

FOREWORD

One of the main objectives of the Ministry of health in the 10th FYP had been to achieve Health Millennium Development Goals (MDGs). While in 2015, the Millennium Development Goals gave an advent to 17 Sustainable Development Goals (SDGs) with more commitments from us to achieve them by 2030. Sustainable Development Goal 3: "Ensure healthy lives and promote well-being for all at all ages" includes the aspects on reduction of maternal mortality ratio (3.1.1) to less than 70 per 100,000 live births by the year 2030 and proportion of births attended by skilled health personnel (3.1.2).

The revision of the Standard of Midwifery Practice is timely and in line with the objectives of the Ministry. This will assure and help the health workers to maintain the highest standard of care, and deliver the quality maternal and newborn services to every woman and newborn child in the country. The quality service will inevitably contribute towards the achievement of Maternal and Child Health MDGs.

The maternal mortality ratio of Bhutan stands at 86 per 100,000 live births (NHS, 2017), which is still one of the highest in the Region. The delivery attended by trained health workers is only 81 % (NHS, 2017), and the significant number of delivery still takes place at homes. Therefore, one of the ways to encourage women to utilize the health services is to offer them a quality and professional care at all stages of pregnancy, childbirth and in the postpartum period. This will not only ensure skilled attendance at birth but also guarantee a continuum of care for the newborn.

The main objective of the revision was to update the standard with recent midwifery practices in keeping with the changes in the international standards and also to simplify the existing standard SOPs on crucial midwifery skills.

The current revised standard introduces some changes in the number of antenatal and postnatal visits with the intention of giving more choices to women on the frequency of visits and to scale up ANC/PNC coverage. Promotion of institutional delivery is also given attention in order to reduce delivery and maternal deaths taking place at homes. In addition, some SOPs are simplified, updated and reorganized.

This Midwifery Standard aims to equip all health workers with uniform knowledge and skills so that they are able to provide a higher quality of maternal and newborn care. It is, therefore, my earnest request that all the health workers are well versed with the standard, and acquired sufficient competency to promote a safer pregnancy and delivery with better outcome.

(Dr. Karma Lhazeen)

Director

Department of Public Health

Preface to 4rd Edition

In continuation of further improving the overall maternal and neonatal health in the country, the Reproductive Maternal and Neonatal Health Program, DoPH has brought out this 4th edition. The major changes in this edition are as follows:

1. The size of the book has been reduced to be user friendly
2. The total number of recommended ANC visit has changed from 4 to 8 visits
3. Two new chapters have been added as follows:
 - a. Management of Shoulder Dystocia in Intrapartum care as Standard 6
 - b. Induction and Augmentation of Labor in Intrapartum care as Standard 7
4. The total number of recommended PNC visit has changed from 3 to 4 visits
5. The following sections have been added in the form of simplified charts from Emergency Obstetric and Neonatal Care Guideline:
 - a. The Life Saving Midwifery Standards
 - b. The Life Saving Neonatal Care Protocols

This document is expected to be used by all health care workers including gynecologist to set a minimum level of standard for maternal and neonatal care in the country.

(Dr. Phurb Dorj)

Technical Advisor for MNH

National Policy for Midwifery Trained Personnel for Safe Motherhood Practice

The National Policy for Midwifery Practice authorizes a Midwifery Trained Personnel to perform the following tasks:

- Record all pregnancies/abortions/births (live birth & still birth) and maternal and neonatal deaths in appropriate registers. All maternal and neonatal deaths to be recorded in the maternal and neonatal death review form and reported
- Administer I/V fluids on their own
- Life live saving antibiotics on their own
- Manage anaemia in pregnancy
- Administer drugs – oral action hydralazine for control of severe hypertension and Inj. Diazepam to control fits
- Conduct delivery on their own
- Perform episiotomy and tear repair
- Administer oxytocic drugs for prevention and management of postpartum haemorrhage
- Perform controlled cord traction routinely for the third stage of labour
- Perform manual removal of placenta where controlled cord traction fails
- Perform bimanual compression of the uterus and aortic compression for life saving management of primary postpartum haemorrhage in the absence of medical assistance
- Assist the doctor in conducting vacuum extraction delivery
- Take immediate action to resuscitate a newborn with birth asphyxia
- Identify complications of pregnancy and childbirth at the early stage and carry out referral to higher health facility if the need arise

The Midwifery Trained Personnel are all those health workers who possess the necessary knowledge and skills to assist and conduct antenatal, intrapartum and postpartum care. The recognized Midwifery Trained Personnel in Bhutan are the Medical Doctor, Registered Nurses and Health Assistant

(TandinWangchuk)

Minister

LIST OF ABBREVIATIONS AND ACRONYMS

ANC	Antenatal Care
APH	Antepartum Haemorrhage

BP	Blood Pressure
CBT	Competency-Based Training
CCT	Controlled Cord Traction
CPR	Cardio Pulmonary Resuscitation
CTG	Cardio-tocography
DFMC	Daily Fetal Movement Count
EDD	Expected Date of Delivery
FHS	Fetal Heart Sound or Rate
GMP	General Midwifery Practice
Hb	Haemoglobin
HIV	Human Immuno Deficiency Virus
HMBR	Home-Based Maternal Records
IEC	Information, Education and Counselling
IM	Intramuscular
IPC	Intrapartum Care
IU	International Unit
IV	Intravenous
LMP	Last Menstrual Period
LSMP	Life-Saving Midwifery Practice
MCH	Maternal and Child Health
MFM unit	Maternal-Fetal Medicine Unit
mmHg	Millimetre of Mercury
MWTP	Midwifery-Trained Personnel
PHC	Primary Health Care
PMTCT	Prevention of Mother-to-Child Transmission
PPC	Postpartum Care
PPH	Postpartum Haemorrhage
SEARO	South-East Asia Regional Office
SOP	Standard Operating Procedure
STI	Sexually Transmitted Infection
STP	Standard Treatment Protocol
VCT	Voluntary Counselling and Testing
WHO	World Health Organization

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INTRODUCTION

Over half a million women die of maternal deaths every year. Around 99% of these deaths take place in the least developed and developing countries (mainly in Africa and Asia).

It has been well recognized that maternal health services should be made available and provided by a person who is competent to deliver them safely and effectively. The Midwifery-trained personnel are any skilled health personnel who have received education or training in midwifery skills. In Bhutan, midwifery-trained personnel are General Nurse Midwives, Health Assistants, Basic Health Workers and Assistant Nurses.

The Royal Government of Bhutan is committed to achieve the Sustainable Development Goals particularly the maternal, child and newborn health. Over the past years, the Ministry of Health has undertaken several safe motherhood initiatives to reduce the maternal mortality and morbidity in the country. Building capacity for the midwifery-trained personnel in essential obstetric functions and life-saving skills has been one of the priority initiatives of the Ministry of Health. In order to enhance the quality of midwifery service, the Ministry of Health has adapted the WHO Midwifery standard prototype and had been in use since 1999. The standard defines and duly recognizes the role of midwifery-trained personnel in Safe Motherhood at each level of health care system. It also establishes norms for all midwifery-trained personnel who are involved in providing maternal health care services and also serve as appropriate regulatory mechanisms.

Importance of the Midwifery Standard

- Serves to establish norms and states what level of performance is required to obtain a specific desired outcome.
- Provides protection to the public by having criteria against which products and the performance of practitioners can be assessed.
- Allows providers to know what to produce and purchasers or users to feel safe.
- Provides, maintains and assesses the quality of care.
- Identifies the actual competencies required by the midwifery-trained personnel in routine normal practice.
- Assists in the identification of operational issues required to meet the agreed standard.

Format of Midwifery Standard

Each standard includes:

1. Title and code for easy reference.
2. Aim indicating the intended objectives of the standard.
3. Standard statement describing what the midwifery-trained personnel will do and to what

level of competence

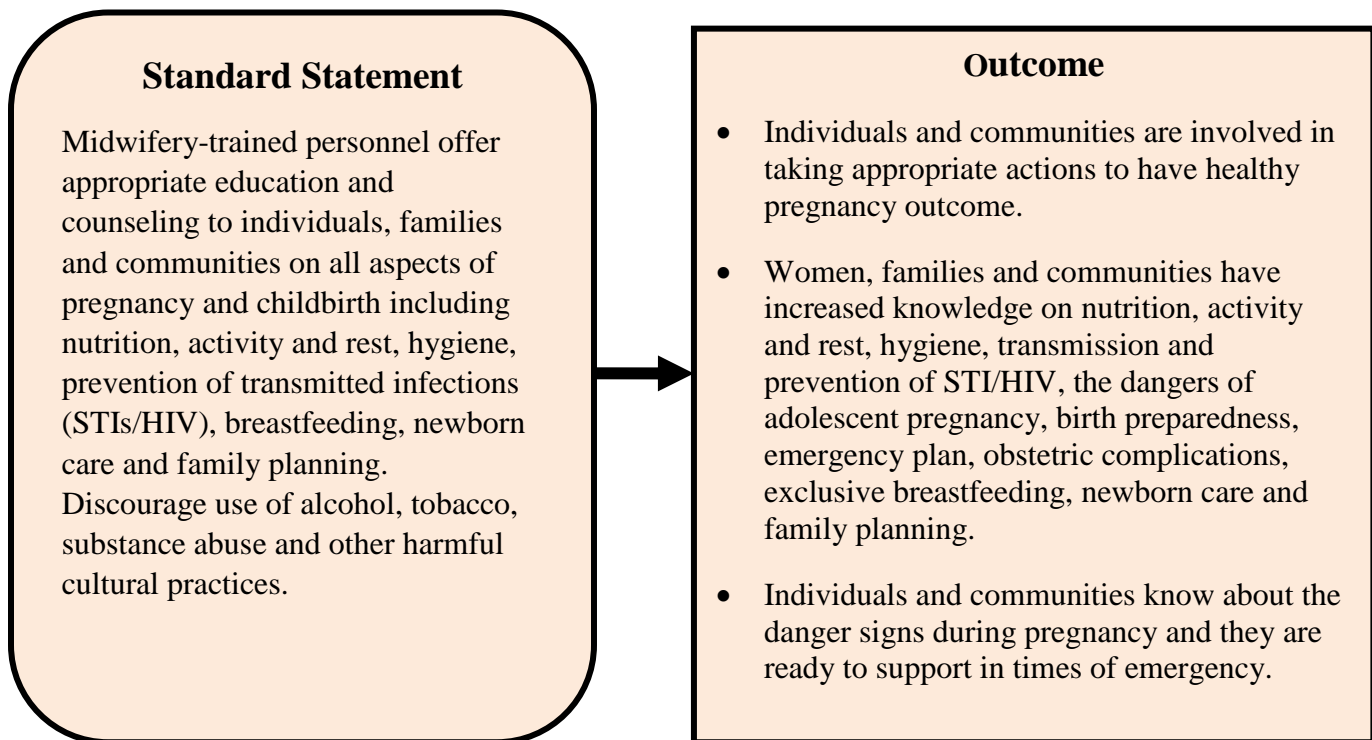
4. Expected outcome describing the results of midwifery services provided.
5. Prerequisites indicating the elements that are required for the successful implantation of the standards
6. Process detailing the sequential tasks/procedures to be followed for meeting the standard.
7. Audit outlining the *checklist* and *action plan* to test the standards.

Standards of Midwifery Practice for Safe Motherhood

A. General Midwifery Practice (GMP) Standards

General Midwifery Standard 1: Preparation For Healthy Family Life

Aim: *To provide appropriate health education for promoting and achieving healthy planned pregnancy and responsible parenthood.*



Prerequisites:

1. Midwifery-trained personnel (BScNM, GNM, HA and AN) work in close collaboration with community volunteers, Village Health Workers (VHW), teachers, non-formal instructors, traditional healers.
2. Midwifery-trained personnel are trained and skilled in Health promotion and education:
 - a. Communication and basic counseling (IPC skills).
 - b. Nutrition, physical activity, personal health and hygiene, the menstrual cycle, changes in pregnancy, dangers of adolescent pregnancy, STI/HIV (Sexually Transmitted Infections/ Human Immuno-Deficiency Virus) transmission and prevention, birth preparedness and complications readiness plan, breastfeeding, newborn care and family planning methods.
3. Availability of information, education and communication (IEC) materials.

4. Provision of un-interrupted supplies of condoms and drugs from Department of Medical Supplies and Health Infrastructure (DoMSHI) or Medical Supply Division(MSD)
5. Adequate support for community visits.

Process

Midwifery-trained personnel must perform as follows:

1. Plan IEC sessions at the beginning of the week or month or year.
2. Arrange to make appropriate number of visits to schools, women's groups and other relevant people in the community (such as *lams, tsips, pawos, jhakris*). Give talk on nutrition, physical activities, personal hygiene, menstrual cycle, changes in pregnancy, dangers of adolescent pregnancy, STI/HIV transmission and prevention, birth preparedness and complication readiness plan, breastfeeding, newborn care and family planning. *All appointments should be kept as planned unless an emergency occurs.*
3. Establish a mechanism to ensure that Reproductive Health is an important component for discussion in the *Gewog Tshogchung* and *Dzongkhag Tshogdue*.
4. Respect the cultural norms when interacting with individuals/groups and also promote helpful cultural/traditional practices. *However, discourage myths and taboos known to be harmful to health in pregnancy, childbirth and childcare.*
5. Encourage women to ask questions, and provide correct and honest answers with respect.
6. Provide correct answers to questions which were not answered.
7. Use appropriate visual aids and language to meet the needs of the individual/group present.
8. Inform how individual/group can contact the midwifery-trained personnel for antenatal consultations and counseling.
9. Provide privacy and maintain confidentiality while providing individual consultation and counseling sessions.
10. Carry out risk screening for STIs and provide treatment to the woman and their partners.
11. Support those with risk to avail Voluntary Counseling and Testing (VCT) from the nearest health center.
12. Maintain record of health promotion or education sessions conducted in the IEC register.



REMEMBER

- ✓ *Use clear and culturally acceptable messages to make health education more effective. Some of the traditional practices are useful.*
- ✓ *Couples have the right to correct information on family planning methods. They understand and take the responsibility of having children by choice and not by chance.*
- ✓ *Aim is to achieve behavioral change for safe sexual practices*

REPRODUCTIVE HEALTH IEC RECORD REGISTER

Name of the health Facility:

Year:

Sl. no	Date	Venue	Topic	Target Group	No. of Participants	IEC Materials Used	Conducted by

General Midwifery Standard 2: Record Keeping

Aim: *To record, analyze and use data for continuity of care, assessment of performance and to come up with or seek appropriate solutions to problems.*

Standard Statement

Midwifery-trained personnel keep accurate records of all activities carried out and maintain a register of all pregnant women in their locality, details of the care the women received during pregnancy, childbirth and postpartum. Record every community visit made and

Outcome

- Records available for audit and for improving practice and performance
- Increased community

Prerequisites:

1. National policy in place for recording all pregnancies, abortions, stillbirths, live births, maternal deaths, neonatal and infant deaths.
2. Exist system of birth and death registration.
3. Midwifery-trained personnel work in close cooperation with community leaders and other stakeholders and have knowledge on the health situation in the local area.
4. MCH Handbook is in use.
5. Midwifery-trained personnel have been trained and are skilled in the use of midwifery practice related records.
6. Midwifery-trained personnel have forms and registers for recording and reporting.

Process:

Midwifery-trained personnel must perform as follows:

1. Work with the VHW to line list all pregnant women in the community in the format given below.

TABLE I: LINE LISTING OF PREGNANT WOMEN IN THE COMMUNITY

Sl. No.	MCH Reg. No.	Name	Age	Parity	LMP/ EDD	Contact person/ Address/Mobile No.	Outcome	Remarks
1								

2								
3								

2. Make sure that VHWs are visiting households to line list pregnant women every 3 months and are keeping track of them.

TABLE II: MONTHLY LINE LISTING OF PREGNANT WOMEN BY VHWs

Sl. No	Name	Age	Village/ Current Address	Contact person &Phone number	Reported to health facility or not for ANC checkup (Mark () if reported and (X) if not reported).
1					
2					
3					

Report for the month of:.....

Signature of VHW:.....

Name of VHW:.....

Mobile Phone No.:.....

Date of report submission:.....

3. Maintain accurate records of all direct care given by the midwifery-trained personnel during pregnancy, childbirth and postnatal period. All records must include dates, time, month and year. Name and signature of the midwifery-trained personnel making the record should be clearly written.
4. Entrust the woman with responsibility in keeping her own records.
5. Follow national policy/guidelines for record keeping.
6. Keep all records safe and protected from damage. Records are required for review by/with the supervisor and for audit purposes.
7. Ensure that all steps are taken to record and register all pregnancies, abortions, stillbirths (fresh or macerated), live births, maternal, neonatal and infant deaths. Issue death certificates for neonatal and infant death that occurs in health facilities. During house visits, inquire specifically about maternal, neonatal and infant deaths that could have occurred since the last visit and remained unreported.

8. Review the records at least once a month. During the review, it is important to identify gaps in practice, complications and constraints. It is necessary to keep total of all women who delivered, mothers and babies cared for, to compare with previous months and to identify changes in work patterns or numbers so that they are alerted and can alert their supervisor.
9. After reviewing the records, make action plan. This should include points or issues, problems or significant changes in the numbers of women receiving midwifery care to discuss with local community and/or supervisor and gaps in their own knowledge/practice. It is also important to note successful practice(s) so that a similar practice can be tried again in a similar situation.
10. Identify for each issue what action will be taken to resolve it.
11. Review action plan regularly to see if it was successful and that all actions have been taken by the specified date and time. *It is helpful to maintain dates /time separate diary /journal. to keep notes on all the above, particularly personal thoughts and reviews.*



REMEMBER

- ✓ *Records are vital tools for midwifery-trained personnel to help review their own practices.*
- ✓ *Records should be maintained at the time of doing.*
- ✓ *Records must be legible, accurate and include time, date, month, year, name, designation and signature.*
- ✓ *Records are vital for continuity of care and referral.*

Antenatal Care Standard 1: Identification of Pregnant Woman

Aim: *To identify and motivate pregnant women to attend antenatal care*

Standard Statement

Midwifery-trained personnel must ensure that the line listing of pregnant women is carried out. The women, their husbands, family and community members are motivated to seek early and regular ANC. Encourage couple for ANC visit.



Outcome

- Actual number of pregnant women is known.
- Women are aware of the signs and symptoms of pregnancy.
- Women, their husbands, family and community members are aware of the benefits of early and regular ANC and where to obtain ANC services.
- Increased number of pregnant women attending ANC before 12 weeks of pregnancy as soon as they missed their period.

Prerequisites:

1. Midwifery-trained personnel have the capability to work with community leaders, village health workers, other sectors and health care providers to help identify pregnant women and ensure all pregnant women have access to early and regular ANC.
2. Midwifery-trained personnel have been trained and are skilled in:
 - the aim and purpose of ANC;
 - the signs and symptoms of pregnancy;
 - urine pregnancy test; and
 - Interpersonal communication skills.
3. IEC materials for health promotion are readily available. And if not available initiated themselves by health workers.
4. MCH handbook is in use.
5. Midwifery-trained personnel are provided with pregnancy testing kits.
6. Provisions for community visits by the midwifery-trained personnel are available.

Process**Midwifery-trained personnel must:**

1. Work in cooperation with the village health worker in line listing of the pregnant women in the community. Explain correctly the aim and advantages of antenatal care to an individual pregnant woman, her husband/family and community members. Encourage them to use the nearest health facility for antenatal care.
2. Use appropriate two-way communication. Correctly describe the procedure that takes place in the antenatal clinic to community leaders and elderly members of the community to relieve their anxiety about examinations undertaken at these clinics and to promote the advantages of ANC.

3. Stress that the goal of antenatal care is to achieve a healthy mother and a healthy baby at the end of the pregnancy. For this to happen, **antenatal care must begin as soon as pregnancy is suspected** and continue regularly throughout pregnancy.
4. Inform all women about the symptoms of early pregnancy. Stress the need for all women to be aware of how their bodies function. Women should pay particular attention to the occurrence of their menstrual cycle and seek care after missing a menstrual cycle or if the menstrual flow is less than usual.
5. Work with others in the community to identify pregnant women and motivate them to seek early antenatal care (*as soon as missing a period or suspecting pregnancy*).
6. VHWs should be provided with the register for line listing of pregnant women in their community for reporting to the health center.
7. Explain to all mothers and relatives on the proper use and taking good care of the MCH Handbook



AIMS OF ANTENATAL CARE:

1. *Early detection and treatment of complications or conditions that might affect the woman's pregnancy and require additional care.*
2. *Implementation of safe, simple and cost-effective interventions to prevent problems such as anaemia, and maternal and neonatal tetanus.*
3. *Health promotion, including improvement of maternal nutrition.*
4. *Birth preparedness and complication readiness.*
5. *Management of foetal problems detected.*
6. *Preparation of the couple for newborn and infant care, including exclusive breastfeeding.*



SYMPTOMS OF EARLY PREGNANCY

- *Amenorrhea*
- *Breast changes – prickling or tingling sensation and slight enlargement*
- *Morning sickness – nausea*
- *Bladder irritability – increased frequency of urination*



Why do some women not attend antenatal care?

Some of the reasons might be:

1. The decision about attending is not theirs to make; often-older members of the family and husbands see no need for ANC; and they rely on traditional methods of dealing with pregnancy.
2. The facilities provide no privacy, involve longer waiting time or are not “women friendly”.
3. Ignorance – A few women still do not know why they should attend clinic for ANC; so, they do not bother to go.
4. Travel and transport problems make it difficult for the woman to go for ANC or for health workers to go out to the woman to provide community-based ANC.
5. Inadequate cultural support may prevent pregnant women from leaving their home to seek care in pregnancy.
6. Superstition and anxiety about letting any health worker examine the woman during pregnancy (in some places this is more so if the health worker is male).
7. General dislike and distrust of all health workers – some members of the community distrust all official workers.
8. Financial problems – women and/or their family members may not be able to afford ANC or afford time off from work to attend.
9. Fear of the pregnancy being exposed (single mother, adolescents, unintended pregnancy)

etc.)



REMEMBER

Where any of the above exists, it is the responsibility of the midwifery-trained personnel to work with the community and try to develop strategies to overcome these obstacles.

Antenatal Care Standard 2: Antenatal Monitoring and Examination

Aim: *To provide quality antenatal care*

Standard Statement

Midwifery-trained personnel should provide antenatal care for every pregnant woman and also recognize danger signs of pregnancy and identify risk factors associated with pregnancy and appropriate action

They must administer correct immunization according to the national guidelines, give appropriate advice and health education and undertake relevant investigations.

They must keep accurate records of each visit.

Outcome

- Received appropriate antenatal monitoring, examination, and referral if necessary
- Increased utilization of Midwifery-trained personnel by community
- Early detection and management of pregnancy related complications
- Women, their husbands, families and community know the danger signs of pregnancy and appropriate actions to take
- Local arrangements made for transporting pregnant woman to referral center in an emergency.

Prerequisites:

1. An operational system is in place which encourages all pregnant women to be examined by midwifery-trained personnel as soon as they have missed one period and then at regular intervals throughout the pregnancy.

2. Midwifery-trained personnel have been trained and are skilled in:
 - Antenatal care
 - Use of MCH Handbook
 - Recognizing danger signs of pregnancy
 - Using tape measure for measuring fundal height
 - National infection control guidelines
 - Blood grouping
 - Syndromic management of sexually transmitted infections
 - HIV voluntary counseling
 - Prevention of other-to-child transmission of HIV
 - Infant feeding options for HIV positive mothers
 - Advise on the breastfeeding techniques
3. Essential equipment and supplies to conduct antenatal examination, including necessary reagents for tests (urine and blood), stethoscope, sphygmomanometer, tape measure, weighing scales and foetoscope fetal Doppler are available and in good working condition.
4. Drugs and other agents, such as tetanus toxoid, iron and folic acid tablets, drugs for hookworm and malaria treatment and malaria prophylaxis in high malaria prevalent areas are readily available.
5. A fully operational referral system is in place for the pregnant woman identified as not eligible for routine antenatal care, or who develops a complication, to ensure that she receives appropriate care and treatment in time.
6. Facilities for VCT services are accessible.
7. Trained health workers for Antenatal and Postnatal classes.

Process:

Midwifery-trained personnel must perform as follows:

1. Greet the pregnant woman at each visit in a friendly manner.
2. Enroll the pregnant woman for antenatal booking by 8 weeks with a viable pregnancy where ultrasound facilities are available
3. Enroll the pregnant women for ANC before 12 weeks
4. At the first visit, take a **full history** and complete the MCH handbook. The history should include personal information, menstrual history, obstetrical history, medical history and relevant details about the current pregnancy.

5. **Dating of the pregnancy:** Ask for her Last Menstrual Period (LMP). Record LMP even if it is stated in the Bhutanese calendar and find out the corresponding date on the English calendar. Then calculate Estimated Date of Delivery (EDD) by counting **forward 9 lunar months and add seven days.** If exact date of LMP is unknown, ask for date when foetal movements were first felt (18 weeks for multi and 20 weeks for primi) and assess fundal height for estimating EDD. Make a special note that the EDD is approximated. Wherever possible or if facilities are available at the site, all pregnant women must have a dating ultrasound done at the first visit or before 20 weeks.
6. Perform a **physical examination.** Record **height (cm)** and weight (kg).
7. Measure **Blood Pressure (BP)** with the pregnant woman in a sitting position after resting for 15 minutes. Place the **sphygmomanometer** on a **flat surface at the same level with the woman's heart and the observer's eye must be at the same level** while taking the reading. Keep the BP bladder cuff over the bare arm and record the blood pressure.
8. Check for pallor, jaundice and generalized edema. Examine the oral cavity and look at the tongue, teeth and gums. Examine the heart and lungs.
9. Examine the breasts and look for shape/size, contour and overall appearance. Note any abnormalities such as:
 - Obvious differences between them;
 - Skin puckering or dimpling;
 - Examine the nipples for size, shape and direction, inversion, rashes, sores or discharges.
10. Examine the abdomen and palpate liver and spleen. For the rest of the abdominal examination refer to Antenatal Care Standard 3.
11. Perform the following **laboratory tests on the first visit:**
 - Urine protein and sugar – repeat every visit. Collect mid stream urine sample (procedure: wash perineum using tap water & soap, let it dry. Allow first half of urine to pass and collect the mid way urine sample in a sterile dry screw capped container. Immediately send to laboratory. If delay more than 2 hours store in the fridge and send to laboratory. If delayed more than 24 hours, discard the sample and collect new specimen).
 - Hemoglobin or Complete Blood Count if available estimation.
 - Perform Blood grouping (ABO and Rh) at booking visit. If mother is Rh negative, refer to district hospital.
 - Test for syphilis (RPR/VDRL/TPHA) and viral markers (HIV/HBsAg) – Do twice, one at booking and 2nd at 36 weeks. Treat syphilis if test is positive as per STI protocol. If any viral markers are positive, refer to district hospital.
 - Sugar testing – Do Fasting Sugar and 2 hours after breakfast by glucometer. If abnormal (FBS \geq 100/dl and PPBS \geq 140 mg/dl), refer to district for OGTT.

12. Result should be crossed checked and verified and the MCH staff should signed in the result column in MCH hand book page 5 with date.
13. Do the following **interventions**:
- Give Td following the protocol (given at the end of this standard).
 - Give folic acid supplementation 1 tablet per day from early pregnancy till end of 12 weeks.
 - If mother is anemic, refer anemia section (page. 148)
 - Give tablet Vitamin C 250mg with iron tablet.
 - Give one tablet of iron with minimum of 60 mg elemental iron **after 12 weeks without vomiting problem**. In mothers with **persistent vomiting problems**, iron supplement can be delayed till **18 to 20 weeks**. Remind pregnant woman to take iron tablets after meals and avoid taking it with tea, coffee or milk and milk products. Explain that the iron tablet will improve her baby's and her health and prevent some of the complications that can occur during pregnancy, childbirth and breastfeeding.
 - Give **1500g of calcium** (5 tablets) once daily **at 12 weeks**.
Instruct the woman not to take calcium at the same time as iron (as it hampers absorption)
 - If there are signs and symptoms of sexually transmitted infections (STIs), treat using syndromic management approach.
14. **Assess for referral:** Use the **risk assessment form** (given at the end of the standard) and if the answers to all 35 questions is "No", there is no need to refer the woman. If the answer to any of the 35 questions is "Yes", the woman should be referred to a doctor or a higher centre for evaluation and additional care.
15. **Give advice and answer any questions:** Provide health messages and counseling based on the information gathered during history taking, physical examination and laboratory tests.



HEALTH EDUCATION

Nutrition: Recommend locally available food. One meal extra for mothers with poor weight gain. Women should take smaller but frequent meals.

Avoid: Alcohol, tobacco, doma (betel nuts), smoking and other substance abuse and medications without prescription.

Exercise: Light to moderate exercise like taking a walk is permissible if there are no other risk factors,

Work: Normal activity if there are no risk factors.

Sex: Avoid in first trimester (risk of miscarriage) and in last trimester (risk of preterm labour). Modified positions recommended avoiding undue pressure to her abdomen. Use condoms to prevent STIs/HIV in risky situations.

16. Assist the woman in developing a birth plan using the format given at the end of the standard. This includes both birth preparedness and complication readiness. The woman's partners or family members, and other key decision-makers should be involved in the process.
17. Encourage the women to bring her partner for couples counseling.
18. At the first ANC visit, introduce the concept of the birth plan. Ensure that the woman and her family understand that they should address each of the items well before the expected date of the birth.
 - At the next visit, review and update the birth plan.
 - By the third visit, the birth plan should be finalized.
19. Explain to the woman the symptoms and signs of labor so that she will come to the health facility or call for help in time. True labor pain is regular, progressively painful contractions, starts at lower back with radiation towards inner thigh and of increasing intensity and frequency; passage of watery fluid from the vagina (rupture of membranes) or presence of show (mucus mixed with blood stain).
20. Request the woman to record when she notes the first foetal movement, if appropriate.
21. Schedule appointment for second visit and this should be written in the woman's MCH Handbook (Visit schedule given at end of this standard).
22. Maintain complete clinic record.

ANTENATAL FETAL MONITORING

Encourage mother to monitor fetal movements at home after perception (18 weeks in multi and 20 weeks in primi-gravida) by the following first two methods and report to health center:

1. Kick count chart-count to 10

- use Cardiff 'count 10' formula: start counting at 9 am and counting comes to an end as soon as 10 movements is noted.

Report to doctor if less than 10 movements occur in 12 hours on 2 successive days OR no movement is perceived even after 12 hours in one day.

2. Daily Fetal Movement Count (DFMC)

- 3 counts of each of one hour duration (Morning, Noon and evening). Multiply total counts by 4 which gives 12 hours fetal movement.

Report to doctor if fetal movement is less than 10 in 12 hours or less than 3 in each hour.

During every ANC visit, health worker should listen to fetal heart sounds after 26 weeks by the following methods whatever facilities are available in your health center:

3. Fetal Heart Sound monitoring – using Pinnard/ Stethoscope/ hand held Doppler

4. Cardio-tocography (CTG) – Non stress

5. Modified Biophysical profile

Second and subsequent visits

23. Greet the woman and review the history, regarding present pregnancy, record symptoms and events since first visit (e.g. pain, bleeding, vaginal discharge/ amniotic fluid, and signs and symptoms of severe anaemia). Note changes in body features or physical capacity (e.g. peripheral swelling, shortness of breath), observed by the woman herself, by her partner, or other family members.
24. Inquire about foetal movements and note time of the first recognition if applicable.
25. **Perform physical examination.** Measure blood pressure and fundal height, check for pallor, and record in the MCH Handbook. Look for dependent edema (upper third of shin) and other alarming signs of disease: shortness of breath, coughing, etc. If patient is bleeding or spotting, do not perform vaginal examination; refer to hospital after stabilization if needed.
26. Review the results of tests done in the first visit, do them if not done and perform the following **lab tests**:
 - a. Every visit: urine test for protein and sugar. If result is not clear as trace protein, repeat the test with clean catch mid-stream urine.
 - b. 24-28 weeks: FBS/2 hrs PPBS (if facility is available), if reports are abnormal (FBS $\geq 100\text{mg/dl}$ & PPBS $\geq 140\text{mg/dl}$) repeat the test next day, if still abnormal refer for OGTT test in Dzongkhag Hospital.

- c. 26 – 28 weeks for hemoglobin test
- d. 32 weeks : Hb level
- e. 36 -38 weeks : Hb level and repeat viral markers (HIV, HBsAg, HCV) and VDRL/TPHA.

27. Assess for referral. Reassess whether the woman can still follow the routine care. Refer if:

- a. Hemoglobin (Hb is less than 7 gm/dl)
- b. Urine is positive for protein (2+ or more) and blood pressure is high (above 140/90 mmHg) at 2 readings at least 1 hour apart.
- c. Evidence of pre-eclampsia or hypertension
- d. Bleeding or spotting
- e. Fundal height values are below or above expected figure by a difference of 3 cm or more between 20 to 36 weeks and this method is not reliable for fetal growth monitoring after 36 weeks.
- f. Loss of foetal movement or absent foetal heart sounds
- g. Presence of sugar in urine (1+ or more)
- h. Reactive (positive) any viral markers (HIV, HbsAg, HCV)
- i. Other unexpected symptoms

28. **Ensure** the following for compliance:

- a. Continue **Iron and folic acid supplementation - one tablet once daily**. If the woman registers for the first time in the later half of pregnancy, then increase the supplementation to one tablet twice daily. Women with mild to moderate pallor should be given one tablet twice a day.
- b. **Calcium 1500 mg** once daily.
- c. Injection Td, if applicable (see attached table below).

29. Give advice, answer questions and schedule the next appointment:

- a. Repeat all the advice given at the first visit.
- b. Advise mother to come immediately if foetal movements are not felt for more than 2 hours.
- c. Advise on whom to call or where to go in case of bleeding, leaking of amniotic fluid, abdominal pain or any other emergency, or when in need of other advice. This should be confirmed in writing. Plans for getting to a hospital should be reviewed.

30. Finalize birth plan during the later part of the ANC visits.

31. Give advice on measures to be taken in case of preterm labour (labour before 37 weeks).

32. The woman should also be encouraged to discuss **birth spacing** and contraceptive options with her partner during antenatal period. Waiting for a postpartum visit to talk about contraception may be too late!

33. Provide recommendations on lactation, contraception and the importance of the postpartum visits at 3 days ,7 days , 21 days and 42 days
34. All women (3-5%) who will not have delivered by the 41 completed weeks must be referred directly to the hospital for induction of labour where facilities are available.
35. Recommend postpartum visit within first week after delivery. Give health education on exclusive breastfeeding (Follow National Policy Guideline on Breast Feeding) and family planning.
36. **Educate the women and her relatives about danger signs:** Danger signs indicate that the woman may be experiencing a life-threatening complication – they indicate the need to respond appropriately. This means calling for help and assisting to take the woman to a place where she can receive immediate attention by skilled providers. Every woman who comes to the facility for ANC should be asked upon arrival whether she is experiencing danger signs or whether she is in labour.



DANGER SIGNS OF PREGNANCY

- *Vaginal bleeding at any time*
- *Unconscious or convulsing*
- *Severe headaches / blurred vision*
- *Severe vomiting*
- *High fever*
- *Severe abdominal pain*
- *Severe breathing difficulty*
- *Labour prolonged for more than 12 hours*
- *Absence of fetal movement*
- *Pre labour rupture of bag of water*

37. When danger signs are identified, the health staff should immediately perform a **rapid initial assessment** to determine her degree of illness and what emergency care must be implemented:
- a. **Seek help**
- b. **Assess airway and breathing for respiratory distress:**
- Respiration rate and effort: very rapid, obstructed, gasping
 - Colour: dusky or bluish (cyanosis)
- c. **Assess circulation for signs of shock:**
- Measure pulse: 110 or more and weak
 - Measure BP: systolic less than 100 mm Hg

- Skin may be cold and clammy (sweaty)

d. Assess convulsions/loss of consciousness

e. Assess bleeding:

- Approximate amount of blood loss
- Period of gestation

f. How to stabilize:

- **Maintain clear airway and breathing**
- **If bleeding or in shock**, open an I/V line with large bore (size16 or 18G canula and run normal saline
- **With high fever**, start I/V antibiotics
- **If severe pain**, give analgesics
- **With convulsion**, give inj Diazepam 10 mg slow I/V and 40mg in NS 500ml and run at 20 drops per minute
- **Insert Foley's catheter within urine bag** for non-ambulant patients

g. After stabilization, transfer the woman with clear referral notes for further care with an experienced staff escort on the way to the nearest comprehensive EmONC center.



REMEMBER

- *Refer immediately if situation require further investigation.*
- *Follow up the outcome for all referrals.*
- *It is better to refer early to avoid complications.*

Tetanus vaccination for pregnant women

Mother must have 6 documented tetanus containing vaccinations from childhood to be protected.

For pregnant women having no record of Tetanus Toxoid vaccination

Td dose	Frequency / Time
1st dose	- As soon as possible
2nd dose	- 4 weeks after 1st dose
3rd dose	- 6 months after 2nd dose
4th dose	- 1 year after 3rd dose
5th dose	- 1 year after 4th dose

For pregnant women having record of Tetanus Toxoid vaccination

Number of prior TT received	Td dose	Frequency / Time
Pregnant woman who has received 3 doses	4th dose	- As soon as possible
	5th dose	- 4 weeks after 4th dose
	6th dose	- 1 year after 5th dose
Pregnant woman who has received 4 doses	5th dose	- As soon as possible
	6th dose	- 1 year after 5th dose
Pregnant woman who has received 5 doses	6th dose	- As soon as possible

Recommended antenatal Care visit to promote good health

Visit	POG	Recommended Activities
1.	≤12 weeks	Establish early dating by ultrasound (where possible). Do initial laboratory tests, including urine and blood. Help mother with hyperemesis in early pregnancy, diagnosis chronic hypertension and twins. Provide health education on healthy eating and staying physically active. Complete birth preparedness plan. Provide Fe/FA tablets. Start calcium at 12 weeks.
2.	20 weeks	Dating by ultrasound (if not already done). Listen for fetal heart rate (FHR) once uterus is palpable. Measure fundal height and plot on pg 10. Diagnose twins or PIH. Provide health education & Fe/FA. Give deworming medicine.
3.	26 weeks	Screen for diabetes. Monitor fetal growth, plot fundal height (pg 10 in MCH handbook) and screen for PIH, check Hemoglobin.
4.	30 weeks	Monitor fetal growth, plot fundal height, and screen for PIH , check Hemoglobin. Counsel about breast feeding.
5.	34 weeks	Monitor fetal growth, plot fundal height and screen for PIH, check Hemoglobin. Counsel about breast feeding.
6.	36 weeks	Monitor fetal growth & plot fundal height, presentation, lie, & mal-presentation, and FHR. Check Hemoglobin & repeat TPHA/RPR, HBsAg, & HIV. Ultrasound to check fetal weight, AFI, and presentation. Discuss birth preparedness (pg 16 in MCH handbook).
7.	38 weeks	Monitor fetal growth & plot fundal height, presentation, lie, and refer if needed (pg 11 in MCH Handbook). All previous caesarean patients should be referred to OB/GYN. Counsel about exclusive breast feeding for first 6 months.
8.	40 weeks	Monitor fetal growth & plot fundal height. (AFI, and presentation, if US available.) If any problem, admit or refer. If patient stays nearby the health facility and has no problems, she may be allowed to wait until 41 weeks, after which time she must be admitted or referred for deliver

Additional visits are with Dr/OBGYN for high risk pregnant women.

Risk assessment form

Initial General Examination:

BP...../.....

Height: cm Pre-pregnancy Wt: kg BMI:

No Yes

- Edema
- Jaundice
- Pallor

NI Abl

- Teeth/gums
- Heart
- Liver
- Spleen
- Lungs
- Breasts

No Yes

- Diastolic BP over 90
- <18 or > 40 years old
- Pelvic mass
- Suspected twins
- Suspected STI/RTI
- Vaginal Bleeding

Medical History:

No Yes

- Cardiac Disease
- Hypertension
- Thyroid Disease
- Family history of twins

No Yes

- Diabetes
- Hepatitis
- Tuberculosis

No Yes

- Blood Transfusion
- Transfusion reaction
- Renal Disease

- Family history of congenital defects (requires USG scan between 20-22 wks)
- Known substance use (including alcohol, doma, smoking)
- Infertility treatment (specify):
- Other severe medical disease (list):

Past Obstetric History:

No Yes

- Mother is Rh negative and father is Rh positive
- Previous still birth, neonatal loss, or congenital defect (circle)
- History of 3 or more consecutive spontaneous abortions
- Birth weight of last baby less than 2500 grams
- Birth weight of last baby more than 4500 grams
- Last pregnancy/child birth: (circle from list below)
(chronic hypertension, pre-eclampsia, or eclampsia, PPH, retained placenta)
- Previous surgery on reproductive tract: (circle from list below)
(caesarean section, cervical cerclage, LEEP, myomectomy, ectopic, other)

Write any high-risk factor/s from this red box on the top of page 9.

Components for discussion	Plan 1 (an initial visit)	Plan 2 (at 36 weeks)
Place delivery		
Name of health center for emergency management		
Transport: Distance to palace of delivery. Means of transport in labor/in emergency		
Money: Counsel on saving. (are resources available to reach the health center?)		
Decision making: Primary decision maker: Alternative decision maker (in the absence of primary decision maker)		
Support person: To accompany mother: To manage home:		
Blood donors: For each list: name/blood type and mobile number It is very important that you find adults with the same blood type in case you need blood during your delivery	1. / # 2. / # 3. / #	1. / # 2. / # 3. / #
Provide health education on early initiation and exclusive breastfeeding		

Call 112 for emergency

Items needed at the time of birth. Items should be prepared no matter where the delivery is planned.

For mother:	For baby:	By Health Center:
Sanitary pad	Clean towels/chutheys	Sterilized delivery set
Soap	Blankets	Essential medicines
Bed sheets	Shirt which opens from the front	Essential equipment
Underwear	Cloth nappies/chuteys	
Spare clothes	Baby hat	
Shirts which open from the front		

Note: Advise to carry mother's CID/Passport when referred to health facility

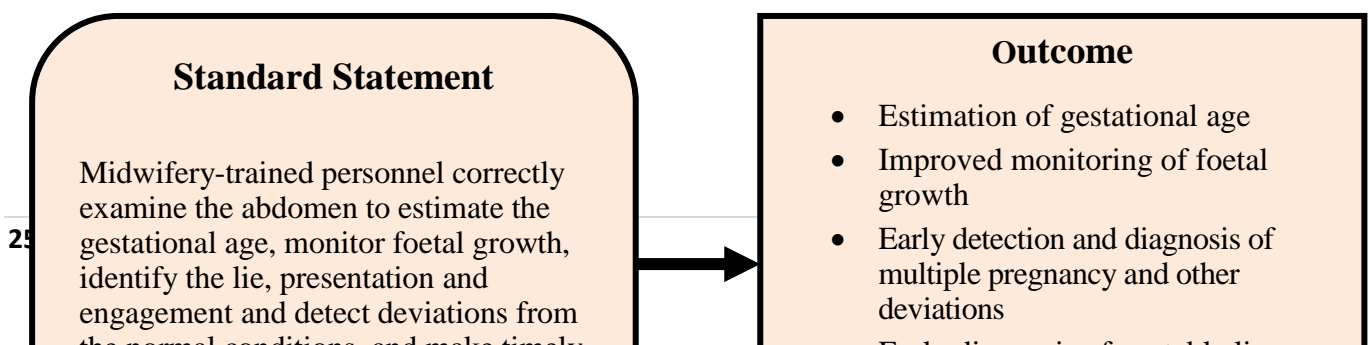
OVERVIEW OF ROUTINE ANTENATAL VISIT SCHEDULE

Purposes of the first visit are to:

- Obtain relevant personal, medical and obstetric history
- Perform physical examination
- Measure height and weight
- Check for signs of severe anaemia, general condition
- Measure blood pressure
- Listen to heart and lungs
- Examine the abdomen
- Measure fundal height and assess gestational age

Antenatal Care Standard 3: Physical Examination

Aim: *To estimate gestational age, monitor foetal growth and accurately identify lie, presentation and position of foetus.*



Prerequisites:

1. Pregnant women attend minimum of 8 visit ANC.
2. Midwifery-trained personnel have been trained and are skilled in the correct procedures for conducting physical examination.
3. Essential equipment such as tailor's measuring tape measure and fetoscope are available and in good working condition.
4. A room or proper screens are available which allows privacy to conduct abdominal palpation. Heaters or fans are available for temperature control.
5. Physical examination (General, Breast and Abdomen) is carried out at every antenatal visit.
6. MCH handbook is in use. And properly filled by authorizes person.
7. A fully operational referral system with an effective feedback mechanism is in place for the pregnant woman identified as not eligible for routine care, or who develops a complication, to ensure that she receives prompt and appropriate treatment

Process**Midwifery-trained personnel must perform as follows:**

1. Ensure **privacy** while conducting the examination
2. **Explain the procedure** to be undertaken to the pregnant woman before every examination.
3. Ask the pregnant woman to empty her bladder prior to an abdominal palpation.
4. Perform General examination with the women in sitting position. Check for BP, Pulse, anemia, jaundice, edema.

5. Examination of the Breast in sitting position with full privacy maintained. Look for symmetry, swelling, inverted nipples, flat nipples etc. If women are identified with asymmetry and lumps, they should be referred to specialist. If women have inverted or flat nipples, she should be identified as needing special help at birth for breast feeding.

Abdominal Examination

6. Have the woman lie on her back with the upper part of her body supported with cushions/ pillows and with her knees slightly bent. Ask the woman to uncover her abdomen. **Never** make a pregnant woman lie flat on her back as the heavy uterus may compress the main blood vessels carrying blood returning to the heart and cause fainting (**supine hypotension**).
7. Inspect the surface of the woman's abdomen for scar(s) that may be from a caesarean section or other uterine surgery. If the woman has a scar, ask her if it was from a caesarean section or other uterine surgery. If so, she should be advised to give birth in a facility with the capacity to perform caesarean sections.

Procedure for < 22 weeks:

8. Gently palpate the abdomen above the symphysis pubis. Estimate the weeks of gestation by determining the distance between the top of the fundus and the symphysis pubis. The normal findings should be:
 - The uterine fundus feels firm.
 - Fundal height in centimeters is consistent with period of gestation between 20 to 36 weeks.
 - At 12 weeks, the uterus rises out of the pelvis and is palpable just above the symphysis pubis.
 - At 16 weeks, the uterus is about halfway between the symphysis pubis and umbilicus.
 - At 20 weeks, the uterus is just below the umbilicus.
9. If the uterus is soft and boggy, or too small or too large for dates, and advise Ultra sound if facilities available if not **refer**.

