any comfortable position except dorsal decumbent which may result in supine hypotensive syndrome, leading to foetal distress.
- Encourage deep breathing during contraction.
- Massage back if she complains of backache.
- Be with the women, reassure her and encourage her to express her discomfort, fear and anxiety.
- Change the pad in excessive vaginal discharge.

Nutrition and Hydration

- The women's need for energy is met through nourishing, give oral fluids at frequent intervals.
- Solid foods are usually avoided since gastric emptying is prolonged during labour and also in anticipation of anaesthesia.
- Sometimes I/V fluids may be given to provide energy and prevent dehydration.
- If the mouth is dry, provide mouth wash and sips of water.
- Maintain intake and output chart.

Bladder: Care To maintain empty bladder. The women should be encouraged to pass urine every two to three hours during labour. The urine should be tested for presence of glucose, ketones and proteins. A full bladder is associated with poor uterine contraction. It prevents decent of foetal head and can also cause injuries to bladder. Retention of urine frequently occurs in labour and catheterization may be required

3.3.3 Partograph

The partograph is a graphic recording of the progress of labour and the condition of the mother and foetus. It is a tool which helps assess the need for action and recognises the need for referral at the appropriate time. This facilitates timely referral to save the life of the mother and foetus. The progress of labour is recorded as a simple graph with time on horizontal axis and important features on vertical axis. Sample partograph is given in Fig. 3.3.

Importance:

- Provides continuity of care.
- Provide basis for decision making.
- Facilitates research.
- Allow audit and review.

Defends ones action

Make following observations and follow the instructions given below carefully while filling the partograph:

Identification data

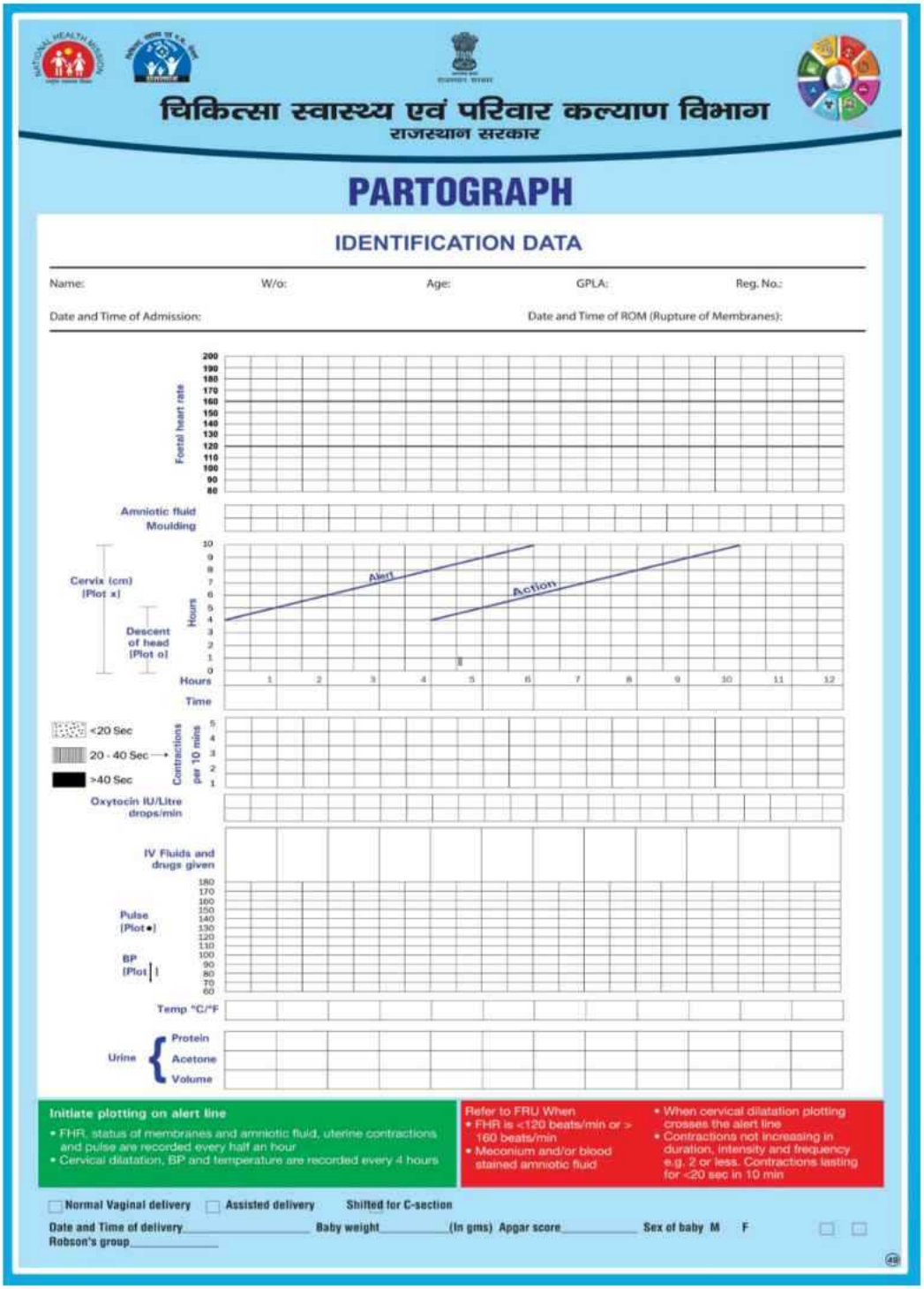
Note down the woman's name and age, parity, date and time of admission, registration number and time of rupture of the membranes.

Foetal condition

- Count the FHR every half an hour.
  - Count the FHR for one full minute.
  - The rate should be preferably counted immediately after a uterine contraction.
  - If the FHR is below 120 beats per minute or above 160 beats per minute, it indicates foetal distress. In such cases referral is indicated.
  - Remember that each of the small boxes in the vertical column of the partograph represents a half-hour interval.
- Note the condition of the membranes and observe the colour of the amniotic fluid as visible at the vulva every half an hour.
  - Record in the partograph as follows:
    - Membranes intact (mark 'I')
    - Membranes ruptured: - (mark 'R')
    - Clear liquor (mark 'C')
    - Meconium-stained liquor (mark 'M')

Progress of Labour

- Begin plotting on the partograph only when active labour starts. Active labour starts when the cervical dilatation is 4 cm or more and the woman is having atleast two good contractions every 10 minutes.
- Record the cervical dilatation in centimeters every four hours. Sample partograph in labour is given in Fig. 3.4
- In this phase, cervical dilatation progresses by approximately 1 cm per hour and is often quicker in multigravida.


चिकित्सा स्वास्थ्य एवं परिवार कल्याण विभाग
राजस्थान सरकार

PARTOGRAPH

IDENTIFICATION DATA

Name: W/o: Age: GPLA: Reg. No.:

Date and Time of Admission: Date and Time of ROM (Rupture of Membranes):

Foetal heart rate

Amniotic fluid
Moulding

Cervix (cm) [Plot x]
Descent of head [Plot o]
Alert
Action
Hours

Time

<20 Sec
20 - 40 Sec
>40 Sec
Contractions per 10 mins

Oxytocin IU/Litre drops/min

IV Fluids and drugs given

Pulse [Plot •]
BP [Plot |]

Temp °C/°F

Urine
Protein
Acetone
Volume

Initiate plotting on alert line
- FHR, status of membranes and amniotic fluid, uterine contractions and pulse are recorded every half an hour
- Cervical dilatation, BP and temperature are recorded every 4 hours

Refer to FRU When
- FHR is <120 beats/min or > 160 beats/min
- Meconium and/or blood stained amniotic fluid
- When cervical dilatation plotting crosses the alert line
- Contractions not increasing in duration, intensity and frequency e.g. 2 or less. Contractions lasting for <20 sec in 10 min

Normal Vaginal delivery Assisted delivery Shifted for C-section

Date and Time of delivery_____ Baby weight_____(In gms) Apgar score_____ Sex of baby M F

Robson's group_____

- Plot the first recording of cervical dilatation on the **Alert line**. Write the time accordingly in the corresponding row for time. After four hours, conduct a vaginal examination and plot the cervical dilatation in centimeters on the graph.
- If the Alert line is crossed (the plotting moves to the right of the Alert line), it indicates prolonged/obstructed labour and you should be alert that something is abnormal with the labour.
- Note the time when the Alert line is crossed. The woman needs to be referred urgently to the FRU. Please remember to send the partograph along.
- Crossing of the Action line (the plotting moves to the right of the Action line) indicates the need for intervention. There is a difference of four hours between the Alert line and the Action line. By the time the Action line is crossed, the woman should ideally have reached the FRU for the appropriate intervention. Refer as soon as Alert line is crossed and do not wait for referral till the Action line is crossed.

- Chart the contractions every half an hour; count the number of contractions over 10 minutes and note their duration in seconds. Record the number of good uterine contractions (lasting more than 20 seconds) in 10 minutes every half an hour and accordingly, blacken the boxes on the partograph.

Maternal condition

- Record the maternal pulse on the graph every half an hour and mark with a dot (.).
- Record the woman's blood pressure on the graph every four hours, using a vertical arrow (^) with the upper end of the arrow signifying the systolic blood pressure and the lower end indicating the diastolic blood pressure.
- Record the temperature every four hours and note it on the temperature graph.

Interventions

- Mention any drug that has been administered during labour, including the dosage, route and time of administration. Also include the food items and liquids consumed by the woman during labour.

Indications for referral to the FRU on the basis of the partograph

- If the FHR is 160 beats/minute or less than 120 beats per minute
- If there is meconium- and/or blood-stained amniotic fluid
- When the cervical dilatation plotting crosses the Alert line (moves towards the right side of the Alert line)
- If the contractions do not increase in duration, intensity and frequency.
- If the maternal vital signs, i.e. the pulse (more than 100/min), BP (>140/90 mmHg) and temperature (>38ºC), cross the normal limits.

Steps of plotting Partograph

Let us summarise the steps of plotting the Partograph as given below.

Steps	
1)	Record identification data
2)	Record Fetal heart rate, condition of amniotic fluid and membranes, cervical dilatation position of presenting part and frequency and duration of uterine contractions. Maternal parameters shall be properly recorded with respect to time
3)	Plot cervical dilatation when it is 4 cm and above on the alert line along with the time Note: The first plotting on the Partograph is always on the alert line. A Partograph is started once labour has commenced
4)	Plot the following every half hour: frequency and duration of uterine contractions, foetal heart rate, condition of the membranes, colour of amniotic fluid and maternal pulse
5)	Plot the following every four hours: cervical dilatation, descent of head or presenting part, maternal temperature blood pressure and urinalysis (should be performed every time the woman passes urine)

6)	Record any medications or interventions carried out on the Partograph in the relevant sections with time noted
7)	Interpret the findings and make a decision on necessary action. If referral is required, refer the client further with a duly completed referral slip and copy of the Partograph
8)	Record the date, time of birth, condition at birth, sex and weight of the baby and type of delivery on the Partograph

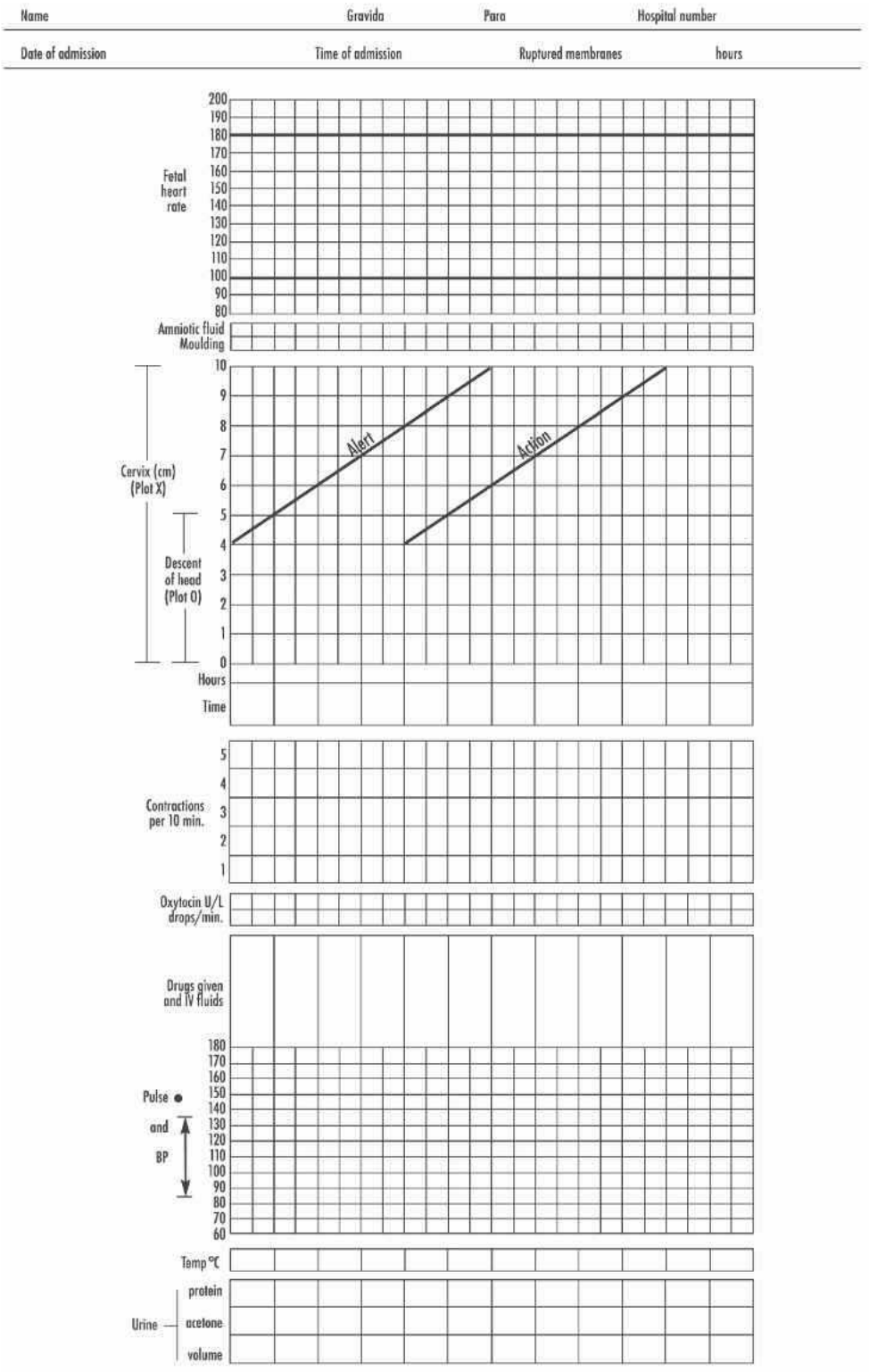


Fig. 3.3 (a) : Sample Partograph

Interpretation of Partograph

Let us discuss how partograph is plotted and interpreted as given below. A sample partograph in labour is given in Fig. 3.3 (b).

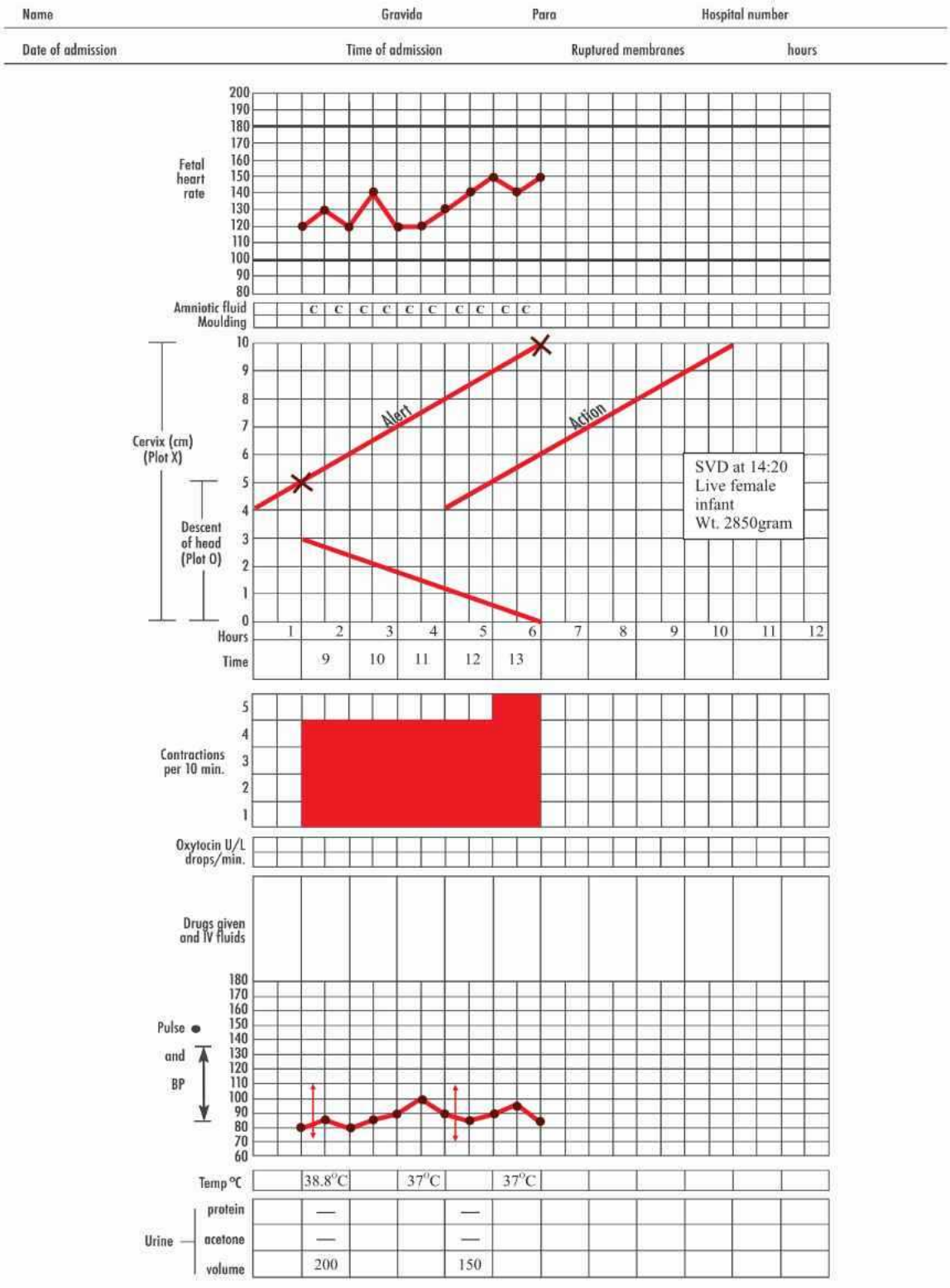


Fig. 3.3 (b) : Sample Partograph in Labour

Look at the Partograph given in Fig. 3.3 (b) you will find graphic representation in various parts.

- In the beginning, partograph represents patient particulars.

  It includes patient particulars Date of Admission (DOA) & time of admission to ward as well as to Labour room (to know the exact time of onset of labour),

Period of Gestation (POG), blood group, membrane ruptured or not & time of rupture.

- The next graphical representation is the foetal heart rate.

  It's monitored every half hourly (as you can see that each column correspondence to half an hour interval) it should be in the range of 120–160 in normal cases.

- The next column after foetal heat represents the colour of the amniotic fluid, where I is Intact, C represents Clear & M represents Meconium stained followed by Moulding – which is generally absent, but if there is overriding of bones then it has to be graded as 1, 2 or 3.

- The next graphic presentation represents cervical dilation from 0–10 cm, this is denoted by (x), it is plotted from the **active phase** i.e. from 4 to 10 cm dilation & head station in descending order.

This graph is further divided into 3 zone, draw the first line from 4 cm dilation to 10 cm dilation i.e. at a distance of 6 hours (1cm/hr). This line is called as **alert line**. The area on left of alert line is called as **Zone 1**

- Cervical dilation in normal cases when plotted should be either on the **alert line** or on its left side.
- Another line is drawn parallel to alert line at a distance of 4 hrs, it is called as **Action line**.
- The area between **alert line** and **action line** is called as **Zone 2**.
- Dilation plotted in this area shows **abnormal progress** of labour, and the mother and baby has to be critically assessed.
- When dilation falls towards the right side of **action line**, it is called **Zone 3**, here the patient has to be reassessed by a senior expert. Here decisions for LSCS or amniotomy etc are planned and implemented.
- Head station graph (Descent of head) always progress downwards and is represented by (0).

Mention the effacement cervix in percentage at the bottom of this graph to correlate the progress of labour.

*Generally per vaginal examination (PV) is done every 4 hourly but in case of rupture of membrane PV can be done irrespective of the timing of previous PV examination. Once the mother has delivered it is written as Normal Vaginal delivery, live baby, sex, time of birth, weight. It can be written with red pen.

- Next part of Graph represents the contractions. It is monitored every half an hour with the onset of first contraction from 4 cm dilation for plotting, (otherwise before 4 cm we write it in a partogram book).
- The contractions are recorded for 10 minutes. In this we see the total number of contractions, duration of each contractions and its intensity (e.g. 3–4 contractions in every 10 minutes lasting for 35–40 seconds, moderate in intensity)
- The X axis represents the number of contractions and the shaded area shows the corresponding number (generally we give different shades for the boxes as per the intensity and duration). Contraction lasting for less than 20 seconds denotes poor contractions and hence requires intervention like augmentation by oxytoxin; and the contraction lasting more than 55 or 60 seconds denotes hyper stimulation, hence the oxytocin has to be either tapered, or stopped.

- Next graph column shows it shows the dose of inj oxytocin if administered followed by column from administration of any drugs like drotin, analgesics and IV for hydration, They can be recorded against the corresponding time.
- Following above is the Graph for TPR and BP every half an hour.

Next graph column represents urine analysis (emptying of bladder is done frequently to avoid obstruction of presenting part and also to prevent bladder injury, observe oxytocin toxicity. Dip stick test can also be done to see protein, acetone and glucose.

All these readings plotted in this graph corresponds to the same time as mentioned below the graph showing Cx dilatation etc.

Case Study 1

Radha (wife of Gangaram), 26 years of age, third gravida, was admitted at 5:00 am on 11 June 2009 with the complaint of labour pains since 2:00 am. Her membranes had ruptured at 4:00 am. She has two children of the ages of 5 and 2 years. On admission, her cervix was 2 cm dilated.

Plot the following findings on the partograph:

At 09:00 am:

- The cervix is dilated 5 cm.
- She had 3 contractions in 10 minutes, each lasting 20–40 seconds.
- The FHR is 120 beats per minute.
- The membranes have ruptured and the amniotic fluid is clear.
- Her BP is 120/70 mmHg.
- Her temperature is 36.8°C.
- Her pulse is 80 per minute.

