THE REPUBLIC OF UGANDA
MINISTRY OF HEALTH

REPRODUCTIVE AND CHILD HEALTH DEPARTMENT

Essential Maternal and Newborn Clinical Care Guidelines for Uganda

May 2022

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Ministry of Health
Plot 6 Lourdel Road, Wandegeya
P. O. Box 7272, Kampala, Uganda

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LIST OF PROTOCOLS

LIST OF ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
APH	Antepartum Hemorrhage
ARM	Artificial Rupture of Membranes
BP	Blood Pressure
CCT	Controlled Cord Traction
CICs	Combined Injectable Contraceptives
CEmONC	Comprehensive Emergency Obstetric and Newborn Care
CNS	Central Nervous System
COCs	Combined Oral Contraceptives
CPD	Caphalopelvic Disproportion
CPR	Contraceptive Prevalence Rate
CVS	Cardiovascular System
D&C	Dilatation and Curettage
DMPA	Depo-Medroxyprogestrerone Acetate
DVT	Deep Vein Thrombosis
EBM	Expressed Breast Milk
ECV	External Cephalic Version
EUA	Exam Under Anaesthesia
FBC	Faecal Blood Count
FH	Foetal Heart
FP	Family Planning
GNID	Gram Negative Intracellular Diploccocci
GTI	Genital Tract Infection
HB	Haemoglobin
HBV	Hepatitis B Virus
HIV	Human Immuno deficiency Virus
HLD	High Level Disinfectant
IM	Intramuscular
IMR	Infant Mortality Rate
IEC	Information Education and Communication
IP	Infection Prevention
IV	Intravenous
IUGR	Interuterine Foetal Growth Retardation
LAM	Lactational Amenorrhoea Method
LNMP	Last Normal Menstrual Period
LSS	Life Saving Skills
NG	Nasal Gastric
N/S	Normal Saline
NGU	Nongonoccocal Urethritis
MgSO4	Magnesium Sulphate
MMR	Maternal Mortality Rate
MOH	Ministry of Health
MVA	Manual Vacuum Aspiration
ORS	Oral Rehydration Salts
PICs	Progestin-only Injectable Contraceptives
PID	Pelvic Inflammatory Disease
PLOM	Pre-Labour Rupture of Membranes
PMN	Poly Morphonuclear White Blood Cells
PNMR	Perinatal Mortality Rate
POC	Products of Conception
POPs	Progesterone Only Pills
PPH	Postpartum Haemorrhage
R/L	Ringer's Lactate
RMNCH	Reproductive Maternal Newborn and Child Health
RTI	Respiratory Tract Infect
STI	Sexually Transmitted Infections
TBA	Traditional Birth Attendant
TFR	Total Fertility Rare
URTI	Upper and Lower Respiratory Tract Infection
UTI	Urinary Tract Infection
VCCT	Voluntary Confidential Counselling and Testing
VDRL	Venereal Diseases Research Lab Test
WBC	white blood cells
WHO	World Health Organization
YCC	Young Child Clinic

FOREWORD

Uganda's maternal mortality ratio (MMR) though on a reducing trend, it remains unacceptably high at 336 per 100,000 live births (UDHS 2016). The under 5 mortality rate has reduced from 90 (2011) to 64 per 1,000 live births (UDHS 2016). However, despite the reduction in child Mortality, the Neonatal mortality rate (NMR) has remained high and stagnant over two the past 2 decades at 27 per 1,000 total births (UDHS, 2016)

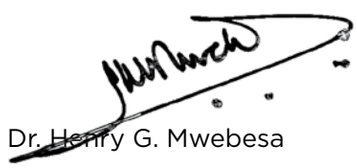
Previous efforts to address the situation, including the National Safe Motherhood and Family Planning Programmes, have not yet yielded the desired effect. Total fertility rate (TFR) remains high at 5.4 per woman while modern contraceptive prevalence (CP) among married women is still low 35 percent (UDHS 2016) below the desired 50%.

In light of this, the Ministry of Health (MOH) in conjunction with partners came up with simplified, but intensive, and evidence based clinical guidelines and protocols on the management of the most common obstetric/neonatal conditions that contribute to maternal and neonatal mortality. In these guidelines, emphasis is placed on a refocused Quality antenatal care; birth and emergency preparedness; identification, prevention and management of life threatening complications of pregnancy and childbirth; as well as the management of the normal and sick new-born.