Procedure for >20weeks:

10. Check the fundal height with a tape measure in cm. Locate the bony border of the symphysis at the upper border of the bony pelvis. Place the zero line of the tape measure on this bony edge. Stretch the tape measure across the contour of the abdomen to the top of the fundus. Use the abdominal midline as the line of measurement. The **normal findings should be:**
 - Fundal height increases, and does not decrease between visits.
 - Fundal height is consistent (+/- 2 cm) with period of gestation till 36 weeks.
11. The chart in MCH Handbook must be used to record the fundal height. (See figure on uterine height values by weeks of gestation given at the end of the standard). The normal values of fundal height measurement fall between the upper and the lower lines in the chart. If the values are above the upper

line or below the lower line, **refer**.

12. Look for signs of **multiple pregnancy** such as many foetal parts, two foetal heads, excessive amounts of amniotic fluid, large for date.
13. Assess condition of the foetus: size, presentation and lie. This can be determined during an abdominal examination so that problems can be detected.
14. Examine to see the foetal presentation, fetal heart sound and position at 28 weeks. Be sure your hands are clean and warm. Stand at the woman's right side, facing her head and:
 - a. Perform **manoeuvre one (First Grip)**
 - i. Using the flat of the hands (not the tips of your fingers) place both hands on the sides of **the fundus at the top** of the abdomen.
 - ii. The head will be globular, feels harder than the buttocks and can be moved side to side, between the fingers of the hands (ballotable).
 - b. Perform **manoeuvre two: (Second Grip)**
 - i. Move your hands smoothly down the **side of the uterus** to feel for the foetal back; it will feel firm and smooth in contrast to the small parts, which will feel knobby and easily moveable.
 - ii. Keep one hand fixed as support (your dominant hand) against the side of the uterus and use the palms of other hand (your non-dominant hand) to apply gentle but deep pressure to feel whether it is **the back** (firm, smooth and broad) or **the limbs** (small knobby structures).
 - iii. Repeat the manoeuvre on the other side.
 - c. Perform **manoeuvre three: (Pelvic Grip)**
 - i. Ask the woman to bend her knees slightly to relax the abdominal muscles.
 - ii. Using the thumb and middle finger of the dominant hand, grasp the foetal part that is in the bottom part of the uterus (just above the symphysis pubis, dipping into the pelvis, or in the pelvis).
 - iii. If this foetal part is palpable at or above the symphysis, feel it for shape, size, consistency and mobility. If the head is presenting, a hard mass with a distinctive round surface will be felt. If the breech is presenting, a large, soft broad mass will be felt.
 - d. The **normal findings should be:** - At 36 weeks;
 - i. The foetal lie is usually longitudinal/cephalic presentation in 96% of cases, 4% cases are of breech presentation.

- ii. The foetal head may be:
- iii. Just above the pelvic brim (floating).
- iv. Just dipping into the pelvis
- v. Or fixed or engaged

15. Test for head engagement:

In the primigravida if the foetal head is not engaged by 38 weeks, it is helpful to see if it will engage. To do this, the top of the examination table should be propped up to 60° from the horizontal and the lower abdomen re-examined. If this small change in entry angle allows engagement of the foetal head, it will usually go down when labour contractions start. This is a simple test giving useful information about the potential of the foetal head to negotiate the mother's pelvis. If the head will not go into the pelvis with this manoeuvre, and patient lives far away from the hospital, may need referral.

16. If the foetus is in breech presentation **after 36 weeks**, refer the women to appropriate specialist or a higher level of care.
17. If the foetus is in transverse lie **after 36 weeks**, refer the woman.
18. Examine for foetal heart beat and record at every visit. Count and record fetal heart rate from 26 weeks. Place your ear in close, firm contact with the foetoscope. Move the foetoscope around to where the foetal heart is heard most clearly. Remove your hands from the foetoscope and listen to the foetal heart. Listen for a full minute, counting the beats against the second hand of a clock. **Feel the woman's pulse at her wrist, simultaneously, to ensure that you are measuring foetal heart sounds and not maternal pulse. Maternal pulse will be slower than the Foetal Heart Rate (FHR).** The normal findings should be:
- FHR from 120 to 180 (Before 32 weeks) beats per minute;
 - In early pregnancy, the sound of the foetal heart may be very subtle, like the ticking of a watch.
19. Fetal Doppler can give accurate reading of FHR. Discuss all findings with the pregnant woman, her husband/accompanying family members. This reassures the women or the couple.
20. Record all findings accurately. Review all findings and if any deviations are found, refer to the first referral unit/hospital for further management.
21. Ultrasound examination recommendation in low risk women
- Dating as early as possible (may be delayed to 18-22 weeks for patients in remote center)
 - Anatomy Scan at 18-22 weeks (in remote centers can be offered up to 24 weeks)
 - 30-32 weeks to see placenta position, if in earlier scan showed low lying placenta
 - 36 weeks (Presentation, EFW and AFI)



REMEMBER

Deviations requiring further investigations/referral include:

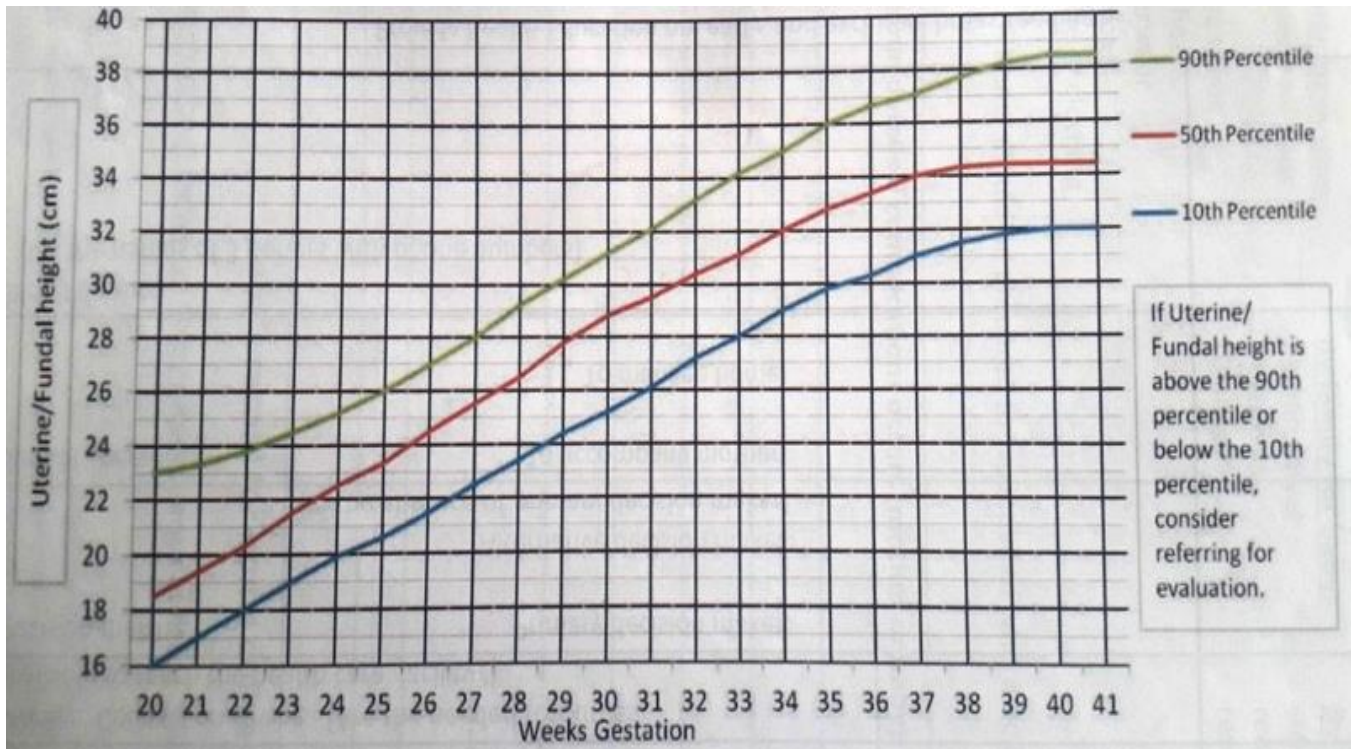
- *Measurement of fundal height different from number of weeks of gestation (+/- 3 cm), calculated from LMP. or date of the first foetal movements (quickening).*

- 40 weeks (Presentation, EFW and AFI)

NORMAL FUNDAL HEIGHT

Weeks of gestation	Fundal height measure with tape from the symphysis pubis
20 weeks	20 cm
24 weeks	24 cm
26 weeks	26 cm
28 weeks	28 cm
32 weeks	30-32 cm
36 weeks	32-34 cm
40 weeks	30-32 cm (reduces due to engagement of head into pelvis)

Mother's Uterine Height by Weeks of Gestation



Antenatal Care Standard 4: Preparation For Labor And Delivery

Aim: *To ensure that plans are made for delivery to occur in an appropriate and safe environment.*

Standard Statement

Midwifery-trained personnel provide correct advice to the pregnant woman, her husband and her family to encourage that all women come to health facilities for delivery and that arrangements are made for transferring/transporting women in labor if an emergency occurs.

In case of emergency dial 112

Ensure follow up and note outcome of line listed pregnant women

Outcome

- Women and community are motivated to deliver at the health facility
- Arrangements are in place for transporting women in labour, if required
- Plans are made for efficient and timely referral in case of complications
- Increased trained birth attendance

Prerequisites:

1. All pregnant women to be examined at each visit
2. Policy to encourage institutional delivery for all pregnant women.
3. Guidelines on indications for referral in use
4. Birth plan to be an integral part of antenatal care.
5. Essential equipment for antenatal examination are available and in good working condition.
6. MCH Handbook is in use and with proper recording
7. Facility for transportation is available and specific arrangements have been made for speedy transfer of a woman in labour to a higher level referral center if an emergency occurs.
8. A fully operational referral system is in place for the pregnant woman identified as not eligible for routine ANC, or who develops a complication, to ensure that she receives appropriate care and treatment.

Process**Midwifery-trained personnel must perform as follows:**

1. Introduce the concept of the birth plan at the first ANC visit. At the next visit, they must review and update the birth plan. By 32 weeks, the birth plan should be finalized.
2. Undertake a full antenatal examination of the pregnant woman; including a detailed and updated history, before any advice and change in birth plan is discussed.
3. Give information on how to recognize the onset of labour and danger signs in pregnancy and when to seek assistance.
4. All deliveries must be planned in a BHU or a hospital set up
 - Advise the pregnant woman and her husband/family of when to go to the hospital and what to take. Items as listed in birth plan format.

- Arrange to have a responsible attendant of the woman's choice to be present and accompany the woman in labour.
- A pregnant woman with the following conditions should be strongly advised to deliver in a hospital or health facility offering caesarean section facility:
 - a) Previous difficult delivery, stillbirth or neonate died on first day
 - b) Previous caesarean section or any surgeries on uterus and genital tract.
 - c) Moderate to severe anaemia.
 - d) Major illness (diabetes mellitus, cardiac disease, hypertension, severe asthma and breathing difficulties)
 - e) History of or current bleeding in this pregnancy
 - f) Severe pre-eclampsia in this pregnancy
 - g) Malpresentation / malposition
 - h) Multiple pregnancy
 - i) Para 4 and above
 - j) Primigravida less than 18 years of age, or greater than 35 years



REMEMBER

- *Remind woman, her husband and family that they must seek assistance of midwifery-trained personnel if the membranes rupture or labor starts.*
- *Remind woman that any vaginal bleeding in pregnancy or labor, other than the normal show, is significant and she must go to the nearest referral centre or call the midwifery-trained personnel immediately, no matter how slight the bleeding is.*



REASONS FOR RECOMMENDING INSTITUTIONAL DELIVERY

1. *Home environment is not suitable for managing severe primary PPH, which is the number one killer of mothers in Bhutan. Primary PPH kills in about 2 hours and there is no time in home delivery to call for help or arrange transfer.*
2. *Home environment is not suitable to maintain aseptic techniques. Third cause of maternal deaths in Bhutan is due to sepsis.*

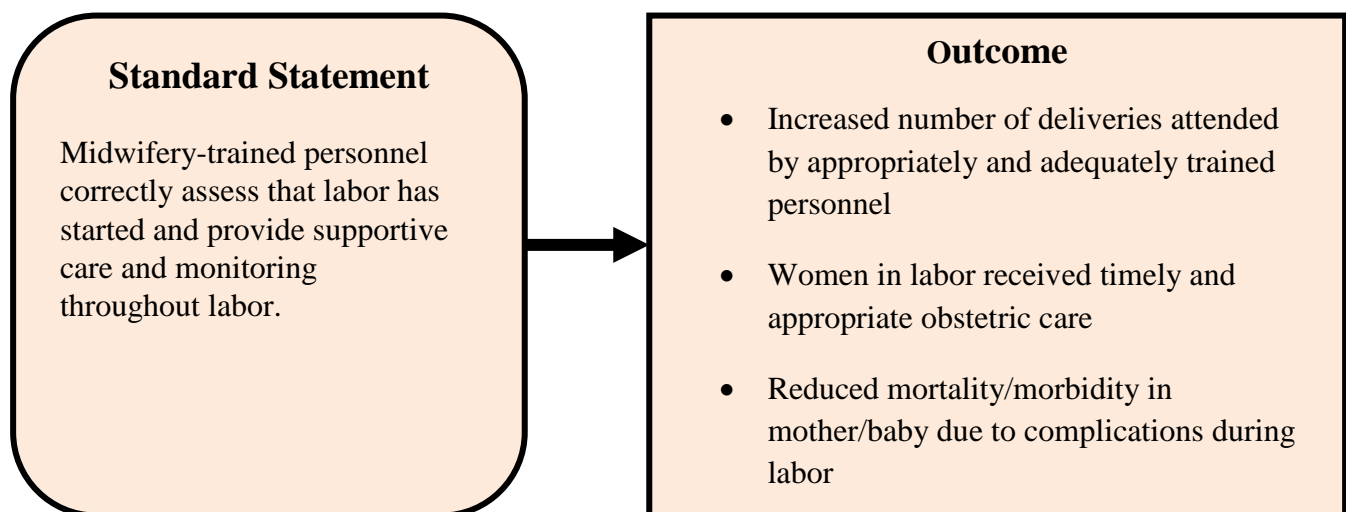
The estimated average time interval from onset to death for major obstetric complications are shown below

COMPLICATION	HOURS	DAYS
Haemorrhage: APH PPH	12 2	
Ruptured Uterus		1
Eclampsia		2
Obstructed labour		3
Infection		6

C. Intrapartum Care (IPC) Standard

Intrapartum Care Standard 1: Care In Labour

Aim: To provide appropriate care in labor and ensure a safe delivery.



Prerequisites:

1. National policy supports midwifery-trained personnel to conduct normal deliveries.

2. Midwifery-trained personnel to attend to a woman in labour.
3. Midwifery-trained personnel have been trained and are skilled in:
 - a. Clean and safe delivery techniques
 - b. The use and interpretation of partograph
 - c. Use and basic interpretation of CTG (where facilities are available)
4. Essential supplies necessary for clean and safe delivery are available
5. Partograph is in use
6. A fully operational referral system is in place for Emergency Obstetric Care

Process

Midwifery-trained personnel must perform as follows:

1. Attend to the pregnant woman as quickly as possible once informed that labor has started and/or membranes have ruptured.
2. **Diagnosis of labour**
 - Cervix must be dilated (**best sign**) for diagnosis.
 - Progressive effacement (shortening and thinning of cervix)
 - In multi-gravida the cervix dilates at the rate of 1.5cm/hour and 1cm/hour in primi-gravidas
 - Presence of show (mucus mixed with blood stain)
3. Stages of labour
 - Stage 1: onset of labour to full dilatation of cervix
 - Stage 2: full dilatation of cervix to delivery of the fetus
 - Stage 3: delivery of the fetus to delivery of the placenta
4. Perform a **Vaginal Examination** using aseptic technique. Vaginal examination should be carried out at least:
 - Once every 4 hours during the first stage of labor till 7cm
 - Once every 2 hourly from 7cm to 10cm
 - Once every 15-30 minutes in the second stage of labour
 - After rupture of the membranes to exclude the cord prolapsed and blood stained liquor to rule out placental abruption

- At each vaginal examination, record the
 - i. Cervical dilatation and effacement
 - ii. Color of amniotic fluid
 - iii. Cervical dilatation
 - iv. Descent of the presenting part (assessed abdominally)

5. Check the period of Gestation (POG)

- Woman may come in labor without ANC booking or without documents.
- Preterm babies (<34 weeks) need special support at birth and should be referred to higher center before delivery, if possible.
- If possible a pediatrician should be called at delivery for preterm deliveries <34 weeks in hospital settings when available.

6. Monitoring of maternal condition

- Temperature: Record every 2 hours
- Pulse: Record every 30 minutes
- Blood pressure: Record every 4 hours
- Urine output, protein, acetone volume (record every time urine is passes)
- Hydration-allow free liquids orally
- Diet-Allow semi-solid or soup in labor

7. Perform an abdominal examination to assess engagement, descent, presentation and position of the foetus. Check for presence and regularity of contractions. Determine the number of contractions in 10 minutes and their duration in seconds.

8. Assess Foetal Condition:

- Listen to the foetal heart immediately after a contraction
- Count the foetal heart rate for **a full minute** at least once every 30 minutes during the active phase and every 15 minutes during the second stage for low risk cases. For high risk cases, the fetal heart rate is monitored every 15 and 5 minutes during the active phase and 2nd stage respectively.
- The rhythm of foetal heart rate must be regular, all irregular FHS indicate underlying stress to the baby.
- *Fetal heart rate lower than 110 and higher than 160 beats per minute should alert the health worker and monitor more closely or call for help.*

9. If the membranes have ruptured:

- Note the time and the color of the sterile gauze pad on the perineum. If membranes are ruptured for more than **18 hours**, start oral or parenteral Ampicillin and refer to the hospital.

- The spontaneous rupture of membrane has to be confirmed using Cusco speculum (pooling of amniotic fluid on the posterior blade and gush of amniotic fluid from the os on coughing).
- Presence of **thick meconium** indicates the need for close monitoring and possible intervention for management of foetal distress. If meconium stain is found where Caesarean section facility is not present, refer immediately.
- Absence of fluid draining after rupture of membranes is an indication of reduced volume of amniotic fluid, which may be associated with foetal distress. Therefore, the mother should be monitored carefully and if foetal distress develops, she should be referred immediately.

10. **If the mother is in active labor (cervix has dilated > 4cm) and has no other risk factors (e.g Severe PIH, heart disease) start charting partograph.**

Record the following on the partograph

Patient information: fill out name/ gravida/ para/ hospital number/ date and time of admission and time of membrane rupture.

Foetal heart rate: Record as per the obstetric risk stratification.

Amniotic fluid: Record the colour of amniotic fluid and status of membranes at **every vaginal** examination.

- **I:** membranes intact
- **R:** membranes ruptured
- **C:** membranes ruptured, clear fluid
- **M:** meconium-stained fluid
- **B:** blood-stained fluid

Moulding:

- 1: sutures apposed
- 2: sutures overlapped but reducible
- 3: sutures overlapped and non-reducible

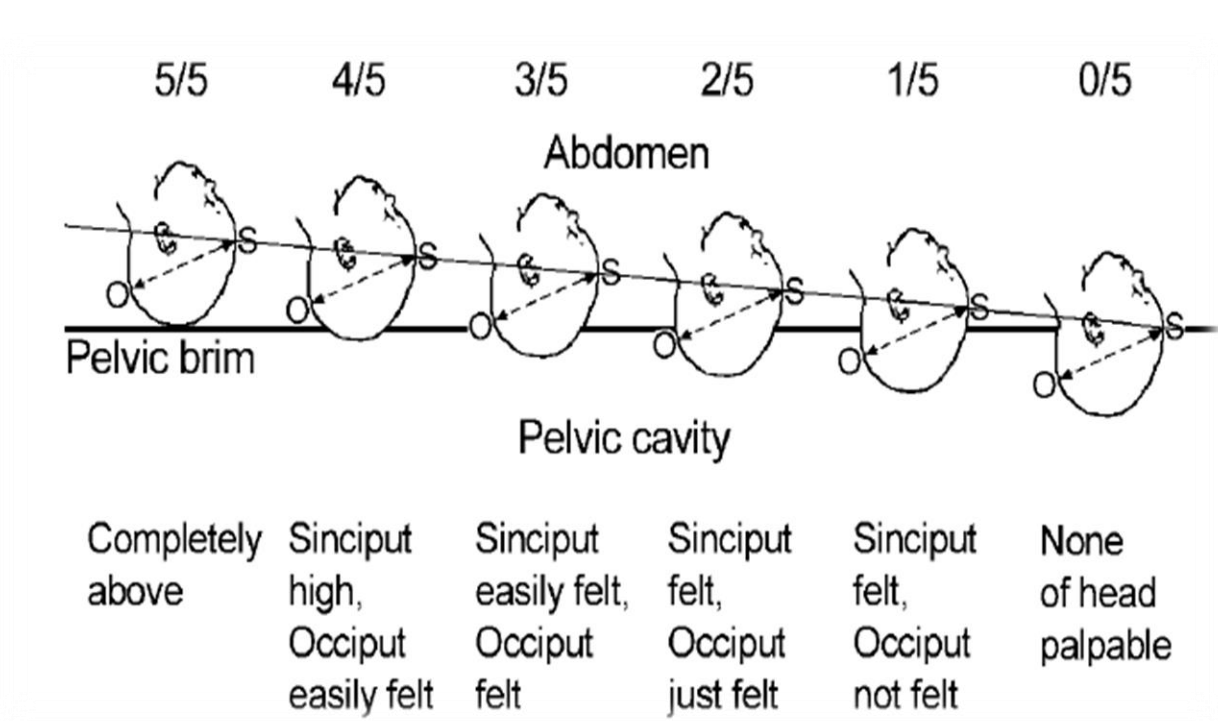
Cervical dilatation: Assess at every vaginal examination and mark a cross (X) on the partograph. Begin plotting on the partograph at 4 cm

Alert line: A line starts at 4 cm of cervical full dilatation at the rate of 1cm per hour.

Action line: Parallel and 4 hours to the right of the alert line.

Descent assess by abdominal palpation: Refers to the part of the head (divided into five parts) palpable above the symphysis pubis; record as a circle (O) at every abdominal examination. At 0/5, the sinciput (S) is at the level of the symphysis pubis.

Descent of assessed by abdominal palpation



Hours: Record the time elapsed since onset of active phase of labour (observed or extrapolated).

Time: Record actual time.

Contractions: Chart every half hour; count the number of contractions in a 10-minute time period and their intensity and duration in seconds:



Dots represents mild contractions of less than 20 seconds duration.



Diagonal lines indicates moderate contractions of 20-40 seconds duration.



Solid colour represents strong contractions of longer than 40 seconds duration.

Oxytocin: Record the amount of oxytocin per volume IV fluids in drops per minute every 30 minutes when used.

Drugs given: Record any additional drugs given.

Pulse: Record every 30 minutes and mark with a dot (●).

Blood pressure: Record every four hours and mark with arrows.

Temperature: Record every two hours.

Protein, acetone and volume: Record when urine is passed.

11. Encourage the woman in early labour to take a shower or bath where possible and stay as mobile as possible, adopting the positions of **her choice**, unless there is non-engagement of the head and membranes have ruptured.

Positions that a woman may adopt in labour



12. Encourage the woman to urinate frequently at least every two hours.

13. In normal labour encourage the woman to have frequent fluids to avoid dehydration and foetal distress.
14. Throughout the labour, give continual support and encouragement to the woman and her husband / family/accompanying person and treat them with kindness and sensitivity. Encourage the woman to have personal support from a person of her choice throughout labour and birth.
15. Explain the process of labour to the woman and her husband/family. Ensure that women in labour and her husband/family/accompanying person are kept informed of progress at all times. Explain all the procedures and ask verbal consent before performing any procedure
16. Teach breathing techniques for labour and delivery. Encourage the woman to breathe out more slowly than usual and relax with each expiration.
17. Help the woman in labour who is anxious, fearful or in pain:
 - Give her praise, encouragement and reassurance
 - Give her information on the process and progress of her labour
 - Listen to the woman and be sensitive to her feelings
18. **Pain relief:** If the woman is distressed by pain
 - Suggest changes of position
 - Encourage mobility
 - Encourage her companion to massage her back or hold her hand and sponge her face between contractions
 - Encourage breathing techniques
 - Encourage warm bath or shower if facilities are available
 - To use injection Pethedine (50mg) I/M if there is no fetal distress and cervix dilatation is less than 6cm. Inj. Naloxone should when Inj. pethidine is used. Injection tramadol may also be used in referral hospitals. If available call anaesthetists for epidural pain relief.
19. Record all findings immediately on the partograph.
20. As labour progresses, prepare for the delivery
21. Conduct delivery using a clean and safe technique

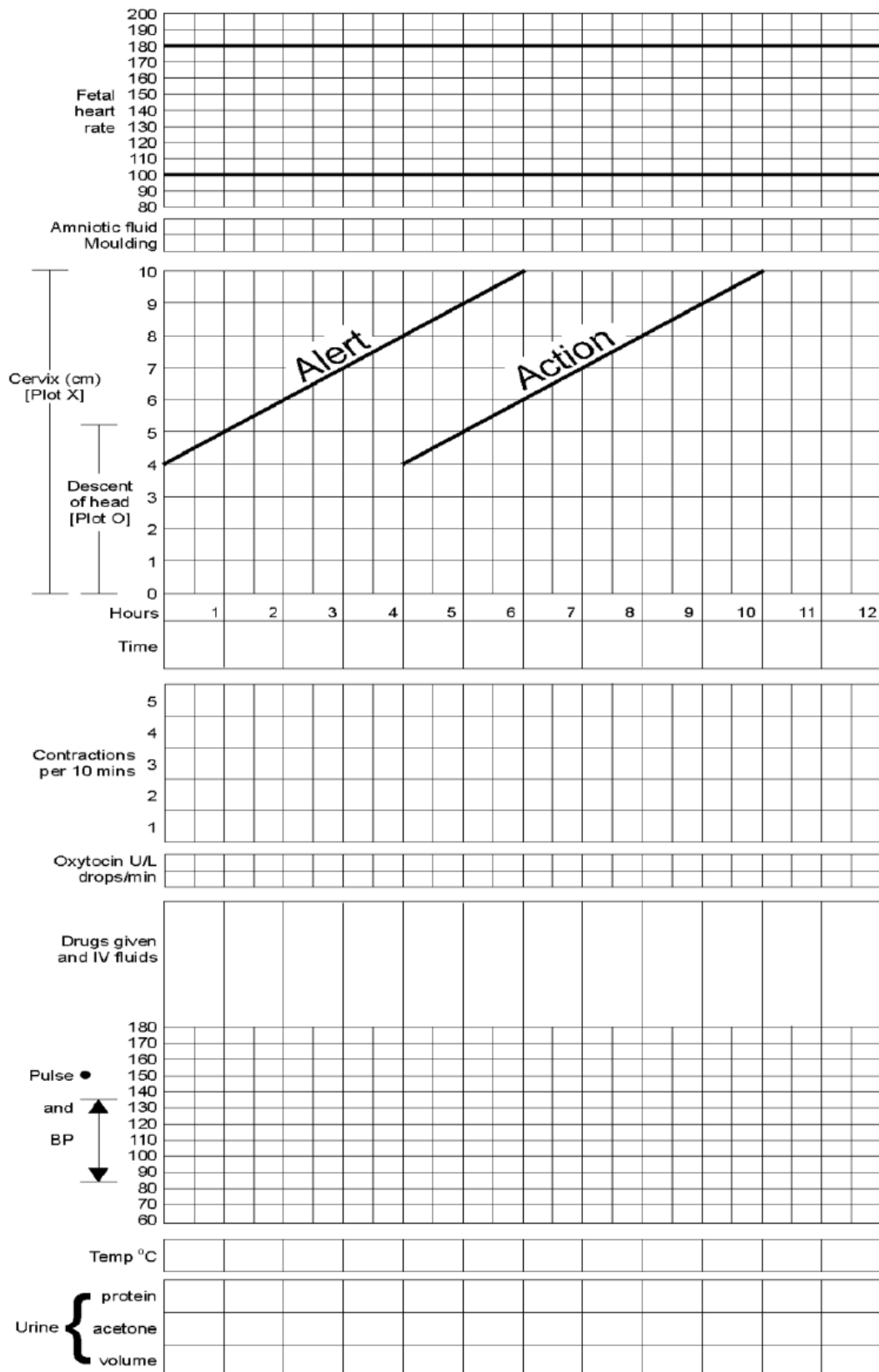


REMEMBER

- *If contractions commence or membranes rupture and the woman is NOT in active labour within 8 hours (**prolonged latent phase**), refer immediately.*
- *If cervical dilatation falls to the right of the alert line on the partograph refer.*
- *If the woman is in labour for more than 12 hours, refer immediately.*
- *Vaginal fresh bleeding in labour is a reassessment by doctor or referral.*

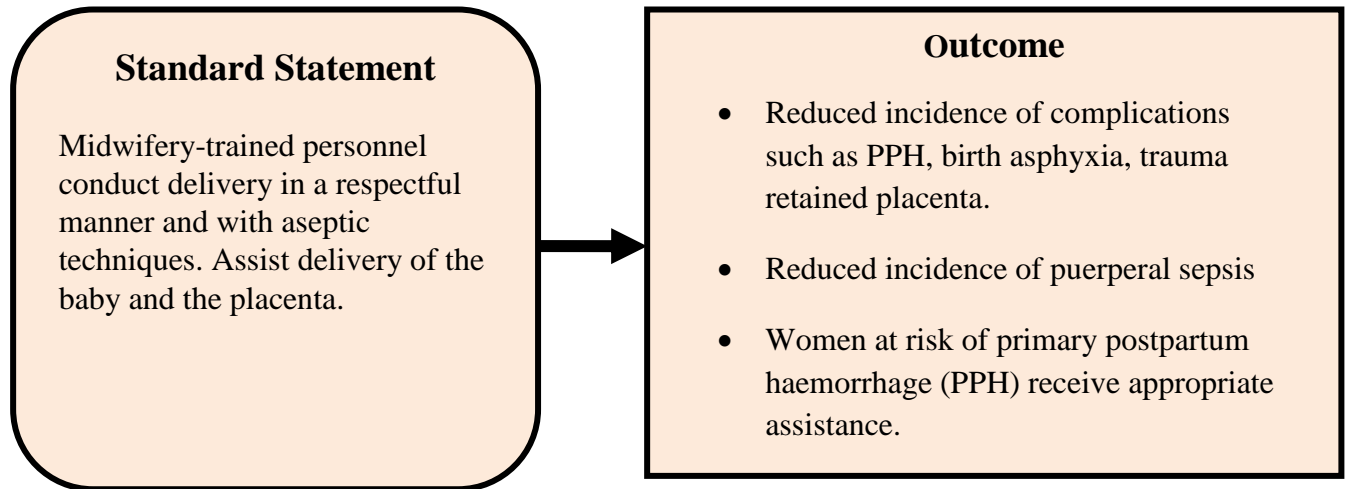
The modified WHO partograph

Name	Gravida	Para	Hospital number
Date of admission	Time of admission	Ruptured membranes	hour



Intrapartum Care Standard 2: Clean And Safe Delivery

Aim: *To ensure a clean and safe delivery for the mother and baby*



Prerequisites:

1. National policy supports midwifery-trained personnel to conduct normal deliveries.
2. National policy allows midwifery-trained delivery of the baby and to perform Controlled Cord Traction (CCT).
3. Midwifery-trained personnel have been trained and are skilled in:
 - a. Clean and safe delivery techniques
 - b. Correct technique for assisted delivery of the placenta using CCT
 - c. Neonatal resuscitation.
4. Clean delivery sets/ kits and neonatal resuscitation sets are available and in good working condition.
5. Essential supplies for clean and safe delivery are available.
6. Oxytocin is available.
7. Warm, clean and comfortable room with delivery bed is available for the delivery.
8. Partograph is in use.
9. Pre-packed sterile delivery sets are in place
10. A fully operational referral system is in place for emergency obstetric care.

Process

Midwifery-trained personnel must perform as follows:

1. **Get ready.** Many of the following steps/tasks should be performed simultaneously. Prepare the necessary equipments. Draw oxytocin 10 IU into the syringe. Ensure that the delivery room is clean and warm.
2. Allow the woman to push spontaneously. Allow the woman to adopt the position of her choice. Tell the woman (and her support person) what is going to be done, listen to her and respond attentively to her questions and concerns. Provide continual emotional support and reassurance as feasible.
3. Put on a clean plastic or rubber apron, rubber boots, face mask and eye goggles / face shield. Wash hands thoroughly with soap and water and dry with a clean cloth or air dry. Ensure nails are cut and clean. Put high-level disinfected or sterile surgical gloves on both hands.
4. Clean the perineum with antiseptic solution. Place one sterile drape from the delivery pack under the woman's buttocks, one over her abdomen and use the third drape to receive the newborn.
5. **After crowning, allow the head** to deliver by gradually extending under your hand. Gently feel around the newborn's neck for the cord:
 - If the cord is wound around the neck but is loose, slip it over the baby's head.
 - If the cord is tight around the neck, clamp the cord with two artery forceps, placed 3 cm apart, and cut the cord between the two clamps before unwinding it from around the neck.
 - Allow the baby's head to turn spontaneously.
6. As the perineum distends, decide whether an episiotomy is necessary (e.g., if the perineum is very tight). If needed, provide perineal infiltration with lignocaine and perform an episiotomy (see Episiotomy and Repair Intra-Partum Care Standard 3). Maintain light pressure on the head to encourage flexion. Ask the woman to gently blow out each breath in order to avoid pushing.
7. During **delivery of the head**, use one hand to cover the anus with a sterile pad to provide perineal support. Place fingers of the other hand on the advancing head.
8. During **delivery of the shoulders**, place one hand on either side of the newborn's head, over the ears. Apply gentle downward traction to allow the anterior shoulder to slip beneath the symphysis pubis. When the axillary crease is seen, guide the head and trunk in an upward curve to allow the posterior shoulder to escape over the perineum. Grasp the newborn around the chest to aid the birth of the trunk and lift the newborn toward the woman's abdomen. Note the time of birth.
9. **Clamp and cut the cord.** Place two artery clamps on the cord with enough room between them to allow for easy cutting of the cord. Cut the cord, using sterile scissors under cover of a gauze

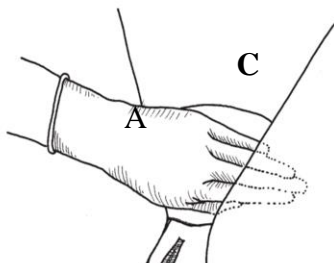
swab to prevent blood from spurting.

10. Practice delayed cord clamping for 1-3 minutes except HIV, non-breathing baby and tight nuchal cord.

11. **Early Essential Care of the Newborn:**(Refer to Postnatal Standard 1)

12. Perform **active management of the third stage**. Tell the woman (and her support person) what is going to be done, listen to her and respond attentively to her questions and concerns. Provide continual emotional support and reassurance, as feasible.

- Palpate the mother's abdomen to exclude second baby inside the uterus.
- Give **oxytocin 10 IU intramuscularly**.
- Ask an assistant to place a sterile receptacle (e.g., kidney basin) against the woman's perineum.
- Deliver the placenta. Clamp the cord close to the perineum with forceps. Wait for the uterus to contract. Use one hand to grasp the forceps. Place the other hand above the level of the symphysis pubis, on top of the drape covering the woman's abdomen, with the palm facing toward the mother's umbilicus and gently apply pressure in an upward direction (counter traction).
- At the same time, firmly apply traction using the hand that is grasping the forceps. Apply steady tension by pulling the cord firmly and maintaining pressure (control **cord traction**). Jerky movements and force must be avoided. If the manoeuvre is not immediately successful, stop pulling, wait for the next contraction and repeat.
- When the placenta is visible at the vaginal opening, cup it in both hands. Use a gentle upward and downward movement or twisting action to deliver the membranes. Place the placenta in the receptacle (e.g., kidney basin) provided. Gently **massage the uterus** and make sure that the uterus is well contracted.



- Hand A steadies the uterus to avoid uterine inversion

13. Examine **the placenta and membranes**. Hold the placenta in the palms of the hands, with maternal side facing upward. Check whether all of the lobules are present and fit together. Now hold the cord with one hand allow the placenta and membranes to hang down. Insert the other hand inside the membranes, with fingers spread out. Inspect the membrane insertion of the cord. Inspect the cut end of the cord for the presence of two arteries and one vein. Dispose of the placenta by incineration (or place in a leak proof container for burial), after consulting with the woman about cultural practices.
14. Estimate blood loss as accurately as possible (weather to use EBL or quantification of blood loss). Wash the vulva and perineum gently with warm water or an antiseptic solution and dry with a clean, soft cloth. Place a clean cloth or pad on the woman's perineum. Remove soiled bedding and make the woman comfortable. Before removing gloves, place soiled linen in a leak proof container or basin.
15. **Examine the birth canal**. Ask assistant to direct a strong light onto the perineum. Gently separate the labia and inspect the lower vagina for lacerations/tears. Inspect the perineum for lacerations/tears. Repair tears and episiotomy, if one was performed (see Episiotomy and Repair, Intra-Partum Care Standard 3)
16. Before removing gloves, dispose of waste materials in a leak proof container or plastic bag. **Place all instruments in 0.5% chlorine solution for 10 minutes for decontamination.**
17. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.
18. Assess vital signs.
19. Record all findings on woman's record.



HOW TO MAKE A 0.5% CHOLORINE SOLUTION USING BLEACHING POWDER:



REMEMBER

- *Avoid manually stretching the perineum by sweeping movements or pulling the perineum. This is harmful in later life*
- *It is still possible to assist the delivery of the shoulders and trunk when the woman is adopting traditional positions for the delivery (not lying on her back or in lithotomy position). However, care should be taken to maintain the normal mechanism of labour movements whatever the position adopted.*
- *Remember 3 C's:*
 - *Clean hands*
 - *Clean surface*
 - *Clean cutting and ligating of the cord*
- *Oxytocic drugs- check for storage directions one the stock is received and expiry dates before use.*
- *Never apply fundal pressure during the delivery of the baby and CCT.*
- *Never pull on the cord if there is pain or there is cord resistance to lengthening since this may also lead to uterine inversion.*

Standard Statement

Midwifery-trained personnel recognize correctly the signs of foetal distress, perform an episiotomy safely to expedite delivery and repair the perineum.

Outcome

- Reduction in incidence of severe birth asphyxia
- Reduction in incidence of foetal death in the second stage labour

Prerequisites:

1. National policy supports the midwifery-trained personnel to perform and suture an episiotomy.
2. Policy established on indications for use of episiotomy by midwifery-trained personnel.
3. Midwifery-trained personnel have been trained and are skilled in the correct procedure for episiotomy and suturing the perineum.
4. Essential equipment and supplies for episiotomy, such as sterile gloves, sharp sterile episiotomy scissors and sterile chromic catgut No 2/0, local anaesthetic make 0.5% solution for effective concentration for pain relief by diluting 7.5ml water for injection 2.5ml of 2% lignocaine.
5. Partograph is in use.

Process

Midwifery-trained personnel must:

1. **Get ready.** Many of the following steps/tasks should be performed simultaneously. Prepare the necessary equipment. Tell the woman (and her support person) what is going to be done, listen to her and respond attentively to her questions and concerns. Provide continual emotional support and reassurance as feasible.
2. **Administer local anaesthetic.** Clean the perineum with antiseptic solution. Draw 10 ml of 0.5% Lignocaine into a syringe along the proposed incision line. Insert the needle beneath the skin for 4–5 cm following the same line and aspirate by drawing the plunger back slightly to make certain the needle is not in a blood vessel. Inject the Lignocaine solution into the vaginal mucosa, beneath the skin of the perineum and into the perineal muscle. Wait 2 minutes and then pinch the incision site with forceps. (If the woman feels the pinch, wait 2 more minutes and then retest.)
3. **Make the mediolateral episiotomy.** Wait to perform episiotomy until the perineum is thinned out and 3 cm of the **newborn's head is visible** during a contraction. Insert two fingers into the vagina, palmar side down the perineum. Insert the open blade of the scissors between the perineum and the two fingers. Make a single cut 3-4 cm angle to the midline toward a point midway between the ischial tuberosity and the anus) either on the left or right side depending on the operator's convenience.
4. If delivery of the head does not follow immediately, apply pressure to the episiotomy site between contractions, using a piece of gauze, to minimize bleeding. Control delivery of the head

to avoid extension of the episiotomy.

5. **Repair the episiotomy.** Ask the woman to position her buttocks toward the lower end of the bed or table (use stirrups if available). Ask an assistant to direct a strong light onto the woman's perineum. Clean the woman's perineum with antiseptic solution.
 - If it is necessary to repeat local anaesthetic, draw 10 ml of 0.5% lignocaine into a syringe. (5ml of 1% lignocaine with 5 ml of distilled water or 2.5 ml of 2% lignocaine with 7.5 ml of distilled water). **Do not use lignocaine with adrenaline.**
 - Use No 2/O chromic catgut.
 - **Vaginal mucosa:** insert the suture needle just above (1 cm) the vaginal incision. Use a continuous suture from the apex downward to repair vaginal incision. Continue the suture to the level of the vaginal opening. At the opening of the vagina, bring together the cut edges. Bring the needle under the vaginal opening and out through the incision and tie.
 - **Perineal muscle:** Use interrupted sutures to repair the perineal muscle, working from the top of the perineal incision downward.
 - **Skin:** Use interrupted sutures to bring the skin edges together.
6. Place a clean cloth or pad on the woman's perineum. Inform the woman of the need to keep the perineum clean and dry, and to use only sterile pads or sun-dried material as sanitary wear.
7. **Perform post procedure tasks:**
 - Before removing gloves, dispose of waste materials in a leak proof container or plastic bag. Place all instruments in 0.5% chlorine solution for 10 minutes for decontamination
 - Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning them inside out. If using disposable gloves, place them in a leak proof container or plastic bag. If using reusable surgical gloves, submerge them in 0.5% chlorine solution for 10 minutes for decontamination
 - Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry
8. Give amoxicillin 500mg tds and Tab Ibrufen 400mg tds for all women who had episiotomy/tear for 5 days.
9. Record the procedure on woman's record.



REMEMBER

Where there are signs of foetal distress and the foetal head is visible at the vulva, an emergency episiotomy may be the only action the midwifery-trained personnel can take to save the foetus.

- *A small tear will heal just as well as an incision, so fear of tearing the perineum is not an indication for an episiotomy.*

Intrapartum Care Standard4: Assistance For Use Of Forceps

Aim: *To assist forceps delivery.*

Standard Statement

Midwifery-trained personnel provide correct assistance during forceps delivery, ensuring safety of mother and baby during and immediately following delivery.

The midwifery-trained personnel must be aware of the correct procedure and the indications for use of forceps to assist efficiently.

Outcome

- Reduction in the mortality/ morbidity in mother/ baby due to prolong second stage of labour.
- Women received timely and appropriate emergency obstetric care
- Forceps delivery conducted safely

Prerequisites:

1. Policy in place on indications for use of forceps.
2. Policy allows the midwifery-trained personnel to prepare and assist forceps delivery.
3. A doctor with required training and competence in instrumental delivery is readily available.
4. Midwifery-trained personnel are aware of their role and responsibilities when assisting during forceps delivery.
5. Essential supplies for delivery including soap, safe water, clean towel and sterile gloves are available.
6. Essential equipment for forceps delivery is available and in good working condition and are sterilized.
7. Partograph is in use.
8. A fully operational referral system is in place for emergency obstetric care.

Process

Midwifery-trained personnel must be aware of the indications for the use of forceps so that they recognize the need for calling medical assistance early.

As soon as indications for forceps delivery become apparent **the midwifery-trained personnel must:**

1. **Explain carefully to woman** and her husband/family member(s) what is happening and the reasons for calling the doctor. Once the decision has been made to proceed with forceps delivery, ensure that the doctor explains what will happen and obtain the woman's verbal consent.
2. Wash hands using clean soap, clean water and dry with a clean, dry towel.
3. Inform pediatrician if available.
4. Make all equipment ready. Ensure that all equipment have been correctly sterilized.
5. Encourage woman to empty her bladder, if bladder is full or she has not passed urine for some hours. If there is difficulty in passing urine, catheterize using aseptic technique. Be very careful in using catheter as the neck of the bladder is easily damaged in prolonged and obstructed labour. Only use a soft urinary catheter. If there is difficulty in catheterization wait for the attending

doctor to catheterize the bladder.

6. Make the woman lie in lithotomy position.
7. Throughout the procedure midwifery- trained personally must explain to the mother what is happening in a gentle and friendly way. Try to keep her relaxed and ask her to breathe normally.
8. Ensure that the mother is comfortable and foetal heart rate is monitored and recorded regularly after each contraction.
9. Using aseptic technique, carefully assist with preparation of equipment for episiotomy and forceps delivery.
10. Assist with preparation of local anaesthetic/pudendal nerve block as necessary.
11. Once the baby is delivered ensure that the baby is immediately resuscitated.
12. Ensure that the baby is quickly dried with a warmed towel and replace with a second warmed towel for wrapping the baby.
13. If the baby does not begin to breathe spontaneously, perform neonatal resuscitation following Postpartum Care Standard 1.
14. Carry out a detailed examination of the baby and also look for injury or trauma caused by the forceps.
15. Perform active management of third stage of labour (see Intra-Partum Care Standard 2).
16. Immediately following the delivery of the placenta and membranes, check if the uterus is contracted. If not well contracted, gently massage/rub the fundus to make it contract and expel any clots. Give oxytocin drug if ordered by the doctor.
17. Immediately following delivery, assist the doctors to carefully examine the vaginal wall for signs and symptoms of injury or tears, by ensuring there is a good light. The mother should be prepared for this and may wish to have someone else hold the baby.
18. Assist to suture the perineum.
19. Check that the woman is passing urine normally. If there is urine retention or signs and symptoms of fistula formation, inform the doctor immediately/refer immediately.
20. Observe for post delivery vulva or vaginal hematoma and inform the doctor immediately.
21. Keep accurate nursing records throughout.