9:30 am: FHR 120, contractions 3/10 each 30 seconds, pulse 80/minute, amniotic fluid clear

10:00 am: FHR 136, contractions 3/10 each 35 seconds, pulse 80/minute, amniotic fluid clear

10:30 am: FHR 140, contractions 3/10 each 40 seconds, pulse 88/minute, amniotic fluid clear

11:00 am: FHR 130, contractions 3/10 each 40 seconds, pulse 88/minute, amniotic fluid clear

11:30 am: FHR 136, contractions 4/10 each 45 seconds, pulse 84/minute, amniotic fluid clear

12:00 noon: FHR 140, contractions 4/10 each 45 seconds, pulse 88/minute, amniotic fluid clear

12:30 pm: FHR 130, contractions 4/10 each 50 seconds, pulse 88/minute, amniotic fluid clear

1:00 pm: FHR 140, contractions 4/10 each 55 seconds, pulse 90/minute, temp. 37°C, BP 100/70 , amniotic fluid clear

At 1:00 pm:

- Cervix fully dilated
- Amniotic fluid clear and BP 100/70 mmHg

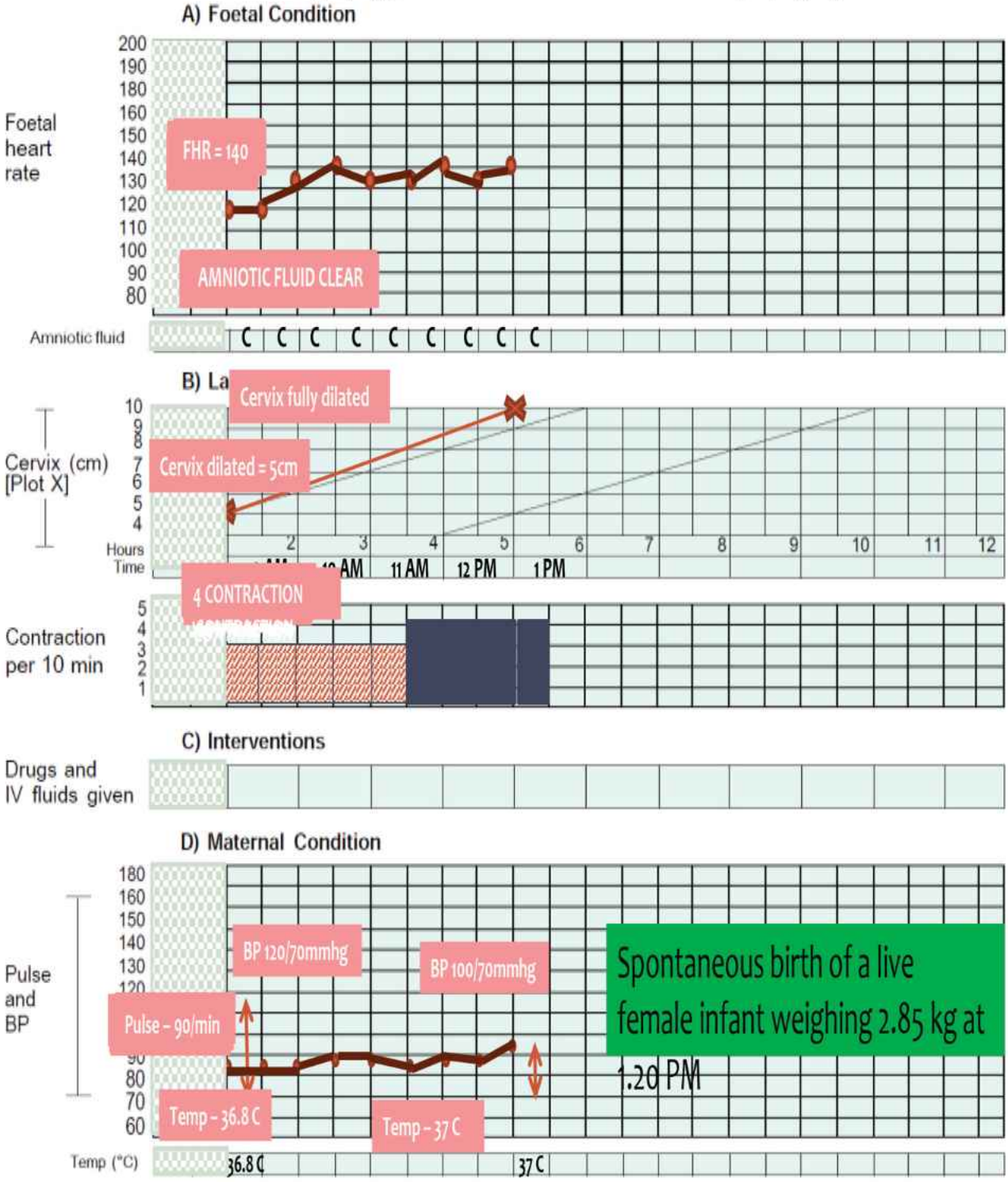
1:20 pm: Spontaneous birth of a live female infant weighing 2.85 kg.

THE SIMPLIFIED PARTOGRAPH

IDENTIFICATION DATA

Name: Radha W/o: Gangaram Age: 26 Years Parity: $G_3P_2L_2A_0$ Reg. No: XYZ1

Date & Time of Admission: 11/06/09,5:00Hrs Date & Time of ROM: 11/06/09, 04:00 Hrs



Check Your Progress 2

i) Explain the following terms

a) Fundal Dominance

.....

.....

b) Polarity

.....

.....

c) Show

.....

.....

d) Formation of bag of membranes

.....

.....

ii) List characteristics of uterine contraction?

.....

.....

iii) What are the various observation on Partogram?

.....

.....

3.4 SECOND STAGE OF LABOUR

Second stage of labour begins with fully dilatation of cervix to the expulsion of fetus. At this point let us review mechanism of labour and physiological changes during second stage of labour before discussing about management. We shall begin with principle of management and physiological changes during second stage of labour.

Principles of Management:

- To encourage birth of a healthy baby.
- To prevent damage to perineal tissues.

3.4.1 Physiological Changes

Following physiological changes take place.

Descend:

Descend of foetal presenting part which begins during first stage of labour, reaches

its maximum at the end of first stage of labour and continues through second stage of labour.

Uterine Action:

Contractions become stronger and longer approximately every 2 minutes lasting 60 to 90 seconds but may be less frequent giving mother and foetus a recovery period during resting phase. Nature of contraction changes become more expulsive as pressure is exerted on rectum and pelvic floor. Mother feels urge to push and the women begins to voluntary bear down.

Rupture of membranes:

The membranes often rupture spontaneously at the second stage of labour and there is gush of liquor amni per vagina. With the rupture of membranes the head flexion increases and progress of labour increases.

Dilatation, gaping of anus and perenial Bulging:

Deep engagement of presenting part and maternal pushing produces dilatation, gaping of anus and perenial bulging during late second stage of labour. Perineum possessively bulges during contraction and anus gaps, the vulval opening becomes circular during the expulsive phase. With each contraction the head descends and the perineum distends leading to perenial bulging.

Appearance of presenting part:

With perenial buldging, the scalp hair are visible through vulval opening. There may be desire to pass stool when head comes on the pelvic floor and the crowning of head occurs. Excessive Moulding may result from prolonged labour in the formation of a large caput which may protrude through the cervix prior to full dilatation.

Congestion of the vulva:

There is an intense pressure in the area of perineum and rectum as foetal presenting part descends the pelvic floor which leads to congestion of vulva due to stretching of the vulva. If the second stage lasts longer than two hours in primi Gravida or one hour for multi Gravida is considered abnormal.

3.4.2 Mechanism of Labour

We shall begin with definition and principles and then discuss the steps of mechanism of labour.

Definition: It refers to the sequencing of events related to posturing and positioning that allows the foetus to find the easiest way out. It is also defined as the series of passive moments of the foetus during its passage through maternal pelvis during labour.

Principles:

- Descent takes place throughout labour.
- Whichever part leads and first meets the resistance of the pelvic floor will rotate forward until it comes under the symphysis period.

- Whatever emerges from the pelvis will pivot around the pubic bone.

Steps of mechanism of labour in.

At the onset of labour the follow conditions by LAPPED is followed. These are:

L – Lie

Is the relationship of the long axis of fetus to the long axis of uterus (Fig. 3.4 a-d). There are three lies – longitudinal, transverse and oblique. In 99% cases the lie is longitudinal the remainder of oblique and transverse as shown in Fig. 3.4.

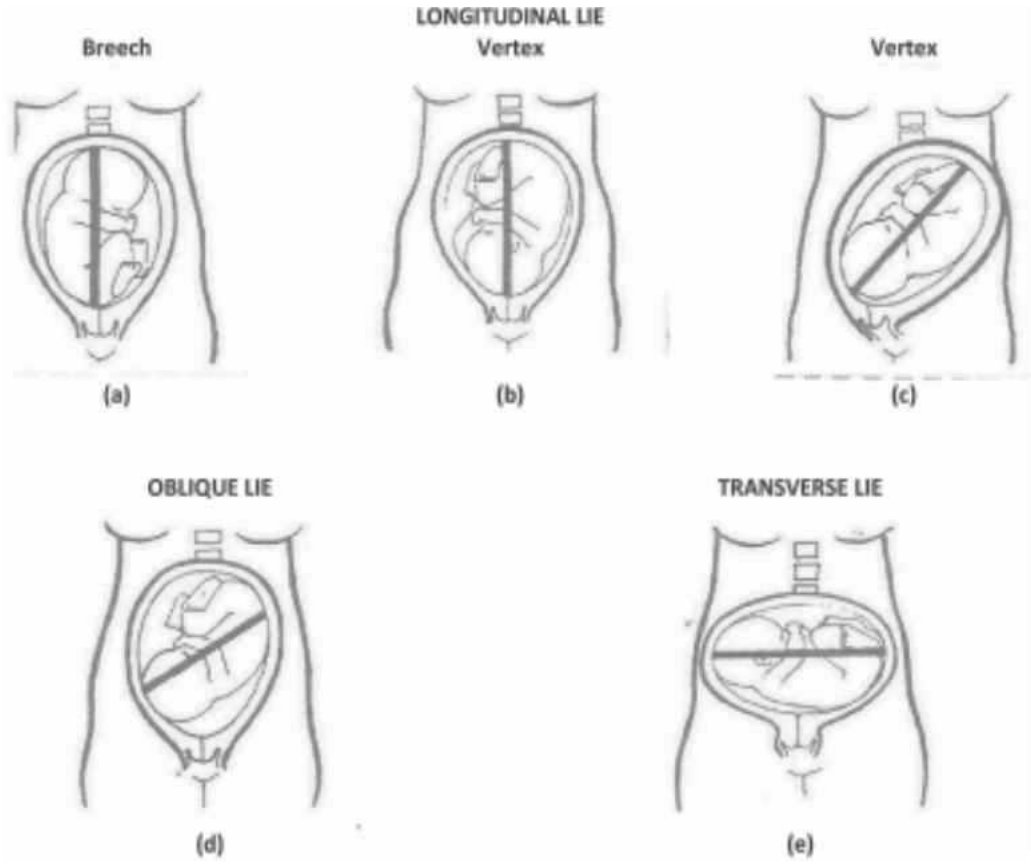


Fig. 3.4 : (a-e) Lie

A – Attitude

Is the relationship of fetal head and limbs to its trunk, the attitude should be complete flexion (Fig. 3.5 a-d)

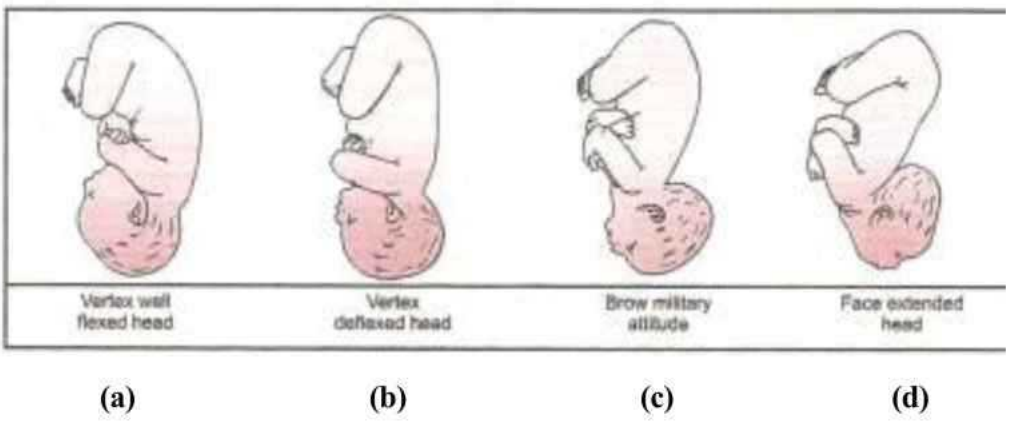


Fig. 3.5: (a-d) Attitude

P – Presentation

It refers to the part of fetus which lie in the lower pole of uterus. There are three presentations vertex (cephalic), breach and shoulder (transverse). In 96.8% cases presentation is vertex (Fig. 3.6 a-f).

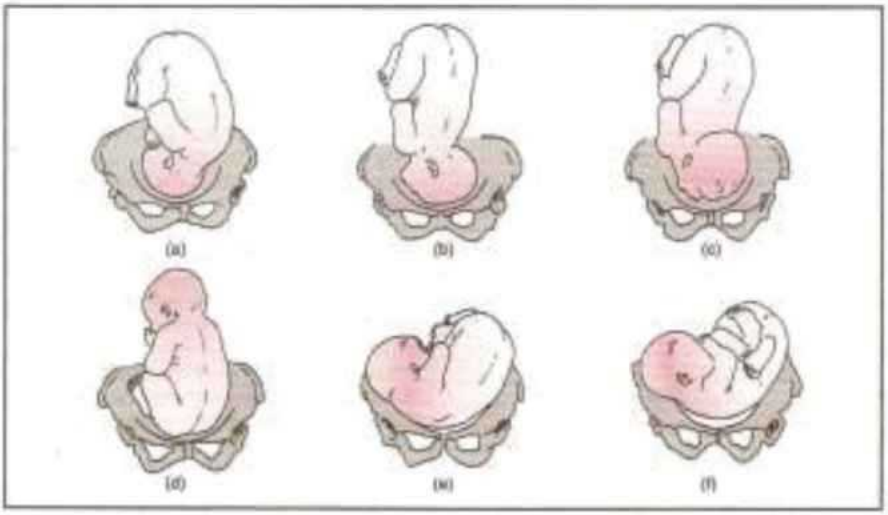


Fig. 3.6 : (a-f) Foetal presentation (a) vertex (b) Brow (c) Face (d) Breech (e) Shoulder dorsoanterior

P – Position

It the relationship between the denominator and 6 points in the pelvicbrim. There are six positions (Fig. 3.7a-f)

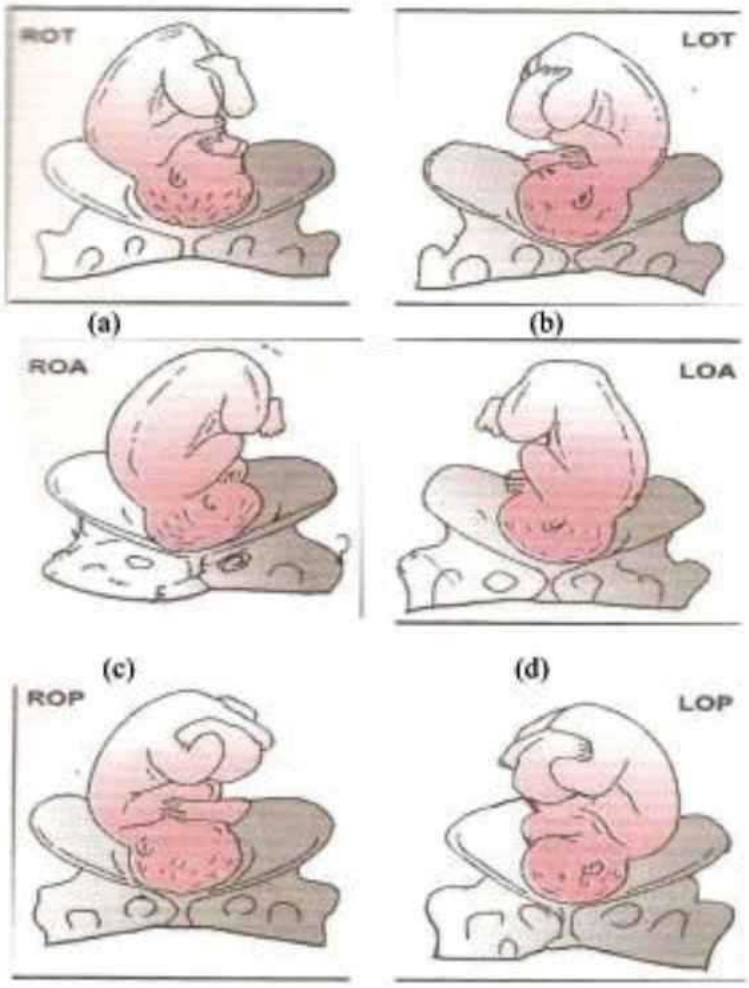


Fig. 3.7 : (a-f) Diagrammatic presentation of six positions of the vertex

E – Engagement

Engagement means that most of the babies had has descended into the mother's pelvic cavity and only a small cavity can be felt abdominally.

D – Denominator

Is the name of the part of the presentation that is when referring to the foetal position. Each presentation has different denominator.

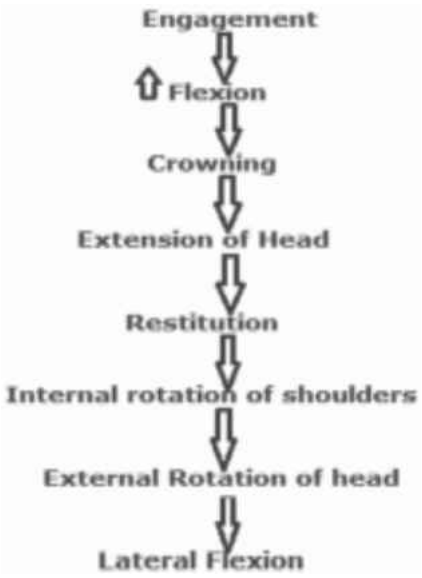
Principle Movements: (Fig. 3.8 a-f)

- **Descend:** It takes place due to forceful uterine contraction and retraction, rupture of membranes, complete cervical dilatation and maternal efforts. As the foetal head engages and descends it assumes an occipito transverse position because that is the widest diameter available for the widest part of the foetal head.
- **Flexion:** Flexion is increased throughout labour. While descending through the pelvis, the foetal head flexes so that foetal chin is touching the foetal chest. The increased flexion will decrease the presenting diameter i.e. occipito frontal (10 cm) to a smaller diameter (sub occipito bregmetic 9.5 cm). The occiput becomes the leading part.
- **Internal Rotation of the head:** The occiput leads and meets the pelvic floor first and rotates anteriorly 1/8 of the circle to come under symphysis pubis. This causes the slight twist in the fetal neck. The anterio posterior diameter of the head now lies in the anterio posterior diameter of the pelvic outlet.
- **Crowning:** The occiput slips beneath the sub pubic arch and crowning occurs when the head no longer recedes back between the contractions and the widest transverse diameter (biparietal) is born.
- **Extension of the head:** Once crowing has occurred, the foetal head extends, pivoting on the sub occipital region around pubic bone. While the sinciput, face and the chin sweeps the perineum and head is born by the moment of extension.
- **Restitution:** The twist in the neck of the foetus that resulted from the internal rotation is now corrected by a slight untwisting moment. The occiput moves 1/8 of the circle towards the side from which it started.
- **Internal rotation of shoulders:** The anterior shoulder reaches the pelvic floor first in the left oblique diameter and rotates forward 1/8 of the circle from right to left and thus the shoulders are now in the anterior posterior of the pelvis.
- **External rotation of head:** It occurs as the shoulders rotate 1/8 internally causing the head to rotate another 1/8 of the circle externally in the same direction as restitution. Example in LOA, the occiput rotates on the left towards left thigh while in ROA it moves in right.
- **Lateral flexion:** The anterior shoulder escapes under the symphysis pubis, the posterior shoulder sweeps the perineum so both shoulders are born simultaneously. The reminder of the body is born by lateral flexion as the spine bends sideways through the birth canal.



Fig. 3.8: Mechanism of Labour- Principle movement of head (a-g)

Summary of Mechanism of Labour:



3.4.3 Management during Second Stage of Labour

During second stage of labour you have to prepare for safe delivery of the baby and prevent damage to perenial tissue, we shall begin with preparation of delivery.

Preparation for Delivery: Keep all the equipments and instruments ready for safe delivery of the baby.

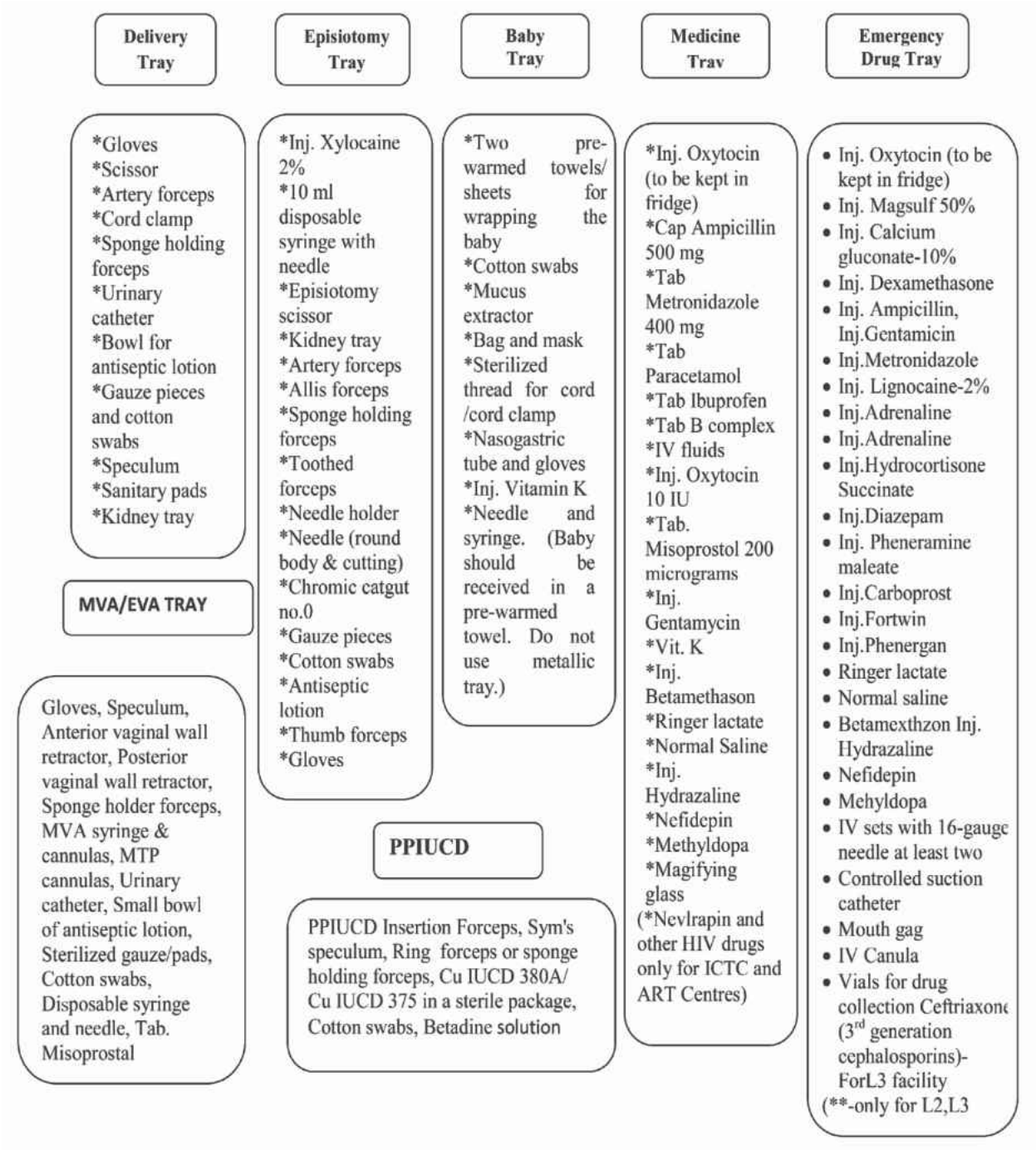
Pre-delivery preparation

While taking care of the pregnant women in labour you have to keep all equipments ready for the safe delivery. You need to keep following equipments ready as given in Table 3.4. The trays which should be kept ready area given in Table 3.5.

Table 3.4: Pre-delivery observation room criteria

Pre-delivery Observation Room Criteria	Equipment and Accessories
• The number of beds for this area will depend upon the delivery load of the facility.	1) Foetoscope/Doppler
	2) BP apparatus with stethoscope
	3) Thermometer
	4) Wall clock
	5) Colour coded bins
	6) Cetrimide swabs
	7) Disposable gloves
	8) Bed head tickets with attached Partograph
	9) Utility gloves
	10) Washbasin
	11) IV stand
	12) Sterilized instruments

Table 3.5: Trays to be kept in labour Room



- **Preparation of delivery room:**

Instrument and labour table preparation.

- Delivery room should always be ready for conduction of labour.
- Safety of the laboring mother should always be ensured.
- If the women is transferred from one bed to another it should be between contractions, supporting the mother adequately.
- Provide enough privacy.
- Maintain strict asepsis in the conduction of labour.
- Make sure that room is warm enough for the baby.
- Ensure that the resuscitation trolley is ready for use.

You must be aware of all do's and don'ts in labour room.

Do's and Don'ts in Labour Room

All essential practices protocols should be displayed in and around the labour room and clearly visible at appropriate places. Essential practices are presented in Table 3.7 and harmful practices in Table 3.6.

Table 3.6: Do's (Essential Practices for Sub-Centre (SC) , Primary Health Centre (PHC), Community Health Centre (CHC) and District Hospital (DH)

At the Time of Admission	In Labour Room	After Delivery and Before Discharge
Assessment of Maternal and foetal condition by: Measurement of BP and temperature of mother Measurement of Foetal Heart Rate Measurement of Haemoglobin Measurement of urine protein Assessment of gestational age (give ANCS if <34 weeks).	Partograph Active management of third stage of labour Delayed cord clamping Essential newborn care Drying and wrapping of baby Immediate resuscitation, if required. Skin to skin contact of the newborn Immediate initiation of breastfeeding Injection vitamin K	Assessment of maternal bleeding Assessment of newborn condition by measurement of temperature and respiratory rate Assessment of maternal condition by measurement of BP and temperature

Table 3.7: Harmful Practices for Sub-Center(SC) , Primary Health Centre (PHC), Community Health Centre (CHC) and District Hospital (DH)

Don'ts (Harmful Practices) for Sub-Center(SC) , Primary Health Centre (PHC), Community Health Centre (CHC) and District Hospital (DH)	
1.	No routine enema
2.	No routine shaving
3.	No routine induction/augmentation of labour
4.	No place for routine suctioning of the baby

5.	No pulling of the baby. Allow natural slow delivery (3 minutes – 1min for head, 1 min for shoulders and 1min for body). Only assist when required at the time of delivery of body (prevents PPH)
6.	No routine episiotomy
7.	No fundal pressure
8.	No immediate cord cutting
9.	No immediate bathing of the newborn
10.	No routine resuscitation on warmer evert baby should not be kept on warmer unless there is an indication)

For management for second stage of labour refer Table 3.8 given below.