These guidelines also provide a basis for assisting the health provider in the decision-making process. Providers are also reminded of the need to involve the client, her husband and members of the community in her management.

This book, which has been appropriately titled Essential Maternal & Neonatal Care Clinical Guidelines for Uganda, is expected to be a reinforcement of the Safe Motherhood Life Saving Skills (LSS) program, the Pregnancy, Childbirth and Postnatal Care (PCPNC), Sexually Transmitted Infections (STIs) Training Curriculum, the National Adolescent Health Policy, The Reproductive Health Service Guidelines for Family Planning and Maternal Health Services Delivery, the Midwives Handbook, the Guide to Practice and several others.

The prevention of maternal and neonatal mortality and Morbidity is joint responsibility of all health care providers, Policy makers and the communities they serve. As you read this book, identify gaps between your present level of performance, responsibility and the desired level of performance so that you can take the necessary steps to bridge the gap and improve the quality of maternal and new-born health care in the country.



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Director General, Ministry of Health

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INTRODUCTION

Background

Meeting the key objectives and targets set in the National Development Plan III (NDP III) under human capital development requires programming that ensures the survival and thriving of newborns and mothers. There is a need to improve maternal and newborn health through the introduction of evidence-based interventions that promote the survival and thriving of newborns and mothers.

For Uganda to achieve its SDG targets requires steepening the rate of MMR declined by ⩾5.5% to achieve <140/100,000 by 2030, IMR has to reduce to at least 12 per 1000 live births and U5MR to 25 per 1000 live births by 2030. The MPDSR report for the FY 2020/2021 shows that the three major causes of institutional maternal deaths are hemorrhage, abortion complications, and hypertensive disorders of pregnancy. Almost one-third of child deaths are among newborns and reducing newborn deaths will, therefore, lead to significant mortality reduction among children. The leading causes of the institutional early newborn mortality are birth asphyxia, complications of prematurity, and septicemia. The key drivers to immediate causes of maternal and perinatal death are poor access and suboptimal quality of maternal and newborn services including antenatal care, prenatal and postnatal services.

Therefore, the essential maternal and newborn clinical guidelines are needed to improve the skills and clinical competence of health care providers for the prevention, diagnosis, and management of maternal and newborn conditions. With the change in the epidemiology of maternal and newborn diseases and the emergency of new diseases such as Covid-19, there was the need to revise the EMNC guideline 2016. The revised guideline is structured along the continuum of care of the mother and the newborn from the antenatal, perinatal, and postnatal periods. The goal of these guidelines is to improve access and quality of maternal and newborn services.

Rational

The need to revise and update the essential maternal and newborn clinical guideline 2016 arise from four major areas;

Aligning the EMNC guideline to other policy documents and guidelines.

Over the years there have been revisions of guidelines and documents such as the consolidated guidelines for the prevention and treatment of HIV and AIDS,2020, Management of malaria in pregnancy, Goal Oriented Antenatal Care Protocol. Therefore, there is a need to align the content of the essential maternal newborn clinical guidelines with what is in the revised version of other guidelines and policy documents.

Update and incorporate new evidence

Recent new evidence from Uganda and other countries on the prevention and management of maternal and newborn conditions has created a need to update our EMNC guideline. For example, the use of heat-stable carbetocin and tranexamic acid for the prevention and management of PPH. The use of WHOlaborr care guide for management of labor, WHO guidance KMC guideline,

Introduce new chapters

With the emergency of new diseases such as COVID-19, there was the need to provide guidance to health care providers on the management of such conditions during pregnancy. Additionally, some of the important sections e.g guidelines on rational blood use in the management of maternal and newborn conditions, hyperglycemia in pregnancy, sickle cell management, were missing in the EMNC guideline 2016.

Provide more clarity in the guideline

Some of the algorithms in the EMNC 2016 were not user-friendly during the service delivery and there was a need for realignment and adjustment.

Intended users of the guideline

The primary audiences for these guidelines are:

- Healthcare workers

- District health teams
- Program managers
- Development partners, and Implementing Partners,
- Training institutions,
- Researchers,

GOAL

The overall goal of this guideline is to improve access and optimize the quality of maternal and newborn clinical care at both government and private health facilities.