INDICATIONS FOR OUTLET FORCEPS DELIVERY:

- *Foetal or maternal distress in second stage of labour*
- *Delay in the second stage of labour without cephalo-pelvic disproportion*
- *To shorten the second stage*
 - *heart disease*
 - *breathing difficulties*
 - *eclampsia or severe pre eclampsia*

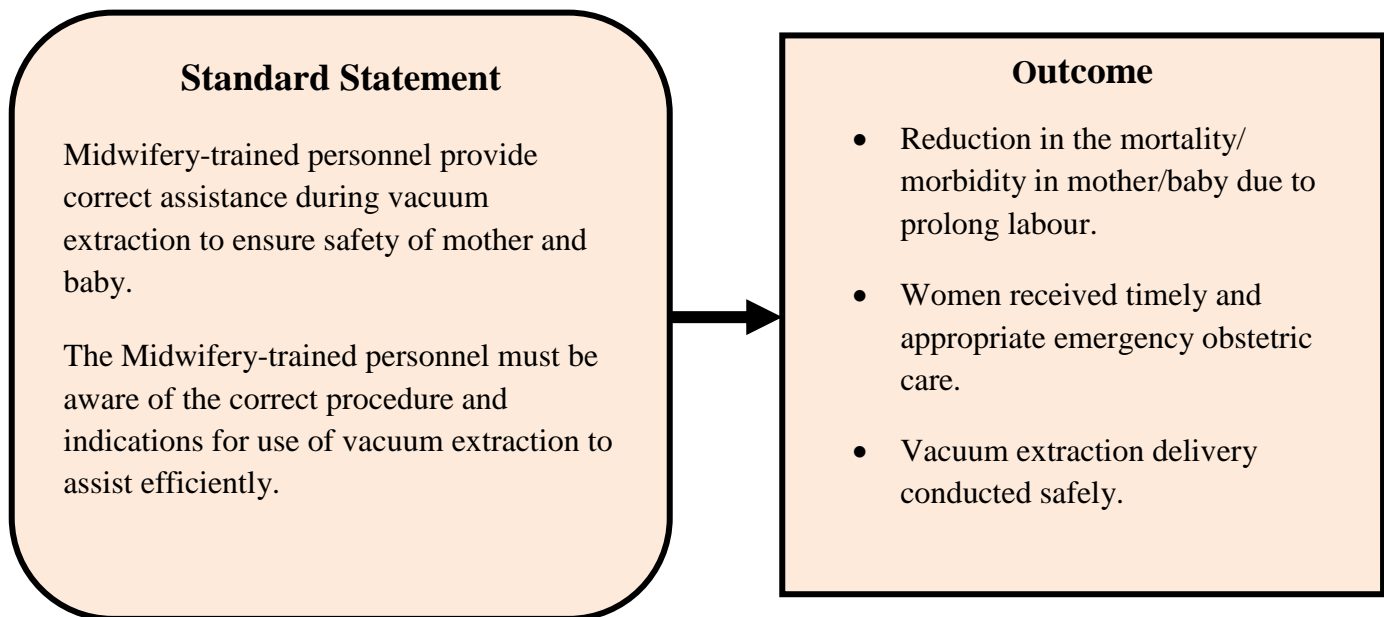


Pre-requisite for forceps delivery:

1. *Cervix must be fully dilated*
2. *Bladder must be empty*
3. *Cephalic presentation*
4. *Membranes must be ruptured*
5. *Head must be at 2+ or more below the ischial spine*
6. *No signs of Cephalo-Pelvic Disproportion (CPD)*
7. *The operator must be skilled, competent and trained in this procedure*
8. *Difficult forceps delivery should not be done in favor safe caesarean section*

Intrapartum Care Standard 5: Assistance For Use Of Vacuum Extractor

Aim: *To assist in conducting delivery using vacuum extractor.*



Prerequisites:

1. Policy in place on indications for use of vacuum extractor.

2. Midwifery-trained personnel have been trained in correct method of delivering baby using vacuum extractor and are aware of their role and responsibilities when assisting during vacuum delivery.
3. Essential supplies for delivery, including soap, safe water and clean towel are available. Sterile gloves are available for the midwifery-trained personnel.
4. Proper equipment and supplies for vacuum extraction is available, sterilized and in good working order, including vacuum extractor cup and tubing.
5. Partograph is in use.
6. A fully operational referral system is in place for emergency obstetric care.

Process

Midwifery-trained personnel must be aware of the indications for the use of vacuum extraction so that they recognize the need for calling medical assistance early.



INDICATIONS FOR VACUUM DELIVERY:

- *Foetal or maternal distress in second stage of labour*
- *Delay in the second stage of labour without cephalo-pelvic disproportion*
- *To shorten the second stage*
 - *heart disease*
 - *breathing difficulties*
 - *eclampsia or severe pre eclampsia*



Pre-requisite for Vacuum extraction:

1. *Vertex presentation*
2. *Term Foetus*

As soon as indications for vacuum extraction become apparent, the midwifery-trained personnel must:

1. Explain carefully to woman and her husband/family member(s) the reasons for calling the doctor and what is going to happen. Once the decision has been made to proceed with vacuum extractor delivery, ensure doctor explains what will happen and obtains the woman written consent.
2. Wash hands using soap, clean water and dry with a clean, dry towel.
3. Inform pediatrician if available and ensure that all the neonatal equipment are in working conditions.
4. Arrange all equipment and connect them together. Ensure vacuum tubing is connected properly and the safety valve is operational. This is done best by placing the suction cup on operator's own hand and starting suction.
5. Encourage the woman to empty her bladder. If bladder is full or she has not passed urine for some hours or if there is difficulty in passing urine, catheterize using aseptic technique. Be very careful in using catheter as the neck of the bladder is easily damaged in prolonged and obstructed labour. Only use a soft urinary catheter. If there is difficulty in catheterization, wait for the attending doctor to catheterized the bladder.
6. Make the pregnant woman lie in lithotomy position.
7. Throughout the procedure the midwifery-trained personally must explain to the mother what is happening in a gentle and friendly way. Try to keep her relaxed and ask her to breathe normally.
8. Ensure the maternal and foetal condition is monitored and recorded regularly after each contraction.
9. Once the doctor has placed the correct size cup on the foetal head and ensured that the vaginal

wall or other tissue is not between the cup and the foetal skull, commence suction at the doctor's request, **following the manufacturer's instructions**. These will vary depending on the type of suction used, e.g. hand suction or electric suction, or metal cups or plastic cups. **Always raise pressure slowly, to ensure cup is firmly attached before commencing traction**. This is done by increasing the pressure slowly and then, applying slight traction to ensure vacuum is being created. It is preferable to have the manufacturer's instructions pasted on the wall of the labour room.

10. At the next contraction, increase the suction further according to the doctors instruction (according to the manufacturer's instruction) do not exceed the maximum pressure indicated.
11. Note the time using the clock when cup is applied to fetal head. Total time must be less than 15 minutes and trauma to fetal head may occur if cup is applied for longer duration.
12. Encourage the woman to bear down as normal during a contraction. The doctor will start and maintain a steady traction using the traction bar only during the contraction.
13. There **must be descent** of the head during the first pull. **If not, doctor should wait** for the next contraction for the second pull.
14. If there is **no descent even with the second pull**, the method should be abandoned in favor of caesarean delivery.
15. If there is descent, keep explaining to the mother what is happening in a gentle and friendly way and try to keep her relaxed and breathing normally. Ask her to assist by bearing down when there is a contraction.
16. **Once the head is down on the perineum**, i.e. head is distending the vulva, ask the woman to stop pushing and try to breathe slowly or with short breaths (pant). The operator will then apply traction in horizontal and then in upward direction maintaining the traction at 900to the suction cup.
17. Once the head is delivered, ensure that the pressure is released from the vacuum extractor slowly. Complete the delivery of new born.
18. **The maximum number of pulls is three**. More than this will cause foetal head trauma. Ensure the baby is resuscitated properly.
19. If the baby does not begin to breathe spontaneously within 1 minute perform neonatal resuscitation following Postpartum Care Standard 1.
20. Ensure that the baby is examined carefully for injury or trauma caused by the suction cup. There will be an oedematous swelling on the head (Chigon) where the cup has been placed. Explain to the mother and her husband/family, the reason for this and that it is normal. Tell them that it will reduce over the next few hours but may take up to 24 hours to disappear completely.

21. Perform active management of the third stage of labour to deliver the placenta:
 - Rule out presence of second baby
 - Give 10 IU oxytocin intramuscularly
 - Controlled cord traction
 - Massage the uterus
22. Assist the doctor to carefully examine the vaginal walls for signs of injury or tears, by ensuring there is good light and necessary equipment. The mother should be prepared for this and may wish to have someone else hold the baby. Also assist with suturing of the perineum, using sterile equipment and gloves.
23. Make the woman comfortable and show her the baby and put the baby to her breast for feeding.
24. Check that the woman is passing urine normally after delivery. If there is any urine retention, insert a soft urinary catheter and empty the bladder and keep under observation.
25. Observe for signs of vaginal trauma in the mother. Check to ensure that the oedematous swelling on the newborn baby's head reduces and no haematoma is developing after delivery. If any swelling persists for more than 24 hours, inform the doctor.

Post procedure tasks:

1. Before removing gloves, dispose of waste materials in a leak proof container or plastic bag.
2. Place all instruments in 0.5% chlorine solution for 10 minutes for decontamination.
3. Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning them inside out.
 - a. If using disposable gloves, place them in a leak proof container or plastic bag.
 - b. If using reusable surgical gloves, submerge them in 0.5% chlorine solution for 10 minutes for decontamination.
4. Wash hands thoroughly with soap and water, and dry with a clean, dry cloth or air dry. And record the procedure and findings in nursing note.



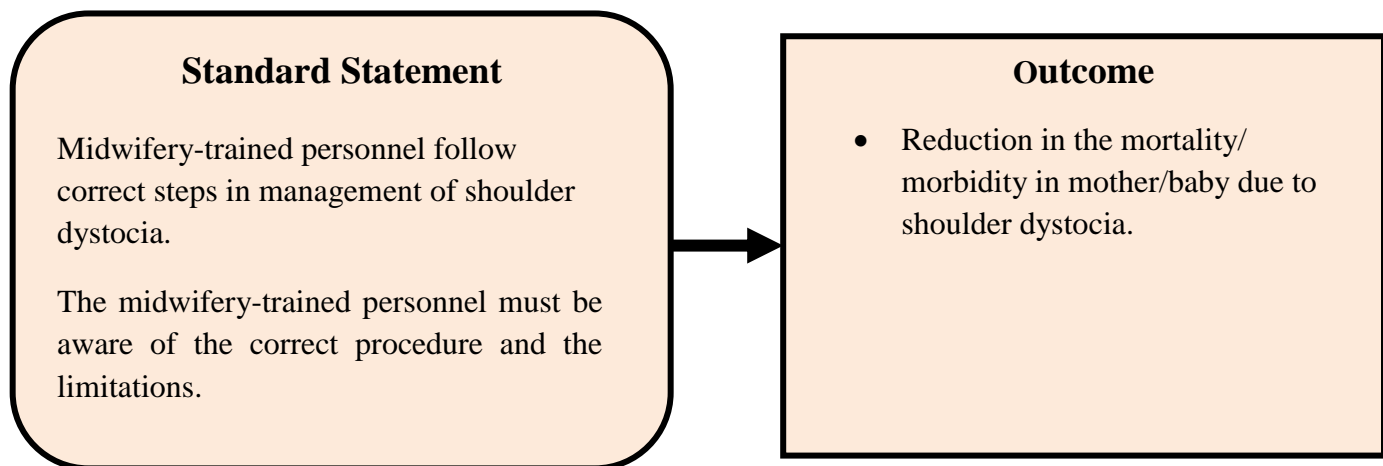
VACUUM EXTRACTION FAILS IF:

- *The head does not descent with good first pull*
- *The foetus is undelivered after two good pulls with no descent, or after*
- *15 minutes of cup application; and*
- *The cup pop off the head twice at the proper direction of pull with a maximum negative pressure.*

If vacuum extraction fails, refer immediately or arrange for emergency caesarean section.

Intra-Partum Care Standard 6: Management of Shoulder Dystocia

Aim: *To be familiar with shoulder dystocia.*



Prerequisites:

1. Policy in place for management of shoulder dystocia.
2. Midwifery-trained personnel have been trained in correct method of delivering baby when unexpected shoulder dystocia occurs.
3. Anticipation is well recognized with large babies.
4. Expert help is arranged if shoulder dystocia is anticipated.
5. Partograph is in use.
6. A fully operational referral system is in place for emergency obstetric care.



DEFINITION

- *Shoulder dystocia is defined as a delivery that requires additional obstetric maneuvers to release the shoulders after gentle downward traction has failed or the time interval between head to shoulder delivery is more than 1 minute.*
- *Shoulder dystocia occurs when either the anterior or, less commonly, the posterior fetal shoulder impacts on the maternal symphysis or sacral promontory.*

Process

Midwifery-trained personnel must be able to manage the problem as efficiently as possible but also carefully: efficiently so to avoid hypoxia acidosis, carefully so as to avoid unnecessary trauma.

Midwifery-trained personnel must be aware of the risk factors for shoulder dystocia.



RISK FACTORS FOR SHOULDER DYSTOCIA

Pre-labour

- *Previous shoulder dystocia*
- *Macrosomia*
- *Diabetes mellitus*
- *BMI > 30 Kg/m²*
- *Induction of labour*

Intrapartum

- *Prolonged first stage of labour*
- *Secondary arrest*
- *Prolonged second stage of labour*
- *Oxytocin augmentation*
- *Assisted vaginal delivery*



FETAL COMPLICATIONS

- *Brachial plexus injuries,*
 - *4–16% of such deliveries*
 - *Litigation*
- *Fractures of the humerus, and*
- *Fractures of the clavicle are the most commonly reported injuries associated with shoulder dystocia*
- *47% of fetal death occurs within 5 minutes if not delivered after delivery of the head*

MATERNAL COMPLICATIONS

- *Genital tract injuries*

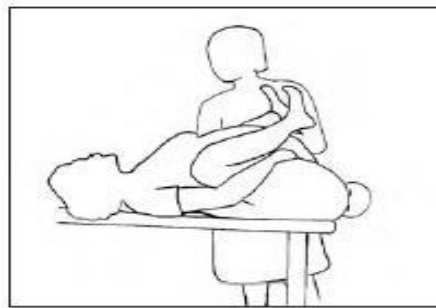
Diagnosis:

Midwifery-trained personnel must routinely observe for:

1. Difficulty with delivery of the face and chin
2. The head remaining tightly applied to the vulva or even retracting (Turtle's sign)
3. Failure of restitution of the fetal head
4. Failure of the shoulders to descend.

Management

1. Immediately after recognition of shoulder dystocia extra help should be called.
2. In a hospital setting, this should include further assistance, an obstetrician, a pediatric resuscitation team and an anesthetist.
3. **Maternal pushing should be discouraged**, as this may lead to further impaction of the shoulders, thereby exacerbating the situation.
4. The woman should be maneuvered to bring the buttocks to the edge of the bed.
5. **The McRoberts' manoeuvre** is the single most effective intervention, with reported success rates as high as 90%. It has a low rate of complication and therefore should be employed first.



The McRoberts' manoeuvre is flexion and abduction of maternal hips, positioning the maternal thighs on her abdomen by two assistants each catching one leg.

It straightens the lumbo-sacral angle, rotates the maternal pelvis cephalad and is associated with an increase in uterine pressure and amplitude of contractions. **Tends to free the impacted anterior shoulder.**

5. **Suprapubic pressure** can be employed together with McRoberts' manoeuvre to improve success rates.
 - a. Suprapubic pressure reduces the bisacromial diameter and rotates the anterior shoulder into the oblique pelvic diameter. The shoulder is then free to slip underneath the

symphysis pubis with the aid of routine traction.

- b. External suprapubic pressure is applied in a down ward and lateral direction to push the posterior aspect of the anterior shoulder towards the fetal chest. It is advised that this is applied for 30 seconds. There is no clear difference in efficacy between continuous pressure and 'rocking' movement.

Should perform drill in your setting yearly.



6. All 4 maneuver

It consists of placing the patient onto her hands and knees. For a slim mobile woman without anaesthesia and **with a single attendant**, the all fours- position is probably the most appropriate.



7. Modified Woods maneuver:

If MC-Robert's and supra-pubic fails. The hand is placed behind the posterior shoulder of the foetus. Try to grasp the hand and pull it out. If one fails to grasp the hand, then try to rotate the shoulder either anteriorly or posteriorly so that the impacted anterior shoulder is released.



Once the anterior shoulder is released delivery is possible.

8. **Zavanelli maneuver: The last resort**

Cephalic replacement of the head, and delivery by caesarean section has been described but success rates vary with mostly of poor outcomes.



Preparedness with training of the midwifery team is the best predictor for good out-come with shoulder dystocia.

Intrapartum Care Standard 7: Induction and Augmentation Of Labour

Aim: *To provide appropriate care about labour induction and augmentation*

Standard Statement

Midwifery - trained personnel correctly know the indication

Outcome

- Morbidity and mortality from high risk conditions, post-dated pregnancy and prolonged labour are reduced.

Prerequisites:

1. National policy supports midwifery-trained personnel **to assist the doctor** to conduct proper induction and augmentation protocols.
2. Either a gynaecologist or some doctor trained to do a caesarean section must be available in the hospital before starting induction.
3. Midwifery-trained personnel have been trained and are skilled in:
 - a. Clean and safe delivery techniques
 - b. The use and interpretation of partograph
4. Essential supplies necessary for clean and safe delivery are available.
5. Partograph is in use.
6. Induction and augmentation supplies are available in relevant hospitals.
7. A fully operational referral system is in place for Emergency Obstetric Care.

Definition

Induction: Stimulating the uterus to bring on the onset of labour pain

Augmentation: Stimulating the uterus further during labour to increase the frequency, duration and strength of uterine contraction

Target of induction and Augmentation

- To achieve a good labour pattern where there are three to five contractions in 10 minutes, each lasting more than 40 seconds.

Common Indications for Induction

- Pregnancy Induced Hypertension
- Postdated Pregnancy
- Uncomplicated Diabetes
- Borderline Oligohydramnios
- IUFD
- Chorioamnionitis
- Spontaneous Rupture of Membrane (SRM)

Methods of induction and Augmentation

1. ARM
2. Membrane sweeping
3. Oxytocin
4. Misoprostol
5. Foley catheter

1. Artificial Rupture of Membrane (ARM)

This is a method used both for induction and augmentation either alone or with oxytocin. Sometimes this is only method need to achieve the target.

Note: *In HIV infected cases, ARM is not done and it is kept intact for as long as possible.*

Pre-requisite:

- **Valid indication:** Review the indication in the context of the relevant hospital with available facilities. The risk of preterm delivery complications and risk of continuing the pregnancy must be finely balanced.
- **Check the Cervical Bishop Score:**

Factor	Score			
	0	1	2	3
Dilatation (Cm)	Closed	1-2	3-4	>5
Length (Cm)(Effacement)	>4	3-4	1-2	<1
Consistency	Firm	Medium	Soft	-
Position	Posterior	Mild	Anterior	-

- The bishop score must be favorable with score of 6 or more. With unfavorable cervix, it recommended to make the cervix ripen with misoprostol of Foley's catheter.
- Check the **Fetal Heart rate and presentation**. FHR must be within 110-160 bpm and the fetal presentation must be cephalic.

Process

1. Use aseptic techniques to feel the membrane vagina with two fingers
2. Use amniotomy hook or Kocher's artery forceps with the other to rupture the membrane
3. Note the colour of the amniotic fluid. If meconium stained, needs to consult doctor or refer
4. Check to exclude for cord prolapse after doing ARM
5. Listen to the FHR after doing ARM
6. If labour doesn't start within 1 hour after ARM, use oxytocin

2. Oxytocin

- Use of oxytocin must be careful as it may cause uterine hyper stimulation and rarely uterine rupture.
- When **hyperstimulation** (any uterine contraction lasting more than 60 seconds or if there are more than 5 contractions in 10 mins) occurs, stop the oxytocin infusion and:
 - a. Turn the patient to full lateral position
 - b. Give oxygen 4-5L/min to mother
 - c. Inj Terbutaline 250 mcg IV slowly over 5 mins or give by subcutaneous injection
 - d. Inj salbutamol 10 mg in 500 ml of NS or RL at 5 drops per min and increase every 5 mins until contraction stops
 - e. Or use nifedipine capsule 10 mg sublingual and repeat every 5 mins until contraction stops

Process

In Multi-gravida

1. Use 2.5 IU of oxytocin in 500 ml NS or dextrose, start at 10 drops per min (approx 2.5 mIU per min)
2. If this fails to achieve the target, use second bottle with 5 IU oxytocin provided FHR is normal.
3. If labour fails to start with the second bottle and if fetal condition is normal, induction may be repeated on the following day or deliver by caesarean section
4. Induction shouldn't be repeated for third time on separate days. Deliver by caesarean section.

In Primi-gravida

1. Use 5.0 IU of oxytocin infusion in 500 ml NS or dextrose, start at 10 drops per min (approx 5 mIU per min).

2. If this fails to achieve the target, use the second bottle with 10 IU oxytocin infusion provided the FHR is normal.
3. If labour fails to start with the second bottle and if fetal condition is normal, induction may be repeated on the following day or deliver by caesarean section
4. Induction shouldn't be repeated for third time on separate days. Deliver by caesarean section.

3. Misoprostol

It is prostaglandin analogue (PGE₂) used for induction of labour in low resource setting countries as it is cheap and doesn't need refrigeration for storage.

Contraindications for Induction of Labour

- a. **Sensitivity** to misoprostol
- b. **Scarred uterus** including past caesarean section, myomectomy, hysterotomy and more than 2 dilatation and curettage
- c. **Gravida** more than 3
- d. **History** of bleeding (APH)
- e. Non-vertex presentation
- f. Multiple gestations
- g. Disorder of amniotic fluid volume
- h. Disorder of fetal weight
- i. Placenta previa/vasa previa

Problems with use of misoprostol (to be anticipated and be vigilant)

- a. Hyperstimulation
- b. Uterine rupture
- c. Meconium stained liquor
- d. Failed induction and C/S section
- e. Risk of infection

Pre-requisites

1. Women must be admitted and procedures explained.
2. Caesarean section facilities are available.
3. Medications to deal with hyperstimulation are available.
4. To be used by gynecologist experience in using it.

5. Recent USG must be checked beforehand.
6. CTG must be done for 20 minutes before use of misoprostol.
7. CTG must be repeated after 2hrs for ensuring no hyperstimulation or deceleration.

Preparation

All tablets are either 100 mcg or 200 mcg. In Bhutan we buy the 100 mcg tablets. Break the 100 mcg tablets two halves to make 50 mcg or into four equal size smaller pieces to make 25 mcg.

Misoprostol Dose for induction

Use 25 mcg 6 hourly for 4 doses. If all remains well, 2 further doses may be used to a maximum of 6 doses.

Dose

Primigravida

Use 50 mcg overnight daily or 6 hourly to a maximum 4 doses. The total dose per patient should pieces to make 25 mcg

Multigravida

Safe to use 25 mcg overnight daily or 6 hourly to a maximum of 4 doses. If there is no response two further increased dose of 50 mcg may be used with minimum of 6 hours' interval. The total dose per patient should not be more than 200 mcg.

4. Foley's catheter

It is an effective alternative to misoprostol for cervical ripening and labour induction. It should not be forgotten when misoprostol is not available

Contraindications for usage of misoprostol

- a. History of bleeding
- b. Membrane rupture
- c. Vaginal infection
- d. Chorioamnionitis

Process

1. Use aseptic technique, use sponge forcep to grasp the tip of the catheter
2. Insert the tip through the cervix and the inflatable portion is beyond the internal os
3. Inflate the bulb with 10 ml distilled water (never use saline)
4. Coil the catheter and keep in the vagina till labour starts or maximum of 12 hours

5. Deflate the balloon before removal and proceed with oxytocin

Protocol for Misoprostol Induction of Labor

Date:
Name of the patient:..... Age:
Gravida: Para:..... Abortion:.....
POG:..... EDD:.....
Date of latest ultrasound:
Report: EFW:+/-15% AFL..... cm
Presentation

Cardiotocography:

Indication of IOL:

PV finding before Misoprostal:

Effacement: % Consistency:Soft/Medium/Rigid
Position: Posterior/ Middle/ Anterior Station: Bishop score:.....
Date of Misoprostol:..... Time of application:..... CTG after 2 hours:

Outcome of IOL

1. Delivered: Yes/ No Weight of baby: gms Apgar Score
@1min.....
@5min.....
2. Reapplied Miso, how many times?
3. Augmented with Syntocinon
4. LSCS: Elective/ Emergency
 - a. Indication: Failed IOL/fetal distress/ Prolong labour/Hyper stimulation of uterus/ others
 - b. Weight of baby..... gms
 - c. Apgar score
 - i. @1min.....
 - ii. @2min.....



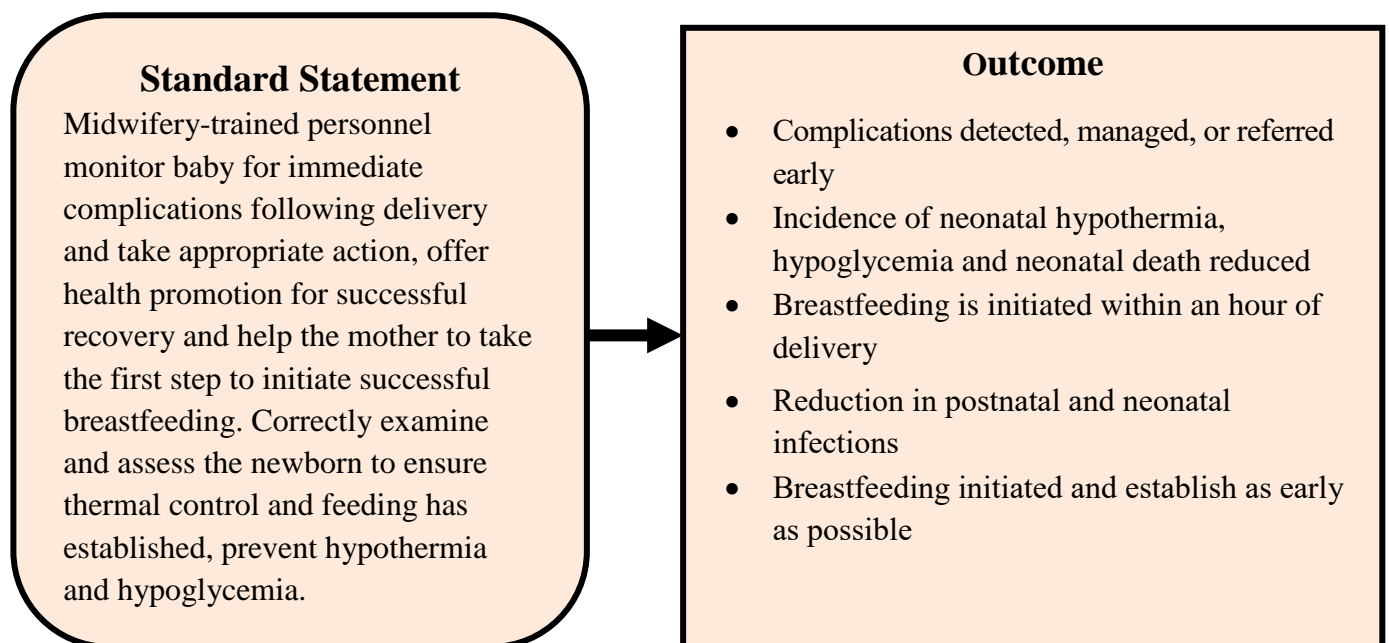
Contraindications of Misoprostol induction are:

- *Gravida 4 or More,*
- *Non-vertex Presentation*
- *Previous Scar*

C. Postpartum Care (PNC) Standards

Postpartum Care Standard 1: EARLY ESSENTIAL CARE OF NEWBORN (EENC): Immediate Newborn Care, First 90 minutes of life.

Aim: To meet basic needs at birth of the healthy newborn and to initiate breastfeeding.



Prerequisites:

- Midwifery-trained personnel have been trained and are skilled in caring for mother and baby immediately, and for the first six hours following delivery.
- The mother is motivated to breastfeed and gives colostrum from birth.
- Essential equipment and supplies, such as soap, safe water; clean towel for washing hands; clean clothes/material for wrapping the baby; and blood sugar instrument, neonatal stethoscope and thermometer; weighing scales; and heaters are readily available.
- Appropriate drugs, such as vitamin K, Tetracycline eye ointment with appropriate storage facilities are available.
- Postnatal record in the MCH Handbook is in use
- A fully operational referral system is in place for mothers and neonates with complications to receive appropriate care and treatment.
 - Physical examination and assessment of the newborn
 - Recognition of the signs of hypothermia and the correct management to prevent and treat it; and
 - Recognition of hypoglycemia and prevent it by initiating early breast feeding

Process

Midwifery-trained personnel must: provide early essential care after birth for all newborn.

Immediate Care of the Normal Newborn

The first hour after birth has a major influence on the survival, future health, and well being of a newly born infant.

The health workers have an important role at this time. The care they provide during this period is critical in helping to prevent complications and ensuring survival. All mothers need help, support, and advice in the initial few days after delivery to ensure proper care of their newly born baby.

1. THE BASIC NEEDS OF A NORMAL NEWBORN AT BIRTH

The four basic needs of ALL babies at the time of birth (and for the first few weeks of life) are:

- i. Warmth
- ii. Normal breathing
- iii. Mother's milk
- iv. Prevention of infection

These basic needs indicate that a baby's survival is totally dependent upon her mother and other

caregivers. Therefore it is important to provide proper care to all the neonates immediately after birth. All newborns require early essential newborn care to minimize the risk of illness and maximize their growth and development. This care will also prevent many newborn emergencies. For example, the umbilical cord may be the most common source of neonatal sepsis and also of tetanus infection, and good cord care can dramatically reduce the risks of these serious conditions. Exclusive breastfeeding has a significant protective effect against infections. Early breastfeeding and keeping the baby close to the mother reduce the risk of hypothermia and hypoglycemia.

2. EARLY ESSENTIAL CARE OF THE NORMAL NEWBORN AT THE TIME OF BIRTH

The steps to be undertaken at this time of birth for all babies (including those who need resuscitation) are covered in the POSTPARTUM CARE STANDARD 2: BASIC NEWBORN RESUSCITATION. Here, we shall review the steps of actions and intervention within time band that are essential for a NORMAL NEWBORN baby, immediate after birth till discharge:

2. A. IMMEDIATE NEWBORN CARE: The first 90 minutes of life

a. Call out the time of birth and gender of the baby

It is important to call loudly the time of birth and gender of the baby- this helps in accurate recording of the time and more importantly, alerts other personnel in case any help is needed.

b. Receive the baby on to a warm, clean and dry towel or cloth

The baby should be delivered on to a warm clean towel or cloth draped over mother's abdomen or chest.

c. Immediately dry the baby with a warm clean towel or piece of cloth

Immediately dry the baby with the warm clean towel within 5 seconds after birth. Wipe eyes, face, head, trunk, back, arms and legs thoroughly. Blood or meconium on the baby's skin should be wiped away; however, the white greasy substance covering the baby's body (vernix) should not be wiped off. Check breathing while drying. Because this vernix helps to protect the baby's skin and gets reabsorbed within few hours. After drying, remove the wet towel/cloth to start skin to skin contact.

d. Cover the baby's head with a cap. Cover the mother and baby with a warm cloth

Since head is the major contributor to the surface area of the body, a newborn baby's head should be covered with a cap to prevent loss of heat. Both the mother and the baby should be covered

with a warm cloth, especially if the delivery room is cold (temperature less than 25°C).

e. **Assess the baby's breathing while drying**

At the time of drying itself, the baby's breathing should be assessed. A normal newborn should be crying vigorously or breathing adequately (chest rising smoothly at a rate of **30-60** breaths per minute).

However, if the baby is not breathing or gasping, then skilled care in the form of initial steps, positive pressure ventilation etc. might be required. These steps are explained in **Postpartum Standard 2: Basic Newborn Resuscitation**.

f. **DO NOT do routine suctioning**

If baby is breathing normally or crying, avoid routine suctioning. You may do suctioning during first 30 seconds of life if a baby who is not breathing or crying after thorough drying or if the mouth/nose is/are blocked. First suction the mouth followed by nose.

g. **Continue skin-to-skin contact on mother's abdomen or chest**

Continue skin to skin contact with baby prone on mother's abdomen or chest, turn baby's head to one side. This will help in maintaining the normal temperature of the baby as well as in promoting early breastfeeding. Continue initial skin-to-skin care for at least one hour after birth, unless baby shows signs of respiratory distress or mother has signs of emergency like bleeding or shock.

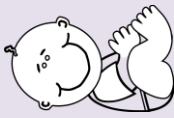
h. **Encourage mother to initiate exclusive breastfeeding**

Observe the baby while on mother's chest in skin to skin contact, for feeding cues (e.g opening mouth, tonguing, licking, rooting), suggest mother to encourage/nudge her baby towards the breast. When baby is ready, provide breast feeding support to ensure good positioning and attachment. **Breastfeeding should be initiated within half an hour of birth in all babies.**

i. **Do appropriately timed umbilical cord clamping and cutting**

Ensure gloves are sterile when touching or handling the cord. Remove the soiled set of gloves if not possible, wash-gloved hands before touching or handling the cord. The umbilical cord should be clamped **within 1 to 3 minutes** or after cord pulsation ceases using a sterile, disposable clamp or a **sterile tie and cut using a sterile blade about 2-3 cm away from the skin**. It should not reach the perineum. Remove blood or meconium by wiping with clean cloth and count the number of vessels (2 umbilical arteries and 1 umbilical vein) and record.

The steps of clamping, cutting the cord and its care after cutting are summarized in the box below:



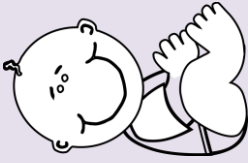
CARE OF THE UMBILICAL CORD

1. Put the baby on mother's abdomen or chest or on a warm, clean and dry surface close to the mother.
2. Change gloves; if not possible, wash gloved hands.
3. Put ties (using a sterile tie) tightly around cord at 2 cm and 5 cm from the abdomen. (If sterile clip is available clamp with clip around 2-3cm from the skin)
4. Cut between the ties with a sterile instrument (e.g. Blade). (If sterile clip is available cut above the clip with a sterile instrument)
5. Remove blood or meconium by wiping with clean cloth
6. Observe for oozing blood. If blood oozes, place a second tie between the skin and first tie.
7. **DO NOT APPLY ANY SUBSTANCE TO THE STUMP.**
8. Leave stump exposed and nothing should be placed on it
9. If stump is soiled, wash it with clean water and dry with a clean cloth

j. **Do eye care**

After baby has located the breast, clean both the eyes using sterile gauze/cotton. Use separate gauze for each eye. Wipe from the medial side (inner canthus) to the lateral side (outer canthus). Administer tetracycline ointment to both the eyes as per national guidelines, apply from the inner corner of each eye to outwards. Explain to the mother before applying that this is routine procedure to prevent infection.

The summary of steps for immediate newborn care in first 90 minutes of life are as below:



Early Essential Newborn Care: the first 90 minutes of life

- Call out the time of birth and gender of the baby.
- Deliver the baby onto a warm, clean and dry towel or cloth and keep on mother's abdomen or chest (between the breasts).
- Immediately dry the baby thoroughly with a warm clean towel or piece of cloth.
- Assess the baby's breathing while drying.
- Cover the baby's head with a cap. Cover the mother and baby with a warm cloth.
- Clamp and cut the umbilical cord between 1minute – 3 minutes after birth (delayed cord clamping), if baby breathing well.
- Do eye care.
- Encourage mother to initiate breastfeeding within half an hour of birth.
- Leave the baby between the mother's breasts to start skin-to-skin care for at least an hour.
-

**If the baby is not crying or breathing well, the next steps of resuscitation have to be carried out after immediate clamping the cord and taking the baby to radiant warmer (as explained in the standard on Basic Newborn Resuscitation)*

3. SPECIAL SITUATIONS

a. *Caesarean section, instrumental delivery*

Caesarean section, instrumental delivery and breech delivery, all carry increased risks to the mother and to the baby. Before delivery, preparation for newborn resuscitation should be made in all these cases, since the need for resuscitation might be more in them as compared to a

normal delivery.

Delay between the time of birth and skin-to skin contact & the first breastfeed may happen in each of these special situations. Also, separation is common, leading to babies receiving pre-lacteal feeds in the first hours after birth. If a long delay between delivery and breastfeeding is expected, encourage the mother to express colostrum. If the mother is too ill to express herself, do it for her.

A mother who has delivered by caesarean section should **NOT** be routinely separated from her baby unless either the mother or the baby is sick and needs special care. The baby should be kept in the same room with mother.

Once the baby is born, monitoring every 15 minutes in the first hour will be particularly important.

*A baby born by caesarean section or instrumental delivery **SHOULD NOT BE ROUTINELY** separated from the mother; these babies need better readiness during delivery and more careful monitoring after birth.*

Skin-to-skin contact and breastfeeding in difficult deliveries (caesarean section, instrumental and breech delivery):

- A mother who was given a general anesthetic agent should begin skin-to-skin contact as soon as she is able to respond to her baby. This may be initiated within one hour of birth.
- A mother who has had an epidural (spinal) anesthesia will be able to start skin-to- skin contact very soon after surgery.
- Breastfeeding can begin as soon as the mother is comfortable and able to respond to her baby. It does not have to be delayed.
- These mothers will need additional assistance in positioning and attaching the baby comfortably. Breastfeeding in lying down position may be more comfortable in the first days

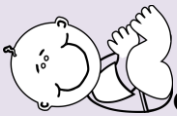
b. *HIV and newborn care at birth*

Whether a mother is HIV positive or not, follow standard safety precautions (while delivering must be observed and followed). Use HIV kit when needed as per latest national guidelines when delivering a baby. All HIV infected pregnant women should have PMTCT interventions provided early in pregnancy as far as possible. **The 4 prongs of National PMTCT interventions for HIV infected pregnant women are early diagnosis and effective ART, elective C/S section, for babies – immediate cord clamping, no breast feeding and ART prophylaxis for 6 weeks.**

*****Care of the baby at delivery should be no different from the care already described.**

As per latest national guideline, replacement feeding is recommended in Bhutan. Therefore, the first few feeds should be prepared for her. These feeds should be **given by cup NOT bottle**. Avoid mixed feeding.

The salient features of care in these infants are summarized in the box below:



CARE OF BABY BORN TO HIV POSITIVE MOTHER

1. Standard safety precautions must be followed as with any other delivery.
2. Baby can have immediate skin-to-skin contact as any other mother and baby.
3. As per latest national guideline, replacement feeding is recommended in Bhutan. Therefore, the midwifery-trained personnel should prepare formula for the first few feeds. Ensure it is safe, affordable and sustainable for family.
4. All other care (including cord care and eye care) remains the same.
5. Give oral Azidothymidine (AZT) for six weeks to the neonate as per latest national policy
6. Ensure the baby is following up by local PMTCT focal person and Pediatrician and get the continuum of necessary prophylaxis/treatment/ Investigation in timely manner.

4. PERFORM POST PROCEDURE TASKS

- Place all disposable items in appropriate leak proof containers. Place soiled linen in leak proof container.
- Submerge instruments in 0.5% chlorine solution for 10 minutes.
- Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.

Postpartum Care Standard 2: Early Essential Newborn Care: Basic Newborn Resuscitation

Aim: *To assess the condition of the newborn and assist in the initiation of respiration and protection against hypothermia and hypoglycemia (Provide Basic Newborn Resuscitation)*

Standard Statement

Midwifery-trained personnel correctly examine and assess the newborn to ensure respiration has been established, prevent secondary hypoxia, hypothermia and hypoglycemia.

Outcome

- Newborn received appropriate care to establish respiration
- Newborn with deviations or disabilities received early appropriate care
- Incidence of neonatal hypothermia, hypoglycemia and neonatal death reduced

Prerequisites:

1. Midwifery-trained personnel attend deliveries.
2. Midwifery-trained personnel have been trained and are skilled in:
 - a. Physical examination and assessment of the newborn at birth, e.g. assessment of breathing, heart rate, colour, etc. (APGAR score)
 - b. Neonatal resuscitation
 - c. Recognition of the signs of hypothermia and the correct management to prevent and treat it.
 - d. Recognition of hypoglycemia and prevent it by initiating early breast feeding.
3. Essential equipment and supplies, such as soap, safe water and towel for washing and drying hands; clean soft towel for drying baby; clean clothes/sun dried material for wrapping the baby; thermometer; weighing scales; and heaters are available.
4. Equipment required for neonatal resuscitation are available:
 - a. Resuscitation bag capable of providing 90-100% oxygen (self-inflating bag with oxygen reservoir)
 - b. Neonatal masks of various sizes
 - c. Oxygen source with a flow meter and oxygen tubing
 - d. Suction equipment (suction tubing, mechanical suction, and appropriately sized catheters)
 - e. Syringe and oro-gastric catheter; and
 - f. Oral airways of various sizes are available.
5. MCH Handbook with neonatal records and partograph are in use.
6. A fully operational referral system is in place for neonates with deviations from normal or with abnormalities to receive appropriate care and treatment.

Preparedness before delivery for neonatal resuscitation.

Midwifery-trained personnel must:

1. Be prepared to perform newborn resuscitation at every delivery. The need for possible resuscitation of a neonate should be anticipated. The designated resuscitation area (a dry clean and warm surface with radiant warmer) with all the necessary equipment should be identified and make available in the delivery room at all times.
2. Prevent infection. Wash hands thoroughly or use antiseptic hand rub if available and put on high-level disinfected or sterile surgical gloves before conducting childbirth. If other midwifery-trained personnel receive the newborn from the skilled attendant, they must also wash hands thoroughly and put on high-level disinfected or sterile surgical gloves.
3. Ensure the room is warm to prevent hypothermia. Immediately after the baby is born, prevent heat loss by drying the baby quickly with warm, clean and soft towel/sun-dried material. Dry the head, face and eyes and the rest of the body carefully.
4. **While drying the baby, do a quick check on baby’s breathing:**
 - If the baby is crying or breathing (chest rising at least 30 times per minute) leave the baby with the mother, and proceed to Immediate Care of the Normal Newborn as described above in **POSTPARTUM CARE STANDARDS 1: Early essential care of newborn, Immediate care in first 90 minutes**. Assess one-minute APGAR score if baby is breathing normally as given below:

APGAR SCORE	0	1	2
Appearance/ Colour	blue/pale	body pink, extremities blue	completely pink
Pulse/ Heart Rate	absent	less than 100 beats/minute	more than 100 beats/minute
Grimace/ Reflex	no response	minimal grimace	cough or sneeze
Activity/ Muscle Tone	limp	some movement of limbs	active movement

Respiration/ Breathing	absent	slow, irregular	good or crying
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- If the **baby does not start breathing or gasping within 30 seconds after thorough drying and stimulation**, call for help and **take the following steps to resuscitate the baby immediately**.
- APGAR score is **NOT USED TO INITIATE RESUSCIATION** nor making decisions about the course of resuscitation.

NEWBORN RESUSCITATION: IN STEP WISE

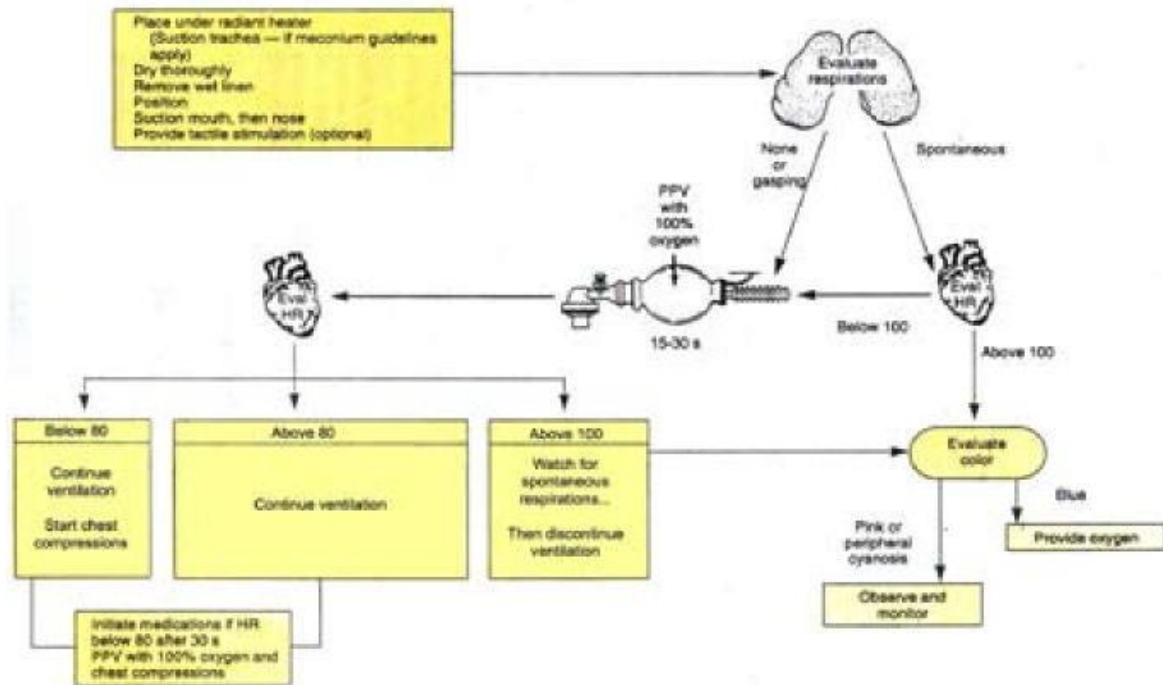
1. After drying, discard the wet towel and replace with second warm clean towel. Clamp and cut the cord with sterile scissors and with sterile gloves on. Place the infant under a heated radiant warmer/ heater.
2. Position the infant properly to ensure an open airway. Place the neonate on his/her back, with the neck slightly extended to ensure an open airway.
3. If Mouth/nose are blocked with secretion or meconium, do suctioning first into mouth and each nostril before bag and mask ventilation.
4. Select the appropriate equipment for bag-and-mask ventilation. Obtain a resuscitation bag and connect it to an oxygen source. Select a mask of the proper size. Quickly check the bag to be sure it functions properly.
5. Begin bag and mask ventilation if still not breathing within 1 minute after birth. Place mask to cover chin, mouth and nose to achieve a seal. **DO NOT** cover the eyes.
6. Squeeze bag attached to the mask with two fingers or whole hand according to bag size, 2-3 times. Observe appropriate chest rise, when a normal rise of the chest is observed ventilate at the rate of 40 breaths per minute until baby starts crying or breathing.
7. If chest is not rising, follow ventilation corrective steps as below:

CONDITION	VENTILATION CORRECTIVE STEPS
Inadequate seal	Reapply mask
Blocked airway	Reposition infant's head

Blocked airway	Check for secretions, suction if present
Blocked airway	Ventilate with mouth slightly open
Inadequate pressure	Increase pressure slightly

8. Evaluation and decision making in the course of neonatal resuscitation are based primarily on **two important vital signs:**
 - a. Respiration
 - b. Heart rate
9. After 60 seconds of adequate bag and mask ventilation, check breathing and heart rate. Counting heart rate for 6 seconds and multiply this number by 10 will give you the heart rate per minute. Is the heart rate below 60, more than 60 or more than 100 beats per minute? Manage depending on the heart rate:
 - a. Above 100 beats per minute:
 - i. If the baby starts breathing or crying and has no chest in drawing, stop ventilating. Observe to ensure that the baby continues to breath well. Then return the baby to the mother's chest on skin to skin contact.
 - ii. If baby is still not breathing or gasping or severe chest in drawing, continue bag and mask ventilation. Take corrective ventilation steps as described as above.
 - b. Above 60 beats per minute: Continue ventilation
 - c. Below 60 beats per minute: Continue to ventilate. Begin chest compressions, call for additional help.