Table 3.8: Steps in management of second stage of labour

Steps	
1.	Ensure privacy and dignity of the woman. Make her feel comfortable. A male doctor needs a female assistant while performing the examination. Ask if she has understood what is going to be done and ask her permission before undertaking the examination
2.	Put on personal protective attire (wear goggles, mask, cap, shoe covers, plastic apron). Place the plastic sheet or kelly's pad under the women's buttocks and two clean towels on mother's abdomen. Place the perineal sheet/leggings, if available.
3.	Palpate the supra pubic region to ensure that the woman's bladder is not full. If it is full, encourage her to empty the bladder or catheterize
4.	Wash hands and put on sterile gloves
5.	Clean the woman's perineum with sterile swabs
6.	Talk to the woman and encourage her to take breaths through her mouth after every contraction
7.	When the head is visible, encourage her to bear down during contractions
8.	Support the perineum with one hand using a clean pad and control the birth of the head with the fingers of the other hand to maintain flexion, allowing natural stretching of the perineal tissue to prevent tears
9.	Feel around the baby's neck for the cord and respond appropriately if the cord is present
10.	Allow the baby's head to turn spontaneously, then, with the hands on either side of the baby's head, deliver anterior shoulder by gently moving head a little downward which allows shoulder to drop down the symphysis pubis
11.	When the axillary crease of anterior shoulder is seen, deliver the posterior shoulder, lifting the baby upwards towards the mother's abdomen
12.	Support the rest of the baby's body with one hand as it slides out and note the time of birth and sex of the baby and show the mother. Place the baby on the mother's abdomen over a clean, dry, pre-warmed towel in a prone position with the head turned to one side

13. Quickly dry the baby with a pre-warmed towel, discard the wet towel. Wrap the baby loosely in the second prewarmed dry towel. Delay cord clamping for 1-3 mins if the baby is crying or breathing well
14. Palpate the mother's abdomen to rule out the presence of an additional baby/babies and proceed with active management of the third stage (AMTSL) and ENBC
15. Look for any vaginal or perineal tears; if present, assess the degree of tear and manage accordingly*

*For third-degree perineal tears, refer the woman immediately for higher specialised care with proper, sterilised perineal dressing

Steps of per vaginal examination	
1)	Wash hands and wear HLD/sterilised gloves on both hands
2)	Take an antiseptic solution swab in a sponge holder and clean both labia from above downwards. Repeat the step again using another swab
3)	Discard the swabs in the yellow bucket
4)	Separate the labia, clean with a swab from above downwards
5)	Insert index and middle finger to perform the vaginal examination. Rotate the hand 90 degrees so that palm faces upwards and gently stretch the fingers till the rim of cervix is felt (usually at 3–9 O'clock position)
6)	Assess cervical dilatation (record in cm) e.g. 7 cm, dilated
7)	Similarly, feel the rim of the cervix with the index and middle finger, assess the cervical effacement mention in %, or can be reordered as: not effaced, partly effaced, fully effaced
8)	Membranes – Present/Absent. If absent colour of liquor
9)	Check/confirm Presentation – Vertex/breech/empty pelvis*
10)	If Vertex – check- caput (boggy feeling) or moulding*
11)	Station – at spines/above/below
12)	Remove the glove inside out for decontamination in 0.5% chlorine solution.

As soon as the baby is born take following action.

1) Check for cry, if present, Clean the nose and mouth and put the baby on mother's abdomen where a warm towel should be there before delivery.
2) Wipe the baby with the warm towel and discard the wet towel.
3) Wrap the baby in another warm towel and put the baby on mother's abdomen
4) Make mother and baby comfortable
5) Give pre-loaded Inj. Oxytocin 10 units Intra Muscularly after ruling out twins.
6) Re-check the baby and mother for comfort.
7) Feel the cord pulsation
8) Tie and cut the cord once the pulsation stops within one to three minutes.

9) Check the signs of placental separation
10) Remove placenta by compressed Cord Traction (CCT)
11) If the does not cry tie and cut the cord
12) Put the baby on radiant warmer (New Born Care Corner)
13) Shout for help and do resuscitation.

3.4.4 Episiotomy

Definition: It is a planned surgical incision made in the area between the vagina and anus (perineum). It is done during second stage of labour to expand the opening of the vagina to prevent tearing during the delivery of the baby. It is also called as perineotomy.

Routine episiotomy is not recommended.

Objectives:

- To enlarge the vaginal interiotus so as to facilitate easy and safe delivery of the foetus.
- To minimise over stretching and rupture of perenial muscles and fascia.
- To reduce the stress and strain of foetal head.

Indications:

- **Anticipating perenial tear in:**
  - Primigravida as an elective procedure
  - Face to pubis or face delivery
  - Big baby
  - Narrow pubic arch
  - Old perenial scar
  - Rigid perineum
- **Manipulative Delivery:**
  - To get more space for operative or manipulative delivery like
    - Breach
    - forceps
    - internal version
    - Vacuum extraction

To cut short second stage in:

- Heart disease
- Eclampsia
- Post cesarean
- Post maturity

Foetal Conditions:

- Foetal distress.
- Premature baby (to prevent intracranial damage)
- Breech delivery (to minimise compression of after coming head)
- Mental retardation.

Common Conditions:

- Threatened perenial injury in primigravida.
- Rigid perineum.
- Forceps, breach, occipito posterior or face delivery.

Contra Indications:

- Inflammatory bowel diseases.
- Severe perenial malformations.
- Severe perenial scarring.
- Coagulation disorders.

Timings for episiotomy:

- Episiotomy has to be performed timely, when the perenium is buldging and three to four centimeter diameters of the foetal scalp is visible during the contraction.
- If episiotomy is performed early, it will fail to release presenting part and there can be haemorrhage from cut vessels.
- If performed late it will lead to laceration.

Types of Episiotomy: Fig. 3.9

The following are the types of episiotomy:

- **Midiolateral:** The incision is made downwards and outwards from the midpoint of the fourchette either to the right or left. It is directed diagonally in a straight line which runs about 2.5 cm away from the anus. This incision is more difficult to repair and blood loss is more.

- **Median/Midline:** The incision commences from the centre of the fourchette and extends posteriorly along the mid line about 2.5 cm. it is associated with reduced blood loss and is easy to repair leading to less pain and dyspareunia.

- **Lateral:** The incision starts from about 1 cm away from the centre of fourchette and extends laterally. This is not practiced as barotholin ducts gets damaged.

- **J shaped:** The incision, begins in the centre of the fourchette and is directed posteriorly along the mid line for about 1.5 cm and then directed downwards and outwards along 5 or 7 O'clock position to avoid the anal sphincter.

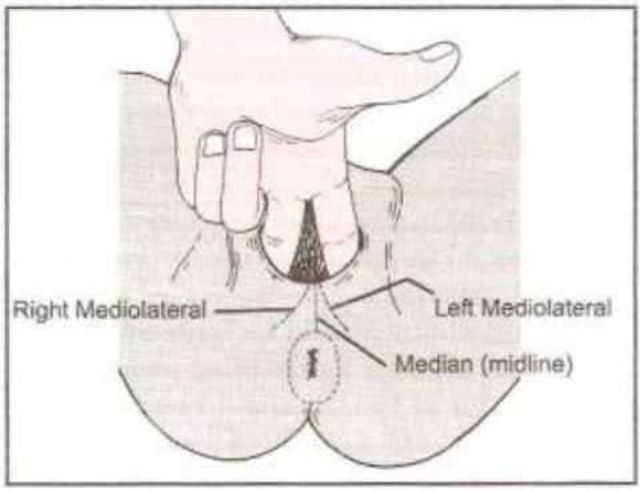


Fig. 3.9 : Types of episiotomies

Repair:

- The repair is done soon after the expulsion of placenta and membranes. If repair is done prior, disruption of the wound is inevitable, oozing during this period is controlled by pressure with a sterile gauze swab and bleeding by the artery forceps. Early repair prevents sepsis and eliminates mother's prolonged apprehension of stitches.

Preconditions for repair:

- Mother is placed in lithotomy position.
- Good light source from behind is needed.
- The pereium including the wounding area is cleansed with aseptic solution.
- Blood clots are removed from vagina and wounded area.
- Mother is draped properly.
- Repair is done under aseptic precautions.
- If there is oozing of blood, a vaginal pack may be inserted and is placed high up and don't forget to remove pack after repair is complete.
- Repair is done in three layers:
  - Vaginal mucosa and sub mucosal tissue.
  - Perineal muscles.
  - Skin and subcutaneous tissue.

Postoperative care:

- **Dressing:**
  - The wound is to be dressed each time following urination and defecation to keep area clean and dry.
  - The dressing is done by swabbing with disposable medicated gauze.
  - The state of healing is assessed by observing REEDA SCALE (Redness, edema, Ecchymosis, Discharge and Approximation).

- **Comfort:**
  - To relieve pain in the area, application of heat or cold, sits bath may be used.
  - Analgesics given when required.

Effects of episiotomy:

- Infection
- Bruising
- Swelling
- Bleeding
- Painful scarring

Options for pain relief:

- Cold pack on perineum
- Sitz bath
- Use medication (tucks medicated pads).
- Use of personal lubricants Example KV jelly during sexual intercourse
- After using washroom patting dry.

How to prevent the need for episiotomy:

- Good nutrition – helps healthy skin, stretches more easily.
- Kegels exercises – for healthy pelvic floor muscles.
- Controlled pushing in second stage of labour.
- Use of perineum massage techniques.
- Avoid lying on your back while pushing.

Check Your Progress 3

i) Describe physiological changes during second stages of labour?

.....

.....

ii) Define crowning?

.....

.....

iii) Write down management during second stage of labour?

.....

.....

iv) Define mechanism of labour?

.....

.....

v) Write down indications for giving episiotomy?

.....

.....

3.5 THIRD STAGE OF LABOUR

Third stage of labour is that of separation and expulsion of placenta and membranes. You will now learn about physiological changes that take place during third stage of labour and active management of third stage of labour.

Natural Process during third stage

a) **Separation of placenta**

- Result of the abrupt decrease in size of the uterine cavity.
- The retraction process accelerates.
- Formation of retroplacental clot.

Before separation – Per-abdomen

- Uterus becomes discoid in shape, firm in feel, and ballottable.
- Fundal height reaches slightly below the umbilicus.

Before separation – Per-vagina

- Slight trickling of blood.
- Length of umbilical cord visible from outside remains static.

After Separation (per-abdomen)

- Uterus becomes globular, firm and ballottable.
- Fundal height is slightly raised.
- Suprapubic buldging.

After Separation (per-vagina)

- Slight gush of vaginal bleeding.
- Permanent lengthening of cord.

Causes of separation of placenta (Fig.3.10)

- After delivery of foetus, the uterus retracts and placental bed diminished.
- As the placenta is inelastic and does not diminish in size but it separates.
- There is reduction in surface area of placental site as the uterus shrinks.
- There is formation of hematoma due to venous occlusion and vascular rupture in the placental bed caused by uterine contraction.

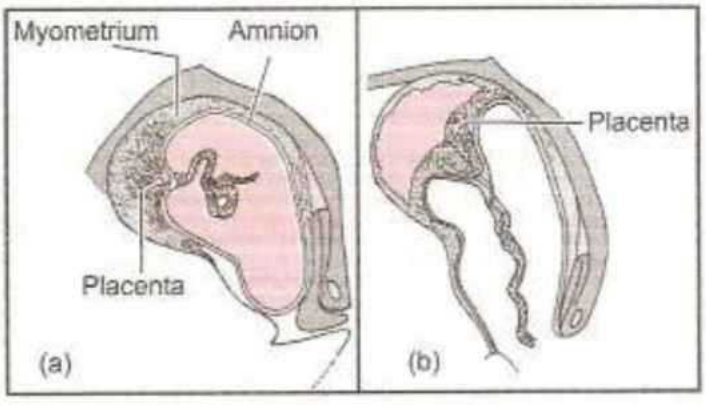


Fig. 3.10: The mechanism of placental separation (a) Placenta attached to the uterine wall (b) Placenta separated from the uterine wall

b) **Descend of placenta**

- Sudden trickle or gush of blood.
- Lengthening of umbilical cord.
- Change in the shape of the uterus (globular).
- Change in the position of the uterus.
- Uterus rises in abdomen.

c) **Expulsion of placenta by following methods (Fig. 3.11)**

- Mathews Duncan Mechanism
  1) Separation starts at the lower edge of the placenta at lateral border (20%).
  2) Maternal surface appears first at vulva.
  3) Usually accompanied by more bleeding from placental site due to slower separation.
  4) No retroplacental clot is formed.
- The Schultz Mechanism
  1) Placenta separates in the center and folds it on itself as it descends into the lower pole of uterus (80%).
  2) Foetal surface appears at vulva with membranes trailing behind.
  3) Minimum blood loss as retroplacental clot is contained with the membranes (inverted sac).

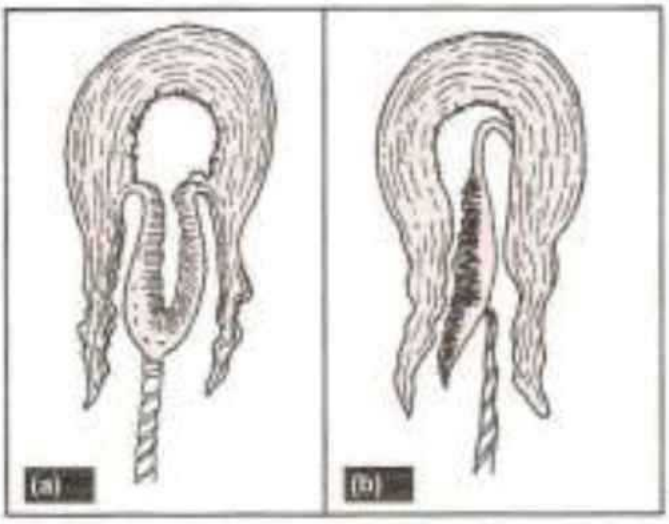


Fig. 3.11 : Methods of placental expulsion (a) Schultz method (b) Mathew's Duncan method

- Haemostasis - Haemostasis is due to retraction of the oblique uterine muscle fibres and vigorous uterine contractions following placental separation. After separation of placenta, the innumerable torn sinuses which have free circulation of blood from uterine and ovarian vessels have to be obliterated. The occlusion is affected by complete retraction where by arterioles as they pass through interlacing intermediate layer of myometrium are literally clamped which prevents bleeding. (Fig. 3.12)

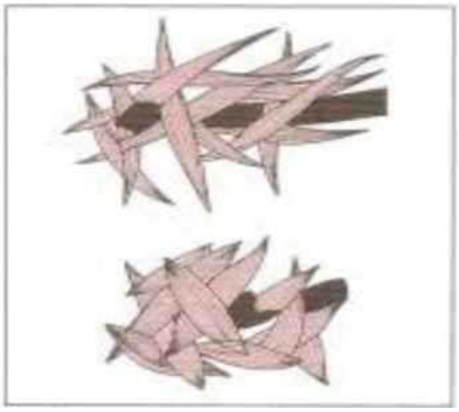


Fig. 3.13 : Diagrammatic representation of clamping of blood vessels by the contracting muscle fibers

Hemostasis involves following main points

- Retraction of the oblique uterine muscle fibres.
- Vigorous uterine contraction following placental separation.
- Transitory activation of coagulation.

3.5.1 Active Management of Third Stage of Labour (AMTSL)

It begins with the birth of the baby and ends with delivery of the placenta and membranes.

It a feasible and inexpensive intervention that can help to save thousands of women's lives. AMTSL includes the use of Uterotonic drug immediately following delivery, controlled cord traction and early cord clamping and cutting.

Approximately 60% cases of PPH can be prevented if AMTSL is done in all cases after delivery

It help in expulsion of placenta and reduction in blood loss to mother.

The three critical steps of AMTSL are: Fig. 3.13 given below

- Administration of uterotonic drug (Ing Oxytocin of 10 IU, IM/Tab Misoprostol- 600 mcg, oral)
- Controlled cord traction
- Uterine massage

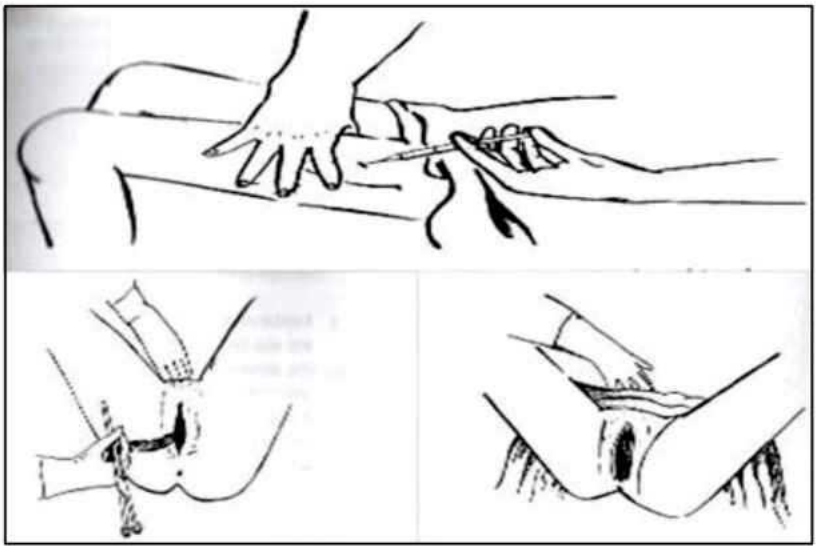


Fig. 3.13 : Three critical steps of AMTSL

Technique for applying controlled cord traction (Fig. 3.14)

- Clamp the umbilical cord close to the perenium and hold cord in one hand.
- Place the other hand just above the women's symphysis pubis and stabilise the uterus by applying counter pressure over the abdomen.
- Weight for strong contraction (usually every 2 to 3 mts).
- With strong contraction encourage the mother to push and very gently pull downwards on the cord to deliver the placenta by continuous applying counter pressure to the uterus.
- With the next contraction repeat CCT till placenta delivers.
- When placenta is delivered caught in both hands in vulva to prevent membranes tearing and gently turn until the membranes are twisted.
- Slowly pull till placenta with membranes are out.



Fig. 3.14 : Controlled cord traction (Brandt-Andrew's method)

Massage the uterus

Right after placenta is delivered rubbing the uterus is a good way to contract it and stop bleeding.

Examination of placenta and membranes: (Fig. 3.15)

Hold the placenta in the palm of your hands, with the maternal side facing upwards.

- Check all the lobules or present one fit together.
- Hold the cord with one hand, allow the placenta and membranes to hang down.
- Place the other hand inside the membranes, spreading the fingers out, to make sure membranes are complete.
- Ensure position of cord attachment to placenta is normal.
- Safely dispose placenta either burying or incineration.

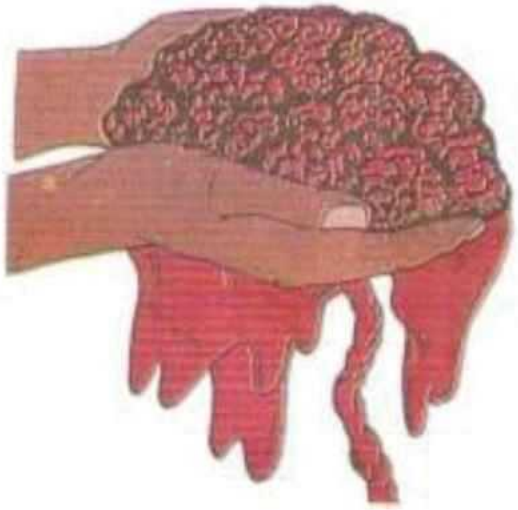


Fig. 3.15 : Examination/Inspection of Placenta and Membranes

To summarise the steps of active management of third stage of labour is given below.

Table 3.9: Steps of Active Management of Third Stage of Labour (AMTL)

Steps	
1.	Palpate the mother's abdomen to rule out the presence of an additional baby
2.	Administer inj. oxytocin, 10 IU, IM* OR tab. misoprostol 600 micrograms orally
3.	Clamp the cord with artery clamps at 2 places when cord pulsation stops. Put one clamp on the cord atleast 3 cm away from the baby's umbilicus and the other clamp 5 cm from the baby's umbilicus
4.	Cut the cord between the artery clamps with sterile scissors by placing a sterile gauze over the cord and scissors to prevent splashing of blood
5.	Apply the disposable sterile plastic cord clamp tightly to the cord 2 cm away from the umbilicus just before the artery clamp (instrument) and remove the artery clamp
6.	Place the baby between the mother's breasts for warmth and skin-to-skin care
7.	Perform routine steps of ENBC
8.	Re-clamp the cord close to the perineum. Perform controlled cord traction during a contraction by placing one hand on the lower abdomen to support the uterus and gently pulling the clamped cord with the other hand close to the perineum until the placenta and membranes have been delivered appropriately
9.	Perform uterine massage with a cupped palm until uterus is contracted
10.	Examine the placenta, membranes and umbilical cord: a. Maternal surface of placenta b. Foetal surface c. Membranes d. Umbilical cord
11.	Examine vagina, labia and perineum for tears. If found, refer the woman for appropriate care
12.	Discard the placenta in the yellow bin for contaminated waste and place instruments in 0.5% chlorine solution for 10 mins for decontamination
13.	Dispose of the syringe, needle and oxytocin ampoule in a puncture-proof container. The needle should be cut by a hub cutter before disposal

14.	Immerse both gloved hands in 0.5% chlorine solution and remove the gloves inside out; leave them for decontamination for 10 mins
15.	Wash both hands thoroughly with soap and water and dry them with a clean, dry cloth or air-dry them
16.	Perform post procedural task as follows: Advise mother on immediate postpartum care for her and baby. Record delivery notes in case file

Key points to remember:

- Check for uterine contraction and vaginal bleeding every 15 mins for 2 hours after delivery
- Never apply CCT without contraction and without applying counter traction (push) above the symphysis pubis with the other hand

3.5.2 Immediate Care of Newborn Baby

The first hour after birth have a major influence on the survival, future health and well-being of a new born infant. The health workers have an important role at this time. The care they give during this period is critical in helping to prevent complications and ensure intact survival. The birth of baby is one of the life's most wondrous movements. New born babies have amazing abilities yet depended on mother for nutrition, safety and warmth. Newborn assessment which includes observation, inspection, evaluation which the nurses must have a thorough knowledge as lot of changes occur at birth. In this unit you will learn about immediate care of a newborn baby.

Basic needs at birth: There are four basic needs at birth. These are:

- Warmth
- Normal breathing
- Mothers milk
- Protection from infection

Care of a newborn baby at birth

Steps	
1.	Call out the time of birth and sex of the baby and show the baby to the mother, ensure that details are recorded
2.	Deliver the baby on the mother's abdomen in a prone position with face to one side
3.	If the baby is not crying or not breathing, resuscitate as per GoI guidelines
4.	If the baby is crying, delay cord clamping 1–3 mins before cutting
5.	Dry baby with a pre-warmed towel while over mother's breast
6.	Encourage breastfeeding
7.	Check cord for any oozing of blood
8.	Place an identity wristband on the baby
9.	Cover the baby's head with a cap and cover the mother and baby with a warm cloth/sheet
10.	Give the baby an injection of vitamin K
11.	Weigh the baby and record the weight
12.	Check for any congenital malformations

Key points to remember:

- The Labour Room must be warm (maintain room temperature in the range 26–28ºC) to avoid hypothermia
- Assess the baby's breathing; if the baby is not breathing or has difficulty in breathing, initiate resuscitation
- Dose of vitamin K in neonates with birth weight < 1000 g – 0.5 mg IM
- Dose of vitamin K in neonates with birth weight > 1000 g – 1.0 mg IM

3.5.3 Care of the Mother

- Examine the perenium, lower vagina and vulva for tears.
- If present manage as per management of vaginal and perenial care.
- Clean the women and the area beneath her.
- Put a sanitary pad under the buttocks.
- Pads can be counted to estimate blood loss.

Summary of steps of Active Management of Third Stage of Labour (AMTL) is given in BNSL-043, Block 4, Unit 4.

3.6 FOURTH STAGE OF LABOUR

Fourth stage is defined as first one hour after delivery of placenta and membranes.

The aim is to make observation, provide care to mother and newborn and don't separate mother and baby unless essential.

The delivered mother should remain in the delivery room for atleast one hour following delivery. Most of this time will be spent in clearing up in completing records but careful observation of the mother and baby is very important.