OBJECTIVES

1. Standardize maternal and newborn clinical care using the best available evidence
2. Provide an evidence-based resource for clinical mentorship and medical training and research

GUIDELINES DEVELOPMENT PROCESS

These guidelines were developed by a team of healthcare workers, and public health experts. The cadre involved in the development include;

- Obstetricians
- Pediatricians
- Neonatologists
- Anesthesiologists/Anaesthetist
- Midwives/Nurses
- Laboratory personnel
- Public Health Experts
- Policy Experts
- Program managers

The guidelines development process was comprehensive, participatory and involved in-person and virtual meetings and guided by different content experts and specialists (from health professional associations, academia, medical training institutions and universities and medical councils) through an extensive peer review process. Technical support was also received from external experts including the WHO, UNFPA, USAID, UNICEF, AMREF. The following steps were followed during the review of the EMNC guideline.

- Formation of thematic teams to update the guideline.
- Technical writing of new chapters and updating existing ones
- Online validation of the guideline by content experts
- Physical validation of the guideline and writing of the narrative
- Piloting of the guideline to assess usability
- Copy editing, final layout review and typesetting

COMPONENTS OF THE GUIDELINES

The components of these guidelines are structured along the continuum of maternal and newborn care. All protocols in the EMNC guideline 2016 were updated and new chapters were introduced as summarized in table below.

Section	Chapter	Major changes
Antenatal care	Goal-oriented ANC	– Updated the protocol – 4 visits to 8 contacts
	Anaemia in pregnancy	– Updated the protocol – use of Parenteral Iron Therapy (Inferon – Management of sickle cell anaemia in pregnancy
	Management of malaria in pregnancy	– Updated the protocol – Use of ACT in all trimester
	Management of hypertensive disorders in pregnancy	– Updated the protocol – Prevention or risk reduction of preeclampsia in the antenatal period – Postpartum care and follow up,
	Hyperemesis gravidarum	– Updated the protocol – Use of vitamin B complex prevents Wernicke's encephalopathies

	Intrauterine fetal death	– Updated protocol – Definition (Death of a fetus prior to delivery after **26 weeks** of gestation) – The use of obstetric ultrasound scan for diagnosis
	Breech presentation	– Updated the protocol – Contraindication for External Cephalic Version including unsuppressed viral load in HIV positive mothers
	Gestational diabetes	**New chapter**
	Preterm(premature) labour	– Updated the protocol – Fetal viability reduced to 26 weeks – Use of tocolytic agents – between 26 and 34 weeks of gestation to allow for ANC steroids to work.
	Pre-labor rupture of membranes (prom)	– Updated the protocol
	Multiple pregnancies	– Updated the protocol
Intrapartum	Management of first stage of labour	– Updated the protocol
	Second stage of labour	– Updated the protocol
	Third stage of labour	– Updated the protocol – Use of heat-stable carbetocin (100 mcg, when Oxytocin (10 IU IV/IM) is not available – or quality is uncertain
	Management of the fourth stage and first 24 hours	– Updated the protocol – Immediate management and follow-up
	Induction and augmentation of labor	– Update the protocol – Contraindications to prostaglandins use
	Augmentation of labour using oxytocin	– Updated the protocol – Augmentation of labour using Oxytocin
	Breech delivery	– Updated the protocol
	Face presentation	– Updated the protocol
	Brow presentation	– Updated the protocol
	Transverse lie	– Updated the protocol
	Shoulder presentation	– Updated the protocol
	Shoulder dystocia (stuck shoulders)	– Updated the protocol
	Compound presentation	– Updated the protocol
	Prolonged labour	– Updated the protocol – The first stage starts at 5cm
	Prolonged active phase	– Updated the protocol
	Cord prolapse	– Updated the protocol
	Foetal distress	– Updated the protocol
Postpartum	Postpartum care	– Updated the protocol – Management of missed abortion
	Breast engorgement	– Updated the protocol
	Cracked/sore nipples	– Updated the protocol
	Puerperal sepsis	– Updated the protocol
Hemorrhage	Management of hemorrhage due to abortion	– Updated the protocol
	Management of abortion complications	– Updated the protocol
	Management of sepsis following abortion	– Updated the protocol
	Post-abortion counseling	– Updated the protocol
	Gestational trophoblastic disease management	– **New Chapter**
	Ectopic pregnancy	– Updated the protocol