Overview of Resuscitation in the Delivery Room



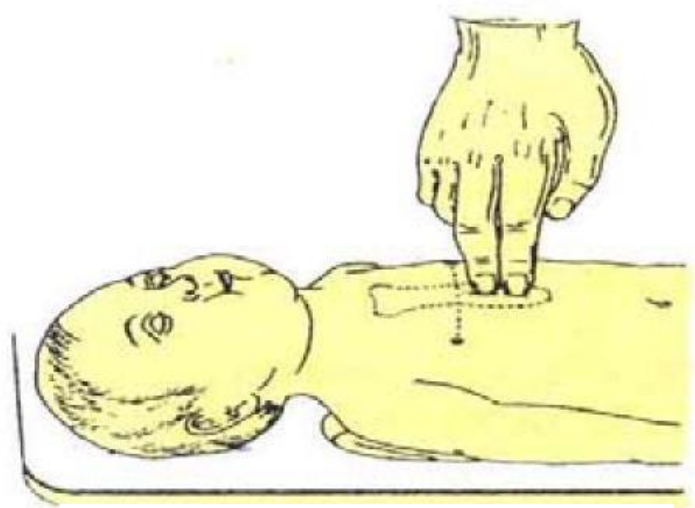
10. If ventilation continues for more than 2 minutes, insert an orogastric tube as an air vent to relieve abdominal distension.

11. Begin Chest compression:

- a. The infant is already in position for ventilation with the neck slightly extended. You must provide firm support for the back so that the heart can be compressed between the sternum and the spine. If the infant's back is firmly supported, you are ready to begin chest compressions by either method as below:
 - i. Two finger method
 - ii. Thumb method
- b. Quickly locate the lower third of the sternum and position your fingertips or thumbs as shown in the figures below while another person continues ventilation.



Position of fingers for thumb method



Position of fingers for two – finger method

- c. Use the tips of the middle and index or ring fingers for the ‘two-finger method’. Use the balls of the thumbs for compression for the ‘thumb method’. The sternum should be compressed to a depth of 1/2 to 3/4 inch with 3 compressions and 1 ventilation occurring in a 2-second cycle. This provides 90 compressions and 30 ventilations per minute.
12. After 30 seconds of compressions and ventilations, check the heart rate for 6 seconds (and multiply this by 10 to give you the heart rate per minute). If the heart rate is:
 - a. Below 60 beats/minute: continue compressions and ventilation.
 - b. 60 beats/minute or greater: discontinue compressions but continue ventilation with 100% oxygen.
13. Check for signs of improvement:
 - a. increasing heart rate,
 - b. spontaneous respirations, and
 - c. improving colour.
14. Stop resuscitation in neonates if:
 - a. No detectable heart rate after 10 minutes of effective ventilation
 - b. Heart rate < 60 beats/ minute and no spontaneous breathing after 20 minutes of resuscitation

** Explain to the mother in a kind and gentle tone that despite all attempts you were unable to help her baby to breath. Provide comfort care including warmth and psychosocial support. Record all the event.

POST- RESUSCITATION CARE

When the heart rate is greater than 100, and spontaneous respirations are 30-60 breaths/minute and there is no in drawing of the chest and no grunting:

1. Return the baby to the mother and place in direct skin-to-skin contact.
2. Provide routine care (see “IMMEDIATE NEWBORN CARE” that are described in **POSTPARTUM CARE STANDARD 1: Early Essential Newborn Care**)
3. Monitor baby for breathing difficulties, warmth and color at frequent intervals every 5 minutes:
 - a. **If signs of breathing difficulties recur**, e.g. the baby is cyanotic, respirations are less than 30 or more than 60 breaths per minute, or the baby has in drawing of the chest or grunting:
 - i. Suction mouth and nose to ensure the airways are clear,
 - ii. Give oxygen at 0.5 L per minute by nasal catheter or prongs, and
 - iii. Arrange to transfer the baby to the referral unit/hospital.
4. Encourage mother to begin breastfeeding. A newborn that required resuscitation is at higher risk of hypoglycemia. **If suckling is not good**, transfer the baby to the referral unit/hospital.
5. Record the event in the following details:
 - a. Condition of the newborn at birth
 - b. Procedures necessary to initiate breathing
 - c. Time from birth to initiation of spontaneous breathing
 - d. Clinical observations during and after resuscitation measures
 - e. Outcome of resuscitation measures
 - f. In case of failed resuscitation measures, possible reasons for failure
 - g. Names of providers involved
6. Perform post-procedure tasks.
 - a. Dispose of disposable supplies in a leak proof container or plastic bag.
 - b. Decontaminate reusable catheters and mucus extractors.
 - c. Wash hands thoroughly and dry with clean, dry towel or air dry. Put on clean gloves and process reusable equipment and supplies according to manufacturers

recommendations:

- i. Clean and disinfect reusable catheters and mucus extractors.
- ii. Take the valve and mask apart and inspect for cracks and tears, wash with water and detergent, rinse and dry, and sterilize or high-level disinfect. Reassemble and test the bag and mask.



REMEMBER

Contra-indications of bag-and-mask ventilation:

- *Suspected diaphragmatic hernia (suspected if the baby's abdomen is scaphoid and the foetal heart sounds are better heard on the right side of the chest)*

Postpartum Care Standard 3: Early Essential Newborn Care: From 90 minutes to 6 hours of life

Aim: To provide appropriate care for mother and baby during postnatal period.

Standard Statement

Midwifery-trained personnel provide/ arrange at least four appropriate visits in the 42 days after delivery, to promote healthy outcome for the mother and baby.

This includes correct care of the cord, prompt recognition and management of complications in the postnatal period, referring as necessary and providing appropriate health education and advice on all aspects of general health, personal hygiene, nutrition, neonatal care, infant care, breastfeeding, immunization and family planning.

Outcome

- Complications in the postnatal period referred for appropriate, prompt treatment
- Exclusive breastfeeding for 6 months
- Helpful traditional practices encouraged and harmful practices discouraged
- Infections in the mother and baby reduced
- Community more aware of need for appropriate birth spacing
- Increased in immunization coverage of babies

Prerequisites:

1. Operational system is in place for mothers and babies to receive postnatal care at health facility.
2. National policy exists on four postnatal visits, within 3 days, 1st week, at 3rd and 6th weeks after delivery.
3. Midwifery-trained personnel have been trained and are skilled in:
 - a. Postnatal care, including the correct methods of examining postnatal mothers and babies
 - b. Assisting mothers to breastfeed
 - c. Recognition and management of complications in mother and baby in the postnatal period; and
 - d. Appropriate methods of family planning/birth-spacing.
4. Midwifery-trained personnel have access to integrated functioning immunization facilities.
5. Essential equipment and supplies, such as soap, safe water and clean towel for washing hands are available.
6. Vaccines and equipment for transportation, cold storage and immunization are readily available.

7. MCH handbooks and are in use.
8. A fully operational referral system is in place for mothers and/or babies with complications or problems to receive appropriate care and treatment.

Process

Midwifery-trained personnel must:

Following delivery and immediate care of the newborn, assess the condition of the mother and newborn for the first six hours, as follows:

1. Every 15 minutes for first 1 hour,
2. Every 30 minutes for next 2 hours and
3. Every hour for next 3 hours.
4. Every 6 hours thereafter

The baby should be thoroughly examined before (he) is discharged from the delivery room. Tell parents that although the possibility of complications is low, there are still a small probability that the baby may have problems such as feeding difficulty or convulsions in the first few days.

All mothers need help, support, and advice in the initial few days after delivery to ensure proper care of their newly born babies. The care and help given to mothers and babies in the first few days after birth are critical in maintaining the normality and preventing any complications in them.

Ideally, all pregnant women should be counseled regarding the care of the baby during the antenatal period itself. This would help them to be mentally prepared to take care of their babies after birth.

After delivery, majority of mothers usually stay for a very short time in the hospital. During this short period, they

- Need time to get to know their babies
- Need time to rest (since they are often tired and exhausted after delivery)
- In addition, they need to know what care has to be given to their baby and how to carry out the care; they also need to know what to do if their baby is not well

Therefore, it is very important for the health care providers to help the mothers (whether at a health facility or at home) in this crucial time period. First time mothers often need more help and support for the proper care of their infants.

In institutional deliveries, monitor mother and baby who underwent uncomplicated vaginal delivery for at least 24 hours before discharging from the health care facility. If in the community, stay with the mother and monitor for 2 hours.

1.ROUTINE NEWBORN CARE (from 90 minutes to 6 hours of life)

a. **Examine the baby after the baby has detached from the breast.**

Before examining, **wash your hands and Weigh the baby and record.** Examine and Check the baby thoroughly for:

- any birth injuries and or malformations that need referral.
- Breathing difficulties like grunting, chest in drawing, fast or slow respiratory rate.
- Body temperature – normal axillary temperature is 36.5-37.5 degree celcius.
- Eye redness, swelling or pus draining.
- Umbilical stump for oozing blood.
- Abdominal distension.
- Cleft lip or palate
- Skin for cuts and abrasions

b. **Give Vitamin K Prophylaxis**

Explain to the mother that Vitamin K will protect babies from serious bleeding.

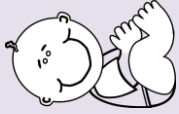
- Give vitamin K by intra muscular (IM) injection 1.0mg for every newborn (0.5mg for birth weight <1000 gms).
- Encourage mothers to breastfeed their baby during the injection for comfort.

c. **Hepatitis B and BCG vaccinations**

Explain to mother that Hep B vaccine is to prevent her baby from catching liver infection that will cause cancer later in life and BCG vaccine to prevent serious infections due to tuberculosis.

d. **Dry Cord Care**

Keep cord stump loosely covered with clean clothes, nothing to put on the stump. Fold diaper below the stump. Routine cord care in the first few days of life (until the cord dries and falls off) is summarized below:



EVERYDAY CARE: KEEPING THE CORD HEALTHY

1. Wash hands before and after cord care.
2. Put **NOTHING** on the stump.
3. Fold nappy (diaper) below the level of the stump.
4. Keep cord stump loosely covered with clean clothes.
5. If stump is soiled, wash it with clean water and soap. Dry it thoroughly with clean cloth.
6. Look for signs of infection (daily)
 - a. Pus discharge from the cord stump
 - b. Redness around the cord especially if there is swelling
 - c. High temperature (more than 37.5°C) or other signs of infection
7. Explain to the mother that she should seek care if the umbilicus is red or draining pus or blood.

*****Applying traditional remedies to the cord may lead to infections and tetanus.
Cord clip can be removed after 24 hours if the cord is completely dry***

e. **Monitoring the baby**

During the first hour after delivery, the baby (and the mother) should be monitored every 15 minutes. Both of them should remain in the delivery room for the first hour to facilitate monitoring. **Check for bleeding from the cord, breathing and color every 15 minutes** for the first one-hour. If the cord is bleeding, retie cord more tightly and monitor closely. **DO NOT** leave the mother and baby alone, monitor every 15 minutes.

The three most important parameters that need to be monitored are:

- I. Breathing
- II. Temperature or warmth and
- III. Color

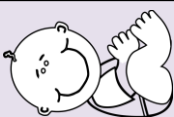
The health personnel should monitor these three parameters every 15 minutes in the first hour after birth of the baby. The signs to be looked for are given in the table below:

Parameter	What to look for?
Breathing	Listen for grunting; Look for chest in-drawing and fast breathing
Warmth	Check to see if baby's feet are cold to touch (by using dorsum of your hands)
Color	Evaluate the color of the trunk and extremities

2. PREVENTION OF INFECTIONS: 'CLEAN CHAIN'

Babies are secure placed in their mothers' womb. When they are born, they have to be protected from the adverse environment of the surroundings. Cleanliness at delivery reduces the risk of infection for the mother and baby, especially neonatal sepsis and tetanus. Cleanliness requires mothers, families, and health professionals to avoid harmful traditional practices, and prepare necessary materials. Hand washing is the single most important step to be emphasized to both family members and health care workers.

'Clean chain' has to be followed both at the time of delivery and then till the time of discharge to protect the infant from infections. The components of clean chain are summarized below:



CLEAN CHAIN

1. Clean delivery (WHO's six cleans)

- Clean attendant's hands (washed with soap)
- Clean delivery surface
- Clean cord-cutting instrument (i.e. razor, blade)
- Clean string/clip to tie/clamp cord
- Clean cloth to cover the baby
- Clean cloth to cover the mother

2. After delivery

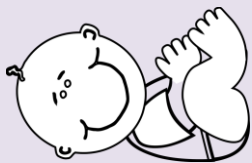
- All care givers should wash hands before handling the baby
- Feed only breast milk
- Keep the cord clean and dry; do not apply anything
- Use a clean absorbent cloth as a diaper/napkin
- Wash your hands after changing diaper/napkin.
- Keep the baby clothed and wrapped with the head covered

3. ENSURE WARMTH OF THE BABY: 'WARM CHAIN'

A baby's skin temperature falls within seconds of being born. If the temperature continues to fall, the baby will become ill and may even die. Delivery room must be maintained at room temperature (25 - 28 degree Celsius). Door and windows has to be closed. Fans and air condition has to be put off and use room heater. This is why a baby **MUST** be dried immediately after birth and delivered onto a warm towel or piece of cloth, and start skin to skin contact by placing baby on the mother's abdomen or chest, covering head with a cap.

Keeping the baby between the mother's abdomen or chest ensures that the baby's temperature is kept at the correct level for as long as the skin contact continues. This first skin-to-skin contact should last uninterrupted for at least one hour after birth or until after the first breastfeed. The mother and baby should be covered with a warm and dry cloth. The steps of prevention of heat loss are explained in the module on 'Thermal protection'.

For maintaining the temperature, it is important to understand the concept of 'Warm chain'. It means that the temperature maintenance should be a continuous process starting from the time of delivery and continued till the baby is discharged from the hospital. The components of warm chain are summarized below:



WARM CHAIN

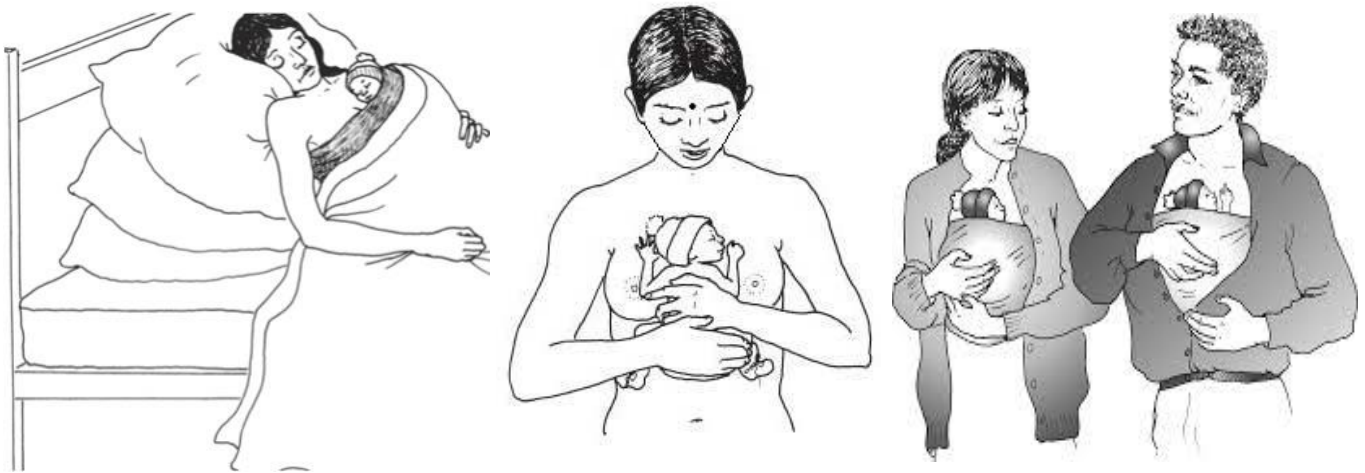
1. At delivery

- Ensure the delivery room is warm (25°C-28°C), with no draughts of air (close doors and windows, put off AC and fans and use room heater if available)
- Dry the baby immediately; remove the wet cloth
- Cover the baby with clean dry cloth
- Keep the baby in skin to skin contact with mother on chest or abdomen
- Postpone bathing/sponging for at least 24 hours unless medically indicated

2. After delivery

- Keep the baby clothed and wrapped with the head covered
- Avoid bathing especially in cool weather or for small babies
- Keep the baby close to the mother.
- Use kangaroo care for stable LBW babies and for re-warming stable bigger babies
- Show the mother how to avoid hypothermia, how to recognize it, and how to re-warm a cold baby. The mother should aim to ensure that the baby's feet are warm to touch

mother and baby. Especially for preterm and low birth infant, **Kangaroo Mother Care** can be provided continuously as long as possible in postnatal ward. It will help effective thermal control, increasing breastfeeding rates, early discharge, decreasing neonatal mortality, less morbidities such as apnea and infection, less stress, and better infant bonding.



Maintain normal axillary temperature of 36.5-37.5°C during skin to skin contact. Avoid exposure of cold air and contact with wet or cold surface. Check warmth by feeling the baby's feet every 15 minutes. If the feet feel cold, check the axillary temperature. Monitor axillary temperature hourly. If the baby is sick or the axillary temperature is less than 36.5°C in spite of efforts to rewarm, transfer the baby as quickly as possible to the referral unit/hospital maintaining skin-to-skin contact.

Source: WHO guidelines on Kangaroo Mother Care

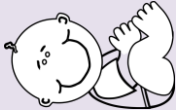
4. **Support unrestricted, on demand BREASTFEEDING, day and night.**

Keep the baby in the room with mother on her bed, do not separate them. Support exclusive breast feeding on demand, day and night. Assess breastfeeding in every baby and praise any mother who is breastfeeding and encourage her to continue exclusive breastfeeding.

To support mothers in breastfeeding their babies, health workers must be both skilled and knowledgeable. They should know the key points of correct positioning and attachment of the baby to the breast. In addition to teaching about positioning and attachment, midwifery-trained personnel must also be able to give mothers the correct information about infant feeding.

Mothers should be informed that in the first few days after birth, only a small amount of thick yellow milk (Colostrum) is secreted (if she needs to express at this time, only a teaspoonful can be expressed). They should be reassured that even this much is sufficient for a normal baby in the first 2 days and that the amount of milk secreted will gradually increase. The importance of giving colostrum should be emphasized and any doubts or false beliefs should be clarified.

The steps of breastfeeding counseling and support are covered in detail in National Newborn Standard. Some important points are summarized below:



EVERYDAY CARE: BREASTFEEDING

1. Support exclusive breastfeeding **on demand** day and night.
2. Ask the mother to **get help** if there is a breastfeeding difficulty.
3. **Assess** breastfeeding in every baby **before** planning for **discharge**.
4. If the mother reports a breastfeeding difficulty, assess breastfeeding and help her with attachment and positioning.
5. **DO NOT** discharge the baby if breastfeeding is not established.

- a. Ask the woman about breastfeeding and record her responses:
 - Frequency of feeds (day and night)
 - Position, attachment and sucking
 - Baby's satisfaction with feeding
 - Adequacy of breast milk by noting the urine output. If baby passes urine more than 6 times a day in an exclusively breastfed baby, then breast milk is adequate
- b. Ask mother to put baby to breast to assess technique (if baby has not fed in the last hour).
- c. Observe for at least four minutes.
- d. Look for good attachment, effective sucking and good positioning.
- e. Provide encouragement and counselling about good attachment, effective sucking and good positioning (based on observations).
- f. Advise mother to seek help if she has any difficulty with breastfeeding.

- g. Encourage mother to continue exclusive breastfeeding on demand for 6 months.
- h. Encourage and assist the mother to put the baby to the breast in the first hour following delivery. All mothers need assistance to position the baby correctly at this first feeding, even if they have breastfed other children. It is important to:
- Prevent infection. Midwifery-trained personnel wash hands thoroughly and dry with clean, dry towel or air dry before and after assisting the mother with breastfeeding. The mother is instructed and assisted to wash her hands thoroughly before breastfeeding.
 - Look for good positioning:
 - i. Baby's head and body straight
 - ii. Baby is turned toward the breast, with nose opposite nipple
 - iii. Baby's body close to mother's body; and
 - iv. Baby's bottom supported.
 - Look for good attachment:
 - i. More areola visible above than below the baby's mouth
 - ii. Mouth open wide
 - iii. Lower lip turned outward; and
 - iv. Chin touching breast.
 - Look for effective sucking: - Slow, deep sucks; with Occasional pauses.
 - Record time of initial breastfeeding, and need for ongoing assistance.
- i. Ensure adequate food and fluid intake by the mother.
- j. **Ensure that the baby is breastfed within half an hour of birth** and at least every two hours thereafter. This will prevent **hypoglycemia**. The signs associated with hypoglycemia include jitteriness, fits, hypotonia, apnoea, and diminished spontaneous movements. Untreated prolonged hypoglycemia causes brain damage and sometimes death. If you suspect hypoglycemia due to inability to initiate breastfeeding (maternal complication or sick/small newborn), give 10% dextrose, 5 ml/kg orally and refer. Ensure that the baby is kept with the mother at all times. **Discourage feeding baby with anything except breast milk**, even following assisted vaginal or caesarean section delivery. It is important to tell parents that feeding butter/honey/sugar immediately after birth results in failure to establish breastfeeding and increases the risk of infections.

5. Looking for danger signs and giving treatment

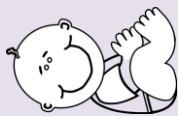
It is important that mothers, care givers and health workers are able to recognize the signs and symptoms which indicate that the baby is not well ('DANGER SIGNS'). Early recognition of the danger signs will help in identifying those babies who need urgent care and treatment.

Breathing difficulties (< 30 or > 60 per min or gasping)

- Bluish discoloration of the mouth/ face
- Feet feel cold in spite of warming
- Feeding difficulties
- Lethargy
- Jitteriness
- Convulsions
- Redness around the umbilicus
- Pus from eyes
- Yellow discoloration of skin

Look for **jaundice**. Jaundice arising on the third or fourth day after birth may be of physiological occurrence and usually does not require treatment. If it is deep jaundice, it may need phototherapy. However, if jaundice arises on the first day, or after the 7th day, or persists beyond 2 weeks after birth, or the baby is sluggish and appears very sleepy, or jaundice on palm or soles, the baby should be given phototherapy or referred immediately. (Refer to section on Life saving neonatal jaundice management at the end of the book)

The important danger signs of NEWBORN are given in the box below:



DANGER SIGNS

1. Not feeding well
2. No movement
3. Moderate or severe chest in-drawing , Breathing difficulties (< 30 or > 60 per min or gasping)
4. Jaundice on day 1 or palms or sole stained yellow any age
5. Abnormal movements / Convulsions / Lethargy
6. Fever (temperature >37.5°C)
7. Temperature <35.5oC or not rising after re-warming
8. Bluish discoloration of the mouth/ face
9. Redness around the umbilicus
10. Pus from eyes

****Instruct them to take the baby to the nearest hospital if these problems occur.**

Any condition require treatment refer and follow STANDARD TREATMENT PROTOCOL OF NEWBORN CONDITIONS, given at the end of this standards.

INDICATIONS OF NEWBORN REFERRAL

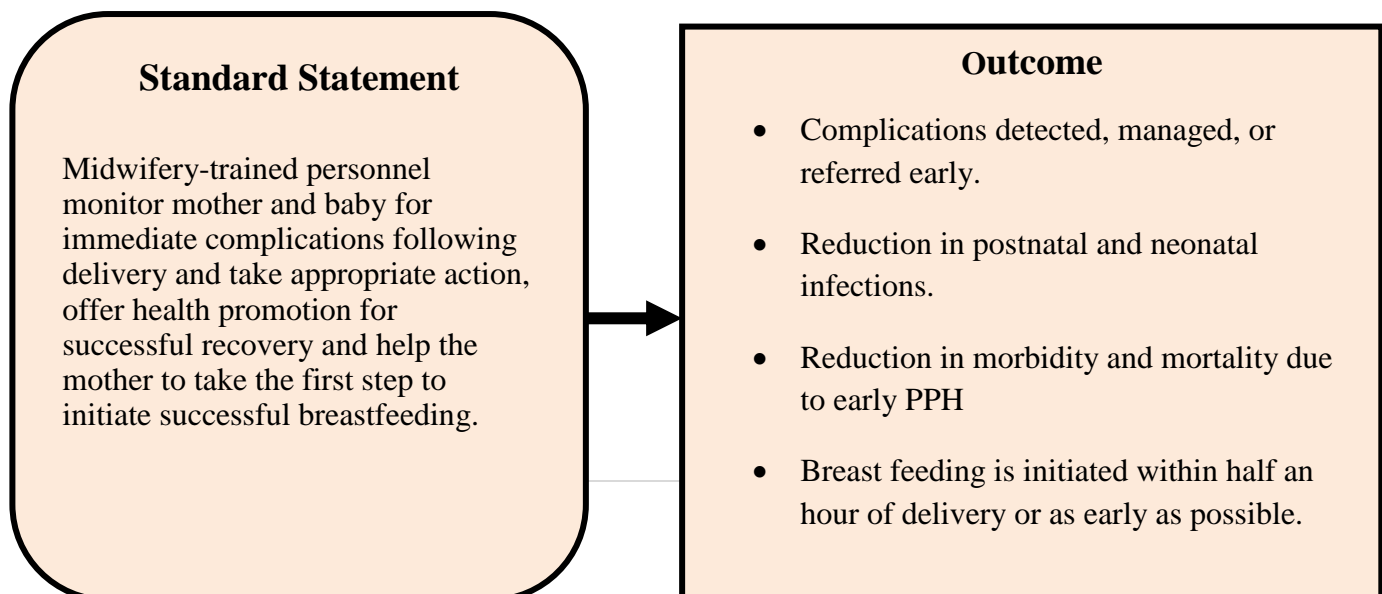
Consider immediate consultation to the higher center and urgent referral of the neonate if any one of the below mentioned conditions are present in a neonate:

- Apnea or gasping
 - Not breathing at all even when stimulated or
 - Gasping respiration or
 - Respiratory rate less than 20/minutes
- Shock
 - Weak and fast pulse (HR>180/minutes) and
 - Extremities cold to touch and
 - Capillary refill time >3sec
- Severe respiratory distress
 - RR>90/minutes with grunting/retraction or
 - RR<30/minute or
 - Cyanotic on >1L/min on nasal prongs or >5L/min Oxygen by hood or SpO₂<90%
- Severe birth asphyxia
 - 10 minutes APGAR score less than 5
 - Tachypnea, grunting, retraction, cyanosis last more than 1 hour after birth
 - 5 minutes APGAR score less than 7 with meconium stained amniotic fluid
- Preterm
 - Less than 33 weeks or less than 1800g, and
 - Mild respiratory distress, oxygen requirement
- Severe hyperbilirubinemia
 - Over exchange transfusion level
- Hypoglycemia not responding to treatment
- Convulsion not responding to treatment
- Other conditions that require immediate treatment/operation
 - Biliary/bloody vomit
 - OG tube coil up sign (suspected esophageal atresia)
 - Abdominal distension with danger signs
 - Discoloration of abdominal wall

- Biliary gastric aspirate
- Shining abdomen
- Abdominal mass
- No passage of meconium
- Major birth defect which have risk of infection and require urgent surgery
 - Open neural tube defect
 - Abdominal wall defect

Postpartum Care Standard 4: Early Essential Newborn Care: Care before discharge

Aim: To ensure successful postnatal recovery in mother, a healthy baby and to initiate early breastfeeding.



Prerequisites:

1. Midwifery-trained personnel have been trained and are skilled in caring for mother and baby immediately, and for the first six hours following delivery, including emergency life-saving skills.
2. The mother is motivated to breastfeed and give colostrums from birth.
3. Essential equipment and supplies, such as soap, safe water; clean towel for washing and drying hands; clean clothes/material for wrapping the baby; and blood pressure instrument, stethoscope and thermometer are readily available.
4. Appropriate drugs, such as oxytocin with appropriate storage facilities are available.
5. Postnatal record in the MCH Handbook is in use
6. A fully operational referral system is in place for mothers and neonates with complications to receive appropriate care and treatment.

Process

Midwifery-trained personnel must:

1. Following delivery and immediate care of the newborn, assess the condition of the mother and newborn for the first six hours, as follows:
 - Every 15 minutes for 1 hour,
 - Every 30 minutes for 2 hours and
 - Every hour for 3 hours

MOTHER

- BP and pulse
- Uterine contraction
- Height of fundus
- Lochia/ bleeding

NEWBORN

- Breathing and colour
- Warmth
- Cord bleeding
- Breast feeding, urine and meconium passed.

2. If maternal bleeding occurs, start emergency procedures immediately. Delay is dangerous.
3. Encourage and assist the mother to put the baby to the breast in the first hour following delivery. All mothers need assistance to position the baby correctly at this first feeding, even if they have breastfed other children. It is important to:
 - a. Prevent infection. Midwifery-trained personnel wash hands thoroughly and dry with clean, dry towel or air dry before and after assisting the mother with breastfeeding. The mother is instructed and assisted to wash her hands thoroughly before breastfeeding.
 - b. Look for good positioning:
 - Baby's head and body straight
 - Baby is turned toward the breast, with nose opposite nipple
 - Baby's body close to mother's body; and
 - Baby's bottom supported.
 - c. Look for good attachment:
 - More areola visible above than below the baby's mouth
 - Mouth open wide
 - Lower lip turned outward; and
 - Chin touching breast.
 - d. Look for effective sucking:
 - Slow, deep sucks; with
 - Occasional pauses.
 - e. Record time of initial breastfeeding, and need for ongoing assistance.
4. Perform examination of the baby and other procedures for immediate care of the newborn following Postpartum Care Standard 1.
5. Ensure adequate food and fluid intake by the mother.
6. Encourage the mother to empty her bladder within the first 2 hours after delivery. Retention of urine may lead to hemorrhage. Catheterize once if the bladder is full and if she cannot pass urine. Observe till she can pass urine by herself.
7. Assist the mother to bathe herself if she desires and change into clean clothes. Stress the need for good personal hygiene and regular change of sanitary wear. Once a day bath is sufficient, discourage too many baths.
8. Record all findings accurately and legibly.

9. In institutional deliveries, monitor for at least 24 hours before discharging. If in the community, stay with the mother and monitor for 2 hours.
10. Before leaving/discharging, ensure that the mother, her husband and family are aware of danger signs that may occur and how and when to call assistance. If mother was anaemic or had APH/PPH admit for three days and check Hb on the third day.
11. DO NOT leave or allow the mother and baby to be discharged, until the condition of mother and baby are satisfactory and all records are complete. If concerned about the condition of the mother and/or baby call in assistance or refer to the first referral unit/hospital.
12. If the baby shows no sign of life and resuscitative measures are not effective, ensure that the parents have time to understand what has happened. Give simple, clear and honest explanations. If the parents wish, they should be allowed to hold/see their baby.
13. If parents want to perform some ceremonies for the dead/stillborn baby, allow these ceremonies to proceed. Midwifery-trained personnel should be respectful and sensitive to the grief of the parents and treat the stillborn baby with respect and dignity.
14. **Registration of the stillbirth** must be done in each institute in a separate register.



DANGER SIGNS FOR MOTHER IN THE POSTPARTUM PERIOD:

- *Heavy vaginal bleeding*
- *Convulsions*
- *Severe/persistent headache or blurred vision*
- *High fever*
- *Severe abdominal pain/severe vomiting*
- *Foul smelling vaginal discharge*



DANGER SIGNS FOR BABY IN THE POSTPARTUM PERIOD:

- *Breathing difficulties (< 30 or > 60 per min or gasping)*
- *Bluish discoloration of the mouth/ face*
- *Feet feel cold in spite of warming*
- *Feeding difficulties*
- *Lethargy*
- *Jitteriness*



REMEMBER

- *75 % of all maternal deaths in Bhutan occur in the post partum period due to PPH and most of them are preventable*
- *Keep the baby warm.*
- *All babies should be breastfed immediately following delivery.*
- *The colostrum contains useful constituents to protect the baby from infection.*
- *Check the uterus and bladder regularly.*
- *If episiotomy was performed, check wound regularly.*

All babies should receive the following 3 vaccines within the first week of life and preferably before discharge from the health facility:

- BCG
- OPV-0
- Hepatitis B (HB-0)

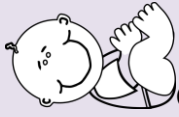
It is the duty of the health workers to ensure that the baby gets immunized before discharge. Mothers should also be given MCH handbook and advised regarding the immunization schedule.

b. Check if the baby is fit for discharge

Before leaving/discharging, ensure that the mother, her husband and family are aware of danger signs that may occur and how and when to call assistance.

DO NOT leave or allow the mother and baby to be discharged, until the condition of mother and baby are satisfactory and all records are complete. If concerned about the condition of the mother and/or baby call in assistance or refer to the first referral unit/hospital.

A baby can be discharged if the following criteria are fulfilled (see box):



Criteria for discharge from a health facility

1. Feeding well (suckling effectively) at least 8times in 24hours
2. No danger signs
3. Mother is confident to take care of baby
4. Understands the need for follow up and danger signs when to report early
5. For small baby below 2500gms: feeding well and gaining weight adequately

ADVISE ON ESSENTIAL CARE OF NEONATE AT DISCHARGE

Feed breast milk

- Breast milk is the best and is the only food baby needs for first six months
- Mother needs to breastfeed day and night, at least eight times in 24 hours
- Mothers need to take nutritious meals and should drink lots of clean water
- For a small baby who finds difficult to suckle, express breast milk and collect in a clean cup to feed the baby with a paladai, cup or spoon

Keep Clean


- Wash your hands with clean water and soap before every feed and after visiting toilet and handling baby's feces / urine.
- Keep the surroundings clean
- Keep the cord stump clean, do not apply anything on cord

Keep warm

- Keep the baby well wrapped in a clean dry cloth or blanket (in cold season)
- Cover baby's head with part of cloth / blanket or put a cap on the head
- Keep the room warm avoid direct draught of air
- Keep next to mother for warmth; it promotes lactation and mother-baby bonding Encourage KMC for Low birth weight babies

Counsel and educate the mother and family

- Build confidence of the family in taking care of baby at home
- Ensure that the family understands importance of administering prescribed medicines for the whole duration
- Educate mother when to report for follow up after discharge
- Educate mother when to report early if there is worsening of condition at any time after discharge
- Educate mother for signs of well baby feeds on breast, active behavior, pink extremities and trunk & extremities are warm to touch
- Ensure baby is gaining weight on follow up
- Advise for timely immunization



High-risk group that needs mandatory follow up after delivery

- Preterm
- Low birth weight infants
- Sick newborns

Postpartum Care Standard 5: Care of Mother and Baby in The Postnatal Period (from discharge to 6 weeks)

Aim: To provide appropriate care for mother and baby in the postnatal period (up to 42 days after delivery) and promote exclusive breastfeeding

Standard Statement

Midwifery-trained personnel provide/ arrange at least four appropriate visits in the 42 days after delivery, to promote healthy outcome for the mother and baby. This includes correct care of the cord, prompt recognition and management of complications in the postnatal period, referring as necessary and providing appropriate health education and advice on all aspects of general health, personal hygiene, nutrition, neonatal care, infant care, breastfeeding, immunization, pap smear and family planning.

Outcome

- Complications in the postnatal period referred for appropriate, prompt treatment
- Exclusive breastfeeding for 6 months
- Helpful traditional practices encouraged and harmful practices discouraged
- Infections in the mother and baby reduced
- Community more aware of need for appropriate birth spacing
- Increased in immunization coverage of babies
- Increased in Contraceptive Prevalence Rate
- Women at risk of developing secondary PPH identified and appropriate action taken

Prerequisites:

1. Operational system is in place for mothers and babies to receive postnatal care at health facility.
2. National policy exists on four postnatal visits, within 3 days, 7 days, 21 days and 42 days after delivery.
3. Midwifery-trained personnel have been trained and are skilled in:
 - Postnatal care, including the correct methods of examining postnatal mothers and babies
 - Assisting mothers to breastfeed
 - Recognition and management of complications in mother and baby in the postnatal period; and

- Appropriate methods of family planning/birth-spacing.
4. Midwifery-trained personnel have access to integrated functioning immunization facilities.
 5. Essential equipment and supplies, such as soap, safe water and clean towel for washing hands are available.
 6. Vaccines and equipment for transportation, cold storage and immunization are readily available.
 7. MCH handbooks are in use.
 8. A fully operational referral system is in place for mothers and/or babies with complications or problems to receive appropriate care and treatment.

Process

Midwifery-trained personnel must:

1. Greet the woman respectfully and with kindness and introduce yourself.
2. Tell the woman (and her support person) what is going to be done, listen to her and respond attentively to her questions and concerns.
3. Check the woman's record or ask for the following information and record her responses:
 - Name
 - Age
 - Parity
 - Number of children
4. Ask the woman how she is feeling and record her responses:
 - Pain, swelling or discharge from perineum
 - Problems with passing urine
 - Fever
 - Problems with eating and sleeping
 - Other problems
5. Check the woman's record or ask her about her pregnancy, birth and record her responses:
 - Place of birth and birth attendant
 - Mode of delivery
 - Pregnancy complications
 - Fever during or after childbirth
 - Heavy bleeding during or after childbirth
 - Convulsions during or after childbirth

- Condition of the baby at birth
6. Check the woman's record or ask her about:
 - Syphilis screening
 - Tetanus toxoid immunization
 - HIV status
 - Tuberculosis treatment
 7. Check the woman's record or ask her about:
 - Iron-folate
 - Vitamin A
 - Albendazole
 8. Ask the woman about breastfeeding and record her responses:
 - Frequency of feeds (day and night)
 - Position, attachment and sucking
 - Baby's satisfaction with feeding
 - Adequacy of breast milk by noting the urine output. If baby passes urine more than 6 times a day in an exclusively breastfed baby, then breast milk is adequate
 - Introduction of other fluids or foods to be discouraged before 6 months
 - Ask the woman about family planning and record her responses:
 - Desire for more children
 - Methods used
 - Method preference
 9. Observe general appearance (pale, tired, and worried).
 10. Take the woman's temperature, pulse, pallor and blood pressure, and record findings.
 11. Help the woman onto the examination table and place a pillow under her head and upper shoulders. The room must ensure privacy.
 12. Wash hands thoroughly with soap and water and dry with a sterile cloth or air dry
 13. Explain each step of the physical examination as you proceed and encourage the woman to ask questions.
 14. Examine breasts for engorgement and cracked/sore nipples.
 15. Examine abdomen for tenderness (lower abdomen), firmness and roundness of uterus and fundal height in cm. The average rate of reduction in uterine size is approximately 2 cm per day for the first 8 days.

16. Examine legs and calf muscles for localized pain, tenderness and reddish spots. (Vein thrombosis)
17. Put new, sterile or high level-disinfected surgical gloves on both hands.
18. Examine perineum and genitalia if she had an episiotomy:
 - Tears/gaping of episiotomy wound
 - Swelling
 - Tenderness
 - Pus
19. Ask about lochia for color, odor and amount. Lochia should become darker and lesser in amount by the third day and pink and scanty by 8 to 10 days.
20. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.
21. Ask the woman if she has any additional questions.
22. Help the woman off the examination table and offer her a seat.
23. Record all relevant findings from the physical examination on the woman's record.
24. Do a haemoglobin test.
25. Do syphilis screening, if not done during pregnancy.
26. Offer VCT for HIV screening if not done during antenatal period

PROVIDING CARE / TAKING ACTION

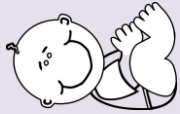
Care for the Mother:

1. Dispense medications:
 - Iron-folate tablets and Vitamin C: 1 OD, 3-month supply
 - Vitamin A: 200,000 IU, single dose
2. Treat syphilis, if necessary for both the partners.
3. Provide Td vaccine based on need.
4. Provide counseling about danger signs in the postpartum period and what to do if they occur.
 - Provide counseling about:
 - Nutrition and iron supplementation
 - Rest
 - Hygiene
 - Safer sex and sexually transmitted infections, including HIV/AIDS

- Family planning
- Breast care: allow the breasts to air dry after each feed.

Care for Baby:

1. Ask mother to put baby to breast to assess technique (if baby has not fed in the last hour).
2. Observe for at least four minutes.
3. Look for good attachment, effective sucking and good positioning.
4. Provide encouragement and counseling about good attachment, effective sucking and good positioning (based on observations).
5. Advise mother to seek help if she has any difficulty with breastfeeding.
6. Encourage mother to continue exclusive breastfeeding on demand for 6 months.
7. Provide counseling about keeping the baby warm;
 - Dressing and wrapping the baby
 - Keeping the room warm
8. If there is redness localized to the umbilical stump, clean the stump with normal saline or betadine. If the redness has spread to the surrounding skin, give first dose of antibiotic and refer.
9. Provide counseling about recognition of danger signs in the baby.
10. Look for **jaundice**. Jaundice arising on the third or fourth day after birth may be of physiological occurrence and usually does not require treatment. If it is deep jaundice, it may need phototherapy. However, if jaundice arises on the first day, or after the 7th day, or persists beyond 2 weeks after birth, or the baby is sluggish and appears very sleepy, or jaundice on palm or soles, the baby should be given phototherapy or referred immediately. (*Refer to section on Life saving neonatal jaundice management at the end of the book*)
11. Provide counseling about hygiene:
 - a. Hand washing before and after handling the baby
 - b. **Cord care:** The cord should be kept dry. The mother should be specifically informed of the dangers of putting any materials, oils or other substances on the cord.



EVERYDAY CARE: ENSURING HYGIENE IN BABY

1. Wash the face, neck, and underarms of the baby daily.
2. Do not bathe the baby before 24 hours of age or if the baby is cold. In case of small babies, bathe only after the baby reaches a weight of 2000g.
3. If bath is given
 - Ensure room is warm and there is no draught while changing clothes, washing and bathing
 - Use warm water for bathing
 - Thoroughly dry the baby, dress and cover after bath
 - Take extra precautions if the baby is small
4. Wash the buttocks when soiled. Dry thoroughly.
5. Use cloth diaper on baby's bottom to collect stool. Dispose off the stool as for woman's pads. Wash hands after disposing.
6. Do not apply 'Kajal' on eyes

12. Provide newborn immunization, if not already immunized.

13. Record the relevant observations and details of care for mother and baby.

14. Ask the mother if she has any further questions or concerns.

15. Thank the mother for coming and tell her when she should come for her next postpartum visit.



REMEMBER

- The postnatal period is a good time to provide health education and advice on family planning/child-spacing and pap smear but it must be appropriate and given in a friendly and sensitive way.
- All postnatal mothers are prone to infections. Therefore, hygiene, good diet and rest are very important.
- Deviations requiring referral should be addressed urgently.
- The health of future generations begins with good care of girls in infancy.

Recommended PNC visits

Objective:

- 1. To check the wellbeing of the mother and the baby
- 2. Reinforce counseling on exclusive breastfeeding, Family Planning options and Pap smear examination.

Recommended PNC check up for mothers

Period	Mother's visit should include the following services as needed
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Within 3 days after delivery	<ul style="list-style-type: none"> • Check BP, and Pulse. Assess for: Bleeding, Fever, and Mood/Behavior Changes. • Examine: Perineum for Episiotomy/Tear/hematoma, HoF, Breasts, Legs for signs of DVT, and CS scar for signs of infections, and any other issues. • Assist and encourage mother with breast feeding (good positioning & attachment). • Ensure adequate food and fluid intake and support for the mother. • Provide a supply of iron/folate tablets, and a single dose of vitamin A (200,000 IU). • Discuss danger signs with the mother and a support person for which they need to return to the health center immediately for evaluation and treatment. <p><i>(If a non-institutional delivery accidentally occurs, the mother and baby should be seen as soon as possible at the nearest health center!)</i></p>
At 1 to 2 weeks after delivery	<ul style="list-style-type: none"> • Check BP, pulse, and Hb. Inquire about: Bleeding, Fever, and Mood/Behavior Changes. • Examine: Perineum, Episiotomy/Tear, HoF, Breasts, Legs for signs of DVT, and CS scar for signs of infections, and any other issues. (Findus should not be palpable after 10-12 days). • Evaluate and encourage exclusive breast feeding for the first 6 months. Assess for good positioning and attachment. • Provide a supply of iron/folate tablets, and a single dose of vitamin A (200,000 IU) if not previously done.
Three weeks (21 days) after delivery	Same as at 1 week.
6 weeks (42 days) after delivery	Examine for any problems. Check mother's Hb. Provide family planning counseling, services and Papsmear

Recommended PNC check up for baby

Period	Baby should be provided the following during the visit
24 hours	<ul style="list-style-type: none"> • Provide all needed resuscitation for the baby. • Complete the entire Delivery Record and physical examination. • Provide appropriate vaccinations and Vitamin K injection. <p>*If a non-institutional delivery took place, bring your baby to the local health center immediately to be cared for. Do the same as above, but also complete</p>

	the Non-Institutional Delivery record on the bottom of page 10 of MCH hand book.
2-3 days after birth	<ul style="list-style-type: none"> • Examine as above. Focus on signs of infection (skin pustules, eye discharge, jaundice, etc.). • Enquire about stooling, urination, and evaluate and counsel mother regarding exclusive breast feeding.
At 1 to 2 week (7 days) after delivery	<ul style="list-style-type: none"> • Examine as before. Focus on the baby's hydration and weight as it is a good indicator of the adequacy of feeding. • Counsel mother regarding exclusive breast feeding for the first 6 months.
3 weeks (21 days) after delivery	<ul style="list-style-type: none"> • Provide a thorough exam incorporating all of the items above. Continue to encourage exclusive breast feeding for the first 6 months.
6 weeks (42 days) after delivery	<ul style="list-style-type: none"> • Check Weight and Physical exam as indicated. • Provide immunizations per guidelines. • Stress the importance of monthly visits to monitor the baby's growth and to get all required immunizations.