3.6.1 Care of Women during Fourth Stage of Labour (In Labour Room)

Assess the following parameters.

1) Maternal vital signs. The vital signs checked and recorded every fifteen minutes.
2) Uterine contractility. The fundus should be checked on several occasions to ensure that it remains well contracted and prevent bleeding.
3) Lochia. Lochia should be observed for flow, colour and consistency.
4) Bladder status. Bladder is kept empty because it will prevent the uterus for contracting properly. A full bladder causes uterine atony and several postpartum bleeding. Mother is encouraged to pass urine.
5) Pereneal conditions. Perineum is inspected for edema and hematoma formation.

Personal Hygiene:

Most mothers appreciate a wash and change of clothes after delivery. Attention should be paid to perenial toilet and a clean pad applied.

Nutrition:

A drink is usually appreciated, if the mother is hungry she should be given a light snack.

Breast Feeding:

Encourage mother for breast feeding. The baby is observed for cord clamp, skin color, respiration and temperature.

Records:

Records for mother and baby should be completed during this time.

Observe/Call for Help (If any of the following signs appear):

- Bleeding increases.
- Women feels dizzy.
- Severe head ache.
- Visual disturbance.
- Epigastric.
- Distress.
- Complaints of breathlessness.
- Increased abdominal or perenial pain.

Transfer:

Before the mother is transferred to the postnatal ward, the fundus and lochia must be checked.

> **Note:** Don't discharge the women before 48 hours after delivery. This is a crucial period for the occurrence and management of PPM (postpartum Haemorrhage) so the women is kept under observation for 48 hours.

3.6.2 Care of Women after Delivery (Postnatal Ward)

Admission:

Welcome the mother to postnatal ward, observe her general condition, palpate uterus and observe lochia, check for emptying of bladder.

Rest and Sleep:

Mother should have sufficient rest and sleep. Inability to sleep other than due to feeding the baby may be an early sign of puerperal neurosis.

Ambulation:

The mother should be encouraged to mobilise from about six hours after delivery. This helps to reduce thromboembolic disorders.

Nutrition:

Attention and education must be paid to the kind of food that she eats, so that she maintains her own health and lactates adequately. She should have a well-balanced diet with adequate protein and fluid intake.

Hygiene:

Her first shower after delivery should be supervised in case she feels dizzy or unwell. She should be instructed for use of the bidet and encourage to use it as often as possible. When attending to her personal hygiene perenial pads should be changed frequently and the perenium kept clean and dry to promote healing.

Micturition:

There will be a marked diuresis for two to three days following delivery. The bladder should be emptied as soon as possible after delivery. Numbness due to injury or pressure during delivery makes the women unaware of a full bladder.

Bowels:

The bowel probably was emptied during labour so there may be no bowl action for a couple of days. Painful pereium or haemorrhoids may restrict bowl action.

Breastfeeding:

The first feed should be given as soon as possible after birth, as the baby is alert and sucks well at birth. The baby should be fed on demand and there should be no limit to the length of time that a baby sucks. Breastfeeding should be happy and satisfying experience of the mother and her baby.

Postnatal Exercises:

Postnatal exercises help to give the mother sense of well-being, encourage good circulation and restore the muscle tone of the abdominal wall and pelvic floor. Emphasise the need for regular exercise.

Haemoglobin:

This is checked on the second day after delivery and mother is treated accordingly.

Discharge:

Before leaving the hospital the mother and baby are examined properly. The mother may be given iron tablets to take and the reason and importance for taking them should be carefully explained to her.

Abnormal Signs to be Reported Like:

1) Heavy vaginal bleeding
2) Fever
3) Foul smelling vaginal discharge
4) Swollen, tender, red warm area on breast
5) Burning micturition
6) Persistent pelvic pain

Check Your Progress 4

i) List the signs of separation of placenta?

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.....

.....

ii) What are the components of active management of third stage of labour?

.....

.....

.....

iii) Write down important observations you will make after delivery of the baby?

.....

.....

.....

3.7 MAINTAINING RECORDS AND REPORTS

Records and reports are maintained throughout labour which include following.

1st stage of Labour:

- Women's physical and physiological condition.
- Status of foetus.
- Should be legible and must be dated and signed.
- Nursing care provided.
- Partogram.

2nd stage of Labour:

- Labour record.
- Drugs administered.
- Duration and progress of labour.
- Date and time of delivery.
- Episiotomy or tear.
- Baby records
  - Sex
  - Weight
  - Height
  - Circumferences

- Apgar score.
- Any abnormality found during examination.

3rd stage of Labour:

- Complete and accurate account of labour.
- Documentation of all drugs.
- Observation notes.
- Placental examination.
- Completeness of membranes.
- Observation of umbilical cord.
- Blood loss.

4th stage of Labour:

- Delivery notes.
- General condition of mother.
- General condition of baby.
- Transfer notes for postnatal ward.

Postnatal:

- Discharge summary.
- Follow up
- Immunisation for baby.

Remember the sample records maintained before during and after the delivery are given in Practical Course 3, Block 4, Unit 3

Recording and Reporting System

To capture MNH services, each facility must maintain the following records in form of registers, log books, case records, etc.

1) Admission Register
2) Labour room Register
3) Antenatal/postnatal Register
4) MTP Register
5) Interval and PPIUCD Register
6) OT Register
7) FP Register
8) Maternal Death Records and Registers
9) Laboratory Register
10) Referral In/Referral Out Register
11) MCP Card
12) Admission Sheets/Bed Head Tickets

13) Discharge Slip

14) Referral slip

15) Partograph

Head Ticket (Maternity ward)

S. No.
PCTS No*
Facility registration number (OPD/IPD)
Aadhar number
Whether JSY beneficiary (Y/N)
Name
Age
W/o or D/o
Address
Mobile number (Family /others)
Religion
Caste SC/ST/Others
Date of admission:
Date of discharge:
Reason for admission:
Date and time of delivery/any other obstetric procedure:
Type of Delivery:
Normal/Assisted/LSCS:
Outcome of delivery (live birth/still birth/abortion):
Sex of baby: (M/F)
Weight of baby: in gms./kgs.)
OPV:
Hepatitis B:
Date on which birth-day dose administered:
PPIUCD inserted on:
Name of unit in charge:
Name of assisting doctor:
Name of ASHA:
If referred out: Referral Note, indicating reason and place of referral: Bed-Head Ticket (Maternity ward)

*It MCTS number is not , then the MCTS no. is to be generated by the treating health facility

3.8 LET US SUM UP

In this unit we have discussed labour, stages of labour, physiological changes in each stage of labour, Partogram and assessment and management of mother in each stage. We have also discussed normal vaginal delivery.

Your main responsibility is to observe and provide care to women and her foetus/ new born, develop skill in conducting labour, prevention of complications of mother and baby. Keeping records and reporting are the essentials of the midwifery care.

3.9 KEYWORDS

Lightening : Few weeks prior to the labour in primigravida the presenting part is settling into the pelvis. It is due to active pulling up of the lower pole of uterus around the presenting part which diminishes the fundal height and minimises the pressure from the diaphragm. The mother experiences the sense of relief from the cardio respiratory embarrassment.

Partogram : It is a single page graphic chart, designed to record all the important information about the woman and foetus during labour. The progress of labor is recorded as a simple graph with time on horizontal axis and important features on vertical axis. Partograph provides a graphical illustration of the progress of labour and is considered by WHO (World health Organisation) to be available tool for managing intrapartum woman.

Episiotomy : It is a planned surgical incision made in the area between the vagina and anus (perineum). It is done during second stage of labour to expand the opening of the vagina to prevent tearing during the delivery of the baby. It is also called as perineotomy.

Foetal Presentation : It refers to the part of foetus which lie in the lower pole of uterus.

Meconium : First stool of the infant. It is greenish black in colour and contains bile pigments, salts, mucous and liquor amni.

Show : There is presence of blood stains cervical secretion with onset of labour.

3.10 MODEL ANSWERS

Check Your Progress 1

i) Normal vaginal delivery is the birth of offspring through vagina. It is a natural method of birth.

ii) Labour is set to be **normal** when:

- It occurs at term (between 37 and 42 completed weeks of gestation.
- Onset is spontaneous.

- Foetus presents by vertex.
- Completed without undue prolongation (within 18 hours).
- No complications to mother or baby.

iii) Premonitory signs of labour are

* Lightening (Dropping, sinking of the uterus).

- Frequency of micturition
- Low backache
- Cervical Ripening (Softening, effacing, thining out and dialiting)
- Increase vaginal secretion
- Mucous plug expelled
- Braxton Hicks Contraction
- Nesting Syndrome
- Weight Loss

iv) Pressure on cervix stimulates the hypothesis to release oxytocin from maternal posterior pituitary gland. As pregnancy advances, the uterus becomes more sensitive to oxytocin. Presence of this hormone causes initiation of the uterus.

Check Your Progress 2

i) a) **Fundal Dominance:** Uterine contraction starts from the fundus of uterus and moves downwards. Contractions of the funds are strong, intense and lasts for a longer time. This pattern permits the cervix to dilate and fundus to expel the foetus

b) **Polarity:** It is the neuro muscular harmony between upper and lower uterine segment. Contractions of the uterus takes place at the upper pole and there is slight contractions and dilatation of the cervix taking place at the lower pole.

c) **Show:** There is presence of blood stains cervical secretion with onset of labour.

d) **Formation of bag of membranes:** As the chorion detaches, a loosen sack of amniotic fluid buldges downwards into the dilating internal os. In case of complete flexion where the presenting part gets completely fixed, fluid cuts into two compartments, one compartment with foetus and some fluid called hind water and another compartment with fluid in front of the presenting part called bag of membranes:

ii) Characteristics of uterine contraction are:

- Intensity
- Frequency
- Duration
- Increment
- Acme
- Decrement

iii) Observation on Partogram are

- Mother's information.
- Fetal wellbeing.
- Labour Progress.
- Medication.
- Maternal Well-being.

Check Your Progress 3

i) Physiological changes during second stages of labour are:

- **Descend:** Descend of fetal presenting part which begins during first stage of labour reaches its maximum at the end of first stage of labour continues through second stage of labour.
- **Uterine Action:** Contractions become stronger and longer approximately every 2 minutes lasting 60 to 90 seconds but may be less frequent giving mother and foetus a recovery period during resting phase. Nature of contraction changes become more expulsive as pressure is exerted on rectum and pelvic floor. Mother feels urge to push and the women begins to voluntary bear down.
- **Rupture of membrane:** The membranes often rupture spontaneously at the second stage of labour and there is gush of liquor amni per vagina. With the rupture of membranes the head flexion increases and progress of labour increases.
- **Dilatation, gaping of anus and perenial Bulging:** Deep engagement of presenting part and maternal pushing produces dilatation, gaping of anus and perenial bulging during late second stage of labour. Perineum possessively bulges during contraction and anus gaps, the vulval opening becomes circular during the expulsive phase. With each contraction the head descends and the pereium distends leading to perineal buldging.
- **Appearance of presenting part:** With perenial buldging, the scalp hair are visible through vulval opening. There may be desire to pass stool when head comes on the pelvic floor and the crowning of head occurs. Excessive Moulding may result from prolonged labour in the formation of a large caput which may protrude through the cervix prior to full dilatation.
- **Congestion of the vulva:** There is an intense pressure in the area of perineum and rectum as foetal presenting part descends the pelvic floor which leads to congestion of vulva due to stretching of the vulva. If the second stage lasts longer than two hours in primi Gravida or one hour for multi Gravida is considered abnormal.

ii) The occiput slips beneath the sub pubic arch and crowning occurs when the head no longer recedes back between the contractions and the widest transverse diameter (biparietal) is born.

iii) Nursing management during second stage of labour includes -

- **Observation:**
  - Pain
  - Bearing down

- Descend of fetus
- Vaginal signs
- Maternal signs
- Foetal effects

- **General Measures:**
  - Mother should be in bed.
  - Under constant supervision.
  - Administer analgesics if needed.
  - Vaginal examination done for progress of labour.

- **Promotion of comfort:**
  - Encourage mother to rest and let muscles relax in between contractions.
  - Sips of water to provide moisture and relieve dryness of mouth.
  - Keep the women informed about the progress of labour.
  - Assist women in her pushing effort by propup with additional pillows to assume semirecumbent position.
  - Encourage her to relax between contraction and push during contractions.
  - Maternal and fetal monitoring every 15 min.

- **Preparation of delivery room:**
  - Delivery room should always be ready for conduction of labour.
  - Safety of the labouring mother should always be ensured.
  - If the women is transferred from one bed to another it should be between contractions, supporting the mother inadequately.
  - Provide enough privacy.
  - Maintain strict asepsis in the conduction of labour.
  - Make sure that room is warm enough for the baby.
  - Ensure that the resuscitation trolley is ready for use.

- **Preparation for Delivery:**
  - Any comfortable position like side lying, leaning, knee chest, lithotomy but lithotomy is preferred.
  - Nurse scrubs up and puts on sterile gown, mask and gloves.
  - Toileting external genitalia and inner side of thighs.
  - One sterile sheet is placed beneath the buttocks of the mother and one more over the abdomen.
  - Sterile leggings are to be used.
  - Essential aseptic procedures are followed as six cleans (6C's) WHO like clean hands, clean delivery surface, clean cutting instrument, clean cord tie, clean cloth to wrap the baby, clean cloth to wrap the mother.
  - Empty bladder if it is full.

- Never leave the mother alone as she is bearing down.
- Encourage mother to push during contraction.
- Monitor vital signs after each contraction or after every five minutes.
- Conduct the labour.

iv) It refers to the sequencing of events related to posturing and positioning that allows the foetus to find the easiest way out. It is also defined as the series of passive moments of the foetus during its passage through maternal pelvis during labour.

v) Indications for giving episiotomy are:

- **Anticipating perenial care in:**
  - Primigravida as an elective procedure.
  - Face to pubis or face delivery.
  - Big baby.
  - Narrow pubic arch.
  - Old perenial scar.
  - Rigid perineum.
- **Manipulative Delivery:**
  - To get more space for operative or manipulative delivery like
  - Breach
  - forceps
  - internal version
  - Vacuum extraction.
- **To cut short second stage in:**
  - Heart disease
  - Eclampsia
  - Post cesarean
  - Post maturity
- **Foetal Conditions:**
  - Foetal distress.
  - Premature baby (to prevent intracranial damage)
  - Breech delivery (to minimise compression of after coming head)
  - Mental retardation.
- **Common Conditions:**
  - Threatened perenial injury in primigravida.
  - Rigid perineum.
  - Forceps, breach, occipito posterior or face delivery.

Check Your Progress 4

i) Signs of separation of placenta are

- Sudden tickle or gush of blood.
- Lengthening of the umbilical cord.
- Change in the change of uterus from discoid to globular.
- The uterus contracts firmly.

ii) There are main three components of active management of third stage of labour

- Use of Uterotonic drug.
- Controlled Cord Traction (CCT).
- Uterine Massage.

iii) Important observations to be made after delivery of the baby

- Bleeding increases.
- Women feels dizzy.
- Severe head ache.
- Visual disturbance.
- Epigastria distress.
- Complaints of breathlessness.
- Increased abdominal or perenial pain.

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UNIT 4 EARLY IDENTIFICATION, MANAGEMENT AND REFERRAL OF COMPLICATIONS

Structure

4.0 Introduction

4.1 Objectives

4.2 Antepartum Haemorrhage

4.3 Postpartrum Haemorrhage

- 4.3.1 Immediate Postpartrum Haemorrhages
- 4.3.2 Delayed/Secondary Postpartrum Haemorrhages
- 4.3.3 Retained Placenta

4.4 Pre Eclampsia and Eclampsia

- 4.4.1 Pre Eclampsia
- 4.4.2 Eclampsia

4.5 Anaemia

4.6 Pre-Term Labour and Premature Rupture of Membranes

- 4.6.1 Pre-Term Labour
- 4.6.2 Premature Rupture of Membrane

4.7 Foetal Distress

4.8 Prolonged and Obstructed Labour

- 4.8.1 Prolonged Labour
- 4.8.2 Obstructed Labour

4.9 Vaginal Tears, Perineal Tears and Ruptured Uterus

4.10 Puerperal Sepsis

4.11 Breast Conditions

4.12 Shock in Obstetrics

4.13 Referral

4.14 Let Us Sum Up

4.15 Model Answers

4.16 Key Words

4.17 References

4.0 INTRODUCTION

Early pregnancy and delivery should be considered at risk. However there are certain conditions or risk factor when mother and foetus is at increased risk. The high risk cases must be identified early during pregnancy, child birth and during Postnatal period so that appropriate care can be given and referrals made. Even with adequate antenatal and intranatal care, these conditions are responsible for seventy to eighty percent of perinatal and neonatal morbidity and mortality. All high risk cases need to be screened and referred for specific care. In this unit we shall discuss about early management and referral of complications. We shall focus on the Antepartum Haemorrhage (APH), Post Partum Haemorrhage (PPH), Eclampsia, Anaemia, Foetal distress, Prolonged

labour, Obstructed labour, Vaginal and Perineal tears, Peuperial Sepsis, Breast Conditions, Shock, Referral etc.

4.1 OBJECTIVES

After completing this unit, you should be able to:

- discuss the risk factors during pregnancy, delivery and after birth;
- identify the services for healthy birth outcome;
- discuss specific and emergency management for complication during pregnancy such as APH, PPH, Eclampsia etc;
- identify the need and facility of referral; and
- explain supportive care of mother during pregnancy delivery and after child birth.

4.2 ANTEPARTUM HAEMORRHAGE

Vaginal bleeding any time after 20 weeks of pregnancy and prior to the birth of baby is called Antepartum Haemorrhage (APH). The most serious causes of APH are placenta praevia (placenta lying at or near the cervix), abrupt detachment of the placenta (before the birth of the foetus) or a ruptured uterus. Any bleeding (light or heavy) at this time of pregnancy is dangerous.

> **Remember:**
>
> Pervaginal Examination (P/V) should not be performed in women who have bleeding during pregnancy beyond 20 weeks.

Immediate management of bleeding in late pregnancy:

- Establish an intravenous line and start intravenous fluids (Ringer lactate/normal saline).
- Refer the woman to an FRU which has facilities for blood transfusion.

4.3 POSTPARTRUM HAEMORRHAGE

Postpartrum Hemorrhage (PPH) is defined as the loss of 500 ml or more of blood during or within 24 hours of the birth and up to six weeks after delivery or blood loss sufficient to cause signs and symptoms of hypovolemia or woman soak 1 pad or cloth in less than 5 minutes.

PPH may be immediate or delayed.

4.3.1 Immediate Postpartrum Haemorrhage (PPH)

When Postpartrum Hemorrhage (PPH) occurs during delivery till first 24 hours after delivery it is referred as immediate postpatrum hemorrhage. It can occur due to the following causes:

- Tone causes (Atonic PPH most common cause 80–90%)
- Tears in the lower vagina, cervix or perineum
- Retained or incomplete placenta or placental fragments

- Inverted or ruptured uterus
- Thromboembolic-Coagulopathy

The woman with PPH may also be in shock therefore you need to identify the signs and symptoms of shock for appropriate management and referral.

Symptoms of Shock

- **Trachycardia:** Fast, thin thread pulse, >110 per minutes
- **Trachypnoea:** Fast respiratory rate
- **Hypotension:** Fall in systolic BP, <90 mm of Hg
- **Hypothermia:** Skin cold and clammy
- **Altered sensorium :** Drowsy, semi conscious or unconscious

The general steps to be taken for the management of PPH, before referring the woman to an First Referral Unit (FRU), are as follows. (Flow chart 4.1)

General management in PPH

- Evaluate her general condition and look for signs of shock (cold, clammy skin), check the level of consciousness, pulse (should not be weak or fast, at 110 per minute or more), blood pressure (systolic should not be less than 90 mmHg), respiration (the RR should not be more than 30 breaths per minute) and temperature
- Monitor the vital signs every 15 minutes and estimate the amount of blood loss.
- Try and ascertain the cause of PPH using the flow chart 4.1
- Give the woman an Oxytocin injection (10 IU, intramuscular stat). (If she has already received a prophylactic Oxytocin injection or a Misoprostol tablet during AMTSL, this is not required).
- Massage the uterus to expel blood and blood clots. Blood clots trapped in the uterus will inhibit effective contractions.
- Establish an intravenous line and start an intravenous infusion of Ringer Lactate or normal saline. Do not use dextrose solutions unless others are unavailable.
- Add 20 IU of oxytocin to 1000 ml of Ringer Lactate/normal saline that is running intravenouslyat the rate of 40–60 drops per minute.(If an intravenous line cannot be established, give her an intramuscular Oxytocin injection (10 IU) stat).
- If the bleeding persists and the uterus continues to be in the relaxed state (i.e. it is soft), make arrangements for transporting the woman to the FRU, where facilities for blood transfusion and appropriate surgical care are available.
- Do not give the woman anything to eat or drink since she may require an obstetric intervention under anaesthesia.

- If the woman is bleeding heavily, i.e. soaking one pad or cloth in less than five minutes, or if she is in shock, give her fluids rapidly (60 drops per minute) through another drip.
- Raise the foot end of the bed so that her head is lower than her body. This willhelp increase the flow of blood to the heart.
- Keep the woman warm and covered with a blanket. If she is in shock, she might feel cold even in warm weather.
- Utilise the intervening time to perform bimanual compression (Fig. 4.1). The steps of Bimanual Compression are given below.

Steps of Bimanual compression include the following: (Fig. 4.1)

- Use a Foley catheter (preferable)/Plain catheter to catheterise and empty the urinary bladder.
- Use a pair of sterile gloves.
- Insert a gloved hand in the vagina and remove any clots from the lower part of the uterus or the cervix.
- Form a fist and place it in the anterior vaginal fornix and apply pressure against the anterior wall of the uterus.
    - Ensure that family members/attendants accompany the woman to the FRU. You should also accompany her, if possible.
    - Arrange for two or three donors to donate blood in case a blood transfusion is required. The donors should also accompany the woman during referral.
    - On the way to the FRU, try and estimate the amount of blood lost (by counting the number of pads soiled).

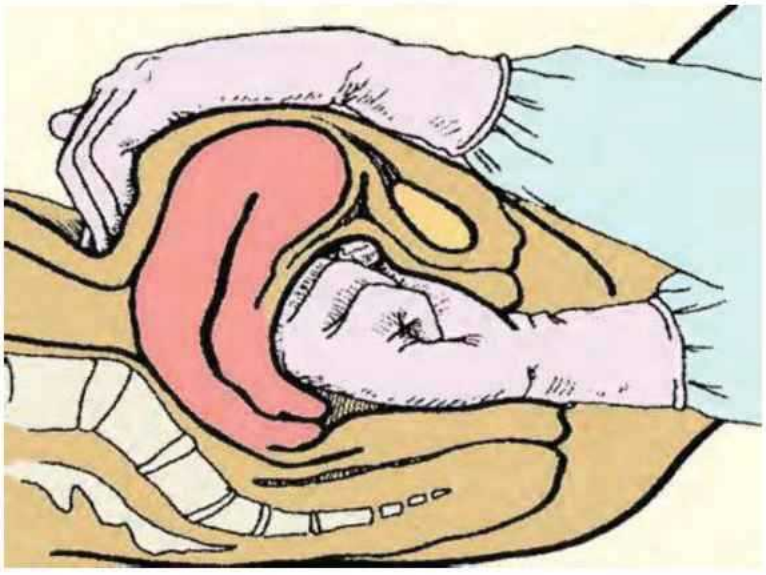
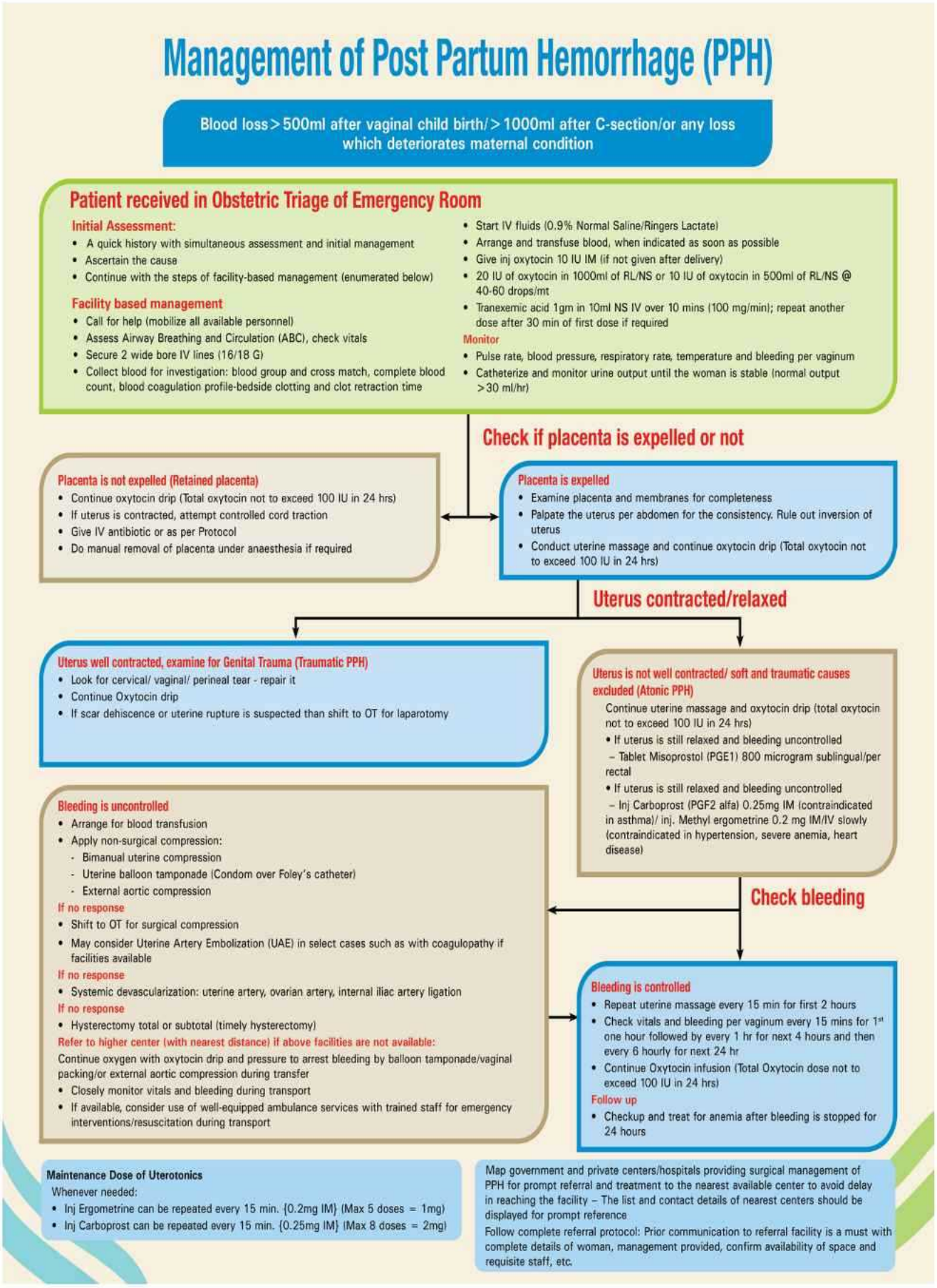


Fig. 4.1: Bimanual Compression

Remember:

That the interval from the onset of PPH to death can be as little as two hours, unless appropriate life-saving steps are taken immediately.