High risk group that needs mandatory follow up after delivery:

1. Single mothers
2. Teenage mothers
3. Post caesarean mothers
4. Post episiotomy/big tears
5. Mothers who had APH/PPH
6. Preterm/IUGR babies



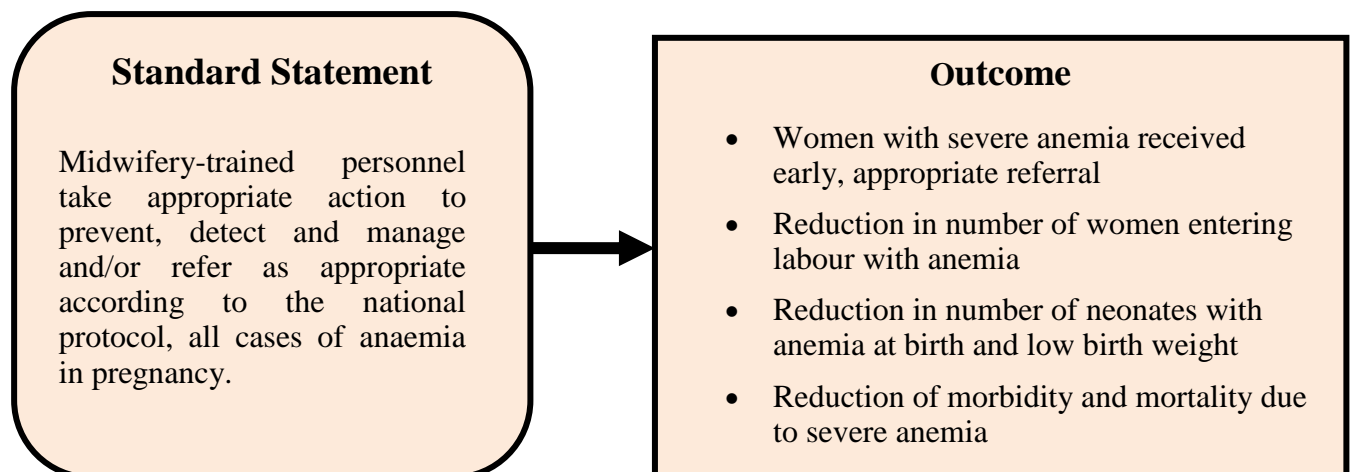
HEALTH EDUCATION ON:

- Importance of Postnatal visits
- Nutrition
- Personal hygiene/Avoid sitz bath
- Rest and postnatal exercises
- Danger signs for mother and baby
- New born care
- Breast feeding
- Immunization
- Family Planning and Papsmear
- Safer sex
- Care for child development (C4CD)

D. Standards Of Medical Conditions

Standard of Medical Condition 1: Management Of Anaemia In Pregnancy

Aim: *To reduce the incidence of and complications related to anaemia in pregnancy*



Prerequisites:

1. National policy supports midwifery-trained personnel to manage anemia in pregnancy.
2. Pregnant women attend antenatal care.
3. Midwifery-trained personnel have been trained and are skilled in:
 - Recognising and managing anaemia in pregnancy; and
 - Giving appropriate nutritional advice for the prevention of anaemia.
4. Facilities for making an assessment of haemoglobin are available.
5. Essential equipment and supplies for taking blood sample, including soap, safe water and clean towel for washing hands; sterile hypodermic needle and syringe; blood collection bottles and/or lancets and blood slides, if appropriate; are available and in good working condition.
6. Adequate supplies of iron, folic acid and vitamin C supplementation are available.
7. Facilities for screening for parasitic infestation and malaria where appropriate are available.
8. Drugs to treat malaria and parasitic infestation are available locally.
9. MCH Handbook is in use and properly mentioned.
10. A fully operational referral system is in place for pregnant women with anemia to receive appropriate care and treatment.

Process**Midwifery-trained personnel must perform as follows:**

1. Look for the symptoms and signs of anemia in every woman who attends ANC.
2. **Symptoms** of anemia include weakness, tiredness, shortness of breath (especially while walking and working), dizziness and fainting.
3. **Signs** of anemia include pallor of the conjunctiva, nail beds, mucus membranes and palms; and fast pulse and respiration. Heart failure is an **ominous sign** of severe anemia (cough, crackles in the lungs, enlarged liver, raised pulsating veins in the neck, dependent odema).
4. Carry out an estimation of haemoglobin of all pregnant women at every antenatal visit. **Haemoglobin below 11 g/dl in pregnancy is considered to be anaemia.** (Mild anemia Hb 9 to 10.9g%, moderate anemia Hb 7-8.9g%, severe anemia Hb 4-6.9g%, very severe anemia < 4g%)
5. Give iron supplementation to all pregnant women. National policy recommends 1 tablet of ferrous sulphate with 60 mg elemental iron once a day throughout the pregnancy starting from 12 weeks of

pregnancy and for at least 90 days after delivery. If the woman comes for ANC for the first time in the third trimester, increase the supplementation to one tablet of iron twice daily. Give one tablet of Vitamin C 250 mg together with iron. Messages to be given with iron tablets to the mothers:

- Iron is not a medicine but a condensed nutrient
 - It has to be taken daily in the empty stomach to enhance absorption from intestine. If patients can't tolerate gastrointestinal side effects, you can advise patients to take after meals
 - Iron helps to ensure that the baby will be borne healthy and intelligent
 - Mothers taking iron will have less problems during childbirth
 - Seasonal fruits and meat products are good for the health of mother and the baby
 - At each visit ask how many of the tablets given in the previous visit have been taken and address non-compliance
6. Give **locally appropriate nutritional advice** at each antenatal visit regarding the need to take iron supplementation, iron-rich diet, vitamin C and to avoid taking with tea or coffee, especially within 2 hours of a meal. Tea, coffee and milk have been shown to interfere with the absorption of iron. Advise calcium tablets to be taken at a different time from iron, as calcium inhibits iron absorption. Give specific examples of locally available iron-rich foods (red meat, liver, egg yolk, dark green leafy vegetables), folate-rich foods (liver and kidney, fresh green leafy vegetables, sweet potatoes, peas, peanuts and mushrooms) and Vitamin C-rich foods (lime, oranges, guava, amla, other citrus fruits). Ask the mother **to take an extra meal besides normal family meals** for additional requirements of the growing fetus.
7. Where prevalence of malaria is high, advise the pregnant woman at the first and subsequent visits on anti-malarial precautions. Advise to use Insecticide Treated Bed Nets (ITBN) or Long Lasting Insecticide Treated Bed Nets (LLIN) all the time.
8. Give albendazole 400 mg single dose in the second trimester. Advise use of footwear when going to the fields, to avoid re-infestation with hookworm.
- 9. If haemoglobin is less than 11g/dl:**
- a. Identify possible causes of the anaemia:
- Does her diet lack foods that contain iron and folate?
 - Does she live in an area with malaria?
 - Does she live in an area with hookworm?
 - Does she have a chronic infection such as TB or AIDS?
 - Did she bleed heavily following her last pregnancy? How long ago was her last pregnancy?
 - Did she recently have an abortion? Did she bleed?

- Does she lose blood in her urine or stool?
 - Does she also have gum bleeding or epistaxis?
- b. Provide iron/folate tablets to be taken twice daily.
- c. Counsel on diet.
- Encourage iron-rich foods, accompanied by (ingested at the same time as) foods rich in Vitamin C to enhance absorption; avoid ingesting iron inhibitors (tea, milk, bran) at the same time she ingests iron.
- d. If living in area with known malaria endemicity, advice to use ITBN or LLIN all the time.
- e. If chronic infection, or loss of blood in urine or stool, refer.
- f. If there was recent postpartum or post abortion hemorrhage, consider counselling about family planning.
- g. **If haemoglobin is less than 7g/dl in any trimester, refer for further investigation and blood transfusion.** If transfusing blood:
- Use packed cells;
 - If blood cannot be centrifuged, let it hang until the cells have settled. Infuse the cells slowly over 3-4 hours and dispose of the remaining serum;
 - Give frusemide 20 mg IV before each unit of packed cells.
- h. **If there is evidence of heart failure due to anaemia,** transfuse or refer immediately. If transfusing:
- Use Whole blood or packed cells as described for severe anaemia above;
 - Give injection Frusemide 20 mg IV if there is signs of heart failure.
10. **In pregnant women with Hb above 7g/dl but less than 10.5 g/dl at or before 34 weeks who cannot tolerate oral iron,** give injection (iron dextran) 100 mg once a day, deep IM, using the Z technique on the upper outer quadrant **of the gluteal region of buttocks** (after a sensitivity test with 0.5 ml iron dextran IM), for 10 days. The women must get a total of 1000 mg.
11. Stop oral iron at least 24 hours prior to either IM therapy or blood transfusion to avoid reaction.
12. Advise pregnant women with anaemia that they should continue taking iron supplementation **for 3 months following delivery** to restore the iron stock in the bones.
13. Teach/tell family member or husband to take care of iron, vitamin c and calcium lactate compliance of the pregnant mother.

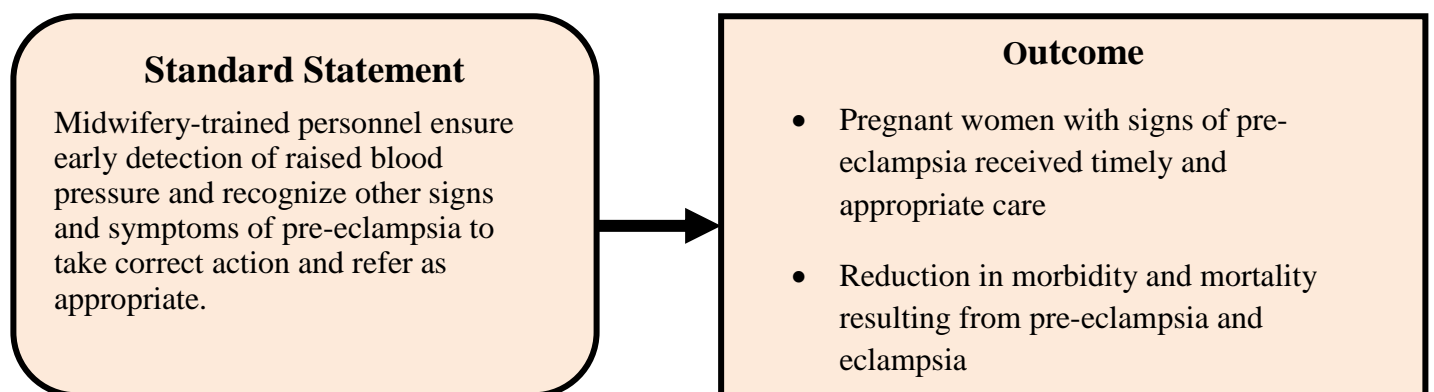


REMEMBER

- *Anaemia in pregnancy is a major health problem impacting on pregnancy and childbirth and requires careful management including investigation to determine the cause.*
- *Anaemia during pregnancy is associated with adverse pregnancy outcomes such as low birth weight, premature birth, increased perinatal mortality, and reduced transfer of iron to the fetus. The anemic mother has reduced work capacity and possibly impaired care-giving capacity. Severe anemia is associated with increased risk of maternal mortality.*
- *Where malaria is prevalent, general precautions should be stressed, i.e. use of nets and clean surrounding.*
- *Prevention of anemia in pregnancy begins with good nutrition of the girl child.*
- *Shock will occur at lower levels of blood loss in anemic women. Therefore, it is important to take precautions to keep blood loss to a minimum during delivery.*
- *Indications for blood transfusion are:*
 - *Hb < 7 g/dl in any trimester*
 - *Heart failure due to severe anemia*
 - *Bleeding with changes with vital signs*

Standards Of Medical Condition 2: First-Line Management Of Hypertension In Pregnancy

Aim: To recognize and detect hypertension in pregnancy and take early and appropriate action.



Prerequisites:

1. Midwifery-trained personnel see the pregnant woman regularly to make a full antenatal examination including recording of blood pressure.

2. Midwifery-trained personnel have been trained and are skilled in:
 - Correct method of taking blood pressure
 - Recognition of the signs of pre-eclampsia
 - Detection and management of hypertension in pregnancy, including pre-eclampsia and eclampsia.
 - Blood pressure to be checked Keeping mother rest at least for 10 – 15 minutes
3. Essential equipment for accurately recording blood pressure is available and in good working condition.
4. Methyl dopa (in hospitals) Hydralazine 25 mg tablets (BHUs) are available.
5. MCH Handbook is in use.
6. A fully operational referral system is in place for pregnant woman with raised blood pressure to receive appropriate care and treatment.

Process

Midwifery-trained personnel must perform as follows:

1. Check equipment for recording blood pressure and urinalysis to ensure they are in good working condition prior to the examination or at the beginning of each day.
2. Check blood pressure accurately at each antenatal examination.
3. Check blood pressure (BP) on any arm **in a sitting position**. In lying position, take on the left arm with woman lying tilted to her left using a cushion placed at her back. Make sure the woman has rested for 10-15 minutes before checking blood pressure. **Place the sphygmomanometer on a flat surface at the level with the woman's heart and the observer's eyes must also be at the same level while taking reading.** Always use the correct sized cuff (adult size). Measure blood pressure on the bare arm. Remove all the clothes underlying cuff.
4. Carry out urinalysis at each visit. Where hypertension coexists with albuminuria, ask the pregnant woman to produce another, clean catch (**mid-stream**) urine sample, and test to confirm presence of albumin.
5. **If BP is raised above 140/90, or diastolic is above 90 mm of Hg**, repeat BP measurement again in 4 hours. In community visits/ORCs, if it is not possible to take after 4 hours, repeat after 1 hour.
6. If BP is found to be elevated, categorize the hypertension using the table given at the end of the standard.

7. Arrange immediate transfer of the pregnant woman to the first referral unit/ hospital if the following are present:
- Systolic BP >160 mm Hg
 - Diastolic BP >110 mm Hg
 - Persistent elevated BP
 - Proteinuria > 1+
 - Symptoms and signs of severe pre-eclampsia
 - Convulsions
8. **DO NOT DELAY REFERRAL.** The woman has to be carried to the nearest health facility if there is no transport available.
9. Manage **chronic hypertension** by:
- a. Encouraging additional periods of rest.
 - b. If the woman was on anti-hypertensive medication before pregnancy and the hypertension is well controlled, change the medication to Methyl dopa or hydralazine as early as possible.
 - c. If diastolic BP is 110 mm Hg or more or systolic BP is 160 mm Hg or more, start treatment and refer to the hospital.
 - d. The goal of treatment is to keep the diastolic pressure between 90-100 mm Hg to prevent complications like cerebral haemorrhage, acute renal failure, heart failure, convulsion, etc.
 - e. Hydralazine is the drug of choice (inj. Labetolol is the drug of choice if available). In hospitals, give hydralazine 5 mg IV slowly every 5 minutes until blood pressure is lowered. Repeat hourly as needed or give hydralazine 12.5 mg IM every 2 hours as needed.
 - f. If hydralazine is not available, give nifedipine 20 mg orally. If response is inadequate (diastolic pressure remains above 110 mm Hg) after 20minutes, give an additional 20mg nifedipine orally.
 - g. If none of the above are available give hydralazine tablet 50 mg tds and refer. In BHUs start hydralazine tablets and refer.
 - h. If proteinuria or other signs and symptoms are present, consider superimposed pre-eclampsia and refer.
 - i. Monitor foetal growth and condition.
 - j. If there are no complications, refer for delivery around **36 completed weeks**.
10. Manage **Gestational Hypertension** on an OPD basis. If diastolic BP is between 90 to 100mmg and no proteinuria:
- a. Start on low dose Methyl dopa 250mg tds or Hydralazine 25mg BD to last for 3 weeks
 - b. Advise rest at home.
 - c. Encourage the woman to eat a normal diet
 - d. No need for salt restriction
 - e. Do not give sedatives or tranquilizers.
 - f. **Do not give diuretics.** Diuretics are harmful and only indicated for use in pre-eclampsia with

pulmonary oedema or congestive heart failure.

- g. Advise the woman to return to the ANC clinic in one week
- h. When she comes after one-week monitor BP, urine (for proteinuria) and foetal condition.
 - If BP hasn't come down and **there is no proteinuria**, increase the dose to double and ask her to return after one week.
 - If BP still doesn't come down in spite of increased dose of anti-hypertensive or worsens or proteinuria appears, refer.
- i. If there are signs of severe foetal growth restriction or foetal compromise, refer.
- j. Counsel the woman and her family about danger signs indicating severe pre-eclampsia or eclampsia.
- k. If all observations remain stable, refer to hospital for delivery around 36 completed weeks.
- l. If there is risk of pre-term delivery, give injection Dexamethasone 6 mg IM 12 hourly for 4 doses.

11. Discuss all findings with the pregnant woman and her husband/ family.

12. Record all findings accurately on the MCH Handbook (Use health book/OPD sheet).



REMEMBER

- *BP must be recorded accurately, preferably in the same arm, with the woman sitting, or lying and tilted on her side.*
- ***NEVER** make a pregnant woman lie on her back; this may result in fainting and false reading of BP.*
- *Take the reading at operator's eye level.*
- *Use correct sized cuff.*
- *Use stethoscope correctly, ear peices should face forward when placed in ears.*
- *Check that all equipment is in good working condition.*
- *Record systolic at first sound (as sound returns) and diastolic at the phase*
- ***V Korotkoff sounds** (when pulse sounds disappear).*

DIAGNOSIS OF HYPERTENSION IN PREGNANCY

Presenting Symptoms and Other Symptoms and Signs Typically Present	Symptoms and Signs Sometimes Present	Probable Diagnosis
Systolic blood pressure (SBP) 140 mmHg or higher and/or diastolic blood pressure (DBP) 90 mmHg or higher before the first		Chronic hypertension

20 weeks of gestation or persistent raised BP after six weeks postpartum period		
SBP 140 mmHg or higher and/or DBP 90 mmHg or higher before 20 weeks of gestation After 20 weeks: <ul style="list-style-type: none"> • Proteinuria 2+ on dipstick • Presence of any pre-eclampsia features 		Chronic hypertension with superimposed pre-eclampsia
Two readings of SBP 140 mmHg or higher but lower than 160 mmHg and/or DBP 90 mmHg or higher but lower than 110 mmHg four hours apart after 20 weeks of gestation <ul style="list-style-type: none"> • No proteinuria • No features of pre-eclampsia 		Gestational hypertension
Two readings of SBP 140 mmHg or higher but lower than 160 mmHg and/or DBP 90 mmHg or higher but lower than 110 mmHg four hours apart after 20 weeks of gestation <ul style="list-style-type: none"> • Proteinuria 2+ on dipstick 		Mild pre-eclampsia
SBP 160 mmHg or higher and/or DBP 110 mmHg or higher after 20 weeks of gestation <ul style="list-style-type: none"> • Proteinuria 2+ on dipstick 	<ul style="list-style-type: none"> • Headache (increasing frequency, unrelieved by regular analgesics) • Vision changes (e.g. blurred vision) • Oliguria (passing less than 400 mL urine in 24 hours) • Upper abdominal pain (epigastric pain or pain in right upper quadrant) • Difficulty breathing (rales on auscultation of lungs due to fluid in lungs) • Nausea and vomiting • Hyperreflexia or clonus <p>In facilities with laboratory capacity:</p> <ul style="list-style-type: none"> • Liver enzymes (transaminases) more than twice the normal range • Serum creatinine higher than 1.1 mg/dL or a doubling, or higher, of the baseline serum creatinine concentration in the absence of other renal disease • Platelets less than 100,000 	Severe pre-eclampsia
Convulsions SBP 140 mmHg or higher or DBP 90 mmHg or higher after 20 weeks of gestation	<ul style="list-style-type: none"> • Coma (unconscious) • Other symptoms and signs of severe pre-eclampsia 	Eclampsia



REMEMBER

- *A small proportion of women with eclampsia have normal blood pressure. Treat all women with convulsions as if they have eclampsia until another diagnosis is confirmed.*
- *In hypertensive disorders of pregnancy, there might be no symptoms and the only sign might be hypertension.*
- *Do not give ergometrine to women with pre-eclampsia, eclampsia or high blood pressure because it can increase blood pressure and increase the risk of stroke or convulsions.*
- *The **HELLP** syndrome is a severe form of pre-eclampsia; the acronym stands for “**haemolysis, elevated liver enzymes and low platelets.**”*

Standard On Medical Conditions 3: Hyperemesis Gravidarum

Definition: Protracted nausea and vomiting during pregnancy with the triad of more than 5% pre pregnancy weight loss, dehydration and electrolytes imbalance (**RCOG,2016**).

Though about 80% women vomit in early pregnancy only about < 2% have Hyperemesis gravidarum.

Causes/Pathogenesis

- Hormonal: High levels of (3Human chorionic gonadotrophin (3hCG), progesterone and oestrogen like in multiple pregnancy and Hydatiforme mole.
- Mechanical: There is a fall in lower oesophageal pressure, decreased gastric peristalsis and gastric emptying in pregnancy
- Emotional: Various psychological, family conflicts, prior hyperemesis and social factors are associated with hyperemesis
- Infection (UTI)
- Endocrine disorders (Hyperthyroidism)

Signs and Symptoms

- Weight loss
- Nausea and Vomiting typically in Early Pregnancy
- Dehydration
- Altered general status (Fast pulse, restlessness)

Complications

- Metabolic disorder (Hyponatraemia, Hypokalaemia, metabolic hypochloreaemic alkalosis, Ketonuria, hypoglycaemia) that may lead to coma
- Mallory-Weiss Syndrome (vomiting blood)
- Neurological disorder (Wernicke's encephalopathy)
- Depression
- Cachexia
- Liver failure
- Death

Investigations

- Full Blood count
- Blood for urea, electrolytes and serum creatinine
- Urinalysis, culture, and Acetone (marker of metabolic derangement)
- Liver function tests
- Thyroid function tests

- Ultrasound scan to look for molar pregnancy/multiple pregnancies/confirm intrauterine normal pregnancy

Check blood pressure in all women with hyperemesis gravidarum. She can have normal blood pressure, low blood pressure due to dehydration or high blood pressure.

Management/Non-pharmaceutical management of hyperemesis gravidarum

- Intravenous rehydration:
 - Alternate Ringers lactate with Normal saline or RL alone
 - Correct dehydration first in 2- 4hours (RL or NS) until pulse drops <100, BP > 100/80 and good urine formation is established. (after complete rehydration, daily fluid requirement is about 2 to 3 liters)
- B-1 (Thiamine) 100mg/multivitamin injection (one vial) per day in intravenous rehydration solution.
- Monitor diuresis each 4hrs for 24-48 hrs
- Monitor electrolytes for 24 hours

Antiemetic

- Inj Metoclopramide: IM 5-10 mg TDS till ceasing of vomiting.
- Inj Phenergan 25mg IM TDS
- Doxinate (Doxylamine Succinate/Pyridoxine Hydrochloride) - 10mg/10mg 2 tab at bedtime and may add 1 tab in morning if vomiting is severe.
- Once oral feeding starts, to change to oral Metoclopramide and Phenargan for about 7 to 10 days

Alternative Treatment: (by Specialist) in refractory cases

- Inj Ondansetron 4mg IV/PO two times daily
- Corticosteroids: Inj Hydrocortisone 100mg IV 100mg IV 12 hourly for 48 – 72 hours and If improving, continue with taper dose.
 - Prednisone 40mg PO first day.
 - 20 m PO for 3 days.
 - 10 mg PO for 3 days.
 - 5 mg PO for 7 days



RECOMMENDATIONS

- *Reassure the mother that the condition is physiological and will pass with the first trimester of pregnancy*

Standard Of Medical Conditions 4: Syphilis In Pregnancy

Definition: It is a sexual transmitted infection caused by Spirochaetes called *Treponema pallidum*, which can cause significant intrauterine infection. It can infect the fetus at any point in the gestation.

Signs and Symptoms

Most mothers are asymptomatic

Primary stage

- Incubation 10-90 days (usually 3 weeks)
- Chancre on the genital area
- Painless, ulcerated lesions with a raised boarder and an indurated base
- Regional lymphadenopathy
- Spontaneous healing occurs in 1-2 months

Secondary Stage

- 7 to 10 weeks after exposure
- Fever, headache, generalized lymphadenopathy
- Skin manifestations (Hands, chest, around the neck, labia, clitoris, lips)

Tertiary stage

- 10-20 yrs after primary infection.
- Gummata lesions, cardiovascular disease (Aortic aneurysm and aortic insufficiency), neurological involvement, general paresis, Tabes dorsalis, optic atrophy meningovascular syphilis, notched and narrow edged permanent incisors (Hutchinson's teeth)

Complications

- Miscarriage
- Prematurity
- Intrauterine fetal demise
- Congenital syphilis (At Birth: Muco-cutaneous lesions, Bone and visceral lesions. Late signs: Tertiary lesions)
- Tertiary Syphilis

Investigations

- Microscopy: By dark field examination of secretion from ulcers
- Serology:
- Nonspecific treponemal tests
 - The Venereal Disease Research Laboratory (**VDRL**) test
 - The Rapid Plasma Reagin (**RPR**) test
- Serology specific treponemal tests is TPHA

Management First choice

- Penicillin is the gold standard for treatment. No other medication effectively crosses the placenta to treat the fetus.
 - Inj Benzathine penicillin, 2.4 million IU IM (1.2 million in each buttock) weekly for three consecutive weeks. Treat the partner similarly with 3 doses

Alternative (Allergic to Penicillin)

- Erythromycin, 500 mg P.O. QID for 14 days, but may not prevent congenital syphilis

Treatment of the baby

- For proven or unknown maternal status for syphilis in the first four weeks of life, all should be treated with
- Inj aqueous crystalline penicillin G, 50,000 units/kg/dose intravenously every 12 h in the first seven days of life and then every 8 h for 10 days.
 - Or (alternative treatment)
- Injection aqueous procaine penicillin G, 50,000 units/kg/day intramuscularly daily for 10 days.

Follow up of mother and babies

After infection with Syphilis, the specific serology TPHA test may remain positive lifelong in 90% of the cases. With effective treatment, the RPR/VDRL titer should decline to nonreactive state.

Test RPR/VDRL titer till it becomes negative

- 3 monthly
- 6 months
- 12 months
- 2 years
- *Titers should decrease four-fold by 6 months post therapy and become non-reactive by 12 to 24 months.*
- *Titers that show a four-fold rise or do not decrease suggest either treatment failure or re-infection.*



RECOMMENDATIONS: *Check and review report for syphilis at booking during antenatal care*

- *Advice patients treated in second half of pregnancy about Jarisch-Herxheimer reaction, which can precipitate premature labor and fetal distress.*
- *Risk of transplacental transmission is very high during the Primary and Secondary stage of Syphilis (75-100%) and tertiary stage has only 10%.*
- *Risk of vertical transmission is highest if mother gets infection in third trimester near delivery time.*
- *Repeat syphilis screening in 3rd trimester of pregnancy*
- *Cord blood should be sent for RPR/TPHA*

Definition

Hepatitis B is a viral disease of liver with an incubation period of 6 weeks to 6 months.

Transmission is by:

- Blood

- Sexual intercourse
- Vertical transmission (Mother to baby)
- IV Drug use needle sharing

High Risk factors

Non-immune women with a history of:

- Household / intimate contact with hepatitis B carrier
- Sexual workers
- Multiple sexual partners
- Intravenous drug users
- Tattoos / body piercing
- Blood transfusion recipients

Signs and Symptoms

- Most of the time asymptomatic but symptomatic in 0.5% cases include:
 - Jaundice, tiredness, dark urine
 - Liver failure

Complications

- Mother to child transmission during:
 - 1st trimester (10%)
 - 3rd trimester (80-90%)
 - During delivery (>90%)
- Low birth weight
- Miscarriage, prematurity and stillbirth in acute infection
- Hepatocellular carcinoma in approximately 15-20%

Investigations

- HBs Ag
- Centers with facility should do:
 - HBeAg (the e antigen identifies a high infective status)
 - HBV viral load (HBV DNA) provides an accurate reflection of infectivity (high risk carriers have high viral loads)
 - Anti-HBe (anti-HBe or HBeAb positive status indicates the woman is at lower risk of spreading HBV infection than HBeAg positive women.
 - Liver function test (repeat at 28 weeks)
- HBs Ag of partners/contacts in the household
- If possible, mother from periphery should be sent to referral center for proper testing of HBeAg and Viral load.
- Mothers with high viral load or symptoms should get treat with antiviral drug/s.
- Mother should be retested after 6 months from the initial testing to confirm cure or entering into chronic carrier state.

Maternal antiviral therapy

- Antiviral therapy should be started for HBsAg-positive mothers with high HBV DNA levels (ie, $>2 \times 10^5$ int. units/mL or $>10^6$ copies/mL), in addition to standard passive-active immunization of the infant, to further reduce the risk of mother-to-child transmission.
- Women with low HBV DNA levels in the first trimester should have repeat HBV viral load testing around **weeks 26 to 28** and initiate therapy thereafter (ie, 28 to 30 weeks) if HBV DNA levels are $>2 \times 10^5$ int. units/mL or $>10^6$ copies/mL.
- Women should receive **Tenofovir (300 mg daily)**, starting from 28 to 30 week of gestation. Treatment should be with tenofovir disoproxil fumarate rather than other antiviral agents since resistance to tenofovir disoproxil fumarate is rare.
- Women who start antiviral therapy during pregnancy for the sole purpose of preventing mother-to-child transmission stop antiviral therapy immediately after delivery, especially if they want to breastfeed.

Outcome of Maternal Infection

- 90% recover
- 10% revert to Chronic **Carrier**

Outcome of infection of the baby

- 10% recover if nothing is done
- 90% revert to Chronic carrier state

Management: Intrapartum management

- Caesarean section doesn't reduce the incidence of vertical transmission in positive women (HBsAg/HBeAg)
- Avoid procedures that may inoculate the baby, for example:
 - Fetal scalp electrodes
 - Fetal scalp blood sampling
 - Vigorous aspiration of the baby
 - Instrumental modes of birth

Management At birth

- Protective eyewear, gown / apron and gloves should be worn by the attending providers
- Care of the newborn baby
 - Give a warm bath to remove all maternal blood
 - Delay Injections (vitamin K1/vaccine) until after the baby has been bathed

- Give the baby breast milk normally
- Newborn Immunoglobulin and vaccination
- The Hepatitis B immunoglobulin 100IU (HBIG) and Hepatitis B vaccine (HB monovalent vaccine) should ideally be given as soon as possible before initiating first breastfeeding but can be given within 12 hours after birth to the baby of women who are:
 - HBsAg positive
 - HBeAg positive
 - The hepatitis B vaccination schedule should be completed as per the immunization schedule.
- **Protection** of the immunoglobulin and vaccine given within/less than 12hrs is greater than 90%. In difficult situations, may be given within 72 hours.



RECOMMENDATIONS

- *Blood for Hepatitis B status checking should be taken from the woman's partner and vaccination offered if the partner is non-immune (3 doses of vaccine at schedule of day 0, 1 month and 3 months)*
- *The cord blood should be tested for HBsAg at birth.*
- *HBsAg positive women should be followed up every 6 to 12 months to assess their liver function*
- *Baby check HBsAg at 9 months and 18 months*
- *Breast feeding is not contra-indicated after treatment*



For all Hepatitis B positive mothers the staff in MCH/Ward centers should indent Inj.Hepatitis B immunoglobulin for the baby at birth and keep in the Pharmacy/ ward in fridge.

Standard Of Medical Conditions 6: Screening For Gestational Diabetes Mellitus (GDM)

Definition: GDM is defined as carbohydrate intolerance of variable severity with onset or first recognition during pregnancy.

Women with GDM are a heterogeneous group and may include those with un-recognised pre-existing non-insulin-dependent diabetes (type 2) and also a small number with insulin-dependent diabetes.

Universal screening is recommended for all pregnant women.

Group A: Women with risk factors, screen first at booking and repeat at 24-28 weeks.

Risk factors are as follows:

- age over 30 years.
- Obesity.
- Family history of diabetes.

- Past history of GDM.
- Glucose intolerance.
- Previous adverse pregnancy outcome such as fetal macrosomia, congenital anomaly, sudden unexplained IUFD.
- Belongs to high risk ethnic group.

Group B: Women with no risk factors

- All pregnant women with no above risk factors should be screened for GDM at **24- 28 weeks**

Diagnosis of GDM (WHO recommendation:2013 Criteria) by OGTT 75g glucose with 8 to 12 hours fasting

- Overnight fasting for 8-12 hours
- No smoking
- 75g anhydrous glucose in 300ml of water

GDM Diagnosis is confirmed with one or both abnormal results

- Fasting plasma glucose ≥ 100 -125 mg/dl (5.6 - 6.9 mmol/l)
- 2-hour plasma glucose ≥ 140 -199 mg/dl (7.8 -11.0 mmol/l)

Management of GDM

- Once diagnosed all patients should be managed properly
- First with diet control (diabetic clinics health education) is called medical nutritional therapy (MNT)
- Post prandial (after meal) physical exercise
- Switch to insulin after 2 weeks if diet control is not adequate to achieve glycemic targets (Refer to standard of medical condition 7: Diabetes in Pregnancy)
- The blood sugar control is assessed by monitoring blood sugar series (fasting/2 hours after breakfast, before lunch/2 hours after lunch, before dinner/2 hours after dinner).
- There is no role of repeat OGTT to assess glycemic control.

Target for monitoring GDM

- Fasting capillary (venous plasma) blood glucose level 105 mg/dL)
- 1-h postprandial <155 mg/dL
- 2-h postprandial <126 mg/dL

Delivery

- Poor Control cases deliver by 37 weeks
- Plan Delivery in Com-EmONC Center between 38 to 39th week
- Never go beyond the gestation

- If macrosomia >4.5kg, deliver by elective C/Section

Standard of Medical Conditions 7: Diabetes In Pregnancy

Definition: Glucose intolerance caused by absolute or relative Insulin deficiency.

2-3 % of pregnancies are complicated by diabetes.

Types:

- Pre-existing diabetes including type1 (IDDM) and type 2 (NIDDM)
- Gestational diabetes.

Causes/Risk factors

- Previous pregnancy with diabetes and/or macrosomia ($\geq 4\text{kg}$)
- Obesity ($\text{BMI} \geq 30$)
- Family history of Diabetes
- A Polycystic Ovarian Syndrome (PCOS)
- Habitual abortion
- Intrauterine fetal demise (IUFD)
- Age >36 years

Signs and Symptoms

- Excessive hunger or thirst.
- Excessive urination or recurrent thirst.
- Recurrent vaginal infections (especially Candida Infections)
- Tiredness

Complications

Maternal

- Pre-eclampsia
- Miscarriage
- Preterm labour
- Polyhydramnios
- Diabetic Keto Acidosis
- Hypoglycemia
- Infection
- Deteriorating retinopathy, neuropathy
- Increased risk of Operative delivery

Fetal

- Macrosomia with traumatic delivery, shoulder dystocia
- Congenital malformations (only in Pre-existing DM cases)
- Hypoglycemia at birth
- Hypothermia
- Hypocalcemia
- Jaundice
- Respiratory distress syndrome
- Stillbirths
- Increased perinatal mortality and morbidity
- Intra-uterine growth restriction (Diabetes Type 1)
- Polycythemia

Investigations

For Suspected GDM or undiagnosed DM

- OGTT at first contact
- HbA1C% (if facility)
- Ultrasound of Uterus
- CBC, RFT, LFT (if facility exist)

Diagnosis of Diabetes mellitus in pregnancy (WHO: 2006 criteria)

- Diagnosis is confirmed if one or more of the following criteria are met:
 - fasting plasma glucose ≥ 7.0 mmol/l (125 mg/ dl)
 - 2-hplasma glucose ≥ 11.1 mmol/l (200 mg/dl) following a 75g oral glucose

- Random plasma glucose ≥ 11.1 mmol/l (200 mg/ dl) with symptoms.

For diagnosed DM

- FBS/PPBS
- HbA1C% (if facility)
- Ultrasound of Uterus for dating
- CBC, RFT, LFT (if facility exist)

Management

Pre-conceptual counseling for preexisting Diabetes Mellitus

- Control glucose level three months before conception
- Change medication to Insulin
- Administer Folic acid 5 mg daily pre-conceptual (2 months) and and continue during the first 12 weeks of pregnancy to prevent neural tube defects

During pregnancy

- Monitoring glucose levels weekly with FBS and 2 hr PPBS
- Target glucose,
 - Fasting <105 mg/dL
 - 1-h postprandial <155 mg/dL
 - 2-h postprandial <130 mg/dL
- Start with 0.4-0.6 IU/kg/day and may go up to 0.7-1IU/Kg
- Use 70% of long-acting Insulin, 30% of short acting
- Use 2/3 daily dose in morning and 1/3 in evening (twice daily regime)
- Diabetic diet and encourage moderate exercise (walking is best option)
- Maintaining a healthy pregnancy weight
- Admit if uncontrolled diabetes: Uncontrolled cases use three daily regimes. Four doses regimen with short acting insulin can achieve better glucose control

Delivery

- Poor Control cases deliver by 37 weeks
- Plan Delivery in Com-EmONC Center between 38 to 39th week
- Never go beyond the gestation
- If macrosomia: deliver by elective C/Section
- In case of hypoglycemia, give oral glucose if conscious patient otherwise give glucose 25% or 10% glucose infusion.

During labor

- Stop usual subcutaneous insulin on the day of labor or Operation
- Set up IV with two-way channel
 - 5% DA or 10%DA 500ml every 8 hours (adjust with glucose level)

- Separate Insulin drip 2-6 units per hour (Add 100 units Actrapid (1ml) to 99ml NaCl on the burette/syringe pump.
- Check blood glucose hourly (**Glucometer**)
- Keep blood sugar **72mg% - 130mg%** through out
- Sliding scale is used to control the glucose level throughout labor

Post Partum period

- Pre-existing diabetes mellitus, control glucose levels to the pre-pregnancy state
- In gestational diabetes Mellitus (GDM), Insulin should be stopped and encourage regular exercises and diet modifications

Follow up of GDM mothers

- OGTT for mother 6-week check-up and 6 months
- Every Year FBS/PPBS

Follow up of the newborn

- Blood sugar at 2,6,12,24,48,72 hours after birth. In places where there is no facility for blood sugar monitor, initiate breast feeding as early as possible (within 30 minutes of delivery) and continue frequent and regular breastfeeding to prevent neonatal hypoglycemia.
- Close Follow up of baby
- Ensure 2-3hrly demand feeding



INSULIN GUIDE

Sliding scale guide

- **On average 1IU insulin neutralize 50mg Glucose**
- Type 1 patients it may be 45- 50 mg
- Type 2 Diabetic patients it may be as low as 20 -25 mg due to insulin resistance

Fasting Blood Glucose Level Recommended Insulin IU

110-170 mg/dL	5
170- 250 mg/dL	10
250 – 360 mg/dL	15

E. Standards of High Risk Obstetrics

Standard Of High Risk Obstetrics 1: Rhesus Iso-immunization

Definition

Rhesus iso-immunization is the condition where incompatibility exists between the fetal and maternal rhesus group such that an immune response occurs.

Risk Factors that increase risk for fetomaternal hemorrhage

- Delivery
- Abruptio placenta
- Miscarriage
- Incomplete Hydatidiform mole
- Invasive procedures
- Ectopic pregnancy
- Other causes of bleeding during pregnancy

Complications after Fetomaternal Hemorrhage:

Once the Rh negative mother is immunized with Rh positive fetal maternal hemorrhage (range 10-30ml), antibodies are produced in mother that go back to the fetus to cause fetal hemolysis resulting into complications.

- Repetitive miscarriage
- Fetal anemia
- Hydrops fetalis (Hydrops fetalis is defined as an abnormal collection of fluid in two or more fetal body compartments, including ascites, pleural effusions, pericardial effusions, and skin oedema)
- Intra uterine fetal death

Investigations

- After the pregnant mother is diagnosed with Rh negative group, she should be referred for Antibody titers.
- All patients with positive antibody titer should be referred to Gynecologist in referral Hospitals for close monitoring throughout the pregnancy.
 - Serial measurements of circulating antibody titers should be performed every 2-4 weeks.
 - Ultrasound examination to detect/rule out hydrops fetalis (ascites, pleural effusions, pericardial effusions, or skin edema).
 - MCA (Middle Cerebral Artery) pulsatility index by Doppler ultrasound is diagnostic for fetal anemia
 - Amniocentesis
 - Fetal blood sampling for fetal hemoglobin
 - In case of anemia, blood transfusion done from 22 weeks and repeated in case of fetal anemia.

Management of non-immunized mothers

Rhesus (anti-D) prophylaxis

- Check antibody status testing at booking.
- If antibody test is positive, refer to gynecologist to make further management plan.
- Check antibody status at 28 weeks gestation.
- Give Anti-D 250-300mcg dose at 28 weeks gestation in non-immunized mothers/negative antibody titer (*about 90% of fetomaternal hemorrhage occurs at and after 28 weeks*).
- Check baby's blood group at birth and if the baby is Rh (D)-positive give inj. Anti-D 250-300mcg within 72 hrs. (*Prevents immunization of the mother from fetomaternal hemorrhage occurring at delivery*)
- Any bleeding or invasive procedure after 12 weeks, the mother should receive prophylactic dose of 250mcg.

Timing of delivery

- In case of complications, delivery can be done at ≥ 34 weeks of gestation



RECOMMENDATIONS

- *Routine screening of all pregnant women for blood group and rhesus at the first ANC*
- *For any non-immunized pregnant mother, the MCH center should indent inj Anti-D for the pregnant women for 28 weeks and at delivery in advance and keep in the fridge.*

Standard On High Risk Obstetrics 2: Preterm Labor And Preterm Premature Rupture Of Membranes

Definition

- Preterm labor is occurrence of uterine contractions between 24 to 37 weeks of gestation.
- Preterm Premature Rupture of Membranes is rupture of the fetal membranes 1 hr or more prior to the onset of labor before 37 weeks of gestation.

Causes/Risk factors

- History of previous preterm birth
- Adolescent age and advanced maternal age
- Maternal infections (Pyelonephritis, Genital tract infection, other systemic infections)
- Increased uterine size (Twins, Poly hydramnios) - Maternal Trauma
- Uterine abnormalities (Myomas, Uterine malformations)
- Other pregnancy complications (Abruptio Placentae, cervical incompetence)
- Social economic and stress factors

Signs and Symptoms - Pelvic and back pain

- Uterine contractions
- Sterile speculum examination to confirm leaking of amniotic fluid
- Increased Vaginal discharge - Muco-bloody discharge

Complications

- Infection (chorioamnionitis, neonatal sepsis, maternal septicemia)
- Prematurity
- Neonatal respiratory distress syndrome - Neonatal mortality and morbidity

Investigations

- Full blood count (CBC)
- Vaginal Swab for Culture (if facility exists)
- Urine R/E
- Check for maternal and fetal infection

Management

Preterm labor with intact membranes (< 34 weeks gestation)

- Admit and assess (Term and Cervical changes)

Cervix dilatation <4 cm: Tocolyse

- Nifedipine 40 mg initial dose followed by 10-20 mg QID daily.

OR

- Inj Salbutamol IV 2.5mg in 500 mls of Ringers lactate and run 20-30 drops per minute and monitor contractions and maternal heart rate

OR

- Inj. Terbutaline sulfate IV 0.1 mg in Glucose 5%. The recommended initial rate of infusion is 5 micrograms/minute increased by 2.5 micrograms/ minute at intervals of 20 minutes until contractions stop. Usually, a rate of up to 10 micrograms/minute is sufficient.
- Monitor maternal heart rate (it should not go up 120/ min).
- Give Inj. Dexamethasone 6mg IM 4 doses 12 hourly for 48 hours for lung maturity. Delivery should be delayed for 24 to 48 hours after Inj. Dexamethasone.

Cervix dilatation \geq 4 cm

- Tocolyse with Nifedipine (40mg PO stat and 20mg BD) for 24hrs and administer Inj. Dexamethasone 12mg IM 2 doses 12 hourly.
- This will assist transfer to a center with good neonatology facilities.

Preterm labor with rupture of Membranes (< 34 weeks of gestation)

- Perform speculum examination to confirm diagnosis or/and take samples for laboratory examination where relevant
- Do not tocolyse
- Inj. Ampicilline 2g stat (AST) and 1g 6 hourly
- Inj. Dexamethasone 6 mg IM 4 doses 12 hourly for 48hrs.
- Refer to Comprehensive-EmONC center

Preterm labor with rupture of Membranes and signs of infection

(fever, Tender abdomen, Foul smelling vaginal discharge and fetal distress) < 34 weeks of gestation

- Refer to Com-EmONC center after starting IV antibiotics
- Inj. Ampicilline IV 1g TDS plus Inj. Metronidazole IV 500mg TDS until delivery and then continue with Tab. Amoxycilline tabs 500mg TDS and Tab. Metronidazole tabs 500mg TDS for 5 days.
- Labor induction with Inj. Oxytocin, 5 IU in NS 500 ml or oral Misoprostol 50mcg (2 to 3 doses) based on Bishop Score.

Preterm labor with rupture of Membranes (> 34 weeks of gestation)

- Refer to Com-EmONC if less than 36 weeks. Admit and deliver
- At and above 37 weeks for induction at District hospitals
- Labor induction with Oxytocin, 5 IU in NS 500 ml or oral misoprostol 50mcg (2 to 3 doses 6 hours apart) based on Bishop Score
- Inj. Ampicilline 2g single dose and 1 g 6hourly till delivery
- Tab. Erythromycine 500 mg TDS for 5 days in case of allergy to Penicillin.

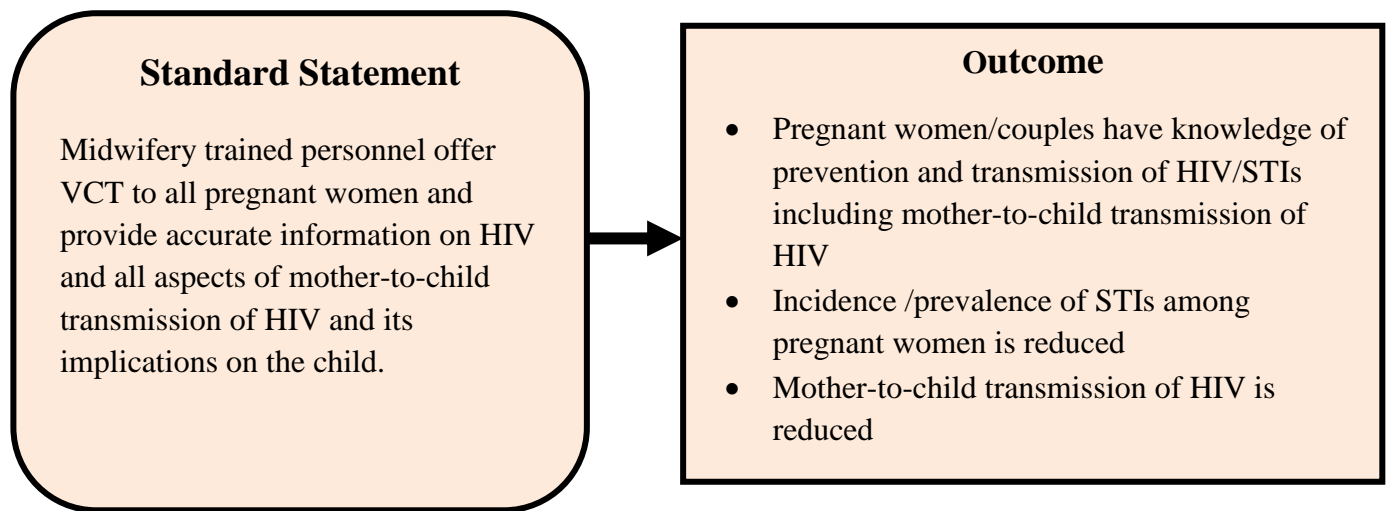


RECOMMENDATIONS

- *Neonates should be transferred to neonatology unit.*
- *Do not tocolyse in cases of rupture of membranes*
- *Tocolysis only indicated for the administration of corticosteroids or in Utero transfer to higher center.*
- *In case of multiple pregnancy, the dose of corticosteroids is not increased and it remains the same as in singleton pregnancy*
- *Next pregnancy is at high risk for preterm labor and should be monitored closely*

Standard On High Risk Obstetrics 3: Prevention Of HIV/AIDS From Mother-To-Child Transmission (PMTCT)

Aim: To provide information and services to pregnant women and their husbands/partners to enable them to protect themselves and their unborn child from HIV infection.



Prerequisites:

1. National policy permits midwifery-trained personnel to provide information and services for prevention of STI/ HIV and prevention of mother-to-child transmission (PMTCT) of HIV to all pregnant women and their partners.
2. Midwifery trained personnel have been trained and are skilled in:
 - HIV/AIDS /STI voluntary counselling and testing (VCT)
 - Syndromic management of STIs
 - Prevention of HIV infection in all women
 - Prevention of unintended pregnancy in HIV positive women
 - The use of National HIV Management Guideline
 - Prevention of transmission to infants and young children of HIV infected pregnant women
 - Provision of care and support to HIV-infected mother and her infant
 - Infection prevention protocol in health care setting.
3. Midwifery-trained personnel have appropriate educational materials.
4. Midwifery-trained personnel have access to uninterrupted supplies of condoms and drugs

recommended by the Essential Drug Programme for STI treatment.

Process

Midwifery-trained personnel must perform as follows:

1. At the first booking visit offer VCT including at the outreach clinics (**Follow National HIV Guideline 2017**)
 - Share factual information on HIV/AIDS/STIs
 - Explain about mode of transmission
 - Discuss high risk behaviours
 - Give advice about risk reduction methods
2. Offer HIV testing to every pregnant woman. Refer for testing to higher levels if patient and partner are willing (in case of BHUs where test is not possible). **Retest later if negative at first test, around 35-36 weeks.**
3. Diagnosis and Counseling should include:
 - a. Talk to the mother on HIV prevention, high risk behaviour and risk reduction approaches
 - b. Talk about the specific ways of preventing mother-to-child transmission of HIV including free drug therapy available and **no breast feeding policy**.
 - c. All pregnant women attending ANC should be offered HIV testing and counseling preferably in the first trimester of pregnancy and if missed should be offered during the subsequent visits.
 - d. Women who had not attended any ANC should be screened for HIV during labour or immediately after birth
 - e. ANC diagnosis of HIV should be linked with routine MCH service and with involvement of focal person in each Hospital.
 - f. Repeat testing is recommended in the high risk group between 35-36 weeks.
 - g. All pregnant women with HIV positive test should be referred for full check up and be started on ART
 - i. Lab test for:
 - CBC
 - RFT
 - LFT
 - Referred for CD4 count (JDWNRH and MRRH).
 - ii. Screen for
 - TB
 - Opportunistic infections

- h. It is recommended **to form a core team at each health facility** for PMTCT service as listed below:
- All obstetricians/ physician/Midwife/ANM/AN/HA
 - All pediatrician/nurse
 - 1-2 trained counselors, according to the local case load
 - 1-2 staff nurses
 - 1 Lab Technician
 - 1 Pharmacist/pharmacy technician
- i. Anti Retroviral Therapy
- All the HIV positive pregnant women should be started on ART irrespective of CD4 count or the WHO clinical stage as soon as possible. They should follow the same regimen like adults and adolescents
 - (TDF+3TC+EFV)
 - Give folic acid (5mg) daily for all women receiving ART before 12 completed weeks
 - If the CD4+ T-cell count is <200/mm³, primary prophylaxis for *P. jiroveci* (formerly *P. carinii*) pneumonia is recommended with Sulfamethoxazole-trimethoprim or Dapsone.
- j. Monitoring of the Pregnant Patient
- Monthly CBC, RFT, LFT
 - Viral load and CD4+ quantification is determined each trimester
 - Increasing viral load on ART may need resistance testing
 - Screen for Tuberculosis and opportunistic infections
- k. The treatment of HIV/TB CO-INFECTION with ART is the same as with no TB. The recommended regime is TDF + 3TC + EFV prophylaxis regimen.

4. **Monitoring**

CD4 cell count

- At initial visit
- Every 3-6 months visit during pregnancy

Plasma HIV RNA levels

- Initial visit
- 4 weeks after initiating (or changing) antiretroviral drug regimens
- At approximately 34 to 36 weeks' gestation, to inform decisions about mode of deliver and plan for newborn treatment.

Monthly CBC, RFT, LFT

24-28 weeks OGTT

18-22 weeks anatomy scan

Fetal growth monitoring by ultrasound 28, 32 and 36 weeks

5. Mode of delivery

1. All HIV positive pregnant women will be delivered **by elective caesarean section at 38 completed weeks** in comprehensive EmONC centers (facilities where C/Section are available).
2. Routine vaginal delivery will be promoted once the viral load facilities are available (less than 1000 copies/ml of blood).
3. Emergency caesarean section will be offered to all HIV positive mothers coming with labour or ruptured membranes with less than 4 hours duration.
4. All HIV positive mothers coming with labour and ruptured membranes with more than 4 hours duration should be allowed for vaginal delivery with the following precautions:

4.1. Vaginal delivery

- Avoid episiotomy as far as possible.
- Reduce the number of internal examination
- Not to use fetal scalp monitoring.
- Avoid prolong labour.
- Avoid instrumental delivery as far as possible.

4.2. Immediate newborn care consists of the following

- Wipe infant's mouth, eyes and nostrils with gauze when the head is delivered.
- Clamp cord immediately after birth, and avoid milking the cord. Cover the cord with gloved hand or gauze before cutting.
- Use gentle suction only when meconium-stained liquid is present. Use either mechanical suction or bulb suction.
- All babies should be given an immediate warm water bath with mild soap wearing protective gloves. Once the initial bath is given, then no need to wear gloves for handling the baby.
- Immunization at birth should be like at any other routine one including Vitamin K

4.3. Prophylaxis ART for Baby: Start at birth

- >35 weeks to term: Syrup AZT: 4 mg/kg orally BD for 6 wks
- 30-35 weeks (preterm): Syrup AZT: 2mg/kg orally BD for 2wks 3 mg/kg orally BD for 4wks

- < 30 weeks: Syrup AZT : 2mg/kg orally BD for 4wks 3 mg/kg orally BD for 2 wks
- Dose of Nevirapine (NVP)
- Age > 35 weeks and < 2kg : 2mg/kg/dose OD for 6 weeks
- Start Syrup cotrimoxazole prophylaxis after 6 weeks

4.4. Feeding of the baby:

- The Government policy advocates no breast feeding for all the HIV infected mothers.
- The government supports for supplementary feeding for two years for every baby after birth.
- The concerned focal person in each hospital should facilitate the procurement and supply of the infant formula for every baby.

5. Postpartum Care

- Immediate postpartum care should be like the routine care.
- Give breast milk suppression to the mother as follows:
 - Tab pyridoxine 100mg-once a day for 5 days.
 - Advice mother to use firm bra for breast support.
 - Use Paracetamol for analgesia.
- Subsequent post natal visits should be also like routine ones.
- Teach and explain the mothers to dispose body secretions and fluids properly.
- All mothers on ART should **continue for same medication for life long.**
- After six weeks they should be followed up in adults clinics
- Check baby status at 1 year and 18 months

6. Sexual and Reproductive Health

- Educate for condom use as dual protection (STIs, including HIV, and for family planning)
- Support the mother's choice of contraceptive method. If family size is completed, recommend for permanent method of family planning by the couple
- Ensure of routine Pap smear screening



PREVENTION OF MOTHER-TO-CHILD TRANSMISSION (PMTCT) OF HIV

- In the absence of interventions, a HIV positive mother has a likelihood of transmitting HIV to:*
 - A fetus, during pregnancy. Intrauterine transmission accounts for about 7% (5-10%) of infection*
 - A neonate, at the time of labor and birth. The risk during the intrapartum period is about 13% (10-20%)*
 - An infant or young child through breastfeeding. The risk of transmission due to breastfeeding*

F. Life-Saving Midwifery Practice Standards

Life-Saving Midwifery Practice (LSMP) Standard 1: Anaemia In Pregnancy & Labour

Anemia in pregnancy is one of the main common problems in Bhutan, aggravated by nutritional imbalance and parasitic infections. Anaemia in early pregnancy is often symptomless. But as the pregnancy advances the haemoglobin concentration falls, oxygen supply to vital organs declines and the expectant mother begins to feel weak, tired and dizzy. Pallor of skin and mucous membranes as well as nail beds and tongue, is not usually apparent until haemoglobin levels falls to 7.0 g/dL or lower. As

haemoglobin falls further, most tissues of the body become starved of oxygen. The effect is most marked on the heart, which may fail altogether especially during childbirth. Women with anaemia tolerate blood loss poorly. Bleeding during childbirth in an anaemic mother can result in death.

Anaemia in pregnancy is diagnosed when haemoglobin concentration is less than 11.0 g/dL. Mild to moderate anaemia is diagnosed when haemoglobin levels are between 7.0 and 10.9 g/dL. Severe anaemia is diagnosed when haemoglobin levels are between 4.0- 6.9 g/dL and very severe anaemia when the haemoglobin level is below 4.0 g/dL.

Ideally we should aim to treat anaemia before the woman becomes pregnant. However, in reality, anaemia is often diagnosed for the first time during pregnancy. Iron and folic acid are essential during pregnancy. The daily requirements of iron and folic acid in pregnancy are approximately 6-7 mg and 300-500 micrograms respectively. Green leafy vegetables are rich in iron and folic acid. Iron absorption is enhanced by ascorbic acid (vitamin C). Eating fruits along with iron tablets will increase absorption of iron. However iron absorption is impaired by phytates in cereals and tannins in tea. Avoid eating cereals, cheese, drinking tea and milk with iron tablets. Iron supplementation in pregnancy results in lesser anemia in pregnancy and postpartum, and a possible beneficial effect on the ability of the woman to tolerate pregnancy and childbirth. Folate supplementation improves haematological indices, reduces incidence of neural tube defects and may possibly reduce the occurrence of low birth weight.

Oral iron is the preferred option in most cases of anaemia in pregnancy. The rate of increase of haemoglobin is approximately 1 g every week. Thus when anaemia is diagnosed early in pregnancy (before 36 weeks), there is sufficient time to treat anaemia with oral iron. In more severe cases of anaemia where there is heart failure or if the woman is close to delivery (after 36 weeks), a more rapid increase in haemoglobin level is needed. Here Blood transfusion or packed red cell transfusion is the appropriate therapy. Parenteral iron does not correct anaemia any faster than oral iron. It should be only given to those women who cannot tolerate oral iron. In places where malaria and hookworm infections are common, it is a good practice to treat for these infections. Antihelminthic therapy may be given safely after the first three months of pregnancy.

Pains during childbirth increase the risk for the anaemic woman and hence provide adequate pain relief in labour. Blood loss during and after childbirth can be fatal to the anaemic woman. Active management of the third stage of labour reduces blood loss due to postpartum haemorrhage by 60% and should be practiced in all cases. Lacerations should be promptly sutured to avoid further blood loss.

Iron and folic acid therapy should be continued for at least 3 months after childbirth to ensure that the woman has adequate iron stores.

MANAGEMENT OF SEVERE ANAEMIA IN PREGNANCY AND LABOUR

Suspect

Woman is pale, tired, easily fatigued and breathless on mild exertion or has dizziness
Last delivery within one year of history of bleeding, malaria, hook worm disease or chronic diarrhea, UTI

Assess

- Pale looking
- Generalized edema
- Breathlessness at rest
- Hb. Concentration <7g %

Classify

Severe/Very severe Anaemia

TREATMENT

**Level I
(BHU)**

REMOTE FROM LABOUR (<36 weeks)

1. Rule out heart disease
2. Give Tab FE/FA PLUS Vit C both 1 Tab BD by mouth until 3 months after delivery (advise to keep gap from tea, cheese and calcium tablet)
3. Rule out malaria
4. Deworming after first trimester
5. Follow up after one month and refer if no improvement or she has heart disease

(>36 WEEKS PREGNANT OR IN LABOUR)

- Check Blood grouping and Hb
- Refer with donor to Level II if not in labour or in labour with <6cm cervical dilatation
- If in advanced labor with cervix >6cm dilatation
 - Conduct delivery
 - Active management of third stage of labour
 - Refer to Level II after delivery with donor for blood transfusion

**Level II
(D/H)**

(<36 WEEKS PREGNANCY)

- Do steps 1 to 4 as above
- Treat UTI, if present
- Follow up after one month and refer if no improvement

(>36 WEEKS PREGNANCY OR IN LABOUR)

1. Rule out Heart Disease
2. Give blood transfusion
3. Give Inj. Lasix 20 mg with each unit of blood
 - Use indwelling Foley's catheter
 - Closely monitor for cardiac failure
4. During delivery
 - Active management of third stage of labor
 - Repair episiotomy/lacerations promptly
5. Give FE/FA with Vit C both 1tab BD by mouth for 3-6 months in puerperium

WHO CANNOT TOLERATE ORAL IRON

- Give Injection Imferon (iron dextran) 100mg deep IM in buttocks by Z technique daily for 10 days. (total dose required is 1000mg)
- First dose after test dose

- All pregnant women should be given 1 Tab FE/FA by mouth every day for 100 days
- Start the Iron supplementation after first trimester. Iron in first trimester aggravates severe nausea and vomiting.
- Advise all pregnant women to avoid tea, cheese, coffee, antacids and milk with iron tablets (at least 2 hours gap)
- Give 1Tab albendazole (400mg) to all pregnant women after the first trimester
- Advise all pregnant women to take fruits and leafy vegetables

Refer to Standard Midwifery Protocol for management of mild to moderate anemia for both levels

Life-Saving Midwifery Practice Standard 2: Bleeding In Late Pregnancy And Childbirth (Antepartum Haemorrhage)

Definition: Bleeding after 22 weeks of pregnancy (after fetal viability) until just before delivery of the baby is called antepartum haemorrhage.

Importance:

Bleeding associated with pregnancy and childbirth accounts for 50% of maternal deaths in Bhutan. While majority of these fatal cases occur after childbirth (postpartum haemorrhage), life threatening bleeding does occur in late pregnancy and before the delivery of the baby (antepartum haemorrhage).

Cause:

The two major causes for bleeding in late pregnancy and before delivery of the baby are **abruptio placentae** and **placenta praevia**.

In abruptio placentae, the placenta is located in the normal upper part of the uterus, while in placenta praevia, the placenta is located partly or completely in the lower part of the uterus (abnormal site). Bleeding occurs when the placenta separates from the uterus.

Bleeding in late pregnancy and during childbirth may occur following **rupture of the uterus**. Although this condition is not normally considered as antepartum haemorrhage, it is included in this protocol as it may present with bleeding and pain.

Clinical Features:

1. Bleeding from placental abruption may be obviously visible (revealed) or may be hidden behind the placenta (concealed). The woman may have abdominal pain associated with bleeding. It is common with trauma to abdomen or pregnancy induced hypertension. The uterus may be tender to palpation and tense especially when bleeding is concealed. If a significant portion of the placenta is detached, the fetus may show signs of distress or may die. Maternal complications such as hypovolemic shock, renal failure and coagulation failure may occur in severe cases. Delivery of the baby with steps to prevent and correct complications is the treatment of choice in abruptio placenta. Bleeding may occur after delivery of a woman with abruptio placentae due to DIC.
2. In contrast, bleeding from placenta praevia is usually causeless, painless and recurrent. Abdomen is soft and fetal parts can be easily felt. Bleeding can occur several weeks before delivery and is usually mild.
3. In ruptured uterus there is history of prolonged and obstructed labour, or when the uterus has been scarred from previous surgery and when oxytocins are used inappropriately. There is sudden

cessation of pain usually after a very strong contraction and woman goes into sudden shock. Uterine rupture should be recognized and treated early to prevent maternal morbidity and mortality and is hence included in this protocol.

Treatment:

1. **Abruptio placentae** case needs urgent delivery. If pregnancy is at or near term with cephalic presentation and if in advanced labour with cervix more than 4 cm dilated, a trial of labour with ARM can be tried. Otherwise an emergency section is needed.
2. With **Placenta praevia**, the aim of treatment here is to prolong pregnancy until the baby is mature (atleast 36+6 weeks). However if early delivery is necessary, an attempt should be made to hasten fetal lung maturity by administration of corticosteroids. The corticosteroids reduce mortality due to prematurity, respiratory distress and intraventricular haemorrhage in the newborn. Caesarean delivery is preferred in most cases of placenta praevia. Postpartum haemorrhage can occur following delivery as the vessels supplying the placenta in the lower part of the uterus may not contract after delivery.
3. **Ruptured uterus** needs immediate resuscitation and Laparotomy ending in either repair of uterus or hysterectomy.

Caution: Vaginal examination in the presence of a low placenta can provoke torrential and life threatening bleeding. **Vaginal examination should be avoided in all cases of bleeding in late pregnancy until placenta praevia has been satisfactorily excluded by ultrasound.**

MANAGEMENT OF ANTEPARTUM HAEMORRHAGE (APH)

Suspect

Vaginal bleeding after 22 weeks of pregnancy but before the delivery of the baby.
(Blood stained mucus (show) heralds the onset of labour, and should not be considered as antepartum haemorrhage)

Assess

- PV Bleeding associated with**
- Constant abdominal pain
 - Tense/tender uterus
 - Signs of shock (-/+)
 - Fetal parts difficult to feel
 - Decreased or absent fetal movements or cannot hear FHS

- Bleeding associated with**
- No pain
 - Non tender, relaxed soft uterus
 - Fetal parts easily felt and FHS normal

- Bleeding associated with**
- Severe abdominal pain in labour relieved suddenly after one strong contraction
 - Collapse/Shock out of proportion to observed bleeding
 - Tender distended abdomen
 - Abnormal uterine contour with easily palpable fetal parts
 - Absent fetal heart sound

Classify

Placental abruption

Placenta praevia

Ruptured uterus

TREATMENT

Level I (BHU)

1. Check BP, Pulse, Pallor
2. Calculate POG
3. Assess blood loss
4. Open IV line with Ringer's lactate/NS
5. Put Foley's indwelling catheter
6. Resuscitate if in shock
7. Blood grouping and Hb
8. Start inj Ampicillin 1g
9. Refer to Com-EmOC center with medical escort and 2 donors

1. No PV Examination
2. Check BP, Pulse, Pallor
3. Calculate POG
4. Assess blood loss
5. Open IV line with RL/NS
6. Put Foley's indwelling catheter
7. Resuscitate if in shock
8. Blood grouping and Hb
9. Refer to Com-EmOC center with medical escort and 2 donors

1. Check BP, Pulse, Pallor
2. Assess blood loss
3. Resuscitate if in shock
4. Open IV line with Ringer's lactate/NS
5. Oxygen 4- 6 L/min if available
6. Put Foley's indwelling catheter
7. Blood grouping and Hb
8. Start inj Ampicillin 1g
9. Refer immediately to nearest Com-EmOC center with medical escort and 2 donors

Level II (D/H)

- Do as above 1 to 7
- Give blood transfusion
- Do Ultrasound to find cause of bleeding if available
- After confirmation, do PVE
- Do ARM, if cervix is more than 4 cm and give a trial of labour
- If cervix is < 4 cm or and has no caesarean facility, Refer immediately to nearest Com-EmOC center with medical escort and 2 donors
-

- Do as above 1 to 7
- Give blood transfusion
- If no caesarean facility, Refer immediately to nearest ComEmOC center with medical escort and 2 donors

- Do as above 1 to 7
- Give blood transfusion
- If no caesarean facility, Refer immediately to nearest Com-EmOC center with medical escort and 2 donors

Bleeding associated with ruptured uterus is not commonly referred to as antepartum haemorrhage.
However it is included here as bleeding may occur before the baby is delivered

Life-Saving Midwifery Practice Standard 3: Pre-Eclampsia And Eclampsia

Definition:

Hypertension in pregnancy is defined as systolic blood pressure of 140 mm Hg or greater and/or diastolic blood pressure of 90 mm Hg or greater. Hypertension diagnosed for the first time after 20 weeks of pregnancy is referred to as gestational hypertension; a pregnant woman with hypertension diagnosed before 20 weeks is said to have chronic hypertension. Diastolic blood pressure measurements between 90-109 mm Hg are considered mild to moderate hypertension while measurements above these levels are considered severe hypertension.

Importance:

Hypertension complicates 5-10% of all pregnancies and is associated with 10.5% of all maternal deaths in Bhutan. The mother may suffer from the adverse effects of high blood pressure (convulsions, cerebral haemorrhage, cardiac and renal failure) while the baby may suffer from inadequate placental blood flow (fetal growth restriction, fetal distress and fetal death).

Diastolic blood pressure is a good indicator of prognosis for the management of hypertension in pregnancy as it measures peripheral resistance and does not vary with the woman's emotional state to the degree that systolic pressure does. Diastolic blood pressure is taken at the point at which arterial sounds disappear. This protocol uses only diastolic blood pressure measurements for the classification and management of hypertension in pregnancy.

Pre-eclampsia is pregnancy induced hypertension with proteinuria. Eclampsia is the occurrence of convulsions in a pregnant woman with hypertension in pregnancy. Since eclampsia is the commonest reason for convulsions among pregnant women and it is associated with significant maternal and perinatal morbidity and mortality, it is recommended that any pregnant woman with convulsions should be considered and managed as eclampsia unless there is sufficient information to consider another cause for convulsions.

Cause: The aetiology of pre-eclampsia and its prevention are not clear. The most likely cause is with abnormal placental development or function.

Treatment: The only definitive treatment for pre-eclampsia is delivery of the baby. This results in rapid and almost complete resolution of symptoms and signs. Decision regarding delivery is dependent on many factors, in particular the maturity of the baby, the condition of the mother and the facilities available for maternal and neonatal care. In severe pre-eclampsia and eclampsia, the risks to the mother's health are sufficiently high to warrant delivery of the baby irrespective of its maturity. However in cases of mild to moderate hypertension in pregnancy when the baby is not mature, there is a place for expectant management of pregnancy with close monitoring.

Methyldopa is most widely used and time-tested antihypertensive in pregnancy. Use of antihypertensives for mild to moderate hypertension reduces the risk for developing severe hypertension. Next safer drug is hydralazine. Use of beta blockers is associated with fetal growth restriction while use of nifedipine for mild to moderate hypertension is associated with worsening of pre-eclampsia. Consider delivery if the baby is mature, or if there is increasing proteinuria or if hypertension is not adequately controlled with antihypertensive medication. Sedatives, tranquilizers and diuretics have no role in the management of mild to moderate hypertension in pregnancy. A woman with severe pre-eclampsia or eclampsia should be delivered as soon as possible.

Magnesium sulphate is the drug of choice for prevention and treatment of convulsions. The loading dose of 4 g administered intravenously as a 20% solution over 5 minutes and 10 g intramuscularly (5 g as 50% solution in each buttock with lignocaine) controls and prevents convulsions in most cases. If convulsions occur more than 15 min after administration of the loading dose, an additional dose of 2 g should be given intravenously. To prevent further seizures, maintenance doses of 5 g are given intramuscularly every 4 h until 24 hr have elapsed after delivery or last convulsion whichever occurred last. Since magnesium depresses neuromuscular transmission, monitor her for respiratory depression (rate should be more than 16/ min) and deep tendon reflexes (the knee jerk should be elicitable before the next dose is given). Also since magnesium is excreted through the kidney, decreased urine output can be associated with magnesium toxicity. Ensure that urine output is at least 100 mL in the preceding 4 hr before giving further doses of magnesium sulphate. If knee jerks are not elicited, or if the urine output is less than 100 mL/hr, or if respiratory rate is less than 16/min, withhold the next dose until these have returned to normal. If there is respiratory arrest, we must give inj calcium gluconate 10% 10ml slow IV until respiration reverses.

Antihypertensive drugs should be used to lower blood pressure rapidly in cases of severe pre-eclampsia and eclampsia. Nifedipine is a rapidly acting drug which is available widely. Use Nifedipine in small doses to lower blood pressure. Antihypertensive therapy should be continued in the postpartum period if the blood pressure is more than 100 mm Hg (diastolic). Nifedipine and beta- blockers may be used in the postpartum period. Follow up after discharge and reduce/stop treatment as appropriate.

A woman with convulsions should be protected from injury. Gently hold her on flat surface to prevent her from hurting herself. Introduction of a mouth gag may cause injury and is best avoided. Maintain adequate intravenous hydration. Plan for immediate delivery after initiating anticonvulsant and antihypertensive treatment at the center or refer with medical escort.

MANAGEMENT OF PRE-ECLAMPSIA

Suspect	<ul style="list-style-type: none"> • Blood pressure is 140/90 mm Hg or greater at least 4 – 6 hours apart in BHU/Hospital or 1 hour apart in ORC • The woman has symptoms 		
Assess	<ul style="list-style-type: none"> • Diastolic BP 90-110 mm Hg • Proteinuria ++ • No convulsions 	<ul style="list-style-type: none"> • Diastolic BP > 110 mm Hg • Proteinuria +++ or more • Reduced urine output • Headache, blurred vision • Vomiting and upper right abdominal pain 	
Classify	Mild Pre-eclampsia	Severe-pre-eclampsia	
TREATMENT	Level I (BHU)	<ul style="list-style-type: none"> • Advise home rest and normal diet • No salt restriction • Do not give sedatives, tranquilizers, anticonvulsants or diuretics • Start hydralazine 25mg PO BD to keep DBP between 90 and 100 mm Hg • Check fetal growth by SFH • Review in 3 days and every 2 weeks till 36 completed weeks if all remains under control. • Explain to come back if woman has danger symptoms ** <p>Refer to Level II</p> <ul style="list-style-type: none"> • If There is significant IUGR • BP control is unsatisfactory after 3 days 	
	Level II (D/H)	<ul style="list-style-type: none"> • Follow as above <ul style="list-style-type: none"> • Add Tab Methyldopa 250mg TDS if DBP goes above 110mmHg • Plan delivery at 36 completed weeks if all remains under control • Refer to Com EmOC center if <ul style="list-style-type: none"> • IUGR • Poor control of BP • Delivery is not convenient at the center 	<ul style="list-style-type: none"> • Start hydralazine 50 mg PO BD to keep DBP between 90 and 100 mm Hg • Immediately refer to Com EmOC center <ul style="list-style-type: none"> • Admit in the ward • Start on medication • Tab Hydralazine 50 mg BD • Tab Methyldopa 250mg TDS <input type="checkbox"/> Assess the POG • Observe for 24 hours with 4-6 hlry BP monitoring, Fetal condition <p>Refer:</p> <ul style="list-style-type: none"> • If BP doesn't settle down, refer with inj Hydralazine 40mg in 500ml • NS @ 10dpm, to keep DBP between 90-100 mHg. Send with medical escort to ComEmOC center • Significant IUGR

MANAGEMENT OF ECLAMPSIA

Suspect

- Blood pressure is 160/110 mm of Hg or more
- The woman has convulsions or is found unconscious

Assess

- Woman is pregnant or in labour or delivered within last one week
- Diastolic BP > 90 mm Hg
- Proteinuria ++ or more
- Convulsions/coma

Classify

Eclampsia

TREATMENT

**Level I
(BHU)**

1. Place the woman on her side on flat surface
2. Maintain airway, aspirate the mouth and throat as necessary after the convulsion
3. Give oxygen at 4-6 L per minute if available
4. Establish an IV line with 16 or 18 G canula with RL
5. Protect the woman from further injury

Control of fits

6. Inj Diazepam 10 mg IV stat slowly and 40mg in 500ml of 5% and run @ 20dpm. Give another 10mg IV if further fits occur.
7. Put indwelling Foley's catheter
8. Start antihypertensive (only if DBP > 110 mm Hg) with Hydralazine 40mg in 500ml NS @ 10dpm, to keep DBP between 90-100 mm Hg.
9. Refer with medical escort to Com-EmOC center

**Level II
(D/H)**

- Follow 1 to 8 as above except number 6
- Give magnesium sulphate
- Delivery must occur in 6 -8 hours from start of convulsion
- Do internal examination, if delivery is possible soon (cervix dilated > 6cm) or imminent do ARM and monitor closely
- If cervix is < 6cm or delivery is remote or other complications are present then REFER with an escort to Com-EmOC center

Key Points

Loading dose (MgSO4)

- Give magnesium sulfate 20% solution , 4g IV over 5 min
- Follow with 10 g of 50% magnesium sulfate solution, 5g in each buttock deep IM with 1 mL of 2% xylocaine in the same syringe
- If convulsions recur after 15 minutes give 2 g magnesium sulfate (50% solution) IV over 5 mins

MgSO4 Preparations:

2 ml (50%) ampoules = 1 g
10 ml(50%) vials = 5 g

TO PREPARE THE LOADING DOSE (20%)

- Take 8 ml of 50% MgSO4 (4g)
- Add distilled water 12 ml in a 20 or 50 ml syringe.

Maintenance Dose (MgSO4)

- 5 g magnesium sulfate (50% solution) with 1 mL 2% lignocaine IM every 4 hours in alternate buttock
- Continue treatment for 24 hours after delivery or after the last convulsion
- Watch respiratory rate, patellar reflex and urinary output
- Withhold the drug if respiratory rate is below 16 per minute, patellar reflexes are absent, urinary output is less than 30 mL per hour for the preceding 4 hrs
- In case of respiratory arrest assist ventilation, give inj calcium gluconate 1 g (10 mL of 10% solution) IV slowly until respiration begins and the effects of magnesium sulfate are antagonized

Life-Saving Midwifery Practice Standard 4: Prolonged Labour

Prolonged labour is an important cause of maternal and perinatal ill health and death. Prolonged labour and the associated problems can be prevented by close monitoring of events in labour, recording progress of labour on a partograph and intervening when the partograph shows evidence of slow labour.

The partograph is a graphic representation of events in labour. In its simplest form, it records cervical dilatation and descent of the head against time. After 4 cm dilatation, the cervix dilates normally at a minimum rate of 1 cm/hr. Slow labour is diagnosed when the rate of dilatation of the cervix is slower than 1 cm/hr after 4 cm dilatation.

Prolonged labour may result from obstruction to the passage of the fetus through the birth canal or for other reasons. **Obstructed labour** is more common if the baby is very large or there is a fetal malpresentation. When labour is obstructed, the woman is usually distressed with pain and is dehydrated, and the lower part of the uterus may be stretched. The head may feel jammed in the pelvis with overlapping of the fetal skull bones. Untreated obstructed labour can result in uterine rupture and even genital fistula. Hence if labour is obstructed, the woman should be delivered as quickly as possible.

Non-obstructed prolonged labour is more common than obstructed prolonged labour. Slow progress of labour without obstruction is usually because of inefficient uterine contractions. Uterine contractions may be weak especially in a woman in her first labour. If slow labour is demonstrated on the partograph, uterine contractions should be strengthened by amniotomy (ARM), in the first place, followed by oxytocin infusion. If progress is unsatisfactory even after ensuring adequate uterine contractions, no progress in 2- 4 hours progress, she should be delivered by caesarean section.

Slow progress may also result from fetal **malpresentations**. Here the presenting part may be large and not fit adequately in the pelvis. Clinical examination can identify slow progress due to malpresentations. In some malpresentations (e.g. face), oxytocin may be used to strengthen uterine contractions. In other malpresentations (e.g. brow) caesarean section is the preferred treatment.

Disproportion between the size of the fetal head and the maternal pelvis (cephalopelvic disproportion) is a diagnosis made after excluding poor uterine contraction malpresentation.

MANAGEMENT OF PROLONGED LABOUR

Suspect

Labor pain have reportedly lasted 12 hours or more after 4 cm cervical dilatation and the woman is undelivered

Assess

- Prolonged labour
- Longitudinal lie
- No stretching of lower segment
- Weak uterine contractions
- Fetal heart sounds normal

- Prolonged labour
- Head not engaged or fixed
- Abnormal lie/presentation (refer to boxes below on abnormal presentations)
- Stretched lower segment
- Bladder distended, Bandl's ring
- Maternal tachycardia and dehydration
- Fetal distress and marked moulding

Classify

Non Obstructed Labor

1. Admit in Facility
2. Check BP, Pulse, pallor, dehydration
3. Open IV line with Ringer's lactate and Correct dehydration
4. Put a Floey's indwelling catheter
5. Give inj Ampicillin 1g IV stat & 500mg 6 hly
6. Assess the labour status and fetal condition
7. If both mother and fetus is well and the fetal head is on perineum (fetal head seen through introitus during contraction), give episiotomy under local infiltration and deliver.
8. **Refer to Com-EmOC center if**
 - There is abnormal presentation (other than vertex)

Obstructed Labor

1. Check BP, Pulse, pallor, dehydration
2. Open IV line with Ringer's lactate and Correct dehydration
3. Put a Floey's indwelling catheter
4. Give inj Ampicillin 1g IV stat & 500mg 6 hly
5. Blood grouping and Hb estimation
6. **Refer to Com-EmOC center with**
 - Blood donor
 - Medical escort

TREATMENT

Level I
(BHU)

Level II
(D/H)

- Do as above 1 to 7
- If there is no contraindication, do Vacuum delivery
- If vacuum delivery is not possible and the center has no caesarean facility, Refer immediately to nearest ComEmOC center with medical escort and 2 donors

- Do steps No 1 to 5
- If facility is available, arrange for immediate caesarean section
- If not, make urgent referral to Com-EmOC center
 - With Blood donor and medical escort

Key Points

Abnormal presentation

- Breech presentation
- Shoulder presentation (Transverse lie)
- Face presentation
- Brow presentation
- Compound presentation (hand with head)
- Cord presentation

Signs of obstruction

- Cervix is fully dilated
- Head is fixed in pelvis, no descent during contraction
- Moulding (+++)
- Long caput, Meconium (+/-)
- Vagina feels hot

Life-Saving Midwifery Practice Standard 5: Puerperal Sepsis

Puerperal Pyrexia is defined as a rise of temperature reaching 100.4°F(38°C) or more on 2 separate occasions at 24 hours apart (excluding first 24 hours) within 6 weeks following delivery. The important causes of puerperal pyrexia: (1) Puerperal sepsis (2) Urinary tract infection (cystitis, pyelonephritis) (3) Breast engorgement, mastitis, breast abscess (4) Infection of caesarean section wound (5) Pneumonia, atelectasis (6) Septic pelvic thrombophlebitis (7) Recrudescence of malaria or pulmonary tuberculosis (8) Any viral infection (9) Unknown origin. Puerperal pyrexia due to causes other than puerperal sepsis is called puerperal infection.

Definition: Puerperal sepsis is an infection of genital tract which occurs as a complication of delivery within 6 weeks of delivery. It is commonly due to (i) endometritis (ii) Endomyometritis or (iii) endoparametritis or the combination of all these when it is called **pelvic cellulitis**.

Untreated or incompletely treated puerperal sepsis can lead to serious complications and death. Antibiotics should be given for the treatment of puerperal sepsis. These antibiotics should be active against both aerobic and anaerobic organisms. A combination of parenteral ampicillin (1-2 g intravenously every 6 h, gentamicin (5 mg/ kg as an intravenous infusion divided 8 hourly and metronidazole (500 mg intravenously every 8 h) are active against most organisms associated with puerperal sepsis and is hence recommended as the first line of antibiotic treatment.

If placental fragments are retained in the uterine cavity, these should be removed after initiation of antibiotic therapy. Similarly, any abscess should be drained for effective treatment.

The other causes of puerperal pyrexia should be screened out and treated appropriately.

Once the woman is afebrile for 48 hr, the parenteral antibiotics may be discontinued. There is no advantage in continuing oral antibiotics after cessation of parenteral antibiotics in puerperal sepsis.

If the condition does not improve with first line antibiotics, it is advisable to refer the woman to a higher centre for further treatment.

MANAGEMENT OF PUERPERAL SEPSIS

Suspect	Temperature is 38^o C (100^o F) or more within 42 days of delivery	
Assess	<ul style="list-style-type: none"> Fever after delivery Foul smelling vaginal discharge Uterine and abdominal tenderness (painful hard abdomen) Height of uterus larger than expected Shock (±/-) 	<ul style="list-style-type: none"> Fever 24 hrs or more after delivery Normal lochia with non -tender uterus Height of uterus appropriate for date Other focus of infection
Classify	Puerperal Metritis	Puerperal Sepsis due to other infections
TREATMENT	<div style="background-color: #d9e1f2; padding: 5px; margin-bottom: 5px;">Level I (BHU)</div> <ul style="list-style-type: none"> Assess the maternal condition ; BP, Pulse, Temp If mild infection admit in BHU for few days <ul style="list-style-type: none"> Give inj Ampicillin 1 g IV every 6 hrs Tab metronidazole 400mg TDS Tab PCM 1 TDS Refer to level II Severe infection If fever persists or condition worsens in more than 48 hours 	<ul style="list-style-type: none"> Identify cause for fever by examining for <ul style="list-style-type: none"> breast tenderness loin tenderness infection of perineal or abdominal wound respiratory infection malaria and other infectious diseases calf tenderness (rare) <p>REFER to Level II</p>
	<div style="background-color: #e2efda; padding: 5px; margin-bottom: 5px;">Level II (D/H)</div> <ul style="list-style-type: none"> Assess the maternal condition ; BP, Pulse, Temp If infection confirmed admit in the ward Blood R/E and Urine R/E <ul style="list-style-type: none"> Give inj Ampicillin 1 g IV every 6 hrs Inj metronidazole 500mg 8 hly Inj Gentamicin 80mg 8hly if urine out put is normal otherwise don't give Tab PCM and cold sponging Indwelling Foley's catheter and see output Do Ultrasound to see retained products (±/-) Do gentle Evacuation and curettage if possible Give fresh blood transfusion if anemic Refer to Com-EmOC center If there is no improvement after 48 hour or needs surgical intervention 	<ul style="list-style-type: none"> Do a thorough examination Blood R/E and Urine R/E Ultrasound (±/-) CXR (±/-) Identify cause for fever by examining Treat according to cause

Life-Saving Midwifery Practice Standard 6: Postpartum Haemorrhage

Postpartum hemorrhage (PPH) accounts for nearly 60 % of all maternal deaths in Bhutan. Bleeding within 24 hours after delivery of the baby (Primary PPH) is the most dangerous condition. PPH can occur due to retained placenta, genital tract trauma, uterine atony and rarely disseminated intravascular coagulation (DIC). Other causes for postpartum haemorrhage after 24 hours include breakdown of sutures and infections. Active management of the third stage of labour (the stage when the placenta is expelled) has been shown to reduce postpartum haemorrhage in over 60% of women. Active management includes the administration of an oxytocic drug soon after the baby is born and before the placenta is expelled, early cord clamping, delivery of the placenta by controlled cord traction, and uterine massage to ensure that it is contracted. It is important to do active management of third stage for all deliveries and also carefully monitor the mother for bleeding especially in the first two hours after childbirth.

When any health care provider is called to attend a case of PPH, the first line of management is stabilizing the patient with IV lines and prevent patient going into shock or resuscitate if already in shock. Interventions include simple uterine massage to ensure contractions, administration of therapeutic oxytocics, doing a controlled cord traction (CCT), prevention and treatment of shock and other measures (bimanual abdominal /internal uterine compression, aortic compression and condom tamponade) to reduce blood loss. If the woman is bleeding and the placenta is retained, it should be removed manually (MRP) under sedation. This risk of woman dying from not doing MRP is more than from the risk of complications for doing the procedure. Genital lacerations may occur following spontaneous childbirth or after instrumental delivery and must be repaired or clamped and referred. Quick decision-action including a timely referral after basic resuscitation saves mothers' lives.

Oxytocics

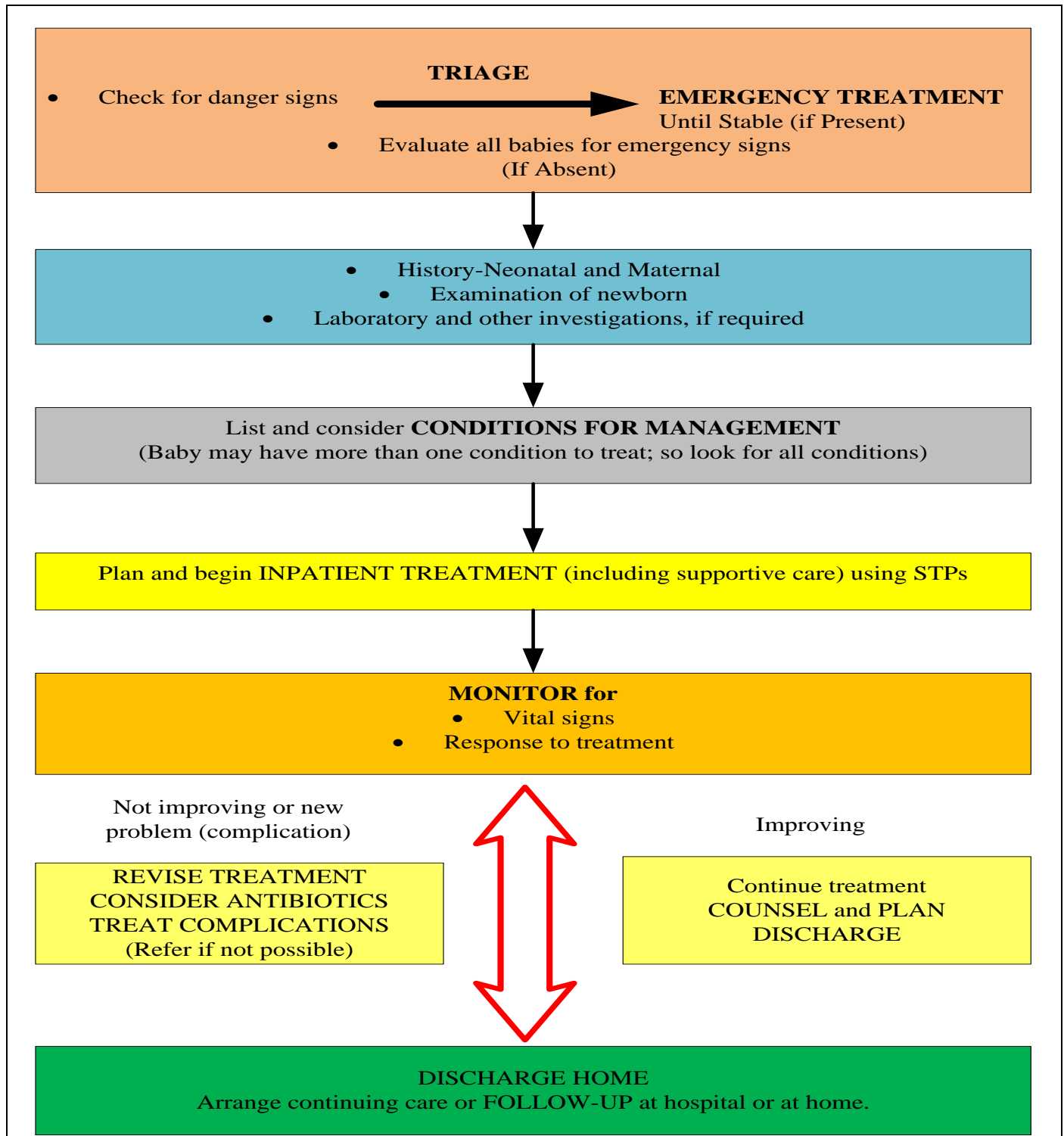
Oxytocin and ergometrine (methergin) must be used in PPH management. Ergometrine is best avoided in women with hypertension (DBP > 110 mmHg) or heart disease. Maximum dose for methergin is 5 doses at 15 min intervals in 24 hours. Maximum dose for oxytocin is 60 units in iv infusion in 24 hours.