Refer the flow chart 4.1 for identifying and managing immediate PPH. You have to ascertain from the records whether oxytocin injection has been given as part of the Acute Management of third stage of labour (AMTSL). You need to refer the cases of PPH to First Referral Unit (FRU).



Flow Chart 4.1: Management of PPH

4.3.2 Delayed/Secondary Postpartum Haemorrhage

Delayed PPH refers to bleeding which occurs 24 hours after delivery up to six weeks postpartum. It could be due to retained clots or placental fragments, or due to an infection in the uterus.

Management

- Give an Oxytocin injection (10 IU, intramuscular) stat.
- Start an intravenous infusion: inject 20 IU of Oxytocin into 1000 ml of Ringer Lactate/ normal saline and administer at the rate of 40–60 drops per minute.
- An infection is suspected if there is fever and/or foul-smelling vaginal discharge. Give the woman the first dose of antibiotics (Ampicillin capsule, 1g orally; Metronidazole tablet, 400 mg orally; and a Gentamicin injection, 80 mg intramuscular stat).
- Refer the woman to the FRU.

4.3.3 Retained Placenta

The placenta may be retained fully or there may be placental fragments. The placenta is said to be retained if it is not delivered within half an hour of the birth of the baby. Bleeding may or may not occur in cases of retained placenta.

A partially separated placenta or retained placental fragments cause continuous vaginal bleeding, leading to PPH.

- Give inj oxytonic 10 IU I/m stat given during AMTSL
- Add 20 IU of oxytocin to 1000 ml of Ringer Lactate or normal saline and infuse at the rate of 40–60 drop/minutes
- Arrange for blood donor. Arrange for transportation to FRU where facilities for blood transfusion and MRP is available
- Give first dose of broad spectrum antibiotics before referral.
- If the placenta is already separated and is lying in the birth canal, then remove it gently.
- If it is not separated, refer the woman immediately to the FRU for manual removal of the placenta. Do not attempt to undertake this procedure.

Check Your Progress 1

i) Define Postpartum Haemorrhage (PPH).

.....

.....

ii) Differentiate between immediate and delayed PPH.

.....

.....

iii) Write the meaning of retained placenta?

.....

.....

4.4 PRE ECLAMPSIA AND ECLAMPSIA

Toxaemia of pregnancy encompasses Pre-eclampsia and Eclampsia which are life threatening complication of pregnancy and deaths from these can be prevented by proper antenatal care and administration of Magnesium Sulphate ($MgSO_4$).

Pre-eclampsia and Eclampsia can be prevented and managed by the following:

- Recording and monitoring Blood Pressures (BP) and urine examination of all labouring mothers.
- Timely identification of danger sign
- Giving inj of $MgSO_4$ in all mothers having severe Pre-eclampsia and Eclampsia

We will focus in Pre eclampsia and Eclampsia in following sub-sections.

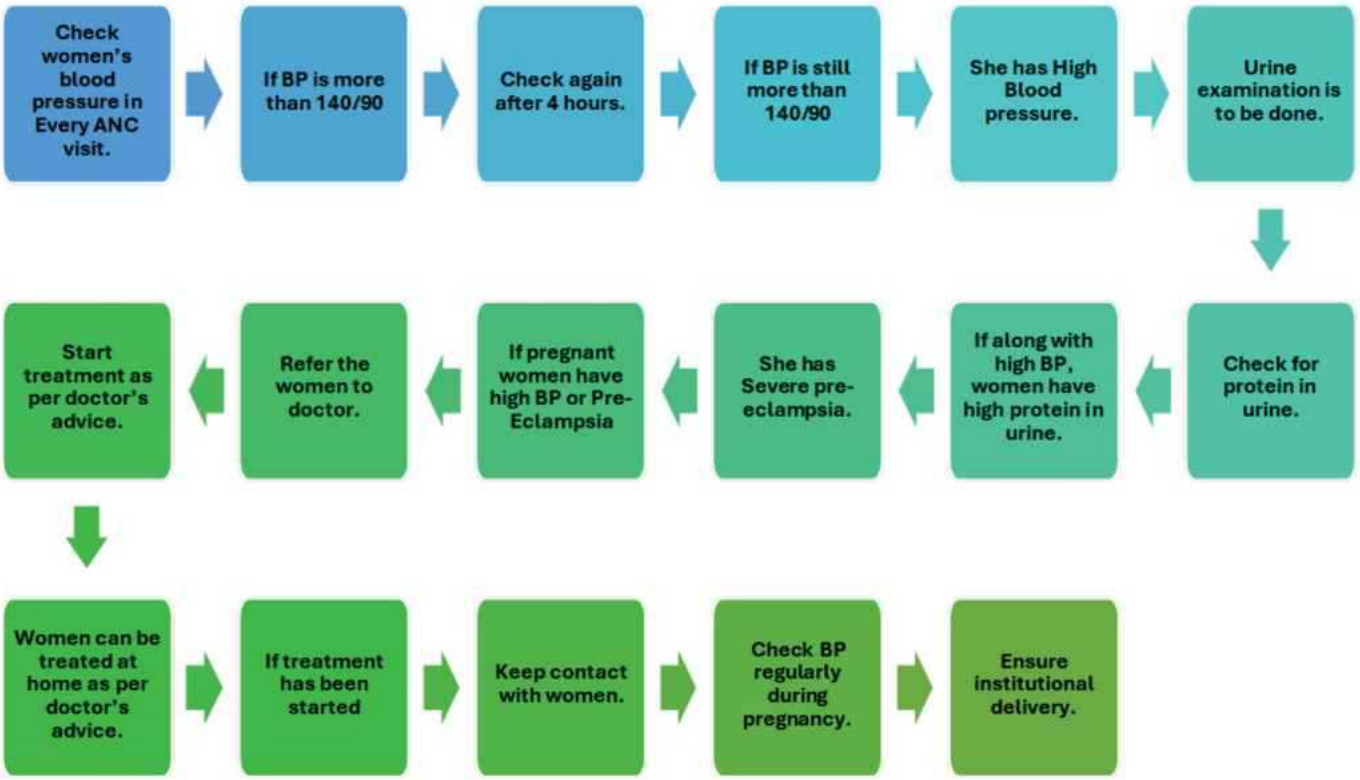
- **Effects of High BP on Mother and Child during Pregnancy**
- Hypertensive disorders increase the chances of death in both mother, foetus, and newborn. Early diagnosis and referral help in reducing this risk.

Effects on mother:	Effects on Foetus and Newborn
Antepartum Haemorrhage	Intrauterine Growth Restriction
Postpartum Haemorrhage	Intrauterine Death
Preterm labour	Prematurity
Maternal Death	Low birth weight

Classification of Hypertensive Disorder of Pregnancy

1. **Gestational hypertension (PIH)**
   - B.P. > 140/90 mm of Hg for first time during pregnancy after 20weeks of gestation
   - No proteinuria
   - B.P. returns to normal within 42 days of post-partum.
   - Almost half of the women subsequently develop preeclampsia syndrome during pregnancy.
2. **Pre-eclampsia**
   - B.P. ≥140/90 mm of Hg but less than 160/90 mm of Hg after 20 weeks of gestation.
   - Proteinuria trace/1+ or up to 2 + in dip stick test.
3. **Severe Pre-eclampsia**
   - Hypertension ≥160/110 mmHg
   - Proteinuria - ≥300mg/24 hour or Dipstick ≥ 3+ protein
   - And/or presence of danger signs (headache, blurred vision, oliguria <500 ml in 24 hours, pain in upper part of abdomen, abnormal oedema over face, hands, abdomen and vulva).
4. **Eclampsia**
   - Convulsions/fits is the sign of eclampsia in PW with symptoms of pre-eclampsia. It may occur during ante-partum intra-partum, post-partum (up to 10 days).

Monitoring of Hypertensive disorders in pregnancy.



4.4.1 Pre Eclampsia

It is called hypertension with proteinuria. In pre-eclampsia a pregnant woman presents with high blood pressure (BP more than 140/90 mmHg and less than 160/110 mmHg) with traces or 1+ or 2+ Proteinuria.

When ever a pregnant women visits your centre, you must take following measure -

Record the woman's blood pressure during every antenatal visit. If it is high (more than 140/90 mmHg), check it again after four hours. If the situation is urgent, the blood pressure should be measured after one hour.

If the woman has hypertension, check her urine for the presence of proteins. If she has raised blood pressure and proteinuria you can categorise the woman as having pre-eclampsia.

Refer the woman to the 24 hour PHC/FRU so that she can receive anti-hypertensive medication. She should be managed at home as per the advice of the Medical Officer.

Follow up the woman or her family, and provide appropriate follow up.

In case of high blood pressure more than 100 mmHg antihypertensive drugs are given as per Government of India Guidelines:

- Anti-Hypertensive need to be given if Diastolic BP>100 mm Hg
- Tab Alpha- Methyl Dopa or tab labetalol can be used for controlling blood pressure
- Blood pressure should be maintained between 90–100 mmHg (Diastolic)
- In case of severe Pre-eclampsia, use of tab Nifediphine or Inj. Labetalol is recommended for initial control of Blood Pressure

- Magnesium Sulphate is given in severe pre-eclampsia to prevent progression of eclampsia

Follow-up care of women with pre-eclampsia

- Advise the woman to come to you for a check-up twice a week regularly.
- Monitor her blood pressure and the foetal condition and urine for the presence of proteins.
- Encourage her to take rest.
- Encourage her to take a normal diet. She should not be advised to restrict her intake of salt and fluids.
- Advise her to go for an institutional delivery.
- Inform her family members to take her urgently to the PHC/FRU if there are danger signs such as:
  - Headache (increasing in frequency and duration)
  - Visual disturbances (blurring, double vision, blindness)
  - Oliguria (passing less than 400 ml urine in 24 hours)
  - Upper abdominal pain
  - Oedema, especially of the face, sacrum/lower back
- Women who have a history of hypertension in previous pregnancies have a greater chance of having a raised blood pressure in the present pregnancy also. So she must be referred.

PRE-ECLAMPSIA



Period of gestation > 20 weeks



SBP ≥ 140mm Hg or DBP ≥ 90 mm Hg or both on 2 occasions, 4 hours apart in a previously normotensive patient



Proteinuria ≥ 0.3 g/24-hour urine specimen or protein/creatinine ratio ≥ 0.3 (mg/mg) or (30 mg/mmol) in a random urine specimen or dipstick ≥ 2+

Pre Eclampsia without severe features

- SBP ≥ 140mm Hg or DBP ≥ 90 mm Hg or both
- Proteinuria ≥ 0.3 g/24-hour urine specimen or protein/creatinine ratio ≥ 0.3 (mg/mg) or (30 mg/mmol) in a random urine specimen or dipstick ≥ 2+

- Hospitalize, reassure, advice rest
- Start anti-hypertensive agent when SBP ≥ 150mm Hg and or diastolic ≥ 100mm Hg
- Tab Labetalol 100 mg 8–12 hourly (max 2.4 gm/day)

OR

- Tab Alpha Methyldopa 250-500 mg / 6-8 hourly (max 2gm/day) (as per availability)
- Investigate – CBC with peripheral smear and platelet count, LFT, KFT and fundus exam
- BP and urine output monitoring

- Continue hospitalization
- Regular foetal + maternal surveillance

- Maintain DBP 90-100 mm Hg
- No foetal compromise

If disease is severe, manage as severe pre-eclampsia

Deliver at 37 completed weeks

Frequency of Investigation

Parameter	Frequency
Hb	Weekly
Platelets	Weekly
LFT	Weekly
KFT	Weekly
Fundus	Once
NST/BPP	After 32 Weeks
Doppler Study	3 – 4 Weeks
BP Monitoring	4 times a day

SEVERE PRE-ECLAMPSIA



Period of gestation > 20 weeks



SBP ≥ 140mm Hg or DBP ≥ 90 mm Hg or both on 2 occasions, 4 hours apart in a previously normotensive patient



Proteinuria ≥ 0.3 g / 24-hour urine specimen or protein/ creatinine ratio ≥ 0.3 (mg/mg) or (30 mg/mmol) in a random urine specimen or dipstick ≥ 2+

Severe Pre-Eclampsia

- BP ≥ 160/110 mm Hg and Proteinuria ≥ 0.3g/24-hour urine specimen or protein/creatinine ratio ≥ 0.3 (mg/mg) or (30 mg/mmol) in a random urine specimen or dipstick ≥ 2+

OR

- BP ≥ 140/90 mm Hg with danger symptoms like severe headache, blurring, epigastric pain, breathing difficulty and or new onset end organ dysfunction:
  - Platelet count < 100,000/microL
  - Serum creatinine > 1.1 mg/dL or doubling from baseline levels
  - Liver transaminases at least twice the upper limit of the normal
  - Pulmonary edema
  - Cerebral or visual disturbances like severe headache, flashes, partial or complete loss of vision

- Urgent hospitalization
- Give MgSO4 as in Eclampsia
- Start anti hypertensive agent if BP ≥ 150/100 mm Hg. Initiate therapy for acute hypertensive crisis if BP ≥ 160/110 mm Hg as in eclampsia
- Inj Labetalol 20 mg IV bolus, repeat 40 mg after 10 minutes if BP not controlled, repeat 80 mg every 10 minutes if needed (max 300 mg) with cardiac monitoring

OR

- Inj Hydralazine 5 mg IV slowly over 1-2 min, repeat 5-10 mg over 2 min after 20 min. If BP not controlled, again repeat 10 mg over 2 min (max 20 mg). If no response switch to other antihypertensive drug

OR

- Tab Nifedipine orally immediate release 10 mg stat, repeat 10-20 mg after 20 min. If BP not controlled, repeat 10-20 mg after 20 min (max 30 mg). {Give through Ryle's tube if unconscious patient}. If no response switch to other antihypertensive drug
- Keep record of BP as sometimes there is sudden hypotension
- Continue B.P monitoring every 15 minutes for 2 hours after stabilisation, then every 30 minutes for 1 hour. Then every hour, if in labour or 4 hours, if not in labour

- Continue Tab Nifedepine 10 mg 8 hourly (max 80 mg/day) OR Tab Labetalol 100 mg 8 -12 hourly (max 2.4 gm/day)
- Investigate – CBC with peripheral smear, platelet count, LFT, KFT, S LDH, Coagulation profile and fundus exam
- Urine output charting
- BP monitoring
- Keep the BP between 130-150 systolic and 80-100 diastolic

Frequency of Investigation

Parameter	Frequency
Hb	Alternate days
Platelets	Alternate days
LFT	Alternate days or earlier
KFT	Alternate days or earlier
Coagulation Profile	Weekly profile as needed if parameters change
Fundus	Weekly unless abnormal
NST/BPP	Bi weekly or more if changes seen
Doppler Study	Weekly or frequent as per the findings
BP Monitoring	4 Hrs

Treatment should be individualised

< 24 Weeks

Foetal salvage difficult

Offer termination of pregnancy

≥ 24 - < 34 Weeks

Inj Dexamethasone 6 mg IM repeat every 12 hrs (Total 4 doses)

BP Controlled
- Explain maternal and foetal adverse effect to relatives
- Regular maternal + foetal surveillance

Terminate at 34 weeks

BP Uncontrolled
- Worsening of clinical/ biochemical parameters
- Signs of foetal compromise

≥ 34 weeks

Either induction of labour as per Bishop Score or C-section as per the indication

4.4.2 Eclampsia

Eclampsia is life threatening condition of pregnancy in which pregnant woman is having high blood pressure more than 140/90 mmHg , with or 1+ or 2+ or 3+ or 4+ Proteinuria and convulsion

Eclampsia is Hypertension with Proteinuria and Convulsions

Convulsions that occur during pregnancy, delivery or in the postpartum period should be assumed to be due to eclampsia, unless proved otherwise.

Eclampsia is characterised by:

- Convulsions
- High blood pressure (a systolic blood pressure of 140 mmHg or more and/or a diastolic blood pressure of 90 mmHg or more)
- Proteinuria +2 or more.
- Headache and abdominal pain.

Causes & Risk Factors

Actual cause is not known but the risk factors are as follows:

- Elderly and young primigravida.
- Family history of preeclampsia (in mother or sister).
- Poor Diet (Malnutrition).
- Diabetes.
- Multiple pregnancy.
- Rh-incompatibility.
- Polyhydraminios.
- Heredity.
- Smoking.

Signs & symptoms:

- Headache
- Hypertension (BP above 160/110 mmHg)
- Odema (Pitting odema over the ankles and rapidly gain in weight of more than 1 LB in a week)
- Visual disturbances
- Protein urea (Presence of protein in 24 hrs. urine of more than 1 gram per liter).
- Fits
- Abdominal pain
- Decreased urine output
- Signs of foetal distress

Care of women in Eclampsia

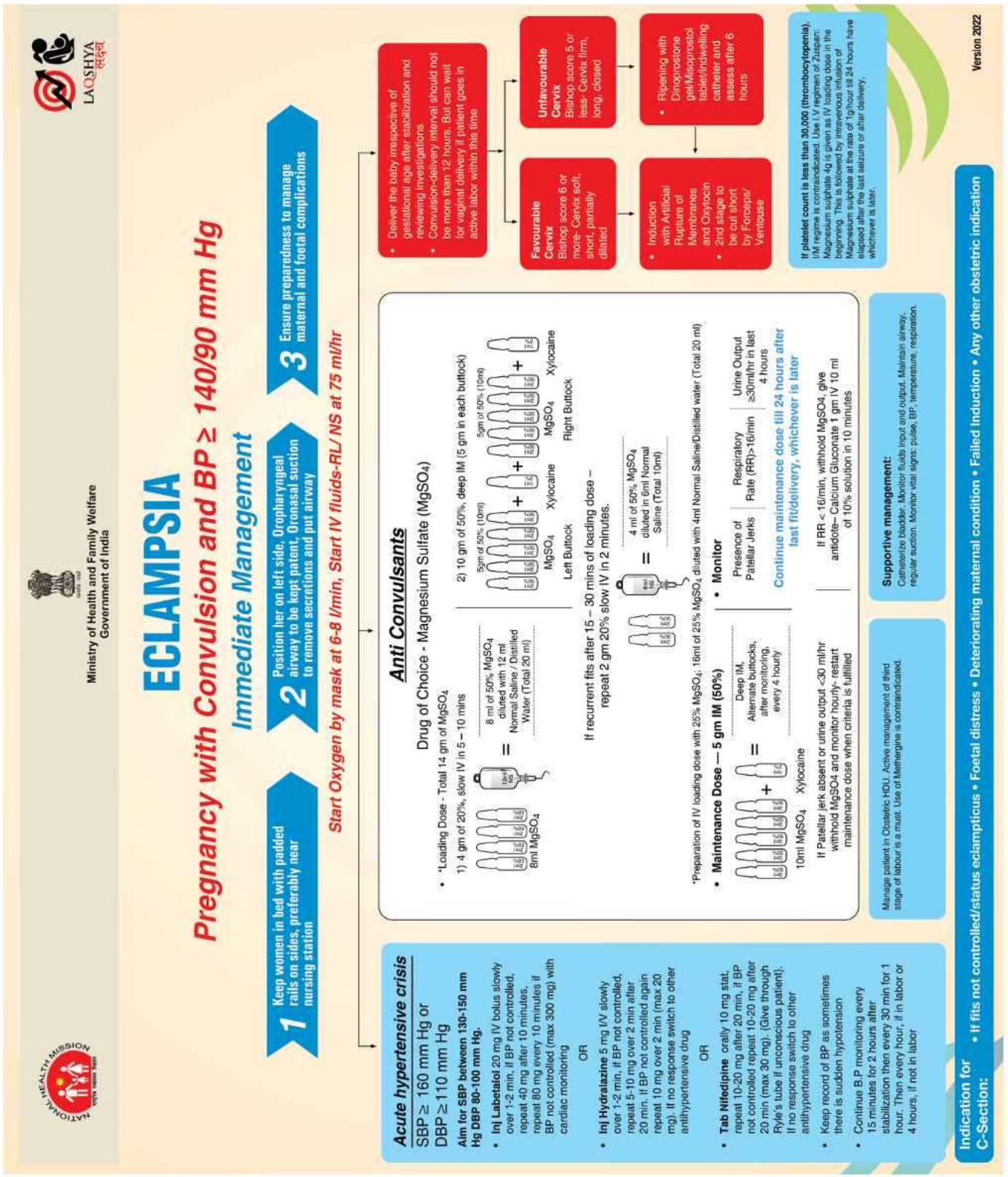
Keep in touch with the woman or her family and undertake appropriate follow up of the cases. If the woman has convulsions, provide supportive care. The initial management of convulsions includes the following:

- Ensure that the airway is clear and she is breathing well
    - If the woman is unconscious, position her on her left lateral side to reduce the risk of aspiration (vomitus and blood).
    - Ensure that the airway is clear and she is breathing well
    - If the woman is unconscious, position her on her left lateral side to reduce the risk of aspiration (vomitus and blood).
    - Clean the mouth and nostrils by applying gentle suction and remove the secretions.
    - Remove any visible obstruction or foreign body from her mouth.
- Keep a padded mouth gag between the upper and lower jaw to prevent tongue bite (do not attempt this during a convulsion).
- Administer the first dose of Magnesium Sulphate injection (as described below).
- Keep her in the left lateral position.

The first dose of Magnesium Sulphate injection is given to manage eclampsia

- Inform the woman, if she is conscious, that she may feel warm during the injection.
- Inject 10 ml (5 g) of Magnesium Sulphate in each buttock (a total of 20 ml (10 g). Ensure that this is given deep intramuscularly because otherwise, an abscess can form at the site of injection.
- After receiving the injection, the woman may have flushing, may feel thirsty, get a headache, feel nauseous or even vomit.
- Do not repeat the dose of Magnesium Sulphate.
- Do not leave the woman alone. The presence of an attendant is mandatory.
- Protect the woman from fall or injury.
- Maintain a record of the vital signs.
- Immediately arrange to refer the woman to an FRU and ensure that she reaches the FRU as early as possible, preferably within two hours of receiving the first dose of Magnesium Sulphate injection.
- Accompany the woman to the FRU, if possible. Manage any convulsions that may occur on the way.

If delivery is imminent, you may not have the time to transport the woman to an FRU. In this case, deliver the baby after giving the first dose of Magnesium Sulphate injection. After the delivery, you must refer her, together with the baby, to the FRU for further management.