MANAGEMENT OF PPH (Refer to Standard Guideline for Management of PPH, 2016)

	Abnormal Bleeding after delivery of baby			
Suspect				
Assess	<ul style="list-style-type: none"> Placenta not expelled Uterus may or may not be contracted 	<ul style="list-style-type: none"> Placenta expelled Uterus well contracted 	<ul style="list-style-type: none"> Placenta expelled No tear in Genital tract Uterus not contracted, Uterus feels large and soft 	
Classify	PPH due to Retained Placenta	PPH due to tear in genital tract	PPH due to uterine Atony	
TREATMENT	Level I (BHU)	<ul style="list-style-type: none"> Massage the uterus gently Set up intravenous lines size 16 or 18G. Give Normal Saline Manage shock if present Give IM oxytocin 10 IU and repeat Do CCT Do MRP under inj pethedine IM 0.5mg/kg If fails REFER to Com-EmOC center with Indwelling Foley's catheter Set up 20 units oxytocin in NS @ 20dpm Inj methergin 1 ampoule IM stat Do blood group and with 2 donors 	<ul style="list-style-type: none"> Set up intravenous lines size 16 or 18G Canula Give Normal Saline Manage shock if present Do the repair If fails REFER to Com-EMOC with Sponge forceps to hold bleeding points Inj Ampicillin 1 g IV 6 hourly and Metronidazole 500mg IV 8 hourly 	<ul style="list-style-type: none"> Massage the uterus gently Set up intravenous lines size 16 or 18G. Give Normal Saline. Manage shock if present Give IM oxytocin 10 IU and repeat Do bimanual abdominal compression Do Aortic compression Give condom tamponade If fails REFER to Com-EmOC center with Indwelling Foley's catheter Set up 20 units oxytocin in NS @ 20dpm Inj methergin 1 ampoule IM stat Do blood group and with 2 donors
	Level II (D/H)	<ul style="list-style-type: none"> Carry out all the above steps Do Manual Removal of placenta if not done before Give blood transfusion If fails refer to Com-EmOC center 	<ul style="list-style-type: none"> Same as above Give blood transfusion If fails refer to Com-EmOC center 	<ul style="list-style-type: none"> Same as above Give blood transfusion If fails refer to Com-EmOC center
	<p>Methods in Com-EmOC</p> <ul style="list-style-type: none"> Try conservative methods B-lynch suture (Brace sutures) Suspect DIC/coagulopathy Hysterectomy last resort (SH) 	<p>SIGNS AND SYMPTOMS OF SHOCK ARE:</p> <ul style="list-style-type: none"> Fast, weak pulse (110/minute or more) Low BP (systolic <90 mm Hg) Pallor Sweatiness or cold clammy skin Rapid breathing (>30 breaths/ minute) Anxiousness, confusion or unconsciousness Scanty urine output (less than 30 ml/hour) 	<p>In a Emergency Situation</p> <ul style="list-style-type: none"> Call for help Telephone consultation with a colleague is very helpful 	

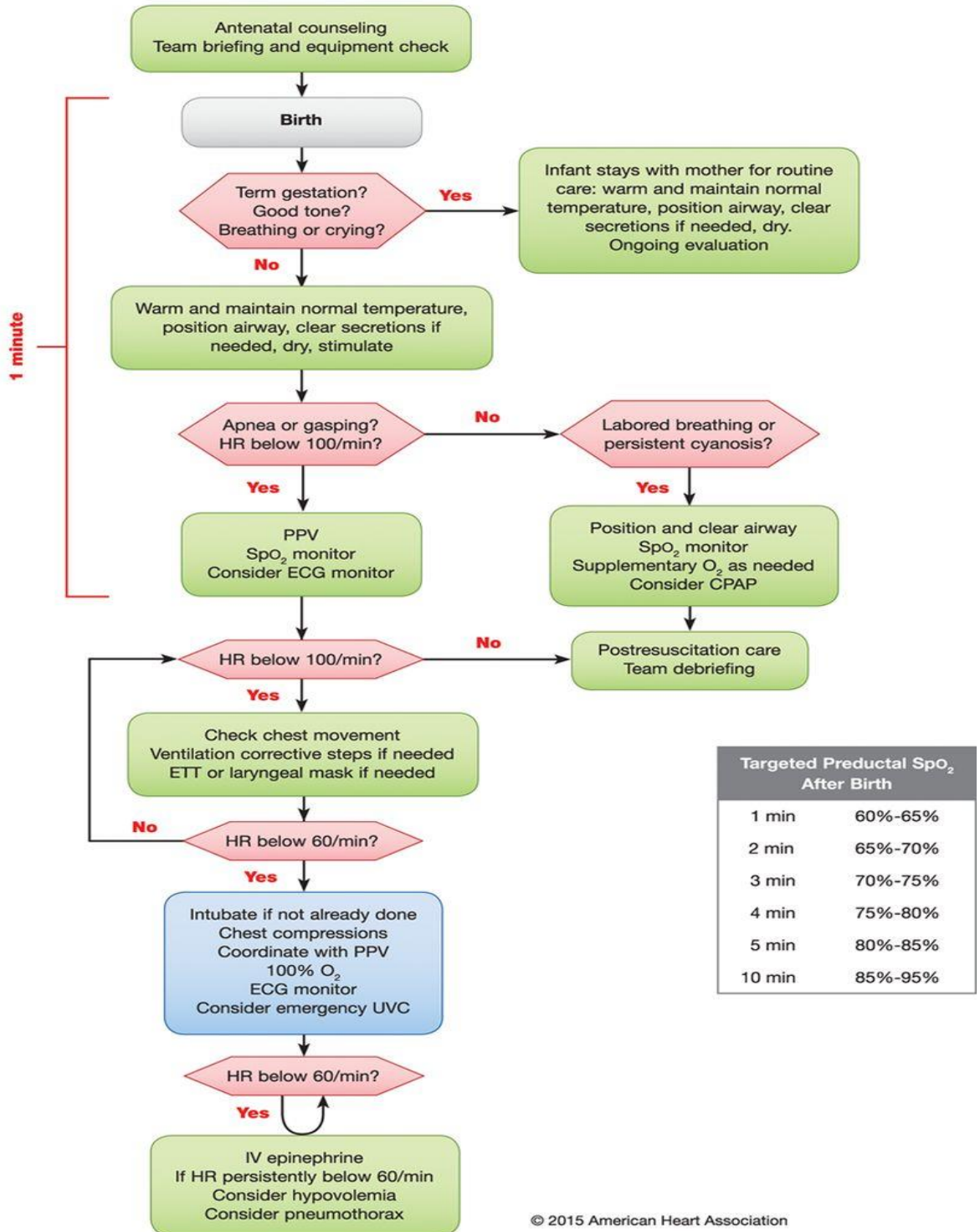
G. Standard Treatment Protocol For Management Of Common Newborn Conditions

Standard Treatment Protocol 1: Steps In The Management Of The Newborn

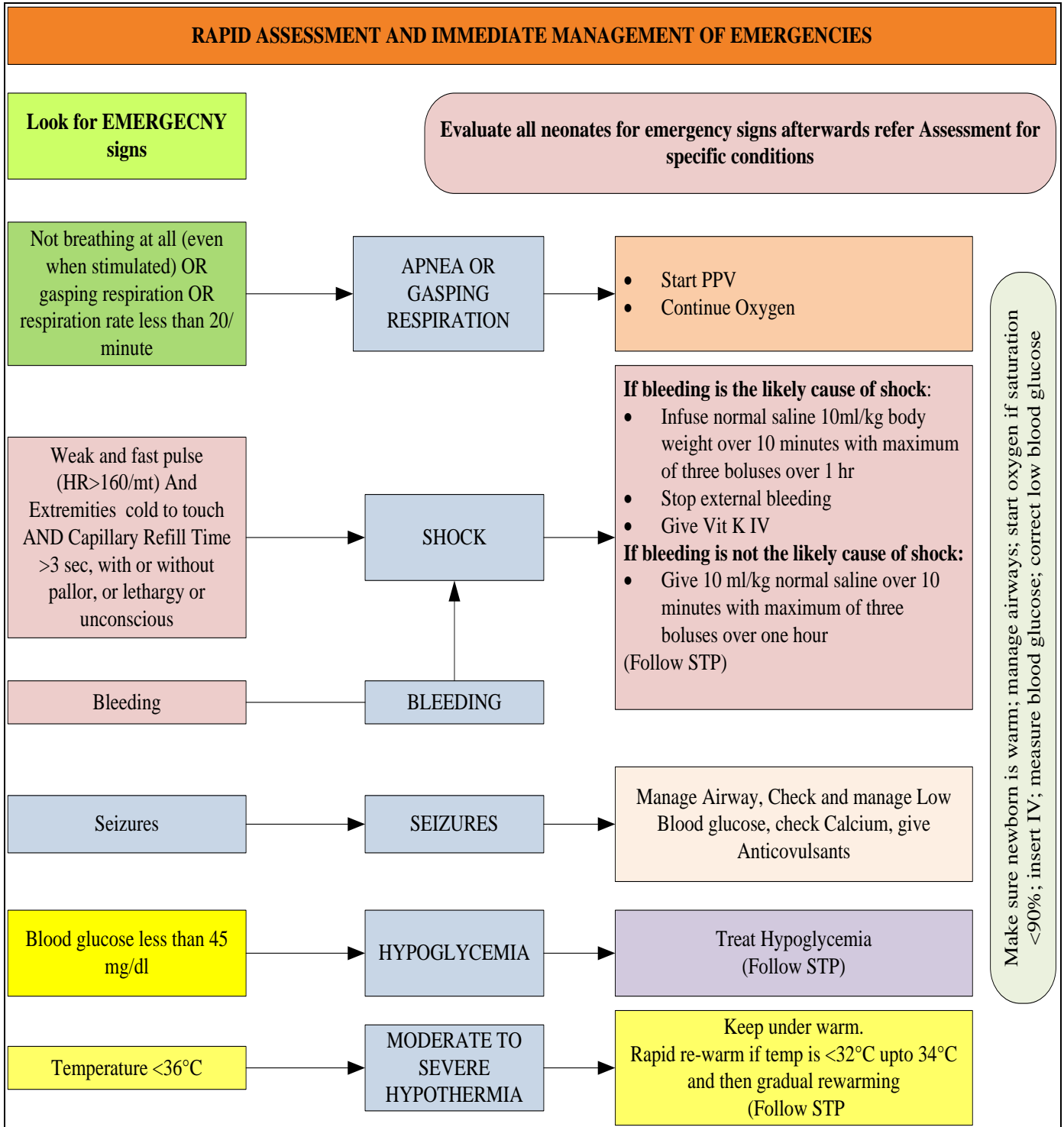


Standard Treatment Protocol 2: Neonatal Resuscitation

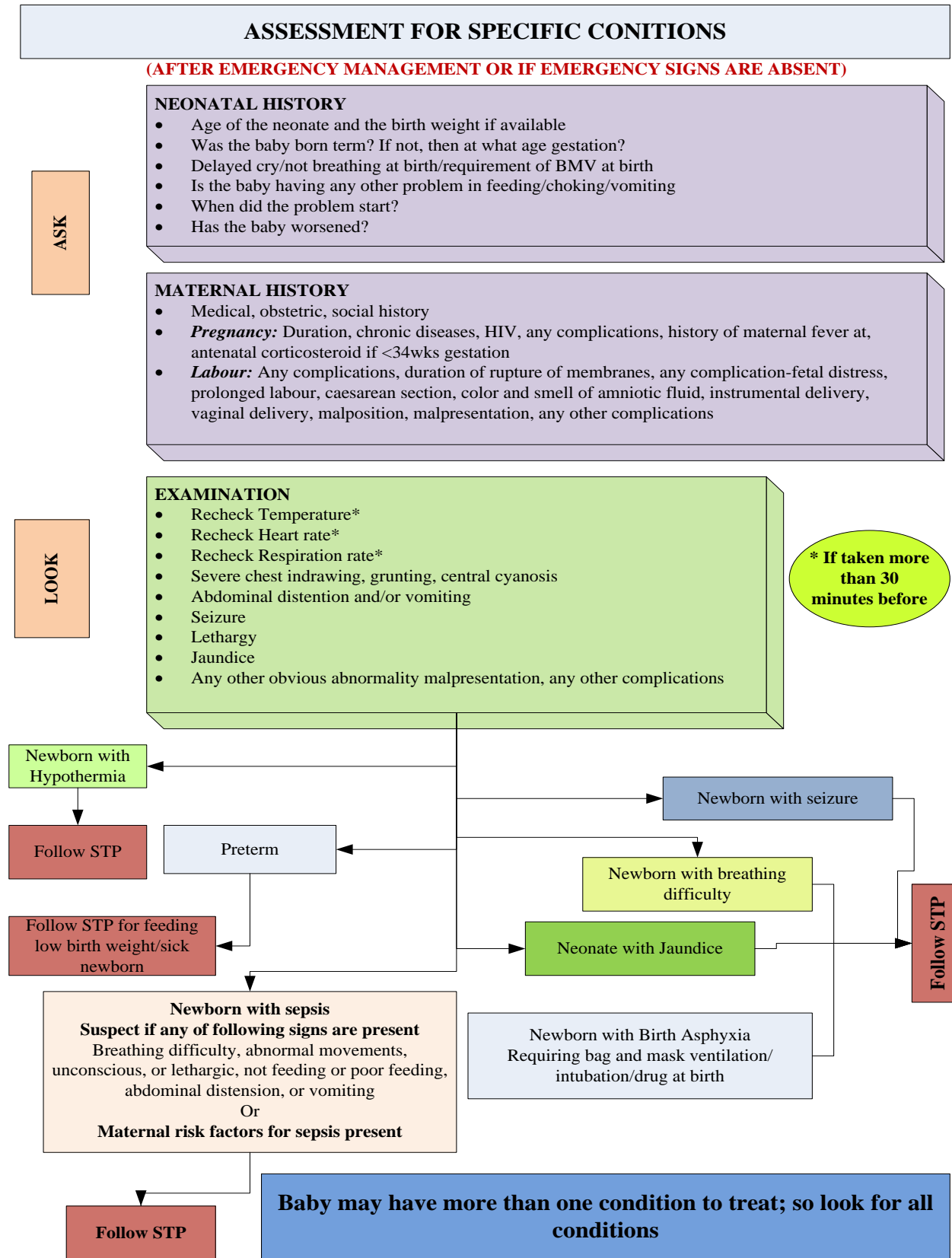
Neonatal Resuscitation Algorithm – 2015 Update



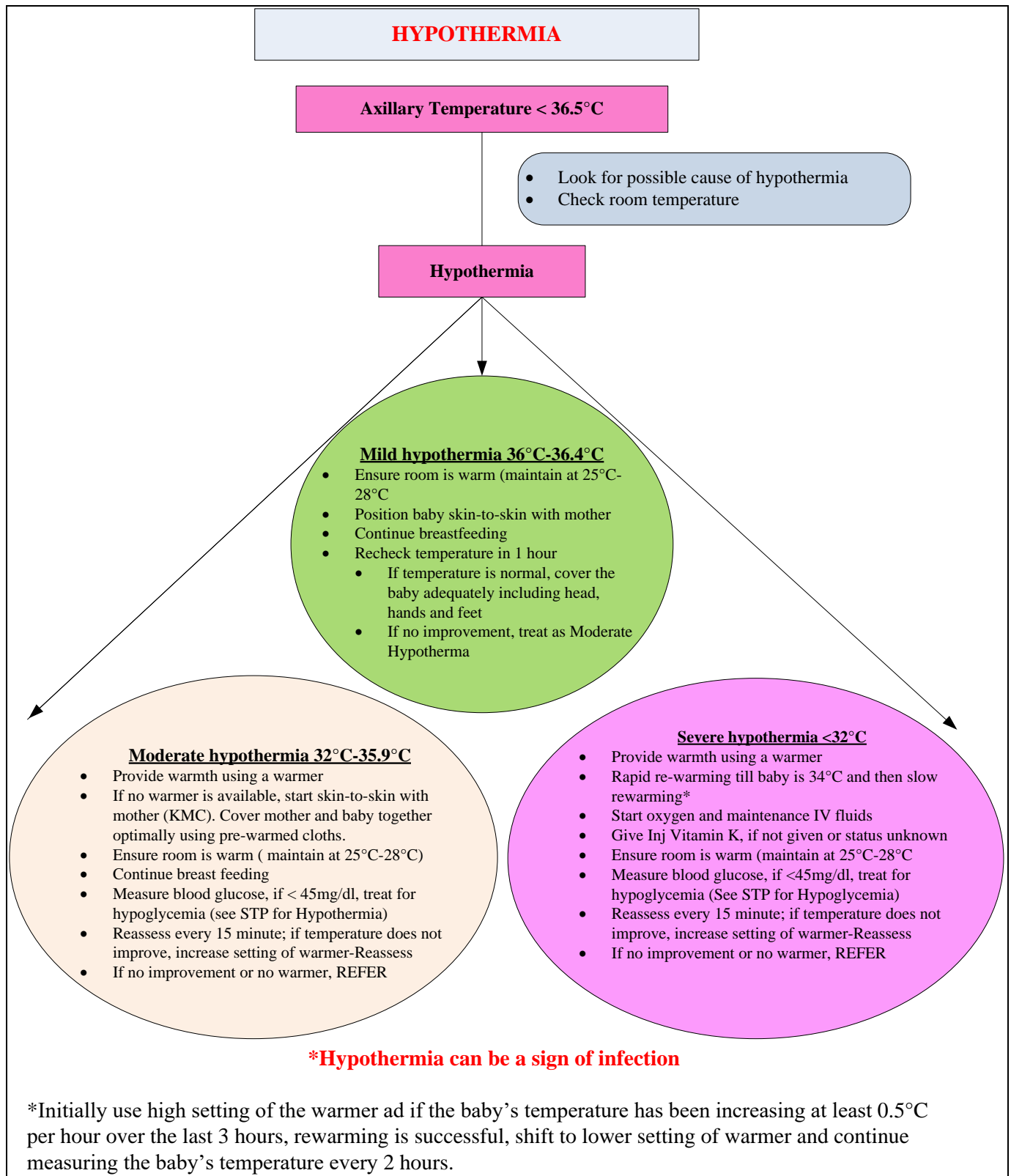
Standard Treatment Protocol 3: Rapid Assessment and Immediate Management of Emergencies



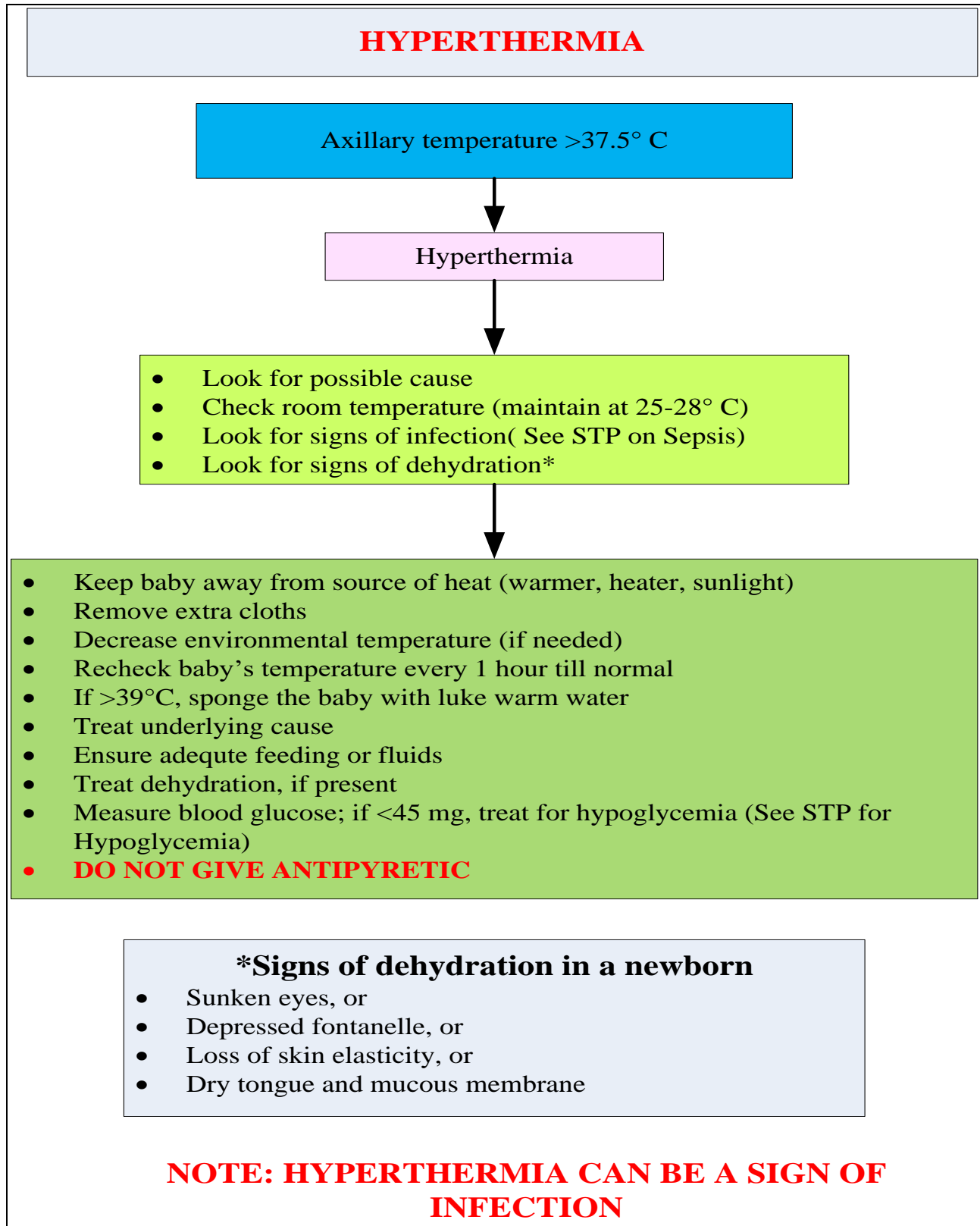
Standard Treatment Protocol 4: Assessment Of Specific Conditions



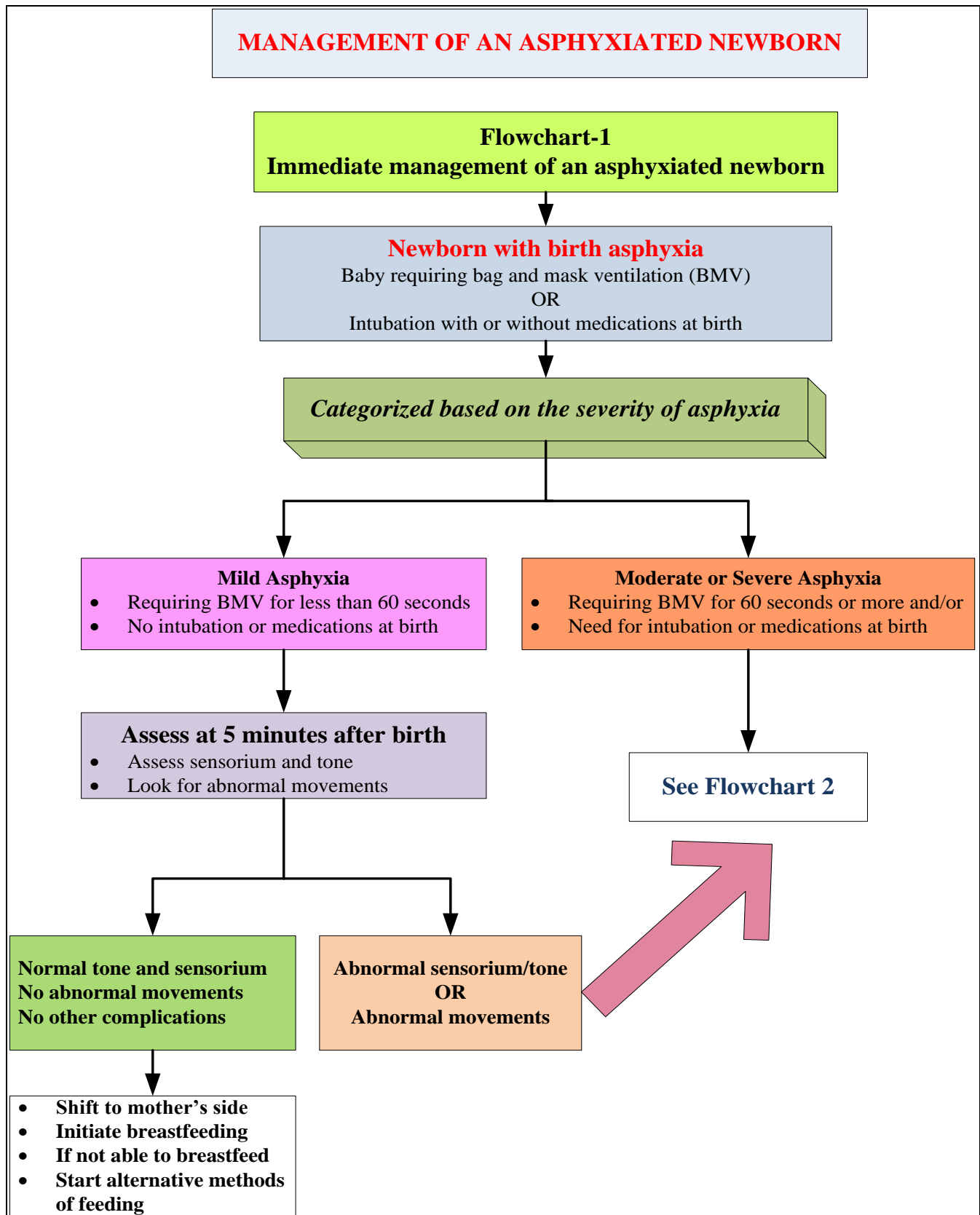
Standard Treatment Protocol 5: Hypothermia



Standard Treatment Protocol 6: Hyperthermia

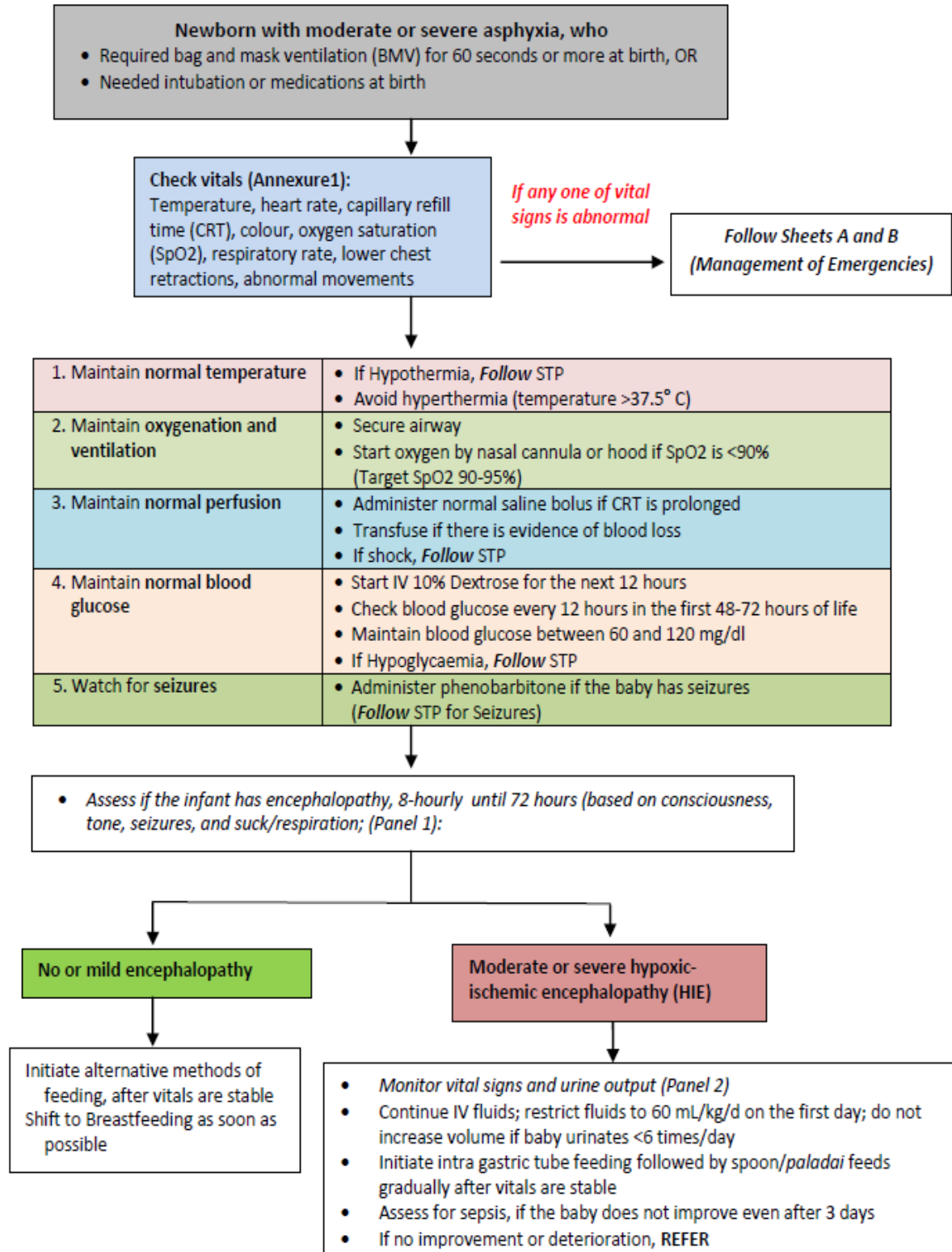


Standard Treatment Protocol 7: Management Of An Asphyxiated Newborn



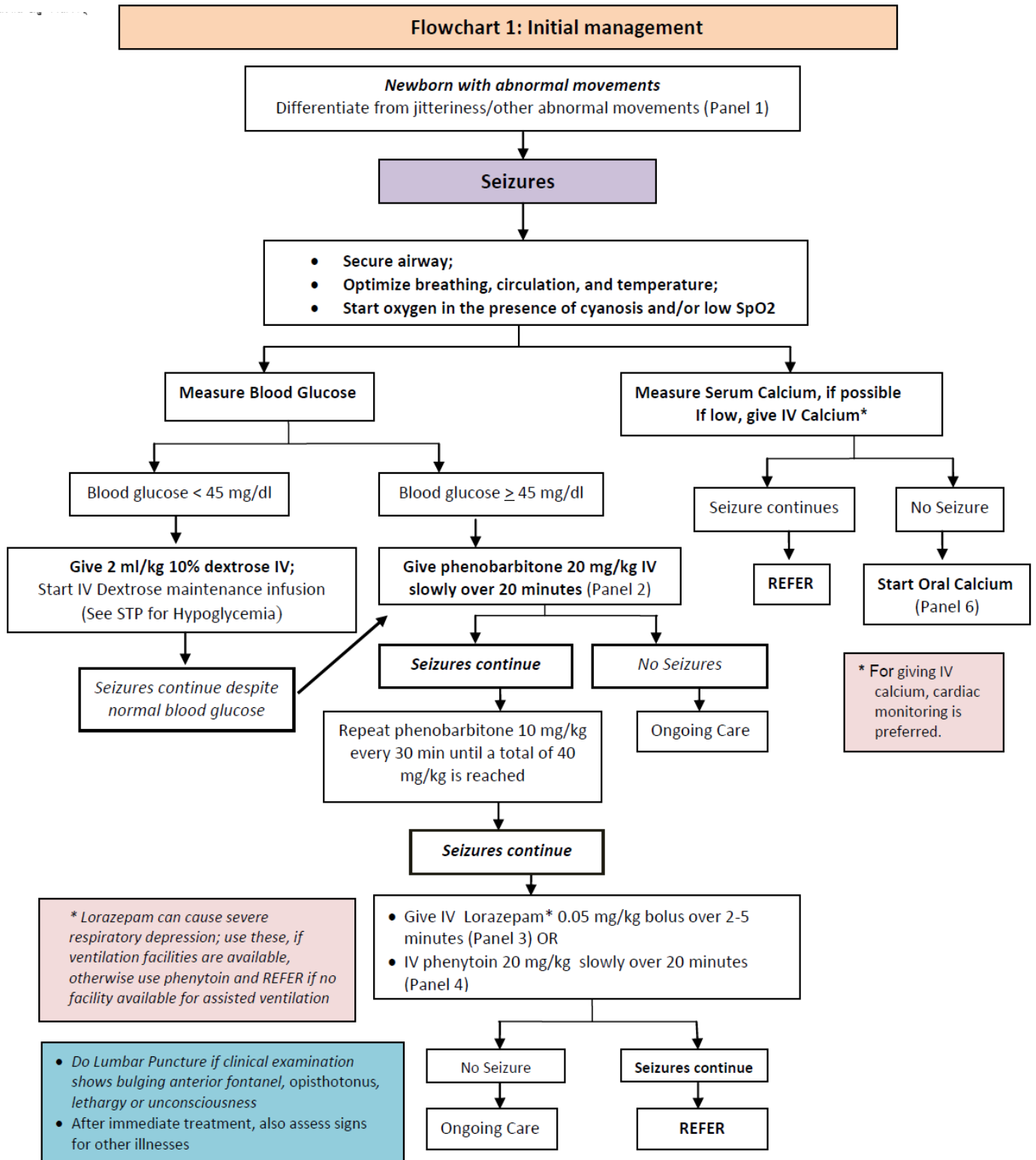
Flowchart 2

Management of a newborn who has been resuscitated for moderate or severe birth asphyxia

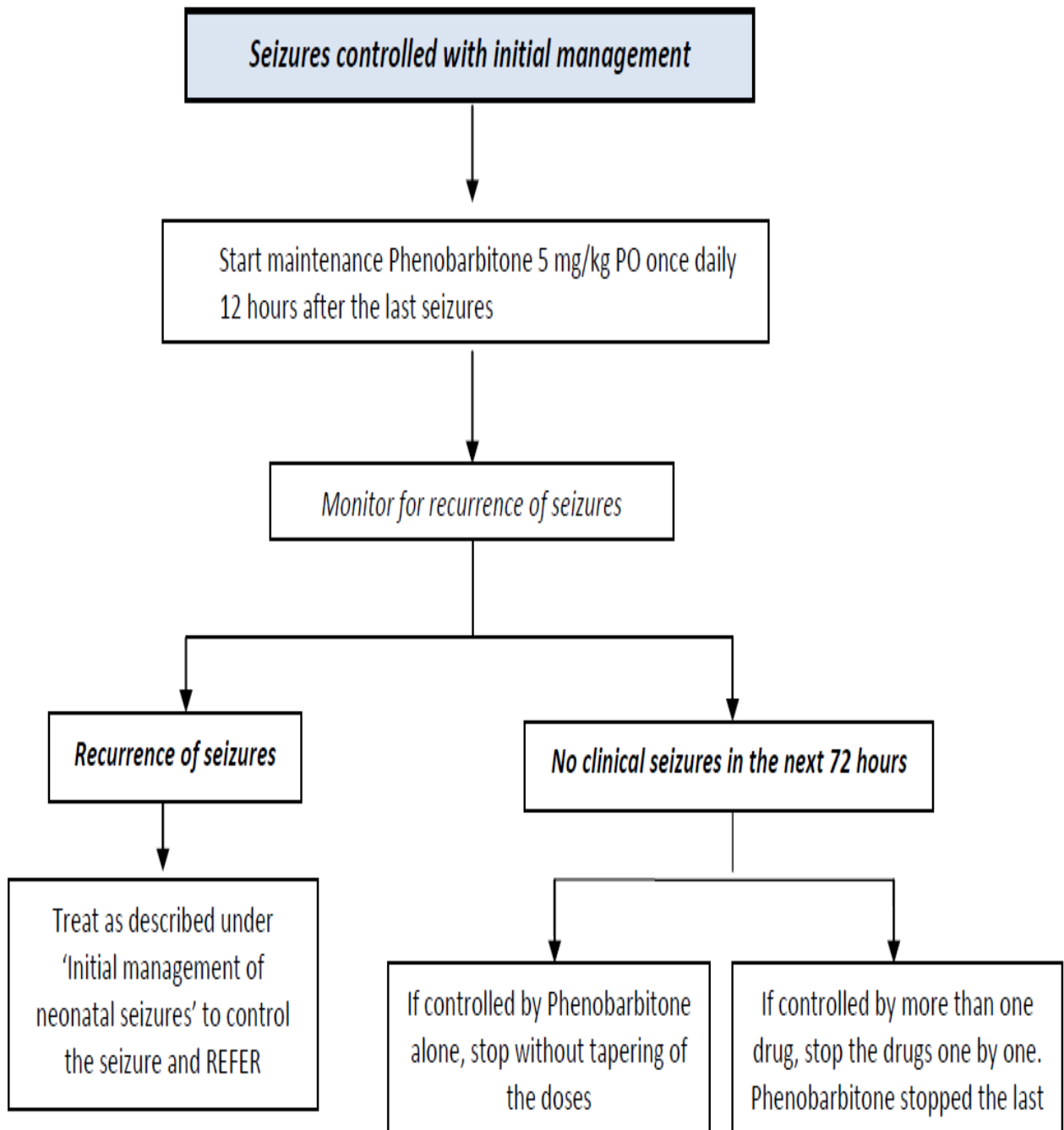


Standard Treatment Protocol 8: Management Of A Newborn With Seizures

Management of a newborn with seizures

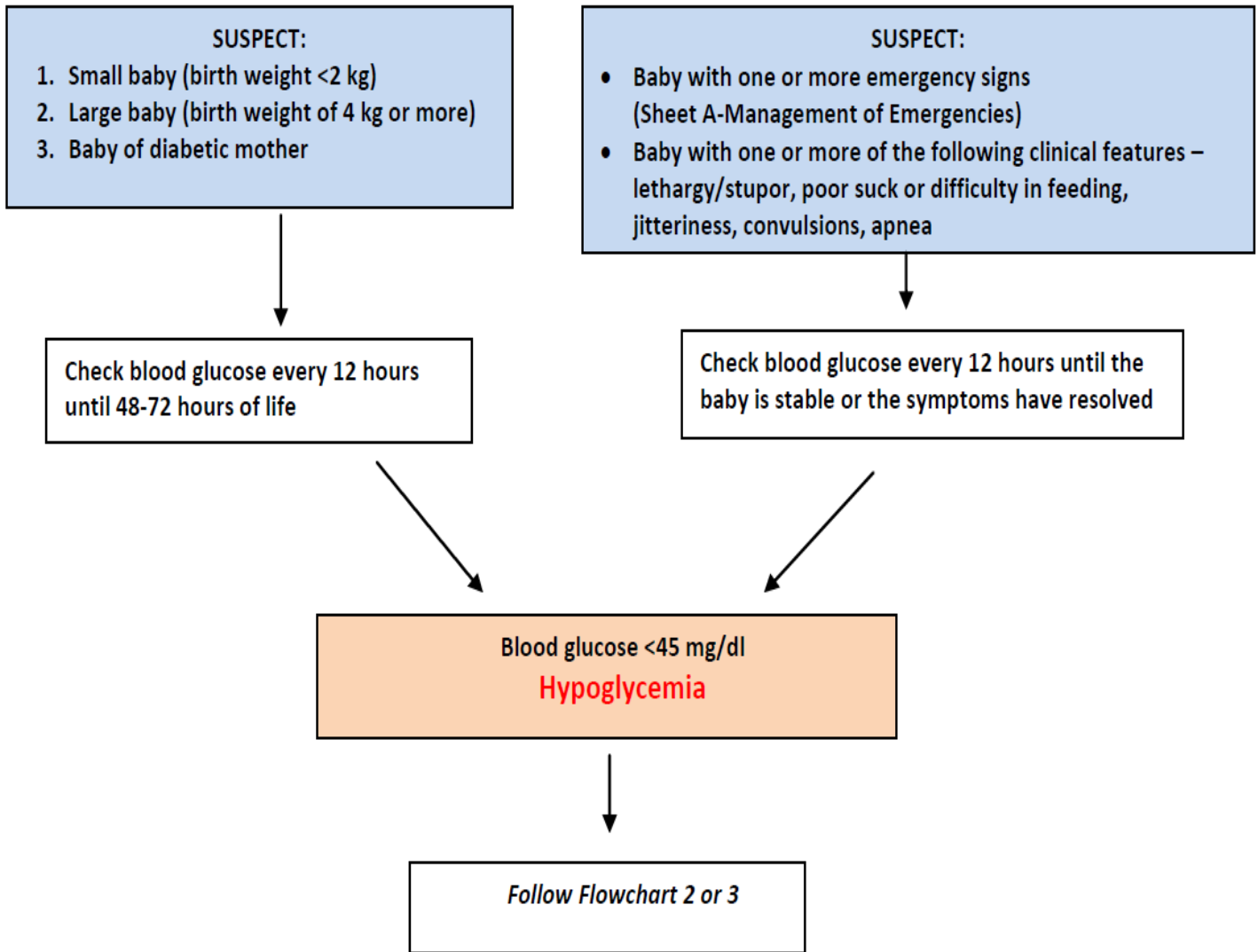


Flowchart 2: Ongoing care of newborn with seizures



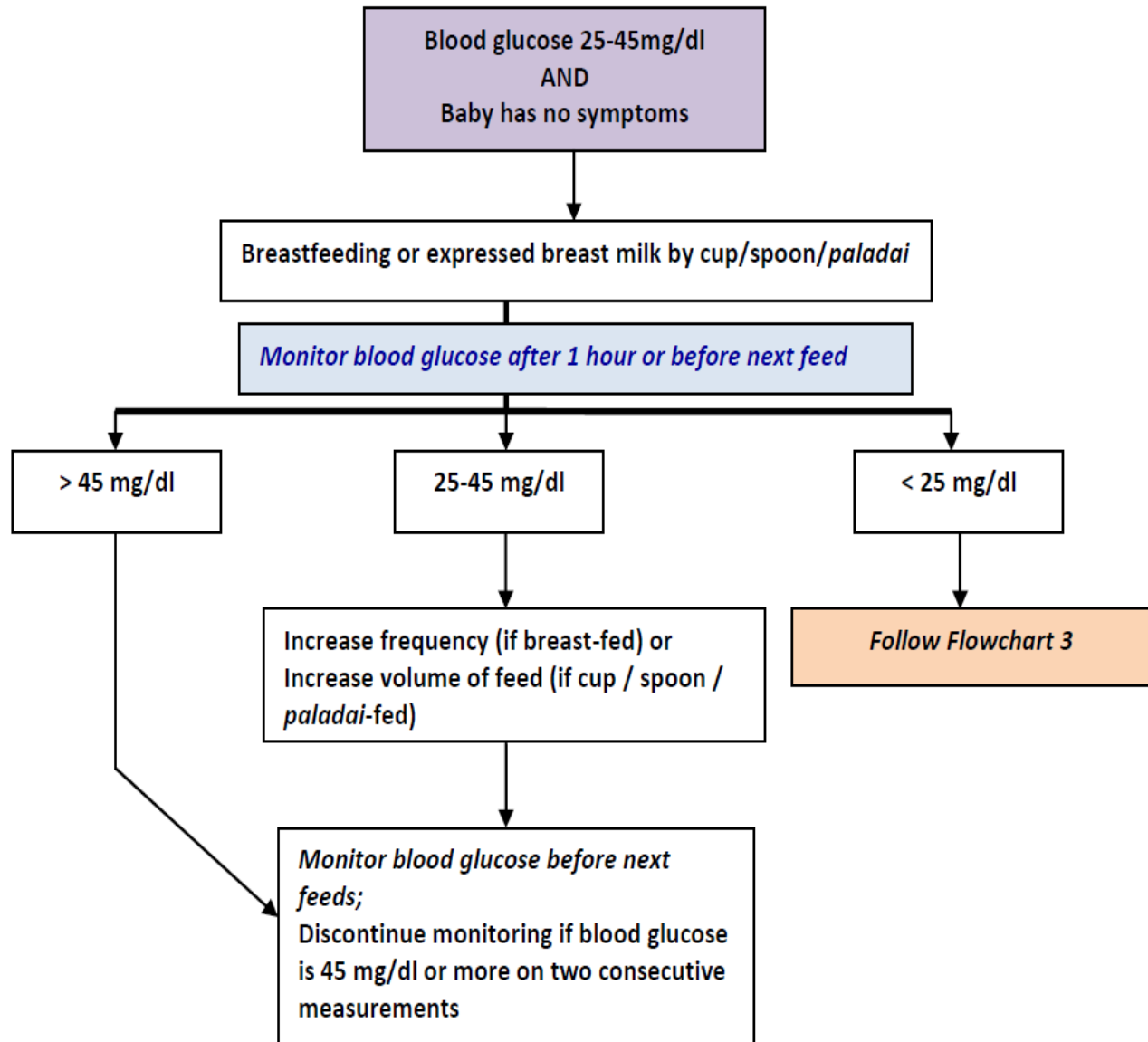
Management of hypoglycemia in newborns

Flowchart 1:
Identify a baby with hypoglycemia



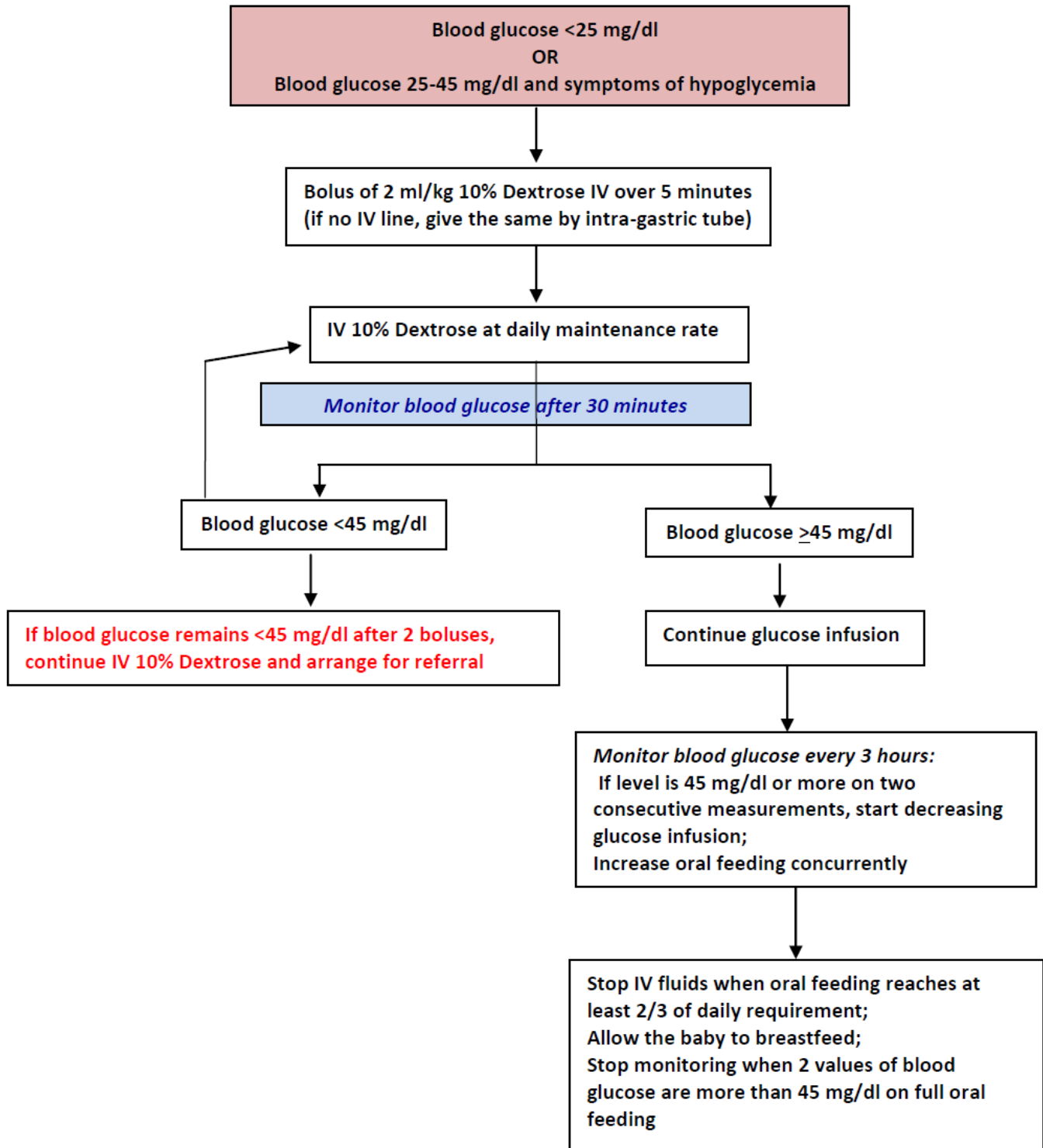
Flowchart 2

Management of a baby with blood glucose of 25-45 mg/dl but no symptoms of hypoglycemia