Check Your Progress 2

i) List signs of eclampsia?

.....

ii) Write down the stages of eclamptic fit?

.....

iii) Write down management of mother during fit?

.....

4.5 ANAEMIA

A haemoglobin level of less than 11 g/dl at any time during pregnancy or the post-partum period is termed as anaemia. A haemoglobin level of less than 7 g/dl is severe anaemia.

Classification of Anemia

Grade of Anemia	Hb %
No Anemia	≥11 gm/dl
Mild Anemia	10 - 10.9 gm/dl
Moderate Anemia	7 - 9.9 gm/dl
Severe Anemia	<7 gm/dl

How will you manage a pregnant woman with Anaemia?

- Prophylactic treatment for anaemia, in the form of IFA tablets, should be given to every pregnant woman from the second trimester onwards. Each tablet should contain 60 mg elemental iron and 0.5 mg folic acid, and the dosage should be one tablet daily for six months. The prophylactic treatment against anemia should be continued for three months even in the postpartum period
- All women with anaemia (haemoglobin less than 11g/dl) must be given the therapeutic dose of IFA, i.e. one tablet twice a day, for a period of at least 100 days (six months).The treatment should be continued till the level of haemoglobin rises. The therapeutic dosage of IFA should be continued for three months even in the postpartum period.
- The woman should be given dietary advice regarding foods rich in iron, e.g. green leafy vegetables, eggs, meat, lentils, beans and nuts. Foods rich in Vitamin C, such as citrus fruits, increase the absorption of iron. Anaemic women should be advised to increase their overall dietary intake.
- Awoman with severe anaemia and/or severe palmar/conjunctival/nail pallor, along with any of the following, sign and symptoms should be referred to the FRU for detailed tests and a blood transfusion, if necessary:
- 30 breaths or more per minute
- Easyfatigability
- Breathlessness even at rest
- A woman with severe anaemia must deliver in an institutional setting.

Follow up

- The mother should be informed to come for regular check up.
- Do blood investigation as advised
- Continue taking IFA as advised in the clinic by doctor
- Take adequate rest

Hemoglobin level and management:



Gestational Age	Hb levels				
	11>=gm/dl	10-10.9 gm/dl	7-9.9 gm/dl	5-6.9 gm/dl	< 5gm/dl
First trimester (first 13 weeks)	Tab. Folic Acid 0.4mg (400 microgram)				Blood transfusion
Second trimester (14-28 weeks)	1 IFA tablet/day	2 IFA tablet/day	• IV iron sucrose 200 mg 2-3 doses (at the interval of one day) • After iron sucrose therapy based on Hb levels give IFA tablets.	• IV iron sucrose 200 mg 4-5 doses (at the interval of one day) • After iron sucrose therapy based on Hb levels give IFA tablets.	
Third trimester (28 weeks-till delivery)				• < 34 weeks - IV iron sucrose 200 mg 4-5 doses (at the interval of one day). • > 34 weeks - Ensure blood transfusion	

Note: - During the 1st trimester, only a folic acid tab of 400mcg is given; if moderate to severe anemias, refer to a higher centre for further evaluation.

Check Your Progress 3

i) Prophylactic treatment of anaemia should be continued for

.....

ii) In severe anaemia haemoglobin level is less than

.....

iii) When a woman with severe anaemia should be referred

.....

4.6 PRE-TERM LABOUR AND PREMATURE RUPTURE OF MEMBRANES

We shall discuss about Pre-term labour and pre-mature rupture of membrane (PROM) in the following subsections.

4.6.1 Pre-Term Labour

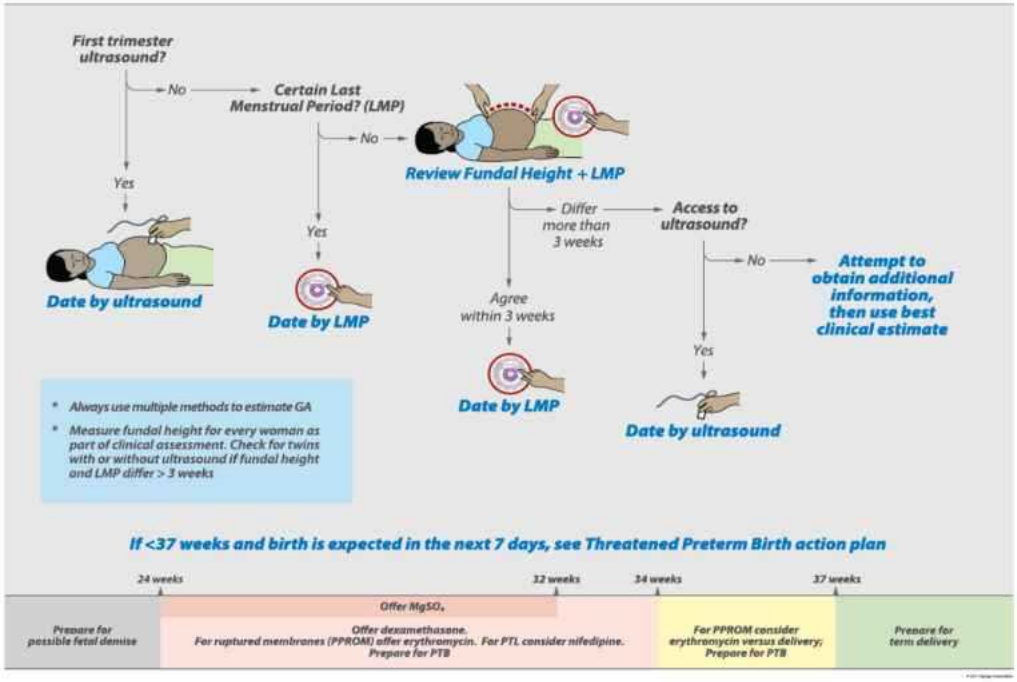
Preterm labor before 37 weeks of pregnancy leads to preterm birth.
This preterm newborn baby is small,has low birth weight and is at risk of sustaining life.

Preterm babies are at increased risk of:

- Respiratory distress syndrome (RDS) due to lack of surfactant development in alveoli leading to immature solid lungs.
- Neurologic complications like increased chance of intraventricular hemorrhage (IVH), cerebral palsy, major motor neuron dysfunction
- Necrotizing enterocolitis (NEC)
- Hypothermia
- Infections
- Asphyxia
- Feeding problems due to poor sucking or incoordination between sucking, swallowing and breathing
- Neonatal deaths-prematurity is a leading cause of neonatal mortality, around 34%.

It is critical to assess correct gestational age to diagnose preterm labor. The methods to assess gestational age have been discussed earlier during abdominal examination (refer to checklists for abdominal examination and estimation of gestational age). The flow chart below shows how to estimate correct gestational age.

Methods of Correct Estimation of Gestational Age (GA):



How will you manage this case ?

- Identify any case of threatened preterm birth by correctly estimating the gestational age.

- If the delivery is not imminent, i.e. there is enough time to transport the woman, refer her to the FRU. This is because the newborn may need specialised care, which might not be possible at the domiciliary level/SC.
- Before referring, Give first dose of injection Dexamethasone (6 mg) IM if the client is having true labor pains and the gestational age is between 24-34 weeks. **Document the details like dose and time of drug given in the referral slip. The second drug of choice is Injection Betamethasone 12mg IM.**
- If the delivery is imminent,
- Give first dose of injection Dexamethasone (6 mg) IM if the client is having true labor pains and the gestational age is between 24 -34 weeks.
- perform the delivery and refer the woman and baby to the FRU, where facilities for neonatal care are available. The risk to the baby's life under such circumstances should be explained to the mother and the family. Take appropriate measures for thermal protection and early initiation of breastfeeding during transport.

4.6.2 Premature Rupture of Membrane

Premature rupture of membrane (PROM) is the rupture of membranes (bag of waters) before labour has begun. It can occur either when the foetus is immature (before 37 weeks) or when it is mature (term).

- When a pregnant woman with PROM visits your centre, the woman may complain of watery fluid-like discharge P/V (leaking), which may be a slight trickle or a gush of water before the onset of labour.
- Ask her about LMP and calculate the gestational age.
- Examine the discharge/fluid on her underwear/pad (if there is no evidence of fluid/ discharge, give her a pad to wear and assess again after an hour) for evidence of the following:

  i) Amniotic fluid has a typical odour, by which one can confirm whether it is a case of PROM. If amniotic fluid is present, assess its colour, i.e. whether it is greenish or colourless. Agreenish colour indicates foetal distress.

  ii) Foul-smelling vaginal discharge.
- If the membranes rupture after 37 weeks and there is no fever or foul-smelling discharge, it could signify the beginning of labour. If delivery is to be conducted at Sub-centre, wait for the uterine contractions to begin. If the contractions start within 8–12 hours of the rupture of the membranes, manage the case like a normal delivery.
- Refer the woman to the FRU in the following cases:
  - If the membranes rupture after 37 weeks of pregnancy and labour pains do not start even after 12 hours.
  - If the membranes rupture before 37 weeks (there is a risk of ascending infection, resulting in uterine and foetal infection)
  - If the woman has fever (temperature of above 38°C), or has foul-smelling vaginal discharge (indicates infection)

In the above conditions, before referral, the woman is given the first dose of antibiotics (ampicillin capsule, 1 g orally; Metronidazole tablet, 400 mg orally; and Gentamicin injection, 80 mg intramuscular stat).

Remember to follow the protocol of sub-centre for any treatment.

4.7 FOETAL DISTRESS

Foetal distress indicates foetal hypoxia (lack of oxygen in the blood). It can be diagnosed by: abnormal Foetal Heart Rate (FHR) (<120 or >160 beats/minute) and if there is Meconium-stained amniotic fluid.

If a pregnant women comes with sign of foetal distress you need to take following steps-

- Check the FHR every 15 minutes.
- If the FHR remains below 120 or above 160 beats per minute even after 30 minutes and the woman is in early labour, then take the following action:
  - Explain the situation to the family.
  - Start an intravenous line with Ringer Lactate.
  - Administer intranasal oxygen, if available.
  - Keep the woman lying on her left side throughout the time she is being transported.
  - Refer her to an FRU, which has facilities for the resuscitation of newborns.
- If the FHR remains below 120 or above 160 beats per minute even after 30 minutes; the woman is in late labour and delivery is imminent; and there is no time for transportation, then do the following:
  - Call for assistance if available (person trained in care during pregnancy and child birth).
  - While conducting the delivery, monitor the FHR after every contraction. If it does not return to normal, explain to the woman and her family that the baby may not be well.
  - Be prepared to resuscitate the newborn.
  - Let the assistant manage the woman after the delivery while you focus on the process of neonatal resuscitation.
  - The fetal distress can occur due to prolapsed cord also.

Prolapsed cord is the condition in which the umbilical cord lies in the birth canal below the foetal presenting part, or is visible at the vagina following rupture of the membranes. This is associated with foetal distress and can lead to death of the foetus because of an obstruction of the blood flow to the foetus from the placenta.

- The foetal outcome is poor in cases of prolapsed cord. The family should be counselled and the woman should be referred to the FRU as early as possible.
- When delivery is imminent, you have to be prepared to resuscitate the newborn and also refer the woman and infant to the FRU.

4.8 PROLONGED AND OBSTRUCTED LABOUR

We shall discuss Prolonged Labour an Obstructed Labour as given below.

4.8.1 Prolonged Labour

Labour is said to be prolonged when the pregnant woman in true labour experiences

Labour pains longer than 24 hours.

Important clinical situation of Prolonged Labour

- **Prolonged latent phase:** Women is in true labour but her cervical dilation has not progressed at all or has not reached 4 cmm in 8 hours
- **Prolonged Active Phase:** Woman is in active phase of labour (cervix>=4 cm dilation achieved) but cervical dilation is not occurring at the rate of 1 cm/hour
- **Prolonged Expulsive phase:** Woman is in second stage of labour (>10 cm dilation achieved) but baby is not delivered for more than 2 hours even after the woman has an urge to push
- Inadequate uterine activity less than 3 contractions in 10 minutes each lasting less than 40 seconds can lead to Prolonged labour.

4.8.2 Obstructed Labour

When the foetus cannot be delivered via the natural passage due to mechanical obstruction, labour is said to be 'obstructed'. Obstructed labour is a major obstetric emergency and causes a high proportion of maternal and neonatal deaths. (Table 4.2)

It occurs due to Cephalopelvic disproportion (CPD), malpresentations/malpositions, foetal abnormalities etc. With proper antenatal care and close monitoring of labour with a partograph, the problem of obstructed labour can be avoided altogether.

Clinical Features / Sign and symptoms

General Examination FHR Vaginal Examination	Foetal Condition : Try and Listen for
Physical and mental exhaustion	Foul smelling meconium may be seen
Dehydration	Amniotic fluid may have already drained away
Ketoacidosis	Oedema of the vulva
Fever	Vagina hot and dry
Shock due to ruptured uterus or sepsis	Large caput

You can identify Obstructed Labour as given below

- Strong uterine contractions not leading to descent of the presenting part. The partograph, showing the graph crossing the alert line. Strong uterine contractions, both in number and duration; foetal distress and rapid maternal pulse.
- Horizontal ridge across the abdomen, below the level of the umbilicus.
- Transverse lie and abnormal presentations are commonly associated with obstructed labour. All cases of obstructed labour require management at a referral centre.
- Refer the woman immediately to an FRU.

The following steps should be taken during transportation.

- Establish an intravenous line and give fluids at a moderate rate (30 drops per minute). If you cannot establish an intravenous line, give the woman sips of sweet fluids or Oral Rehydration Solution (ORS) to prevent hypoglycaemia and dehydration. Do not give solid food as she may need surgery.
- Give the woman, the first dose of antibiotics (ampicillin capsule, 1 g orally; Metronidazole tablet, 400 mg orally; and Gentamicin injection, 80 mg intramuscular stat).

- Ensure that you or any other health worker, who has sufficient knowledge and skills related to labour and delivery, accompany the woman to the FRU.

Management of Obstructed labour: In ideal situation obstructed labour can be avoided through timely identification of cephalo-pelvic disproportion and appropriate monitoring of progress of labour. If obstructed labour has been confirmed, you should take following measures :

- **Rehydrate the patient,** start an i/v line R/L or normal saline @ 25–30 drops/min
- **Give antibiotics**
  - Inj. Ampicillin 1 gm IV after sensitivity testing
  - Inj Gentamicin 80 mg iv
  - Inj. Metroidazole 500 mg iv
  - Refer the patient to FRU

Table 4.2: Complications of Obstructed Labour

Maternal Complication	Foetal Complications
Maternal Death	Foetal Death
Uterine rupture	Birth asphyxia and its complications
Fistulae	Caput succedaneum
Premature rapture of membranes	Excessive moulding of foetal skull
Slow dilation or Oedema of cervix	Sepsis
Maternal fatigue	
Sepsis	

Check Your Progress 4

i) Definefollowing

a) Obstructed Labour

b) Prolonged Labour

i) List the cause of Obstructed Labour.

.....

.....

i) List the maternal complication of obstructed labour.

.....

.....

4.9 VAGINAL TEARS, PERINEAL TEARS AND RUPTURED UTERUS

During the delivery process a woman may have vaginal and perineal tears and these tears are of four degrees:

A first-degree tear involves the vaginal mucosa and connective tissues.

A second-degree tear involves the vaginal mucosa, connective tissues and underlying muscles.

A third-degree tear involves complete transection of the anal sphincter.

A fourth-degree tear involves the rectal mucosa.

As a midlevel care provider your responsibility is to take following measures:

- Distinguish between superficial (first-degree) and deep perineal tears. **You are only permitted to manage first-degree tears.**
- A superficial tear that is not bleeding need not be sutured. Clean the area and cover it with a clean pad.
- If the superficial tear is bleeding, apply pressure on it for some time, approximately 10–15 minutes. This will help control the bleeding.
- For deeper perineal tears (i.e. second-, third- and fourth-degree tears), refer the woman to a 24 hour PHC/FRU.

Before transporting the woman, cover the tear with a sterile pad or gauze. Put the legs of the woman together, but do not cross the ankles.

If the woman is bleeding heavily because of tears and you are unable to decide the degree of the tear, put a vaginal pad into the vaginal cavity and refer the woman to the FRU.

Before referral, establish an intravenous line and infuse fluids rapidly. Raise the foot end of the stretcher and keep the woman warm during transportation.

Ruptured uterus

Rupture uterus is a tear along the length and through all layers of the uterus. It is a life threatening condition in which the amniotic sac surrounding the baby ruptures and the baby or placenta can be pushed through the rupture and into the amniotic cavity.

Sign and Symptoms of Ruptured Uterus

Signs:

- Shock may be present
- Severe abdominal pain
- Vaginal bleeding may be present

Symptoms:

- Abdominal tenderness
- Foetal parts felt superficially
- Uterine contour not felt
- FHS not heard

Refer immediately to higher facility.

Check Your Progress 5

i) Distinguish between Second degree and Third degree Perineal tears.

.....

.....

i) Write the measures you will take after mother with perineal tear is heavy bleeding.

.....

.....

4.10 PUERPERAL SEPSIS

Puerperal sepsis is one of the leading causes of maternal deaths. Puerperal sepsis is an infection of the genital tract at any time between the onset of rupture of membranes or labour and till 42 days after delivery or abortion. Puerperal sepsis can be suspected if any two or more of the following signs and symptoms are present.

- Fever (temperature >38°C or > 100.5°F)
- Lower abdominal pain and tenderness
- Abnormal and foul-smelling lochia, may be blood-stained
- Burning micturition
- Uterus not well contracted
- Feeling of weakness
- Vaginal bleeding

Fever in the postpartum period could be due to causes other than puerperal sepsis such as urinary tract infection (UTI), mastitis or other non-obstetric causes.

If the general condition of the woman is fair, give her the first dose of antibiotics (i.e. ampicillin capsule, 1 g orally; Metronidazole tablet, 400 mg orally; and Gentamicin injection, 80 mg intramuscular stat) and refer her to a PHC/FRU.

If the general condition of the woman is poor and she has the above signs and symptoms, start her on intravenous fluids and give her the first dose of antibiotics. Refer her to a 24 hour PHC/FRU immediately.

Puerperal sepsis can be prevented and managed by taking following measures:

- Maintaining hygiene and hand washing and following strict infection prevention practices before handling mother.
- Use of clean sanitary pads
- Reducing frequent PV examination during labour
- Early Identification and judicious use of antibiotics in mothers showing sign of infection

- Giving first dose of antibiotics before referral.
- Before delivery avoid prolonged labour by using partograph
- Maintaining asepsis during delivery

Follow the protocol treatment at your level.

Check Your Progress 6

i) Explain meaning of Puerperal sepsis.

.....

.....

ii) List any five signs and symptoms of Puerperal sepsis.

.....

.....

4.11 BREAST CONDITIONS

Breast conditions include mastitis, cracked/fissured nipples and breast engorgement (being too full) and breast abscess. Breast examination should be an essential part of routine postpartum examination.

During Postnatal examination you should give the following advice to mother.

- Encourage the mother to continue breastfeeding. Tell her that if she does not breastfeed, there will be further engorgement of the breasts.
- If the breasts are engorged, and the baby is unable to take the areola and nipple in and suckle, tell the mother to apply hot, wet cloth on the breasts for 5–10 minutes to make them soft. Ask her to express a small amount of milk with her hands before putting the baby to the breast.
- Ask the mother to feed the baby from both the breasts during each feed.
- If engorgement persists despite regular feeding, the mother may be advised to express breast milk. She should empty her breasts at regular intervals and feed the expressed milk to the baby.
- Applying hind milk (the milk which comes out during the latter part of breastfeeding) to sore and cracked nipples has a healing effect.
- Ask the mother to avoid wearing tight-fitting bras.
- If there is accompanying fever, redness or pain that does not subside despite the above measures, refer the woman to the PHC.

4.12 SHOCK IN OBSTETRICS

Shock is defined as a state of circulatory inadequacy with poor tissue perfusion resulting in generalised cellular hypoxia. Shock is acondition resulting frominability of acirculatory systemto provide the tissue requirements fromoxygen, nutrients and remove metabolites.

Shock during pregnancy is one of the most difficult problem. 90% of shock in obstetrics is due to placental abnormalities or alterations in the uterine tone. The remaining 10% are associated with tears or lacerations of the birth canal. Management depends on duration and cause.

Classification of shock / Types of shock:

- Haemorrhagic shock – due to hypovolemia.
- Septic/Bacteraemic/Endotoxic shock – due to release of toxins.
- Cardiogenic shock – due to inefficiency of pumping of heart.
- Neurogenic shock – due to chemical injury or drug induced.
- Others (Embolism) – by amniotic fluid or air or thrombus.

Let us focus on haemorrhagic shock.

Haemorrhagic Shock (Hypovolemic shock) – It is due to excessive blood loss in:

- Early pregnancy due to abortion, ectopic pregnancy, trophoblastic disease.
- Antepartum haemorrhage due to placenta Previa and abruptio placenta.
- Postpartum due to PPH, rupture uterus.

Sign & Symptoms:

- Hypotension
- Rapid weak pulse
- Pallor
- Sweating
- Cold clammy extremities
- Oliguria / anuria
- Confusion

Management:

Initial Management:

Resuscitation by ABC:

A – Airway:

- Patent airway is assumed
- Provide oxygen by mask six to ten liters per mt
- No oral fluids
- Keep the patient warm
- Elevate legs or place in trendelenberg position

B – Breathing:

- Ventilation checked and supported if needed
- Monitor response to therapy
- Check pulse, BP, SPO2 / pulse oximetry

- Central Venus pressure
- Monitor pallor and cyanosis
- Position the patient head down and left lateral
- Tilt to avoid aortocaval compression which may further worsen the hypotension

C – Circulatory Blood volume:

- Ensure adequate fluid replacement
- Deliver fluids as quickly as possible for the first 500 ml and slowed for subsequent I/V fluids
- Start 2 I/V lines with short, large gauge cannula 16 to 18
- Restore blood volume and reverse hypotension by use of only crystalloid fluids like ringers lactate, normal saline
- Initial request for +6 units of blood
- Specific medical and surgical management for control of haemorrhage along the general management keeping in mind the cause.

Check Your Progress 7

i) What do you mean by shock?

.....

.....

ii) List the signs and symptoms of shock.

.....

.....

iii) Explain the ABC management of shock?

.....

.....

4.13 REFERRAL

The referral system is an essential component of any health system which is particularly important in pregnancy and child birth for providing access to essential obstetric care. They are associated risks and complications, which may lead to maternal and foetal mortality if they are not taken care of in time. Timely referral and intervention of high risk and complicated obstetric cases can reduce maternal morbidity and avoid maternal death.

Definition: A referral can be defined as a process in which a health worker at one level of health systemhaving insufficient resources (Drugs, Equipment's, skills) to manage a clinical condition and seeks assistance of a better or differently resourced facility at the same or higher level to assist in or take over the management of a client case.

An effective referral system ensures a close relationship between all levels of the health system and helps to ensure client receives the best possible care closest at home. A good referral system ensures that

- Client receives optimal care at appropriate level and less costly.
- Hospital facilities are used optimally and cost effectively.
- Client who needs specialist services can assess them in a timely way.
- Health services are well utilised and their reputation is enhanced.

Steps to be followed during referral of a woman

Keep the following points in mind while referring the woman to a higher centre.

- After appropriate management of the emergency, discuss the decision to refer with the woman and her relatives, especially those who are decision-makers in the family.
- Quickly organise transport and possible financial aid. Inform the referral centre by phone, if possible.
- Accompany the woman, if possible; otherwise send another health worker/ASHA.
- Send relatives who can donate blood, should the need arise.
- Carry drugs and supplies such as an intravenous drip and set, antibiotics, Oxytocin injection and Magsulph injection (provided in your delivery kit) (see Annexure VII) in the vehicle in which the woman is being transported.
- If the referral is being made after the delivery, send the baby with the mother, if possible.
- Write a referral note (see Annexure III) to the health personnel at the referral centre.

The note should contain the salient points about the following:

History

Main clinical findings

Medication given (dose, route and time of administration)

Other interventions done, if any

- During the journey:

Watch the intravenous infusion.

Give appropriate treatment on the way, if the journey is long.

Keep a record of all the intravenous fluids and medications given, including the time of administration, and of the condition of the woman from time to time.

Referral Letter: The referral letter includes:

Type of shock

Medication given

Referral note – main points about history, clinical findings, medication with dose time and route.

Information to family members

Relations who can donate blood

Arrangement for transport

The referral letter should include:

- Name of patient
- Name of doctor, ANM or Health Visitor
- LMP
- EDD
- Past obstetric history
- Present problem
- Labour management carried out
- Reasons for referral
- Date of referral
- Time of referral
- Emergency management if any
- P/V examination findings
- Vitals
- Blood Group

4.14 LET US SUM UP

You have seen that pregnancy and labour can be complicated as a result of medical and obstetrical conditions that could affect the mother, baby or both. These complicated cases require a specialist to manage and ensure the best outcome for the mother and her baby. You must have knowledge and experience to note the earliest signs of complications and refer early with appropriate measures. The incidence of maternal and prenatal mortality and morbidity resulting from these complications is declining due to timely assessment of antenatal cases, early identification and effective treatment.