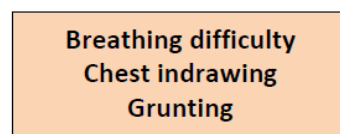


Baby with blood glucose 25-45 mg/dl who has symptoms of hypoglycemia, follow Flowchart 3

Flowchart 3
Management of a baby with blood glucose less than 25 mg/dl
OR/AND symptoms of hypoglycemia



Breathing difficulty in the Newborn



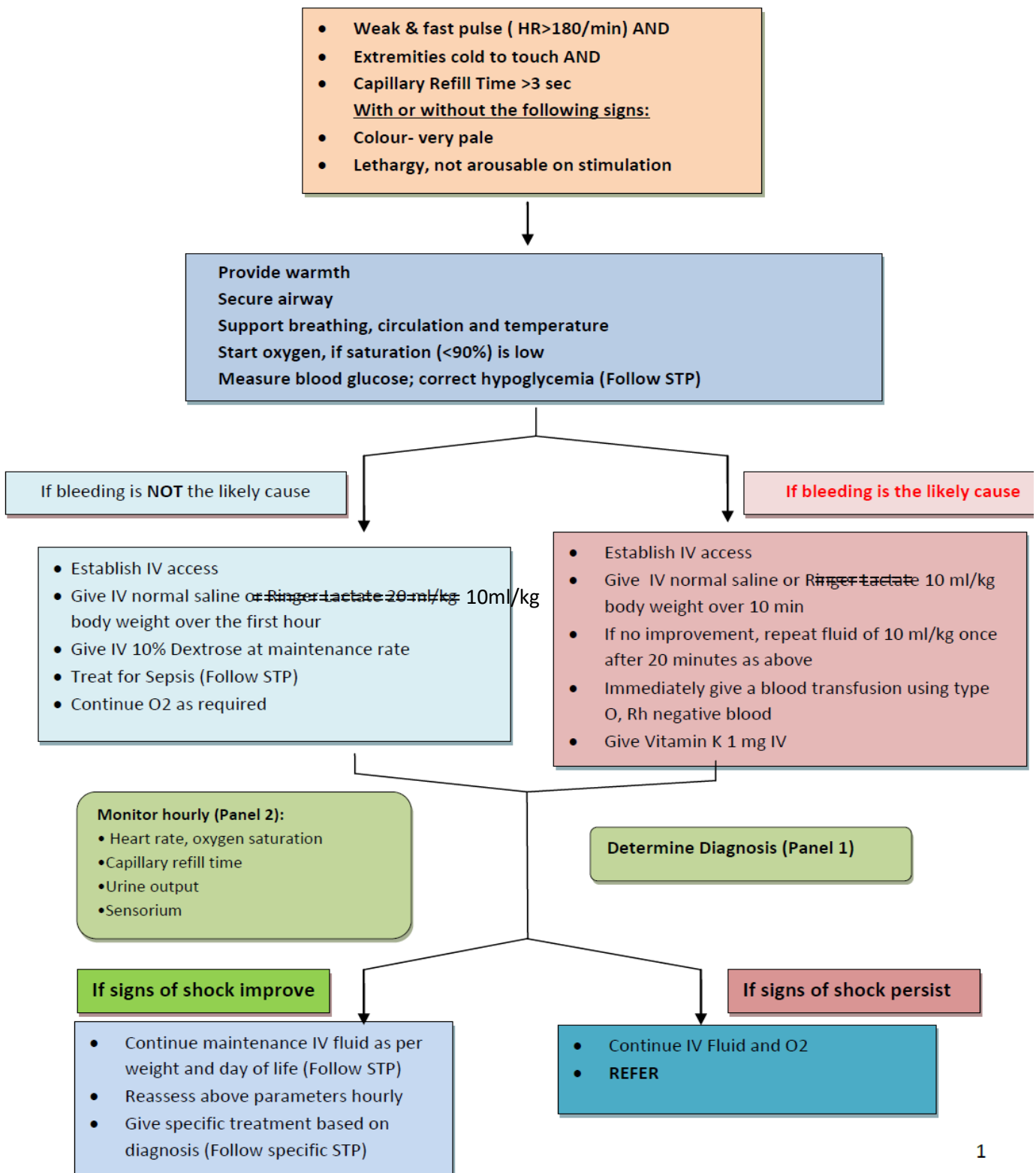
Panel 1: Diagnostic clues based on history and clinical examination

Cause	History / Examination
Blood loss	Antepartum hemorrhage Blood loss internal/external Age day 1 <div style="text-align: right; border: 1px solid black; border-radius: 50%; padding: 5px; display: inline-block;">Follow STP on Emergency Management – Sheet A</div>
Asphyxia	Need for Resuscitation for poor respiratory efforts at birth Hypoxic ischemic encephalopathy (See STP for Management of asphyxiated neonates)
Sepsis	Predisposing factors for infection Age > day 3 <div style="text-align: right; border: 1px solid black; border-radius: 50%; padding: 5px; display: inline-block;">Follow STP</div>
Severe dehydration	Loose stool, vomiting, failure to feed + Signs of dehydration
Cardiac	Term baby; normal at birth Age day 3-4 Look for feeble or delayed femoral pulse, cardiac murmur (coarctation of aorta)
Persistent Pulmonary Hypertension of the Newborn (PPHN)	Meconium stained term baby Age day 1-3 <div style="text-align: right; border: 1px solid black; border-radius: 50%; padding: 5px; display: inline-block;">REFER</div>

Panel 2: Monitoring of baby with shock

Signs	At admission	1 hr	2 hr	3 hr	4 hr
Heart Rate/min					
Capillary refill time					
Urine output					
Sensorium					
Temperature difference (core-extremities)					

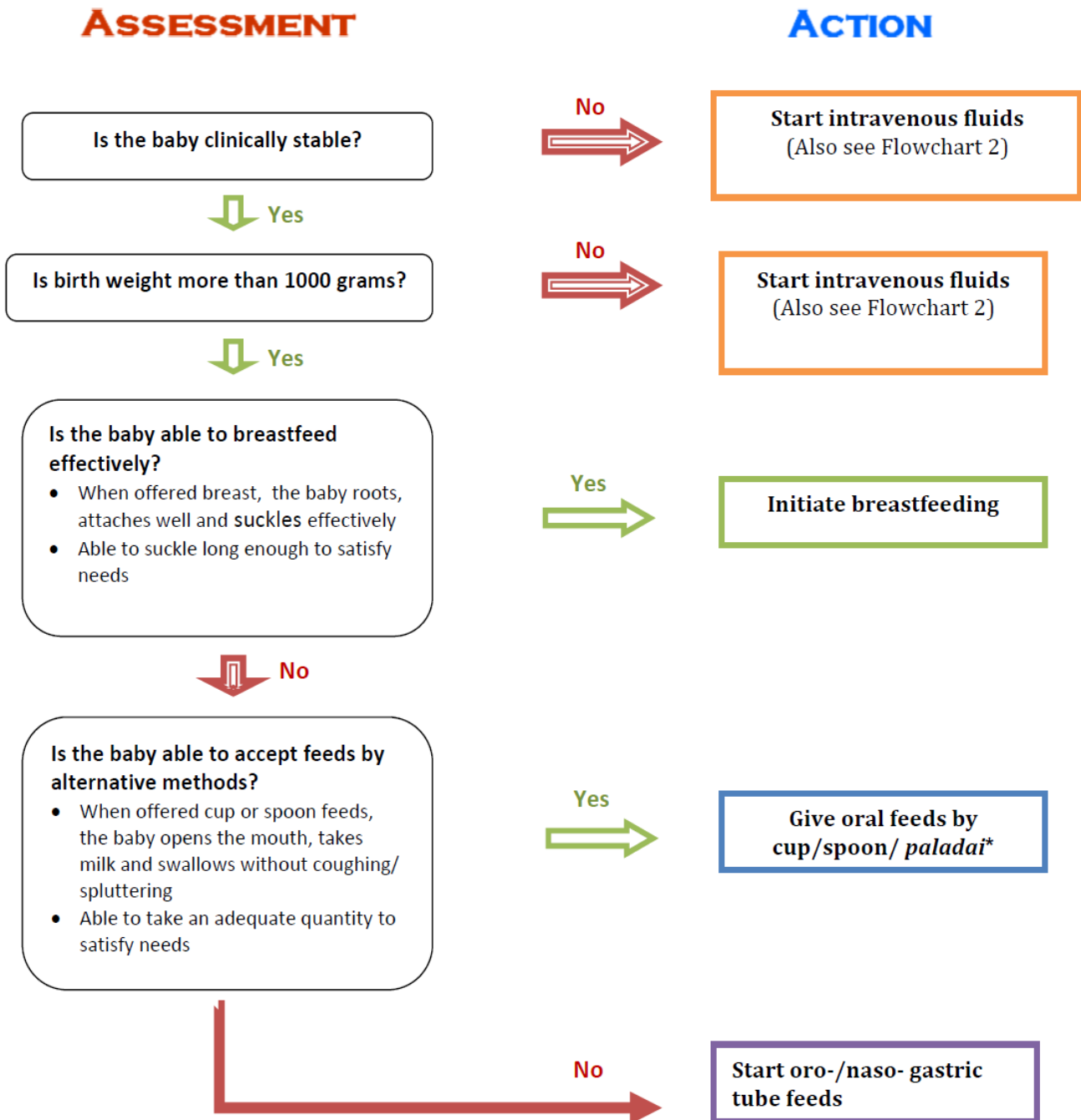
Shock in Newborn



Standard Treatment Protocol 12: Feeding of Low Birth Weight and Sick Newborn

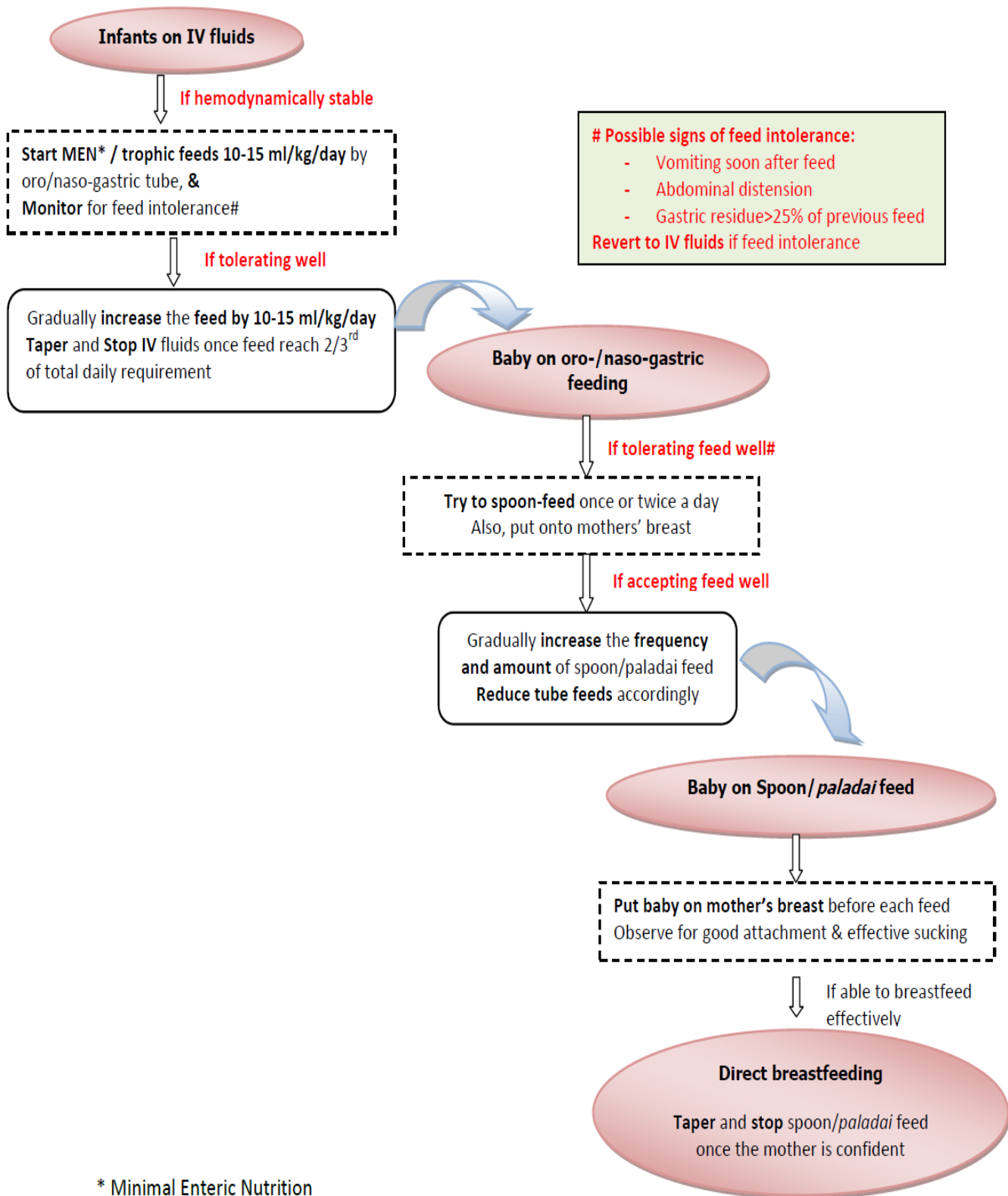
Feeding of low birth weight and sick newborns

Flowchart 1: Deciding the initial feeding method



* Paladai is a small cup with a beak

Flowchart 2: For babies on IV Fluids: Progression to oral feeds



Standard Treatment Protocol 13: IV Fluid Therapy for Newborns

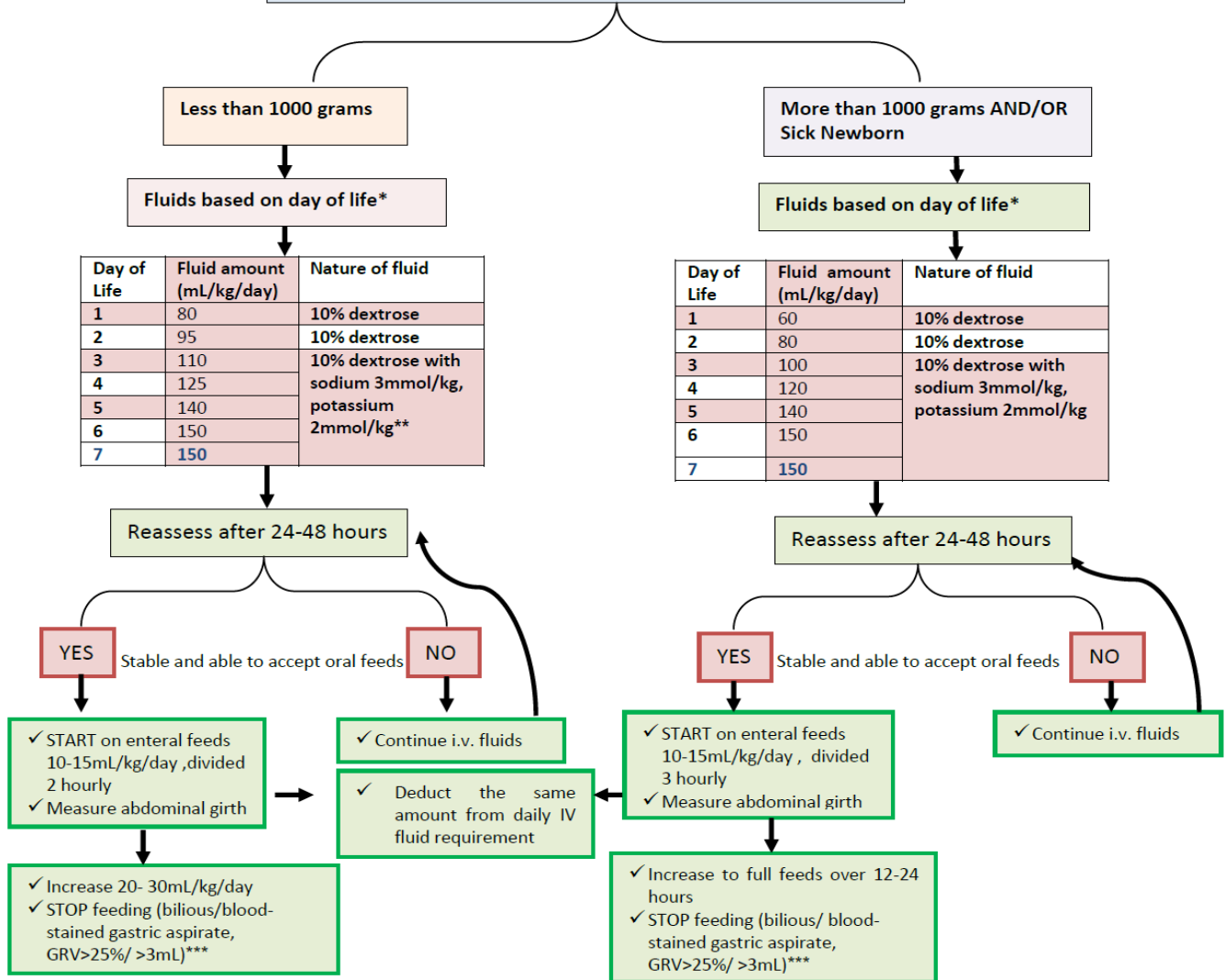
IV Fluid Therapy for Newborns

Indications to start IV fluids:

- ✓ Birth weight < 1000 grams OR
- ✓ Birth weight > 1000 grams and sick; or Sick Newborn of any birth weight

Indications of sickness: Presence of one of the following

- Fast breathing (RR >60/min)
- Unconscious or Lethargic (no spontaneous movements)
- No feeding or feeding poor after having fed well; or intolerance to gastric feeds
- Abdominal distension and/or vomiting (bilious/bloody)
- Uncontrolled seizures



* DO NOT INCREASE fluid on the next day, if weight gain, tachycardia, oedema feet, puffy eyes, urine output < 1mL/kg/hr

** If the premixed solutions are not available, add normal saline 20 ml/kg to the required volume of 10% dextrose, but infuse only the required daily volume

***Measure gastric residual volume (GRV) only if there is increase in abdominal girth by 2 cm, above baseline.

H. Common Discomfort Of Pregnancy And Their Management

SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
<p>Abdominal or groin pain (cramps, twinges, pulling sensations or sudden pain on side of lower belly) (2nd-3rd trimester)</p>	<ul style="list-style-type: none"> • Ligaments and muscles around the uterus are stretched by the growing uterus • Enlarging uterus puts pressure on round ligaments 	<ul style="list-style-type: none"> • Appendicitis • Gallbladder inflammation • Peptic ulcer • Ectopic pregnancy 	<ul style="list-style-type: none"> • Sit or lie down when pain becomes bothersome. • Stroke the belly gently. • Apply warm cloth. • Flex knees onto abdomen when experiencing pain. • Take warm baths. • Apply heating pad to area (only if other diagnoses are ruled out). • When resting or sleeping, lie on side and place pillow under abdomen and pillow between knees.

SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
Back pain (2nd–3rd trimester)	<ul style="list-style-type: none"> • Hormonal changes cause softening of cartilage in large joints • Compensations in posture and movement are caused by shift in centre of gravity • Separation of muscles along the front of the abdomen • Slight separation of the symphysis pubis • Increased size of breasts • Fatigue • Poor body mechanics (lifting by bending, rather than stooping) 	<ul style="list-style-type: none"> • Labour • Costo-vertebral angle tenderness, which may indicate urinary tract infection 	<ul style="list-style-type: none"> • Wear good support shoes with flat heels. • Use good body mechanics for lifting. • Stoop, rather than bend, to lift anything so that the legs (thighs), rather than the back, bear the weight and strain. • When arising from the stooped position, spread the feet apart and place one foot slightly in front of the other when stooping so there is a broad base for balance. • Practice good posture when standing or sitting. • Sit with feet slightly elevated; don't cross legs. • Wear well-fitting, supportive bra. • Practice “angry cat exercise”: <ul style="list-style-type: none"> - Start on hands and knees with back flat. - Push the lower back up. - Return to flat back. - Repeat • Use hard mattress for sleeping. • When sleeping or resting, lie on side with knees and hips bent. Place a pillow between knees and another pillow under abdomen. • Avoid uncomfortable working heights, lifting heavy loads, fatigue.

SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
<p>Bleeding gums (most severe in 2nd trimester)</p>	<p>Due to hormonal changes:</p> <ul style="list-style-type: none"> • Increased blood flows to mouth and accelerates turnover of gum epithelial lining cells • Gums become highly vascularized, with proliferation of small blood vessels • Connective tissue become hyperplastic and edematous • Thickness of epithelial surface decreases, resulting in friable gum tissues 	<ul style="list-style-type: none"> • Gingivitis • Nutritional deficiency 	<ul style="list-style-type: none"> • Practice good dental hygiene. • Rinse mouth with warm salt water.
<p>Breast Changes (tenderness, tingling or leaking clear/yellowish nipple discharge) (1st trimester)</p>	<ul style="list-style-type: none"> • Hormonal changes • Preparation of the breasts for breastfeeding 	<ul style="list-style-type: none"> • Infection • Carcinoma 	<ul style="list-style-type: none"> • Wear good support bra. • Wear bra while sleeping. • Keep nipples dry and clean to protect from infection.

SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
<p>Constipation (2nd-3rd trimester)</p>	<ul style="list-style-type: none"> • Hormonal changes relax smooth muscles, thereby slowing digestion and elimination • Slowed digestion and elimination lead to increased water absorption from the colon • Pressure of enlarging uterus on lower bowel impedes movement through the intestines • Iron supplements • Poor diet, lack of exercise, inadequate fluids 	<p>Bowel obstruction</p>	<ul style="list-style-type: none"> • Drink more water and fruit juices (total fluid intake should be 4 liters/day). • Eat more fruits, vegetables, whole grains. • Eat prunes or drink prune juice. • Drink hot or cold liquids (especially on an empty stomach). • Exercise regularly. • Get enough rest. • Develop regular bowel habits. • Defecate when urge is felt. • Avoid laxatives, mineral oil, lubricants, stimulants, saline, hyperosmotics, diphenylmethane and castor oil.
<p>Diarrhea (1st-3rd trimester)</p>	<ul style="list-style-type: none"> • Hormonal changes • Diet 	<ul style="list-style-type: none"> • Bacterial infection • Parasites 	<ul style="list-style-type: none"> • Eat many small meals. • Avoid high-fibre foods (fruits, vegetables, whole grains, foods containing lactose). • Avoid opiates, bismuth subsalicylate, kaopectate and adsorbents.
<p>Difficulty in getting up and down</p>			<ul style="list-style-type: none"> • When resting or sleeping, put something behind back and under knees, or elevate feet. • When getting up, roll to side and push up on knees and then stand up. • Avoid lying flat on back.

SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
Dizziness, fainting (1st–3rd trimester)	<ul style="list-style-type: none"> • Dramatic drop in blood pressure with position changes (postural hypotension) associated with hemodynamic changes • Blood pools in dependent vessels • Stress, fatigue, hunger 	<ul style="list-style-type: none"> • Anaemia • Ectopic pregnancy 	<ul style="list-style-type: none"> • Arise slowly from sitting or lying position. • Eat many small meals. • When lying down, lie on left side. • Avoid prolonged standing in warm or stuffy places.
Dreams (vivid) and nightmares (1st–3rd trimester)	<ul style="list-style-type: none"> • Hormonal changes 		<ul style="list-style-type: none"> • Avoid eating just before bedtime.
Fatigue, sleepiness (1st trimester)	<ul style="list-style-type: none"> • May be due to initial fall in basic metabolic rate early in pregnancy • Heart works harder to accommodate increased blood flow; pulse rate increases • Body changes the way it uses water, protein, carbohydrate and fat • Emotional stress 	<ul style="list-style-type: none"> • Anaemia • Depression • Chronic illness 	<ul style="list-style-type: none"> • Rest frequently. • Eat a balanced diet. • Exercise daily. • Vitamin supplements and iron may help general well being. • Avoid getting over-tired. • Avoid smoking and alcohol.
SIGN OR	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE	PREVENTION AND RELIEF MEASURES

SYMPTOMS (Trimester)		CAUSES (to Be Ruled Out)	(Guidance for Woman)
Food cravings, eating non-food substances (pica) 1 st - 3 rd trimester; most severe in 1st trimester)	<ul style="list-style-type: none"> • Unclear aetiology, but some theories put forward include: <ul style="list-style-type: none"> ○ May be related to woman's perception of what alleviates nausea and vomiting ○ Taste is blunted, so more spicy foods may be sought • Iron-deficiency anemia (pica) • Tradition (pica) 	malnutrition	<ul style="list-style-type: none"> • Of no concern as long as diet is nutritionally adequate and food cravings are not for unhealthy substances (e.g. candy, dirt, chalk or clay). • If unhealthy diet, work out plan to discontinue; find alternate activity or substitute food. • Educate about good diet.
Gas, bloating, loss of appetite (2 nd -3 rd trimester)	<ul style="list-style-type: none"> • Hormonal changes cause relaxation of smooth muscles tissue, thereby slowing digestion and elimination • Pressure of enlarging uterus on lower bowel • Respiratory changes during pregnancy cause increased swallowing of air. 		<ul style="list-style-type: none"> • Chew food thoroughly • Exercise daily • Maintain normal bowel habits • Avoid gas-forming foods.
Hair loss (3 rd trimester)	<ul style="list-style-type: none"> • Hormonal changes causes slower rate of hair growth and prolonged anagen phase, leading to increase in anagen hairs and decrease in telogen hairs 		<ul style="list-style-type: none"> • Practice good hygiene
Headaches (1 st - 3 rd trimester)	<ul style="list-style-type: none"> • Muscle spasms, emotional stress, fatigue • Hormonal changes leading to: <ul style="list-style-type: none"> ○ Nasal congestion ○ Mild respiratory alkalosis ○ Ocular changes and resultant eye strain 	Pre-eclampsia Hypertension Migraine, tension or sinus headache	<ul style="list-style-type: none"> • Get adequate rest, Take warm baths • Massage neck and shoulder muscles • Drink more water and juice • May use paracetamol judiciously • Avoid aspirin, Ibuprofen, narcotics, sedatives or hypnotics

SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
<p>Heartburn, indigestion (2nd–3rd Trimester)</p>	<ul style="list-style-type: none"> • Hormonal changes lead to decreased GI motility and tone, and increasing relaxation of cardiac sphincter • Enlarging uterus pushes stomach higher and compresses it • Gastric acids backup into lower oesophagus 	<ul style="list-style-type: none"> • Peptic ulcer • Disease 	<ul style="list-style-type: none"> • Eat small and more frequent meals. • Chew gum. • Rest and sleep with head higher than stomach. • Maintain good posture when standing or sitting. • Use low-sodium antacids. • Wear loose clothing. • Eat papaya or another fruit with each meal. • Avoid overeating fatty, fried and spicy foods. • Avoid smoking, coffee, alcohol and chocolate. • Avoid lying down immediately after eating; eating just before bed. • Avoid drinking with meals. • Avoid calcium, sodium bicarbonate and bismuth salicylate.
<p>Heart palpitations (fluttering or pounding sensation around heart as though it has skipped a beat) (1st trimester)</p>	<ul style="list-style-type: none"> • "Increase" in heart size • Increased cardiac output • Sympathetic nervous system disturbance 	<ul style="list-style-type: none"> • Heart disease 	

SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
<p>Haemorrhoids(swollen veins in and around the rectum,associated with pain, itching and bleeding) (2nd– 3rdtrimester)</p>	<ul style="list-style-type: none"> • Hormonal changes cause enlargement and congestion of rectal veins • Enlarging uterus puts pressure on rectal veins • Veins in anorectal area have poor support • Constipation 		<ul style="list-style-type: none"> • Eat high-fibre foods (e.g., fruits, vegetables). • Drink plenty of fluids. • Apply ice packs. • Soak in a warm tub or sitz bath (a shallow basin that fits over the toilet and in which the buttocks and hips are submerged). • Use topical ointments (e.g., anaesthetic agents, witch hazel, calamine or zinc oxide; hydrocortisone cream). • If protruding, gently reinsert into rectum • Avoid constipation (see Constipation). • Avoid straining during bowel movements. • Avoid sitting for long periods, especially in hard chairs.
<p>Hip pain (usually on one side only)</p>	<ul style="list-style-type: none"> • Increased hormone levels cause connective tissue to soften and loosen up; joints between bones of pelvis become more 		<ul style="list-style-type: none"> • Warm baths and compresses • Exercise to strengthen lower back and abdominal muscles

(3 rd trimester)	relaxed • Changes in posture due to back pain		
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SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
Hyperventilation, shortness of breath (3 rd trimester)	<ul style="list-style-type: none"> • Hyperventilation • Hormonal changes act directly on respiratory centre to lower levels of CO₂ and increase O₂ levels • Increased metabolic activity increases CO₂ levels which hyperventilation lowers • Shortness of breath • Enlarged uterus pushes diaphragm out of place which decreases lung capacity • Emotional stress 	<ul style="list-style-type: none"> • Respiratory infection • Pulmonary oedema • Asthma • Anaemia • Heart failure 	<ul style="list-style-type: none"> • Maintain good posture when sitting or standing. • Periodically stand up, stretch arms above head and take deep breath. • Rest or sleep lying propped-up on pillows or on side. • Regulate the speed and depth of breathing when hyperventilation occurs.
Insomnia (2 nd trimester)	<ul style="list-style-type: none"> • Increased REM from 25 weeks, peaking at 33-36 weeks, then decreasing to non pregnant levels by term • Discomfort of gravid uterus, fetal movements, headache, heartburn, nasal congestion, muscle aches, stress, anxiety 	<ul style="list-style-type: none"> • Depression 	<ul style="list-style-type: none"> • Use relaxation techniques before trying to sleep. • Lie on side with legs and knees bent; put pillow between knees and at lower back or under abdomen. • May use vistaril and seconal or antihistamine short-term only.

			• Avoid sleep medications.
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SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
Itching (1 st –3 rd trimester)	<ul style="list-style-type: none"> • May be due to hypersensitivity to placental antigens • Stretching and tightening of skin across abdomen make skin dry • Genetic predisposition 	<ul style="list-style-type: none"> • Dermatitis • Cholestasis • Hepatitis 	<ul style="list-style-type: none"> • Use cool compresses, baths/showers. • Use topical antipruritics and moisturizing cream.
Leg cramps (2 nd –3 rd trimester)	<p>Unclear aetiology, but some theories put forward include:</p> <ul style="list-style-type: none"> • Imbalance of calcium/phosphorous ratio • Mild alkalosis caused by changes in respiratory system • Enlarging uterus increases pressure on nerves • Fatigue • Poor circulation to legs 	<ul style="list-style-type: none"> • Superficial thrombophlebitis • Deep-vein thrombosis 	<ul style="list-style-type: none"> • Reduce milk consumption. • Relieve cramp by: straightening knee and flexing foot upward; standing on toes of affected leg and pressing heel toward the floor; or gentle stroking • Apply heat to muscles. • Wear support hose, especially if standing a lot during the day. • Take frequent breaks from sitting or standing for long periods.
Mood swings (Sudden crying or laughing, anger,	<ul style="list-style-type: none"> • Hormonal changes 	<ul style="list-style-type: none"> • Severe depression 	<ul style="list-style-type: none"> • Discuss ways to positively manage mood swings • Involve partner and family in discussions about normalcy of mood swings

irritability, depression) (1st trimester)			
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SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
Nasal stiffness/bleeding (1 st trimester)	Hormonal changes cause: <ul style="list-style-type: none"> • Capillary engorgement • Vascular smooth muscle relaxation and nasal vascular pooling • Increased blood flow to mucous membranes 		<ul style="list-style-type: none"> • May use normal saline or xylometazoline sprays. • May use pseudoephedrine, dextromethorphan, ephedrine, oxymetazoline, common antihistamines. • To stop a nosebleed, sit up or stand (do not lie down or tilt head back); gently pinch nostrils shut for a few minutes and then release, repeating several times until bleeding stops. • Avoid systemic decongestants and combination drugs.
Numbness and Tingling (of fingers, toes, buttocks, hips and thighs)	<ul style="list-style-type: none"> • Compensations in posture caused by shift in centre of gravity put pressure on ulnar, median, and sciatic nerves • Hyperventilation (rare) 	<ul style="list-style-type: none"> • Vitamin B deficiency 	<ul style="list-style-type: none"> • Maintain good posture when sitting or standing. • Lie down. • Take warm baths. • Sleep on side not having pain.

(2 nd –3 rd trimester; increases during pregnancy)			
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SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
<p>Nausea, vomiting (1st trimester)</p>	<p>Unclear aetiology, but some theories put forward include:</p> <ul style="list-style-type: none"> • Hormonal changes • Smooth muscle relaxation • Changes in carbohydrate metabolism • Fatigue • Antigens from the father 	<ul style="list-style-type: none"> • Hyperemesis • Appendicitis • Cholecystitis • Pancreatitis 	<ul style="list-style-type: none"> • Eat crackers, dry bread, dry tortillas, dry chapatis or other grain food before arising in morning. • Eat many small meals. • Sit upright after meals. • Take dry meals with fluids between meals. • Drink carbonated beverages. • Drink herbal, ginger or cinnamon teas. • Get out of bed slowly. • Rest as needed with feet up and head slightly elevated. • Get fresh air: take short walks, sleep with window open, ensure adequate airflow in house. • Use medications only if nonpharmacologic treatments fail and then only for short course: <ul style="list-style-type: none"> – antihistamines (dimenhydrinate, doxylamine succinate) – metoclorpramide hydrochloride – phenothiazines (promethazine, prochlorperazine, chlorpromazine) • If severe, take vitamin B-6 capsules (one 50 mg capsule 2 times/day).

			<ul style="list-style-type: none"> • Avoid sudden movements. • Avoid greasy or highly seasoned foods. • Avoid brushing teeth right after meals. • Avoid odors or other causative factors. • Avoid buclizine, cyclizine, meclizine (demonstrated animal teratogenicity).
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SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
Perspiration, increased (increases during pregnancy)	<ul style="list-style-type: none"> • Apocrine gland activity increases possibly as a result of hormonal changes • Endocrine gland activity increases because of increased thyroid activity, increased body weight, and metabolic activity • Sebaceous gland activity increases 		<ul style="list-style-type: none"> • Wear light, loose clothing. • Drink plenty of fluids. • Bathe frequently.
Salivation, increased (ptyalism) (1 st -3 rd trimester)	Unclear aetiology, but some theories put forward include: <ul style="list-style-type: none"> • May not be increased amount of saliva but decreased swallowing of it due to nausea • May be associated with eating starchy foods 		<ul style="list-style-type: none"> • Use astringent mouthwashes. • Chew gum or suck hard candy.
Skin changes (acne, dryness, blotchiness; darkening on face [chloasma], breasts and abdomen; red and itchy palms of hands/soles of feet) (1 st -3 rd)	<ul style="list-style-type: none"> • Genetic predisposition • Hormonal changes cause increased skin blood flow 	<ul style="list-style-type: none"> • Dermatitis 	<ul style="list-style-type: none"> • Cover the skin when in the sun to avoid skin darkening. • Use nonallergenic cover-ups. • Avoid using hydroquinones.

trimester)			
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SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
Spider nevi (vascular spiders—tiny, red, raised lines that branch out from flat or slightly raised centre; most prominent around eyes, neck, throat, arms)(1 st –2 nd trimester; increases with pregnancy; will fade after childbirth)	<ul style="list-style-type: none"> • Caused by hormonal changes, which increase skin blood flow and cause veins and arterioles to dilate 		<ul style="list-style-type: none"> • Wear light, loose clothing. • Drink plenty of fluids. • Bathe frequently.
Stretch marks (striae gravidarum— reddish or whitish streaks on breasts, abdomen, upper thighs) (2 nd –3 rd trimester; will fade after childbirth)	<p>Unclear aetiology, but some theories put forward include:</p> <ul style="list-style-type: none"> • May arise from hormonal alterations or a combination of hormonal alterations and stretching • May be related to corticosteroid excretion • Genetic predisposition 		<ul style="list-style-type: none"> • Most creams won't have any effect, but may use topical emollients or antipruritics if itching is severe. • Wear supportive garments for breasts and abdomen.
Vaginal discharge (1 st –3 rd trimester)		<ul style="list-style-type: none"> • Sexually transmitted infections • Vaginitis 	<ul style="list-style-type: none"> • Keep the vulvar and vaginal area as clean and dry as possible. • Use enough powder to keep the genital area dry, but do not apply so much that the

		<ul style="list-style-type: none"> • Ruptured membranes • Vaginal bleeding 	<p>powder begins to cake.</p> <ul style="list-style-type: none"> • Wear cotton underpants and comfortable, loose-fitting clothing. • Avoid nylon underpants and pantyhose. • Avoid douching.
SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
<p>Swelling (oedema) of ankles and feet (appears at end of day, after sitting or standing for long time; disappears after rest or elevating feet) (2nd-3rd trimester)</p>	<ul style="list-style-type: none"> • Hormonal changes lead to: <ul style="list-style-type: none"> – increased levels of sodium – circulatory congestion in legs – increased capillary permeability • Pressure of enlarging uterus on pelvic veins (when sitting) or on inferior vena cava (when lying down) leads to venous stasis 	<ul style="list-style-type: none"> • Pre-eclampsia • Severe anaemia • Varicosities • Thromboembolic complications 	<ul style="list-style-type: none"> • When lying down, lie on left side with legs slightly elevated. • When sitting or standing, flex feet upwards. • Exercise regularly. • Drink more fluids. • Use support hose if available and if other remedies have not been successful. • Avoid tight garters or restrictive bands around legs. • Avoid sitting or standing for extended periods.
<p>Urinary frequency, increased (excessive urination at night [nocturia]; leaking when sneezing, coughing, laughing) (1st-3rd trimester)</p>	<ul style="list-style-type: none"> • Pressure of the enlarged uterus on bladder • Increased fluid volume in body • Nocturia • Increased sodium excretion with an obligatory, concomitant loss of water • Water and sodium are trapped in 	<ul style="list-style-type: none"> • Urinary tract infection 	<ul style="list-style-type: none"> • Void when urge is felt. • Lean forward when voiding to help empty bladder completely. • Increase fluid intake during the day. • Limit drinks containing natural diuretics (coffee, tea, cola with caffeine) but do not restrict fluid intake. • Do not decrease fluid intake in the

	lower extremities during the day because of venous stasis; at night there is increased venous return and subsequent increase in urine output		evening to decrease nocturia, except if nocturia is preventing sleep and causing fatigue.
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SIGN OR SYMPTOMS (Trimester)	ANATOMICAL AND PHYSIOLOGIC BASIS	OTHER POSSIBLE CAUSES (to Be Ruled Out)	PREVENTION AND RELIEF MEASURES (Guidance for Woman)
Varicose veins (swollen blue veins appearing in legs or genitals, may be painful) (2 nd -3 rd trimester)	<ul style="list-style-type: none"> • Venous congestion in lower veins that increases with pregnancy due to pressure from the gravid uterus • Weakness in small veins caused by hormonal changes • Familial tendency 		<ul style="list-style-type: none"> • Elevate legs when lying or sitting down. • Maintain good posture when sitting or standing. • Rest or sleep lying on left side. • Exercise daily. • Wear support stockings. • Avoid standing or sitting for long periods of time. • Avoid tight clothing and girdles. • Avoid crossing legs when sitting.
Walking awkwardly, waddling, clumsiness (2 nd -3 rd trimester)	<ul style="list-style-type: none"> • Hormonal changes cause cartilage and connective tissue of the sacroiliac joints and symphysis pubis to relax, leading to increased mobility of joints • Enlarging uterus tilts pelvis forward, shifting centre of gravity • Stretching and decreased tone of abdominal muscles 	<ul style="list-style-type: none"> • Neurologic disease 	<ul style="list-style-type: none"> • Wear good support shoes with flat heels. • When arising from the stooped position, spread the feet apart and place one foot slightly in front of the other when stooping so there is a broad base for balance. • Maintain good posture when

			standing or sitting.
Worry and fear (2 nd -3 rd trimester)	<ul style="list-style-type: none"> • Hormonal changes 	<ul style="list-style-type: none"> • Severe anxiety 	<ul style="list-style-type: none"> • Discuss ways to positively manage worry and fear. • Involve partner and family in discussions about normalcy of worry and fear during pregnancy.

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GLOSSARY

A

Anaemia	A reduction in the number of red blood cells or in the amount of haemoglobin present in them. Anaemia can be caused by excessive blood loss, or by not eating enough foods rich in iron or folic acid. Malaria can also cause anaemia by destroying red blood cells.
Analgesic	A drug given to relieve pain.
Antepartum	Before delivery
Antepartum Haemorrhage	Vaginal bleeding occurring before delivery. Usually caused by placenta praevia or abruptio placentae.
Antero posterior diameter (of pelvis)	From front to back. The measurement from the sacral promontory to the symphysis pubis.
Antibiotic	A drug given to treat infection.
Antihypertensive	A drug given to reduce high blood pressure.
Asphyxia	A condition due to lack of oxygen in breathed-in air.
Axilla	The small hollow underneath the arm, where it joins the body at the shoulder.

B

Bandl's ring	The area between upper and lower uterine segments when it becomes visible and/or palpable during obstructed labour.
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C

Cross-matching blood)	A test of the compatibility of donor and recipient blood (of blood) performed before transfusion.
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Cyanosis	A bluish discolouration of skin and mucous membranes due to lack of tissue oxygenation.
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E

Eclampsia	A condition peculiar to pregnancy or a newly delivered woman, characterized by fits followed by more or less prolonged coma. The woman usually has hypertension and proteinuria.
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The fits may occur in the antepartum, intrapartum or postpartum periods.

Episiotomy

A cut made in the perineum when the baby's head is crowning, to expedite delivery in selected cases, e.g., prolonged second stage of labour with foetal distress or before instrumental delivery.

F

Fistula

An abnormal passage or communication between two organs such as, for example, the urinary bladder and the vagina.

Fontanelle

The soft spots on the baby's head. The anterior fontanelle is diamond-shaped membranous space on the front part of the head at the meeting of four suture lines. The posterior fontanelle is the small triangular membranous space on the back part of the head at the meeting of three suture lines.

Fulminating preeclampsia

Severe pre eclampsia that occurs suddenly. The woman can develop eclampsia. This is an obstetrical emergency and management should be started immediately.

Fundus

The rounded upper part of the uterus, above the insertion of the fallopian tubes.

G

Grouping (of blood)

Determining blood type (A,B,O, AB).

H

Haemorrhage

Excessive bleeding from torn blood vessels.

HIV

Human immunodeficiency virus.

Hypertension

High blood pressure.

I

Impending Eclampsia

Impending eclampsia means that an eclamptic fit is likely to occur very soon.

Infiltration local

Method of injecting a local anaesthetic whereby the anaesthetic (of agent is injected at different angles from a central point so that **anaesthetic**) whole desired area is anaesthetized.

Intrapartum

During delivery

IUGR

Intrauterine Growth Restriction

L

Lithotomy The position in which the woman lies down on her back with knees position bent and legs spread apart.

Lochia The discharge of blood, mucous and tissue from the uterus during the postpartum period.

M

Malnutrition Insufficient food intake.

Meconium A dark green material present in the intestines of the full-term fetus. This is the first stool passed by the body.

Multiple pregnancy A pregnancy of more than one fetus, such as in the case of twins.

O

Obstructed labour A labour in which progress is arrested by mechanical factors and delivery is impossible without operative intervention.

Oedema Swelling due to accumulation of excessive fluid under the skin.

Offensive Smelling very bad.

Oxytocic Term applied to any drug which stimulates contractions of the uterus in order to induce or accelerate labour, or to prevent or treat postpartum haemorrhage.

P

Partograph A record of all the observations made on a woman in labour, the central feature of which is the graphic recording of the dilatation of the cervix as assessed by vaginal examination.

Pelvic outlet The lower opening of the pelvis through which the baby comes out during the delivery.

Perinatal Occurring in the period shortly before and after birth.

Perineum The area between the anus and the vagina.

Placenta praevia An abnormally situated placenta which completely or partly covers the os (the opening between the uterus and the cervix), causing painless bleeding in the last trimester of pregnancy (Placenta is below the presenting part)

Placental abruption	Premature separation of a normally-situated placenta occurring after the 28th week of pregnancy. It may cause abdominal pain and bleeding.
Polyhydramnios	A condition characterized by an excess of amniotic fluid.
Postpartum Haemorrhage	Blood loss of 500 ml or more from the genital tract after delivery.
Pre-eclampsia	A condition specific to pregnancy, arising after the 20th week of gestation, characterized by hypertension and proteinuria. Oedema also be present.
Primary postpartum haemorrhage	Includes all occurrences of bleeding within 24 hours of delivery.
Prolonged labour	Active labour with regular uterine contractions for more than 12 hours.
Puerperium	The 42-day period following delivery of the baby. Another word meaning the same is “postpartum period”.
Puerperal sepsis	An infection of the genital tract at any time after delivery till up to 6 weeks.
R	
Resuscitation	Bringing back to life or consciousness a person who is apparently dead.
Retained placenta	Describes the situation when the placenta has not been delivered within one hour after the birth of the baby.
Ruptured uterus	Tearing or bursting of a structure, e.g. rupture of uterus following obstructed labour
S	
Sagittal suture	The membranous line between fetal skull bones running from the posterior fontanelle to the anterior fontanelle
Septic shock	A very serious infection of the blood stream causing high fever, low blood pressure, fast pulse and fast breathing. Untreated septic shock leads to coma and death.

Shock	<p>A life-threatening condition characterized by failure of the circulatory system to maintain normal blood flow to vital organs (e.g. kidneys, heart and brain)</p> <p><i>Haemorrhagic shock</i> is shock due to low volume resulting from excessive blood loss.</p>
Spasms	<p>Sudden, strong, involuntary muscular contractions</p>
Symphysis pubis	<p>The cartilaginous area where the two pubic bones join at the front of the pelvis.</p>
V	
Vacuum extraction	<p>A procedure in which a metal or plastic cup is applied to the baby's head and attached to a vacuum. By pulling on the cup, the baby's head and body are gradually delivered from the birth canal.</p>