4.15 MODEL ANSWERS

Check Your Progress 1

i) PPH is defined as vaginal bleeding after delivery that exceeds 500 ml or that is less than 500 ml and cause symptoms. Severe PPH is vaginal bleeding > 1000 ml.

ii) Immediate Postpartum Haemorrhage (PPH)

When Postpartum Haemorrhage (PPH) occurs during delivery till 24 hours postpartum haemorrhage

- Tone causes (Atonic PPH most common cause 80–90%)
- Tears in the lower vagina, cervix or perineum
- Retained or incomplete placenta or placental fragments
- Inverted or ruptured uterus
- Thromboembolic-Coagulopathy

Delayed/Secondary Postpartum Haemorrhages

Delayed PPH refers to bleeding which occurs 24 hours after delivery up to six weeks postpartum. It could be due to retained clots or placental fragments, or due to an infection in the uterus.

i) Placenta is set to be retained when it is not expelled from the uterus even 30 min after the delivery of the baby

Check Your Progress 2

i) **Signs of eclampsia**

- Headache.
- Hypertension (BP above 160/110 mm Hg).
- Odema (Pitting odema over the ankles and rapidly gain in weight of more than 1 LB in a week).
- Visual disturbances.
- Protein urea (Presence of protein in 24 hrs. urine of more than 1 gram per liter).
- Fits.
- Abdominal pain.
- Decreased urine output.
- Signs of foetal distress.

i) Stages of eclamptic fit

It consists of four stages.

- **Premonitory Stage:**
  - Patient becomes unconscious.
  - There is twitching of muscles of face, tongue and limbs.
  - Eye balls are turned to one side and become fixed.
  - This stage lasts for 30 seconds.
- **Tonic Stage:**
  - Whole body goes into a spasm.
  - Limbs are flexed, hands clenched.
  - Respiration ceases, tongue protrudes between the teeth.
  - Cyanosis appears.
  - Eye balls becomes fixed.
  - This stage lasts for about 30 seconds.
- **Clonic Stage:**
  - All voluntary muscles undergo contraction and relaxation.
  - Twitching starts in face then involve one side of extremities and body is involved in convulsion.

- Biting of tongue occur.
- Breathing is stertorous and blood stained frothy secretions fill the mouth.
- Cyanosis gradually disappears.
- This stage lasts for 1 to 4 min.

- **Coma Stage:**
  - Following the fir the patient goes into coma.
  - It may last for a brief period.
  - Patient appears to be confused following the fit and fails to remember the happenings.

i) Management of mother during fit

- In premonitory stage, a mouth gag is placed in between teeth to prevent tongue bite and remove after clonic stage is over.
- The air passage is to be clear off the mucous with mucous sucker.
- Patients head is turned one side, raising foot end of bed, facilitate postural drainage of the upper respiratory track.
- Oxygen given until cyanosis disappears.

Check Your Progress 3

i) Six months

i) 7gm/dl

i) A woman with severe anaemia should be referred when following signs are present

- 30 breaths or more per minute
- Easy fatigability
- Breathlessness even at rest
- A woman with severe anaemia must deliver in an institutional setting.

Check Your Progress 4

i) When the foetus cannot be delivered via the natural passage due to mechanical obstruction, labour is said to be '**obstructed**'. Obstructed labour is a major obstetric emergency and causes a high proportion of maternal and neonatal deaths.

Labour is said to be **prolonged** when the pregnant woman is in true labour experiences labour pains longer than 24 hours.

i) It occurs due to Cephalopelvic disproportion (CPD), malprenstations/ malpositions foetal abnormalities etc

i) Maternal Complication of Obstructed labour

- Maternal Death
- Uterine rupture
- Fistulae
- Premature rapture of membranes

- Slow dilation or oedema of cervix
- Maternal fatigue
- Sepsis

Check Your Progress 5

i) **A second-degree** tear involves the vaginal mucosa, connective tissues and underlying muscles.

A third-degree tear involves complete transaction of the anal sphincter.

i) If the woman is bleeding heavily because of tears and you are unable to decide the degree of the tear, put a vaginal pad into the vaginal cavity and refer the woman to the FRU.

Before referral, establish an intravenous line and infuse fluids rapidly. Raise the foot end of the stretcher and keep the woman warm during transportation.

Check Your Progress 6

i) Puerperal sepsis is one of the leading causes of maternal deaths. Puerperal sepsis is an infection of the genital tract at any time between the onset of rupture of membranes or labour and till 42 days after delivery or abortion.

i) Signs and symptoms are

- Fever (temperature >38°C or > 100.5°F)
- Lower abdominal pain and tenderness
- Abnormal and foul-smelling lochia, may be blood-stained
- Burningmicturition
- Uterus not well contracted
- Feeling of weakness
- Vaginal bleeding

Check Your Progress 7

i) Shock is defined as a state of circulatory in adequacy with poor tissue perfusion resulting in generalised cellular hypoxia.

i) Signs and Symptoms of shock

Hypotension

Rapid weak pulse

Pallor

Sweating

Cold clammy extremities

Oliguria / anuria

Confusion

i) ABC management of shock

A – Airway:

- Patent airway is assumed

- Provide oxygen by mask six to ten liters per mt
- No oral fluids
- Keep the patient warm
- Elevate legs or place in trendelenberg position

B – Breathing:

- Ventilation checked and supported if needed
- Monitor response to therapy
- Check pulse, BP, SPO2 / pulse oximetry
- Central Venus pressure
- Monitor pallor and cyanosis
- Position the patient head down and left lateral
- Tilt to avoid aortocaval compression which may further worsen the hypotension

C – Circulatory Blood volume:

- Ensure adequate fluid replacement
- Deliver fluids as quickly as possible for the first 500 ml and slowed for subsequent I/V fluids
- Start 2 I/V lines with short, large gauge cannula 16 to 18
- Restore blood volume and reverse hypotension by use of only crystalloid fluids like ringers lactate, normal saline
- Initial request for +6 units of blood
- Specific medical and surgical management for control of haemorrhage along the general management keeping in mind the cause.

4.16 KEY WORDS

Antepartum Haemorrhage : APH is a blood loss per vagina after 20 weeks of gestation or it is as per vaginalbleeding fromvaginal track from 22 weeks of pregnancy and prior to the birth of the baby.

Postpartum Haemorrhage : Severe bleeding is the largest single cause of maternal death, causing approximately 25% of maternal deaths globally. PPH occurs in approximately 10.5% of live births. PPH addresses multiple approaches forpreventing, recognising and managing to prevent long term morbidity and mortality.

Placenta Previa : It is a condition in which placenta is implanted completely or partially over the lower uterine segment? It leads to painless and causeless (No trauma) bleeding. Haemorrhage occurs when uterine contraction dilates the cervix thereby

applying forces to placental attachment in the lower uterine segment or when separation is provoked by digital vaginal examination.

Shock : Shock is defined as a state of circulatory in adequacy with poor tissue perfusion resulting in generalised cellular hypoxia.

Eclampsia : It is a life threatening complication of pregnancy? The term eclampsia is derived form a Greek word meaning "like a flash of lighting". Itmay occur quite abruptly without any warning manifestation. Eclampsia is a condition that causes a pregnant women, usually previously diagnosed with pre eclampsia (High blood pressure and protein in the urine) to develop seizures or coma. Toxemia of pregnancy is a common name used to describe pre eclampsia and eclampsia. Less than 1 in 100 women with pre eclampsia will develop eclampsia or convulsions or coma. Upto 20% of all pregnancy are complicated by high blood pressure. Pre eclampsia / eclampsia accounts upto 20% of all deaths that occur in pregnant women.

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UNIT 5 POSTPARTUM CARE

Structure

5.0 Introduction

5.1 Objectives

5.2 Postpartum Visits

5.3 Care of the Mother and Baby During First Postpartum Visit

- 5.3.1 Care for the Mother
- 5.3.2 Care for the Baby
- 5.3.3 Postpartum Counselling

5.4 Care of the Mother and Baby Second and Third Postpartum Visit

- 5.4.1 Care for the Mother
- 5.4.2 Care for the Baby

5.5 Care of the Mother and Baby during Fourth Visit

- 5.5.1 Care for the Mother
- 5.5.2 Care for the Baby

5.6 Important Points to Remember while Transferring and Referring the Baby

5.7 Let Us Sum Up

5.8 Model Answers

5.9 References

5.10 Appendix

5.0 INTRODUCTION

First six weeks (42 days) after delivery are called as the **postpartum period**. The **first 48 hours** of this period, followed by the **first one week**, is the most crucial period for the health and survival of mother and her baby because most of the fatal complications occur at this time.

Complications like PPH and eclampsia occur during the first **48 hours after delivery** which can lead to maternal death. Hence, a woman who has just delivered needs to be **closely monitored** for first 48 hours. It is your duty to inform her about the importance of staying at the health facility where she has delivered for atleast 48 hours, which is beneficial for her and her baby.

In this unit you will learn about care of the mother and baby in postpartum period. You will also learn how to refer the mother and baby whenever the need arises.

5.1 OBJECTIVES

After completing this unit, you should able to:

- discuss the care of mother during first, second, third and fourth Postpartrum;
- describe various family planning methods that a mother can adopt;
- discuss the need of referral for mother and baby;
- explain the danger signs that can be identified during postnatal unit; and

- to counsel and motivate the mother for contraception and help her to choose appropriate family planning method.

5.2 POSTPARTUM VISITS

In this section we will focus on the number of postnatal visits that you need to inform the Postpartum mothers. The post natal visits are given in following Table 5.1.

Table 5.1: Number and Timing of Postpartum Visits by Health Worker

Visits	After Home Delivery/ Delivery at SC	After Delivery at PHC/FRU (mother Discharged after 48 hours)
First visit	1st day (within 24 hours)	Not applicable
Second visit	3rd day after delivery	3rd day after delivery
Third visit	7th day after delivery	7th day after delivery
Fourth visit	6th week after delivery	6th week after delivery

5.3 CARE OF MOTHER AND BABY DURING FIRST POSTPARTUM VISIT

We shall begin with care of mother as given below.

5.3.1 Care for the Mother

The first postpartum visit can be at hospital or home. If you were not present at the timing of delivery then review the labour and birth details to rule out any risk factors which may be important in the management of mother and baby.

Take history from mother as given below

History Taking

Ask the mother following questions:

- How are you feeling?
- Do you sleep 6–8 hours in the night?
- What all are you eating?
- Did you evacuate your bladder and bowel?
- Where did you deliver and who conducted the delivery?
- Did you bleed too much during delivery?
- How many pads do you soak with blood? (if the woman soaks a pad or cloth in less than 5 minutes, it is P.P.H. She needs **immediate referral**)
- Did the woman have convulsions or became unconscious?
- Do you have pain in abdomen and leg?
- Did the woman have fever?
- Is there any dribbling /burning/retention of urine?

- How is breastfeeding going on and do you have tenderness in the breast?

Carry out Examination as given below

- Check her vital signs.
- Do abdominal examination to check if the uterus is hard and contracted. If it is not, she needs to be sent to the **FRU.**
- Explore for any tear, swelling or pus discharge in the vulva and perineum. If present **refer her to FRU.**
- Assess the pad for bleeding if it is heavy and foul smelling **refer to FRU**.
- Assess problems related to breastfeeding – lump or tenderness, retracted nipples.
- Look at breastfeeding technique and adequacy of breast milk.

Management/Counselling

Advice the mother for following.

Postpartum Care and Hygiene

- Women should have someone near to her for first 24 hours.
- Perineum should be washed daily and even after passing stools.
- She should change perineal pads frequently. If cloth pad used it should be washed with soap and water then dried in sun.
- Woman must take bath daily, take enough rest and sleep.
- She must keep baby with her and wash hands before touching the baby.
- She should be advised to maintain abstinence for 6 weeks.

Nutrition

- Find out if any taboos related to food and advise against these taboos.
- Advise the woman to eat greater amount and variety of healthy foods such as cereals, milk, cheese, meat and fish (give examples of types of foods and how much to eat).
- Reassure the mother that she can eat any and all normal foods – this will not harm her baby.
- Family members specially husband and mother-in-law should ensure that the woman eats enough and avoids physical hard work.

Breast feeding

- Woman should breast feed atleast 6–8 times during the day and 2–3 times in night.
- She must be relaxed while feeding her baby.
- Newborn must not be given **water or any other liquid**.
- The baby must be given colostrum but **prelacteal feeds** (like honey, tea etc.) should never be given.
- She should breastfeed the baby from one breast at one feeding session so that baby gets **hind milk and fore milk** to satisfy baby's hunger and thirst respectively.

- Breastfeeding problems should be taken care of –
  - Cracked/sore/fissures on nipples, she should apply hind milk or coconut oil. You should emphasis on correct positioning and attachment of the baby.
  - If she experiences discomfort, expressed milk can be given to baby occasionally
- Ensure that exclusive breast feeding for 6 months followed by complementary feeding along with Breast milk.

Registration of Birth

- Help the mother and family to get the baby registered with the local panchayat. It is a legal document needed for admission to school.

Iron Supplementation

- The woman must take IFA tablet – 1 OD for 6 months, once she passes stool.
- If she was anaemic prior to delivery, then IFA 1 BD × 6 mths. If her Hb does not improve after 1 month of IFA consumption, **refer her to FRU**.

Family Planning : Advice Mother regarding effective family planning methods as given below in Fig. 5.1.

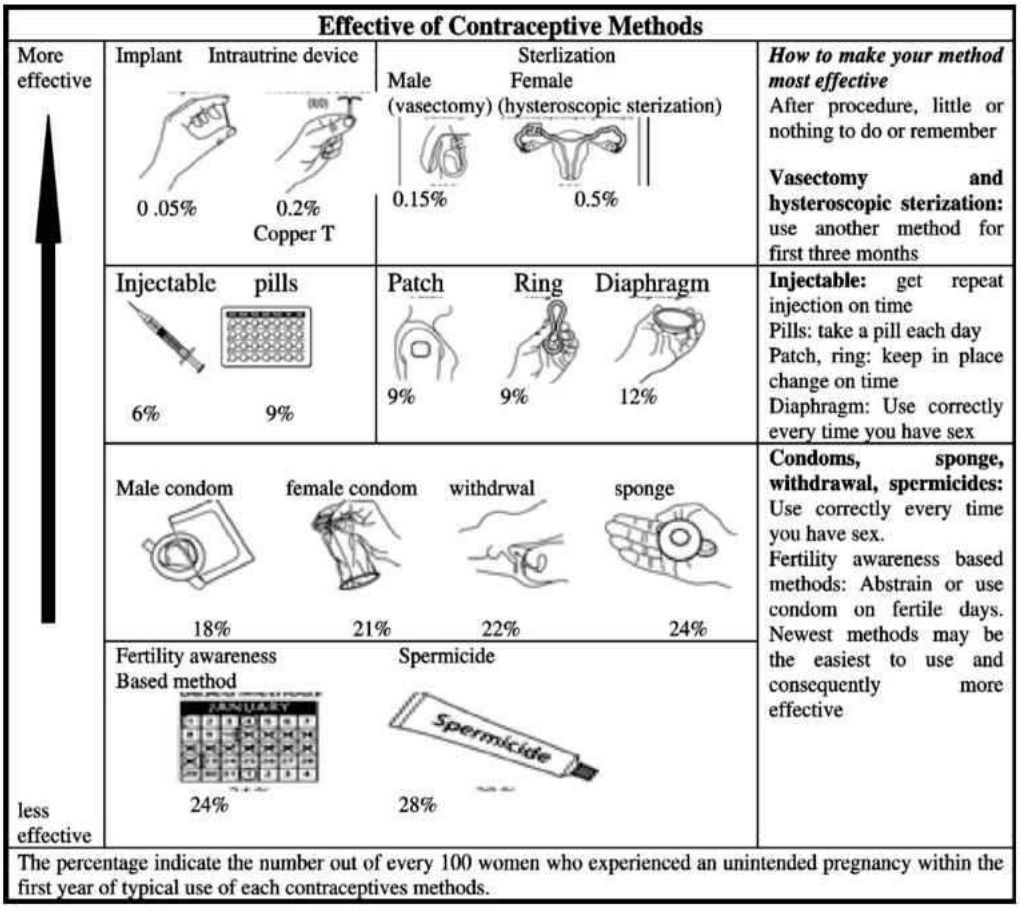


Fig. 5.1: Effective Family Planning Methods

Immunisation: Follow Immunisation schedule for protection of baby as given below.

Immunisation Schedule for Baby

Advise mother to take her baby to the nearest health centre for immunisation. The immunisation schedule is given below Table 5.2.

Table 5.2: Immunisation Schedule

Time	Vaccines
At birth	BCG, OPV - 0 dose, Hepatitis B - 0 dose*
6 weeks	BCG (if not given at birth) DPT - 1st dose OPV - 1st dose Hepatitis B - 1st dose*
10 weeks	DPT - 2nd dose OPV - 2nd dose Hepatitis - 2nd dose*
14 weeks	DPT - 3rd dose OPV - 3rd dose Hepatitis - 3rd dose*
9 months	Measles, Vit-A - 1st dose
16-24 months	DPT booster, MR OPV boosters Vit-A - 2nd dose
2 to 5 years	Vit-A - 3rd to 9th doses at the interval of 6 months. (total of 7 doses)
5 years	DPT booster
10 years	T.D. booster
16 years	T.D. booster

* If recommended under Routine Immunisation.

Follow immunisation schedules for protection of your babies from life threatening and crippling diseases

Danger Signs

Advise the mother that she should go to **FRU** without waiting **any time of day and night** if she develops following danger signs:

a) Heavy bleeding – soaking more than 2–3 pads in 20–30 min after delivery.

b) Convulsions

c) Fever

d) Severe abdominal pain

e) fast or Difficult breathing

f) Foul smelling lochia

She should go to health facilities if she suffer from any of the following:

- Fever

- Abdominal pain
- Breast swollen/red/tender/sore nipples
- Urine dribbling/pain on micturition

Check Your Progress 1

i) Folic acid is given once daily for.....months

ii) If mother is anaemic before delivery the IFA is given.....

iii) List the danger signs of mother that need referral

.....

.....

5.3.2 Care for the Baby

History taking

Ask the mother following questions –

- Did the baby pass urine and stool (meconium) and when?If not passed, **refer to FRU.**
- Is your baby taking breastfeeding? Any difficulties in breastfeeding?
- Is the baby having any of following problems?
  - Fever
  - Not sucking well
  - Difficulty in breathing
  - Less than normal movements
  - Pus/discharge/swelling at the cord
  - Pustules/boils
  - Convulsions

  If any of above problems are present **take the baby to FRU**.

Examination

- Make the baby quite and calm, count the respiration for 1 mt. – If respiration less than/more than 30 breaths/minute **refer the baby to FRU.**
- Look for indrawing of the chest – If lower chest wall goes in when the baby breathes in, he/she has chest indrawing **refer the baby with the mother to FRU.**
- Check the baby's colour for jaundice/central cyanosis, if present **refer the baby to FRU**.
- If the baby's temperature is < 36.5°C or > 37.4°C, **refer to FRU**.
- Umbilicus is examined for pus/bleeding/redness. If present provide treatment, if no improvement in two days, **refer to FRU**.

- Pustules – if there are 10 or more or a big boil, **refer baby to FRU** – If less than 10 pustules, provide treatment, if no improvement in 2 days, **refer to FRU**.
- Assess the baby for cry and activity – If newborn is not alert and/or has a poor cry or movements less than normal, **refer him/her to FRU**.
- Examine eyes for discharge/redness if present, **refer to FRU.**
- Explore if any congenital malformation and birth injuries, if present, **refer the baby to FRU.**

Management/Counselling

Advise mother regarding following:

- Baby should not be given bath before 48 hours of birth.
- Baby must be kept covered well with appropriate clothing depending on the weather so that he/she is always warm at all times.
- Umbilical cord must be kept dry all times, nothing should be applied on it.
- Baby must have good attachment while breastfeeding.

Mother must be inform when and where to take the baby for vaccination.

The mother should go to health centre /hospital immediately any time of the day or night **if her baby has any of the dangers sign:**

- Difficulty in breathing
- Fits or convulsions
- Fever or cold to touch
- Refuses feed
- Blood in stools
- Has diarrhoea

If the baby has any of the following problems she/he should be immediately taken to **FRU –**

- Refusing feeds
- Looks sick
- Fever (feels cold or hot to touch)
- Fast or difficult breathing
- Blood in stools
- Meconium not passed within 24 hours
- Looks yellow/pale or bluish
- Irregular movements of the baby
- Has diarrhoea

5.3.3 Postpartum Counselling

Details of Postpartum Counseling as per Daksh Skill lab for RMNCAH+NServices attached in **Appendix.**

Check Your Progress 2

List the danger signs of baby which need referral.

.....

.....

5.4 CARE OF MOTHER AND BABY - SECOND AND THIRD POSTPARTUM VISIT

We shall begin with care of mother as given below.

5.4.1 Care for the Mother

Take history from mother.

History Taking

Similar history is asked as asked in postpartum period within 24 hours as given in (5.3.1 above). In addition some more question need to be asked.

- Is she having heavy bleeding p/v? if so manage.
- Is there foul smelling vaginal discharge? Indicating sepsis treat if no improvement **refer to FRU**
- Does she have pain/burning on urination? (dribbling or leaking)
- Does she get fatigued or not feeling well?
- Does she feel like crying or being happy – indicates postpartum depression?
- Are the breasts hard and painful (engorgement)?

Examination

- Check vital signs of women.
- Look and feel if the uterus is contracted.
- Assess the vulva and perineum for swelling or pus.
- Assess lochia for amount and smell.
- Examine breasts for lump/tenderness/engorgement, and nipples for fissures/ cracks.

Management/Counselling

Advise the following.

Diet and Rest

- Mother should be told that she needs extra calories, so she needs to eat well in order to feed her baby. She should be told to eat foods rich in calories, proteins, iron, vitamin and other micronutrients.
- She should take ample rest and resume her normal household work.
- Advise her family to support her so that she can take care of herself and her baby.

Contraception

- She should be informed that she can become pregnant during lactational amnerrhoea even with single unprotected sexual relation.
- Couple should be counselled on other contraceptive methods.

5.4.2 Care for the Baby

History Taking

Same questions are asked during history taking as during the first postpartum visit (5.3.2). If any of the problem found in the baby, **refer the baby to the FRU**.

Examination

Observe and record following if present –

- Whether he/she is sucking well.
- If there is difficulty in breathing (fast/slow breathing and chest in drawing).
- If there is fever or baby is cold to touch.
- If there is jaundice (yellow soles and palms).
- Whether the cord is swollen/discharge from it.
- If there is blood in the stools.
- If there are convulsion or arching of the baby's body. **Refer the baby to the FRU/PHC** if any of the above, except for local umbilical infection is present.

Management/Counselling

In addition to the counselling given in the first visit, advise the mother for following advices:

- She should do exclusive breastfeeding for 6 months.
- She should feed the baby on demand and practice rooming in.
- Weaning should be started at 6 months of age and breastfeeding to be continued along with it.
- She should be told that baby will lose weight for first three days. This is normal process, she need not worry for it and baby will regain his/her weight by 1st week equal to birth weight.
- She should maintain and follow hygiene practices.
- Inform the mother when and where to avail help in case of child's sickness.
- She should be explained about universal immunisation schedule, also when and where to take the baby for immunisation.

5.5 CARE OF THE MOTHER AND BABY DURING FOURTH VISIT

Care of mother during fourth visit is given below:

5.5.1 Care for the Mother

History Taking

The mother is asked about the following:

- Has the vaginal bleeding stopped?
- Has she resumed her menstruation?
- Is her vaginal discharge foul smelling?
- Does she have pain/any problem while urination?
- Is she getting fatigued easily?
- Is there any problem of breastfeeding?
- Does she have any other complains?

Examination

- Women is checked for pallor and blood pressure.
- Vulva and perineum for pus/swelling.
- Breasts for any lumps or tenderness, if present treat them.

Management/Counselling

- Advised on proper nutrition and rest.
- Contraceptive methods available and help her in deciding about which method she should adopt.

5.5.2 Care for the Baby

History Taking

Ask the mother about following-

- Has her baby received all the vaccination recommended till that age?
- Is the baby taking breastfeeding properly?
- Did the baby gain weight?
- Do the baby have any other problem?

Examination

- Check the baby is active/lethargic

Management/Counselling

- Inform the mother if the baby has any of the following problem, then he/she should be immediately taken to FRU.
    - Baby not accepting breastfeeding.
    - He/she looks sick (lethargic/irritable).
    - Baby has fever or cold to touch.
    - Baby has convulsions.
    - Fast or difficult breathing.
    - Diarrhoea or blood in stools.

- Reinforce and emphasis about the exclusive breastfeeding.
- Advise mother when and where the baby can get immunisation.

Let us summarise the important points in following Table 5.2.

Table 5.2: Summary of Services provision during Postnatal Check-ups

SERVICE PROVISION DURING CHECKUPS		
	Mother	**Newborn**
Ask	• Heavy bleeding • Breast engorgement	• Confirm passage of urine (within 48 hours) and stool (within 24 hours) • For convulsions, diarrhoea and vomiting
Observe & Check	• Pallor, pulse, BP and temperature • Urinary problems and perineal tears • Excessive bleeding (PPH) • Foul smelling discharge (Puerperal sepsis)	• Activity, colour and congenital malformation • Temperature, jaundice, cord stump and skin for pustules • Breathing, chest in drawing • Suckling by the baby during breast feeding
Counsel For	• Danger signs • Correct position of breastfeeding and care of breast and nipples • Exclusive breastfeeding for 6 months • Nutritious diet and calcium rich food • Maintaining hygiene and use of sanitary napkins • Choosing contraceptive method	• Keeping the baby warm • No bathing on first day • Keep the cord stump clean and dry • Additional check up for the low birth weight babies • On importance of routine immunisation • Danger signs in baby
Do	• Hb % estimation • Give IFA supplementation of the mother for 3 months	• Give 0 dose BCG, OPV, Hepatitis B

Check Your Progress 3

1) List the important points that are focused during fourth postnatal visit of mother and baby.

Mother.....

.....

Baby.....

.....

5.6 IMPORTANT POINTS TO REMEMBER WHILE TRANSFERRING AND REFERRING THE BABY

- If the baby needs to be transferred to a 24 hour PHC/FRU, make sure the transfer is **safe and promptly**.
- It is important to communicate with the receiving facility in advance and provide care during transfer.

Preparation before Transfer

- Explain the family the reason of transferring baby to higher facility.
- If possible, transfer the baby with mother so that breastfeeding can be continued or give EBM.
- Make sure that the baby is not exposed to heat/cold.
- One relative must accompany the mother and baby, if possible.
- You or some other health worker should accompany with mother and baby.
- You must fill up a referral form mentioning baby's essential details to be sent along with the baby.
- If possible, contact the health care facility in advance so that they are ready to receive the baby.

Care during Transfer

- Put the baby on skin to skin contact of mother, if this is not possible, keep the baby properly covered with the mother/relative.
- In hot weather, make sure baby does not become overheated.
- Baby should continue receiving breast milk, if not possible then EBM should be given.
- Baby's airway should be clean.
- If baby is getting oxygen, flow and tubing, should be checked every 15 minutes.
- Monitor the baby's respiration, if no breathing at all taking place or baby gasping or respiration is less than 30 breaths/minute, **perform bag and mask ventilation for the baby**.

5.7 LET US SUM UP

Postpartum visit is an important component of postpartum care. Problems generally occur in 24 hours of delivery and till 7 days, hence these visits by the health worker go long way in reducing disability, morbidity and mortality.

Nurses need to be more observant, skillful and prompt in their action to avoid any problems in mother and baby during puerperium. As a midlevel care provider you should focus on the activities to be carried out during the various Postnatal visits as discussed in this unit.

5.8 MODEL ANSWERS

Check Your Progress 1

i) 6 months

ii) 1 tablet daily for 6 months

iii) Advise the mother that she should go to **FRU** without waiting **any time of day and night** if she develops following danger signs:

a) Heavy bleeding – soaking more than 2–3 pads in 20–30 min after delivery.

b) Convulsions

c) Fever

d) Severe abdominal pain

e) fast or Difficult breathing

f) Foul smelling lochia

She should go to health facilities if she suffer from any of the following:

- Fever
- Abdominal pain
- Breast swollen/red/tender/sore nipples
- Urine dribbling/pain on micturition

Check Your Progress 2

Danger signs in the baby:

i) Difficult or fast breathing

ii) Fits or convulsions

iii) Fever or cold to touch

iv) Refuses feeds

v) Blood in stools

vi) Has diarrhoea

vii) Looks yellow/pale/bluish

Check Your Progress 3

Mother:

a) Advice on nutrition and rest

b) Adoption of contraceptic methods

Child:

a) Exclusive breastfeeding

b) Advise mother when and where the baby can get immunisation.

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5.10 APPENDIX

POSTPARTUM COUNSELLING

Counselling is defined as a helping process where a person (skilled service provider/counsellor) explicitly and purposefully gives his/her time, attention and skills to assist a client to explore their situation, identify and act upon solutions within the limitations of their given environment.

Counselling is a very essential component of our Family Welfare Services and could concern individuals, couples, families and groups. Here the service provider helps ensure that the clients make free, informed and well-considered decision about their own contraceptive practices, child bearing and spacing.

Six principles of Good Counselling

1) Treat each client well. All clients deserve respect, whether their age, marital status, ethnic group, sex, or sexual and reproductive health behaviour. Maintain privacy and confidentiality in one to one counselling.

2) Interact – Each client is a different person. Ask questions, listen, and respond to each client's own needs, concerns and situation.

3) Give the right amount of information – enough for the client to make informed choices but not so much that the client is overloaded. An informed choice is a client's thoughtful decision based on accurate understanding of the full range of options and their possible results.

4) Tailor and personalise information – Give clients the specific information that they need and want, and help clients see what the information means to them.

5) Unless a valid medical reason prevents it, provide the family planning meth that the client wants.

6) Help clients remember instructions.

Counselling vs. Motivation

A motivator highlights just the advantages and thus makes the decision for the client while a counsellor would talk of both advantages and disadvantages and thus facilitates decision making by the client.

The Counselling Process

Counselling is not an isolated event but an ongoing process that should be part of every interaction with the client. Family Planning can be divided into three phases:

- General family planning counselling (during the initial contact with the client): the client is provided basic information on a range of methods, any mistaken beliefs or myths about specific family planning methods are cleared up and client is assisted in choosing a method that is appropriate for her or couple.
- Method-specific counselling (prior to and immediately following provision of the method chosen): the client is provided more detailed information about the method, as well as instructions on how to use it safely and effectively; and client is told when to return for follow-up, and is asked to repeat key information.
- Follow-up counselling (during return visits) : the client's satisfaction with the method is assessed, and any problems or concerns are discussed. This is the opportunity to encourage the client for continued use of the chosen method, unless problems exist.

Steps in Family Planning Counselling: The GATHER Approach

The GATHER technique is used to organise the elements of the counselling process. This acronym is designed to help staff remember 6 basic steps for an effective family planning counselling session. Counselling should be tailored to the woman's individual needs and circumstances and thus a provider need to use the GATHER approach sensitively so that it is appropriate to each client's need.

GATHER means:

G Greet the client respectfully

A Ask them about their family planning needs

T Tell them about different contraceptive options and methods

H Help them to make decisions about choices of methods

E Explain and demonstrate how to use the methods

R Return/refer; schedule and carry out a return visit and follow up The GATHER

technique is outlined in Table 4.1. Points that are specific to or especially relevant to potential IUCD.

> Tips: Use support materials such as diagrams, brochures, and actual samples of different methods to emphasise and illustrate points. Encourage the women to handle the materials. Handling a sample IUCD may be especially important, as many women may be surprised to see how small it is.

Steps	**Points of Discussion/Activities**
GREET the woman	• Greet the woman with warmth and respect; and ask about the purpose of visit • Make sure she understands that you are here to help her choose a family planning method that is right for her (not choose one for her) • Assure her that the meeting will be confidential and she can speak openly about some private/personal matters so that you can help
ASK her about herself/Assess	• Ask about any previous experiences with family planning (methods used, reason for discontinuing, etc.) • Assess partner/family attitudes about family planning (whether she has discussed this with them, whether they are supportive, etc.) • Ask about her reproductive goals (how many children she wants, desire for birth spacing, desire for long term protection against conception etc) • Ask about her need for protection against STIs • Ask whether she is interested in a particular family planning method Important : Explain that all sexually active persons should consider their individual risk for HIV and other STIs and whether they should use condoms, alone or along with another method of protection.
TELL her about family planning	• Provide general information about different family planning methods, focusing on the method in which the woman is interested (if any). Information covered may include: • Effectiveness of the method • Mechanism of action • Health benefits and potential risks • Side effects

	• Protection from HIV and STIs • Cost and convenience and accessibility/ availability of supplies needed • Correct any misconceptions and concerns the woman may have about the method (s) she is considering. For guidance on correcting common misconceptions about IUCD, see Annexure 1
HELP her select the method	• Help the woman choose a method. Do not decide for her. • Assess her knowledge about the selected method by having her repeat key details back to you, and by asking her questions. For potential IUCD users, it is especially important that they understand that: • Menstrual bleeding pattern changes are a common side effect associated with the method • The IUCD offers no protection against HIV or other STIs; clients who are at risk should also use condoms for protection • Potential IUCD users should know that this will involve a pelvic examination for screening and will involve a minor procedure to insert the IUCD into her uterus • Immediately before the IUCD insertion procedure, the client should receive pre-insertion counselling and screening· Encourage her to ask questions and state any remaining concerns about the selected method.
EXPLAIN how to use the method	• Immediately after te IUCD is inserted the client should receive post insertion instructions • Explain what to do if she experiences any problems or side effects, and provide any other basic information needed. • Provide information on warning signs that indicate the need to return to the clinic immediately • IUCD users should have a routine check-up after their first menstruation (in 3 to 6 weeks) in case of interval IUCD and after 6 weeks in case of PPIUCD • Ensure that the client has understood all the information and reassure her

RETURN VISIT/REFER	• Assess client satisfaction • Check for concerns or problems. For IUCD users, emphasis is placed on menstrual bleeding changes, use of condoms to protect against STIs, and warning signs • Tell them that they will also have a pelvic examination to check for infection and expulsion in the first follow-up visit • Reinforce client instructions for use of the selected method • Provide appropriate follow-up for any problems identified • Refer woman if needed

Breastfeeding

Steps

1) Advise the mother to sit or lie in a comfortable position and help the mother to initiate breastfeeding
2) Provide advice for the cleaning of nipple and breast as part of routing care
3) Describe and demonstrate rooting reflex
4) Describe and ensure correct position :
   - Baby's body is well supported
   - The head, neck and the body of the baby are kept on the same plane
   - The entire body of the baby faces the mother
   - Baby's abdomen touches mother's abdomen
5) Describe and ensure good attachment:
   - Baby's mouth is wide open
   - Lower lip is turned out
   - Chin is touching her breast
   - Larger area of the areola is visible above than below
6) Describe and ensure effective suckling – slow, deep sucks with pauses, visible signs of swallowing at the throat.
7) Advice on burping after breastfeeding
8) Inform the mother regarding the frequency of feeding (atleast 8 times in 24 hours including night feeds) and the importance of emptying the breast and hind milk
9) Inspect breasts for sore nipples, cuts and engorgement
10) Counsel on advantages of colostrums feeding and reinforce exclusive breastfeeding
11) Counsel regarding correct diet, adequate rest and stress-free environment

Kangaroo Mother Care (KMC)

Steps

Counsel the mother, providing privacy to the mother

Request the mother to sit or recline comfortably

Undress the baby gently, except for cap, nappy and socks

Place the baby prone on mother's chest in an upright position with the head slightly extended, between her breasts in skin-to-skin contact in a frog-like position

Turn baby's head to one side to keep airway clear

Support the baby's bottom with a sling/binder

Cover the baby with mother's 'pallu' or gown; wrap the baby-mother duo with an added blanket or shawl depending on the room temperature

Advise mother to breastfeed the baby frequently

Ensure the room is warm by using a room heater as necessary (26-28^{o}C)

Advise the mother to provice KMC for the least 1 hour/

Session. Skin-to-skin contact should be maintained as long as possible

Key point to remember

Eligibility criteria for KMC

- All babies of low birth weight
- Sick, haemodynamically stable babies needing special care (even those on IV fluids or on oxygen)

The 2 component of KMC are:

- Support to the mother in hospital and at home
- Post-discharge follow-up

Benefits of KMC

- Reduces risk of hypothermia
- Promotes lactatin and weight gain
- Reduces infections and hospital stays
- Better bonding between mother and newborn

OVERVIEW OF POSTPARTUM FAMILY PLANNING AND POSTPARTUM IUCD

Postpartum Period

The postpartum period has traditionally been understood as the first six weeks after the birth of a child, as by then, the woman's body has largely returned to its pre-pregnancy state. However there is a need to focus on the "extended postpartum period" i.e. the first 12 month after birth.

Programmatically it is convenient to further define the time periods as the interventions and issues vary during the period of first 6 weeks and beyond up to one year after childbirth.

Immediate postpartum – post placental and within 48 hour after delivery

The immediate postpartum period is and ideal time to educate and counsel a

woman on excusive breastfeeding as a contraceptive method. Counselling on future fertility, birth spacing or limiting intentions, and provision of appropriate family planning methods like IUCD, sterilisation should also be provided in this period.

Early Postpartum – up to 7days

Postpartum Sterilisation can be performed within this time period. Messages on Lactational Amenorrhea Method (LAM) should be reinforced.

Extended postpartum – 6 weeks to 1 year

Spacing methods like IUCD and other methods as per the Medical Eligibility Criteria (MEC) can be provided. Laparoscopic/minilap tubal ligation can also be performed during this period.

Rational for postpartum IUCD as a postpartum Family Planning method

1) **Ensuring healthy spacing between births**

- A baby born after a short birth interval has increased chances of:

  Being born pre-term

  Being small for gestational age

  Death during newborn period or childhood

- A woman who becomes pregnant too quickly following a previous birth or spontaneous or induced abortion faces higher risk of:

  Anaemia

  Abortion

  Premature rupture of membranes

  Maternal mortality

* Approximately 61% of births in India occur within 36 months of previous births. This means the birth to pregnancy intervals in 61% of births are shorter than the recommended birth to pregnancy interval.

Recommendation for spacing after a live birth

After a live birth, recommended interval before attempting the next pregnancy is atleast 24 month in order to reduce the risk of adverse maternal. Perinatal and infant outcomes.

Recommendation for spacing after a miscarriage or induced abortion

After a miscarriage or induced abortion, the recommended minimum interval to next pregnancy is atleast 6 months in order to reduce risks of adverse maternal and perinatal outcomes.

Source: World Health Organisation, 2006 Report of a WHO Technical Consultation on Birth Spacing

2) **High unmet need for birth spacing**

- In India 65% of women in the first year postpartum have an unmet need for family planning, but only 26% of women are using any method of family planning during the first year postpartum.

3) **Vulnerability to return of fertility**

- Return to fertility after delivery or abortion is very unpredictable and differs from one woman to other. A woman will ovulate before she begins regular menstruating again. The chance of woman's fertility returning before menstruation resumes, increases as the postpartum period increases (Kennedy and Tussel, 2004)
- If a woman or a couple does not practice family planning after delivery or an abortion, then they are at risk of unwanted pregnancy.

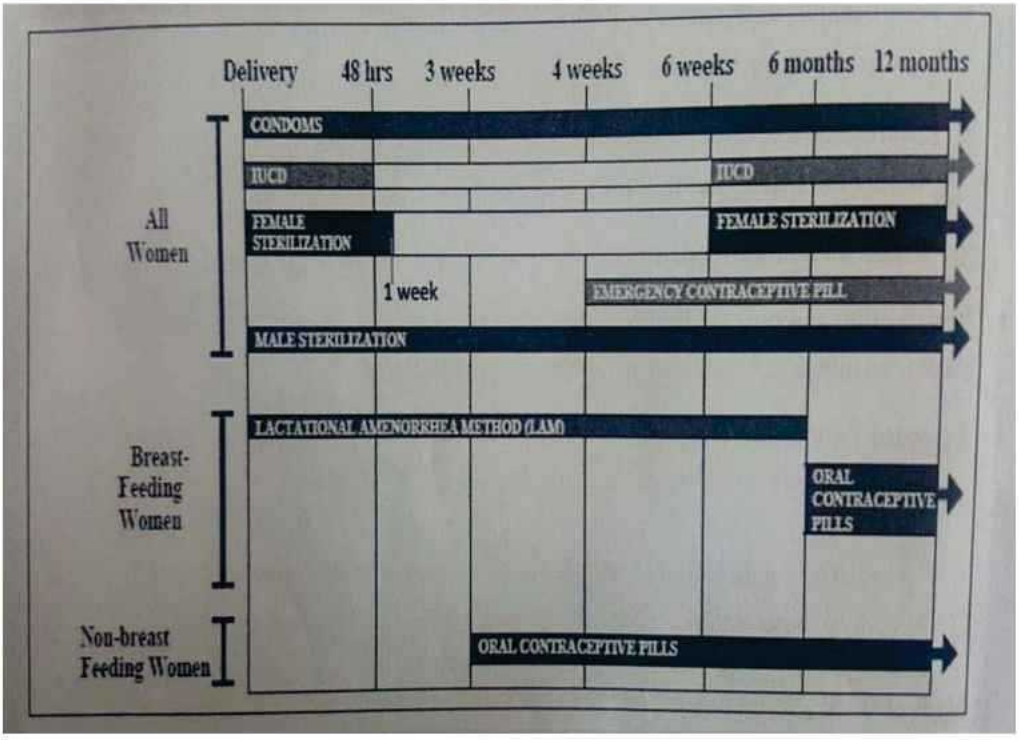
4) **Receptivity to accept family planning method is high**

Women are highly motivated and receptive to accept family planning (FP) methods during the postpartum period. Demographic and Health Surveys show that 40% of women in the first year postpartum intend to use FP method but are not doing so (unmet need).

5) **Increased access to services**

Institutional deliveries have increased significantly all across the country, thereby creating opportunities for providing quality postpartum family planning services. Home-visits made by ANMs and ASHAs and antenatal and postnatal clinics at facilities at the community level have increased the opportunity for providing correct health messages related to postpartum family planning and healthy timing and spacing of pregnancies to women and for follow-up of clients.

Timing of initiation of FP Methods Postpartum



Postpartum IUCD (PPIUCD)

Service Delivery Guidelines

1) Both Cu IUCD 380 A and Cu 375 are approved for PPIUCD insertion.
2) Every woman must be counseled on the FP options available for her in the postpartum period. If she chooses PPIUCD, then she should be counselled

regarding advantages, limitations, effectiveness and side effects related to IUCD.

3) The provider must explain the procedure for insertion and/or removal of the PPIUCD.
4) Woman must be screened as per WHO Medical Eligibility Criteria **(MEC)**
5) The PPIUCD must be inserted only by provider who has been trained to competency in PPIUCD service provision according to national standards, as the technique of PPIUCD insertion is different from interval IUCD insertion.
6) The provider must insert the IUCD using a PPIUCD insertion forceps and should take care to follow all recommended clinical and infection prevention measures for successful insertion.
7) The provider must maintain records regarding PPIUCD insertions and follow-up visits as per protocol.
8) Woman must be followed up by a provider oriented to PPIUCD services.

Timing of PPIUCD insertion

The correct timings of insertion are:

Postpartum

- Post placental : Insertion within 10 minutes after expulsion of the placenta following a vaginal delivery, on the same delivery table.
- Intracesarean : Insertion that takes place during a cesarean delivery, after removal of the placenta and before closure of the uterine incision.
- Within 48 hours after delivery: Insertion within 48 hours of delivery.

Post abortion and post medical termination of pregnancy : Insertion following an abortion, if there is no infection, bleeding or any other contraindications.

Extended Postpartum/Interval : Insertion any time after 6 weeks postpartum. Here the technique of insertion will be same as that of interval IUCD insertion.

> The IUCD should NOT be inserted from 48 hours to 6 weeks following delivery because there is an increase risk of infection and expulsion.
>
> Mode of action, effectiveness and side effects of PPIUCD are the same as that of interval IUCD.

Advantages

The specific advantages of an IUCD placed in the postpartum period include:

Advantages for the woman:

- Convenient : saves time and additional visit
- Safe because it is certain that she in not pregnant at the time of insertion
- High motivation (woman and family for a reliable birth spacing method
- Has no risk of uterine perforation because of the thick wall of the uterus
- Reduced perception of initial side effects (bleeding and cramping) due to presence of normal puerperal changes which will mask the side effects.

- Reduced chance of heavy bleeding, especially among lactational amenorrhea method (LAM) users, since they are experiencing amenorrhea.
- No effect on amount or quality of breast milk
- The woman has an effective method for contraception before discharge from hospital.

Counselling on Postpartum Family Planning (PPFP) and PPIUCD Key messages for PPFP Counselling

- Importance of initiating a family planning method soon after childbirth, spontaneous or induced abortion for maintaining healthy spacing of atleast 3 years between two children.
- Fertility may return within four to six weeks for women who are not exclusively breastfeeding and as early as 10–14 days after an abortion.
- Women who are practicing LAM should change to another family planning method before the baby is six months old.

Counselling on PPFP and PPIUCD should be done with the woman, and if she prefers, with her husband and/or mother-in-law.

Timing of Counselling for PPFP and PPIUCD

1) **During antenatal visits:**
   - Women should be ideally counselled in the antenatal period for PPIUCD insertion.

     A woman's choice of Family Planning method should be noted clearly on her antenatal card or record. The stamp or specific notation in the ANC record will enable the delivery room staff, to be prepared for providing the method immediately following delivery of the placenta.
   - The labour room staff should check the ANC card for this information when the woman presents for delivery.

2) **During admission, early labour and prior to scheduled cesarean section:**

   If not counselled during antenatal period, the woman has to be given information about postpartum family planning including PPIUCD as per her need. Those who express interest in the PPIUCD.

   If a woman presents in early labour (she is relatively comfortable, with infrequent contractions, and able to concentrate on the information being provided), she can be counselled for PPIUCD.

   Woman, who arrives to the hospital for a scheduled cesarean section, can be counselled prior to the operation about Intra-cesarean IUCD insertion.

3) **On the first day of postpartum period:**

   For woman who could not be counselled prior to delivery, she can receive counselling on the first postpartum day.

A woman should NOT be counselled for the first time about PPIUCD during active labour as she may not be able to make an informed choice due to stress of labour.

Post Insertion Counselling

Following insertion of IUCD, reinforce the key messages related to PPIUCD and inform the woman regarding follow-up visits. A follow up card providing all relevant instructions may be given to her on discharge from the facility.

- Points to be stressed are importance of exclusive breastfeeding and assurance that the IUCD does not affect breastfeeding.
- To return after six weeks for IUCD/Postnatal care (PNC)/ newborn check-up
- To come back any time if she has any concern or experiences any warning signs or if the IUCD is expelled.

Follow-up Care and Couselling

Follow-up care of the PPIUCD acceptor is very important to ensure client satisfaction and continuation of the accepted method. A woman should come for checkup at 6 weeks and thereafter as and when necessary. If the woman lives far from the facility where the PPIUCD was inserted, telephonic follow-p or follow-up through ANM/ASHA, can be possible.

While counselling clients, the provider should follow the steps mentioned in Postpartum IUCD Counselling Checklist.

NOTE

Certificate in Community Health for Nurses (BPCCHN)
Theory Course

CHO - 0002 Primary Health Care in Common Conditions

Block-1 : Management of Common Conditions and Emergencies including First Aid

Unit 1 : Common Conditions – 1 Gastro Intestinal System
Unit 2 : Common Conditions – 2 Respiratory System
Unit 3 : Common Conditions – 3 Heart, Urinary System and Blood Disorders
Unit 4 : Common Conditions – 4 Eye, Ear, Nose and Throat
Unit 5 : First Aid in Common Emergency Conditions
Unit 6 : Disaster Management

Block – 2 : Maternal Health

Unit 1 : Introduction to RMNCAH+N Programme
Unit 2 : Antenatal Care
Unit 3 : Intranatal Care
Unit 4 : Early Identification, Management and Referral of Complications
Unit 5 : Postpartum Care

Block – 3 : Reproductive Health and Adolescent Health

Unit 1 : Gynecological Conditions
Unit 2 : Family Planning Methods, Spacing Techniques and Counseling
Unit 3 : Abortion Methods and MTP Act
Unit 4 : Counselling in Reproductive and Sexual Health Including Problems of Adolescents
Unit 5 : Management of Teenage Pregnancy

Block – 4 : Newborn and Child Health Care

Unit 1 : Essential Care of Newborn at Birth
Unit 2 : Management of Common Neonatal and Child Health Problems
Unit 3 : Integrated Management of Neonatal and Childhood Illness
Unit 4 : Introduction to Rashtriya Bal Swasthiya Karyakaram
Unit 5 : Universal Immunisation Programme (UIP)

Block-5 : Overview of Common Surgical Conditions

Unit 1 : Common Surgical Conditions -1
Unit 2 : Common Surgical Conditions -2
Unit 3 : Congenital Malformations
Unit-4 : Screening for Common Cancers

Block – 6 : Essential Drugs

Unit 1 : Essential Drugs – 1
Unit 2 : Essential Drugs – 2
Unit 3 : Essential Drugs – 3