	Antepartum hemorrhage	– Updated the protocol
	Postpartum hemorrhage	– Updated the protocol – Use of heat-stable carbetocin and tranexamic acid
	Secondary postpartum hemorrhage	– Updated the protocol
	Ruptured uterus	– Updated the protocol
	Blood transfusion	– **New chapter**
Maternal infection	Urinary tract infections in pregnancy	– Updated the protocol
	Abnormal vaginal discharges	– Updated the protocol
	Genital ulcers	– Updated the protocol
	Genital warts	– Updated the protocol
	Mastitis	– Updated the protocol
	Breast abscess	– Updated the protocol
	HIV/AIDS in pregnancy	– Updated the protocol
	Viral heamorrhagic fever (ebola marburg, lassa, yellow etc)	– Updated the protocol
	Intrapartum care for covid19 in pregnancy	– **New chapter**
	Post partum care in covid-19 mothers	– **New chapter**
Care for newborn	Care of the newborn	– **New chapter**
	Immediate Care in the first 60mins	– **New chapter**
	Care provided for a Newborn identified with danger signs	– **New chapter**
	Referral of a sick Newborn	– **New chapter**
Others	Community participation in reproductive health programs	– Updated the protocol
	Referral	– Updated the protocol
	Health supplies	– Updated the protocol

ANTENATAL CARE

ANTENATAL CARE

Introduction

The health of pregnant women would be improved if effective antenatal care (ANC) was available to all. Antenatal care, therefore constitutes one of the cornerstones to safe motherhood. It is suggested that more flexibility concerning the place of consultation and timing of visits could lead to better attendance and consumer satisfaction. The Ministry of Health recommends integration of MCH/FP/PMTCT/ ANC services.

Meaning of Terms:

Antenatal care

Antenatal care is defined as a planned programme of medical management of pregnant women directed towards making pregnancy and labour a safe and satisfying experience.

Goal oriented ANC:

Goal oriented ANC is an approach to ANC that is evidence-based, goal-directed, individualized, woman-centred care and emphasises quality versus quantity of visits and care by skilled providers. It ensures provision of adequate care to a pregnant woman from the time pregnancy is diagnosed up to the time of delivery. During this time the pregnant woman is prepared for a safe delivery of a mature normal baby.

A risk:

A risk is the probability that an undesired event will occur, e.g. that an individual will become ill or die within a stated period of time or age.

Risk factor during pregnancy: Is a condition in a mother which increases/exposes her and the unborn foetus to greater chances of developing illness or death.

Aims/purposes of antenatal care:

The aims/purposes of antenatal care are:

- To monitor the progress of pregnancy in order to ensure maternal health and normal foetal development.
- To recognise deviation from normal and provide management or treatment as required, ensuring privacy at all times.
- To ensure that the woman reaches the end of the pregnancy physically and emotionally prepared for her delivery.
- To prepare the mother for breastfeeding and give advice about appropriate preparation for lactation.
- To offer nutritional advice to the mother.
- To offer advice on parenthood either in a planned programme or on an individual basis taking into consideration the clients concerns.
- To build up a trusting relationship between the family, the mother and her partner and health worker which will encourage them/her to share their anxieties, fears about pregnancy and care being given through adequate communication and counselling.
- During this time, the pregnant woman is provided with various preventive and advisory services. The health worker makes consultations with her regarding the most appropriate place of delivery of her baby and the things she needs to prepare emphasizing the concept of a clean safe delivery e.g. having Maama KIT.

Aim of goal oriented Antenatal Care:

To promote maternal and new-born health survival through:

- Health promotion
- Prevention of complications and disease
- Birth preparedness and complications readiness
- Early detection and treatment of problems and complications

The MOH Goal Oriented ANC Protocol

The number of times a pregnant woman needs to be seen in the ANC can vary. For the woman with a normally progressing pregnancy the standard recommendation is a minimum of eight antenatal visits. Each visit should have a defined purpose and objective as highlighted in the chart below. More frequent visits may be recommended by the health worker for specific indications or for women who develop complications.

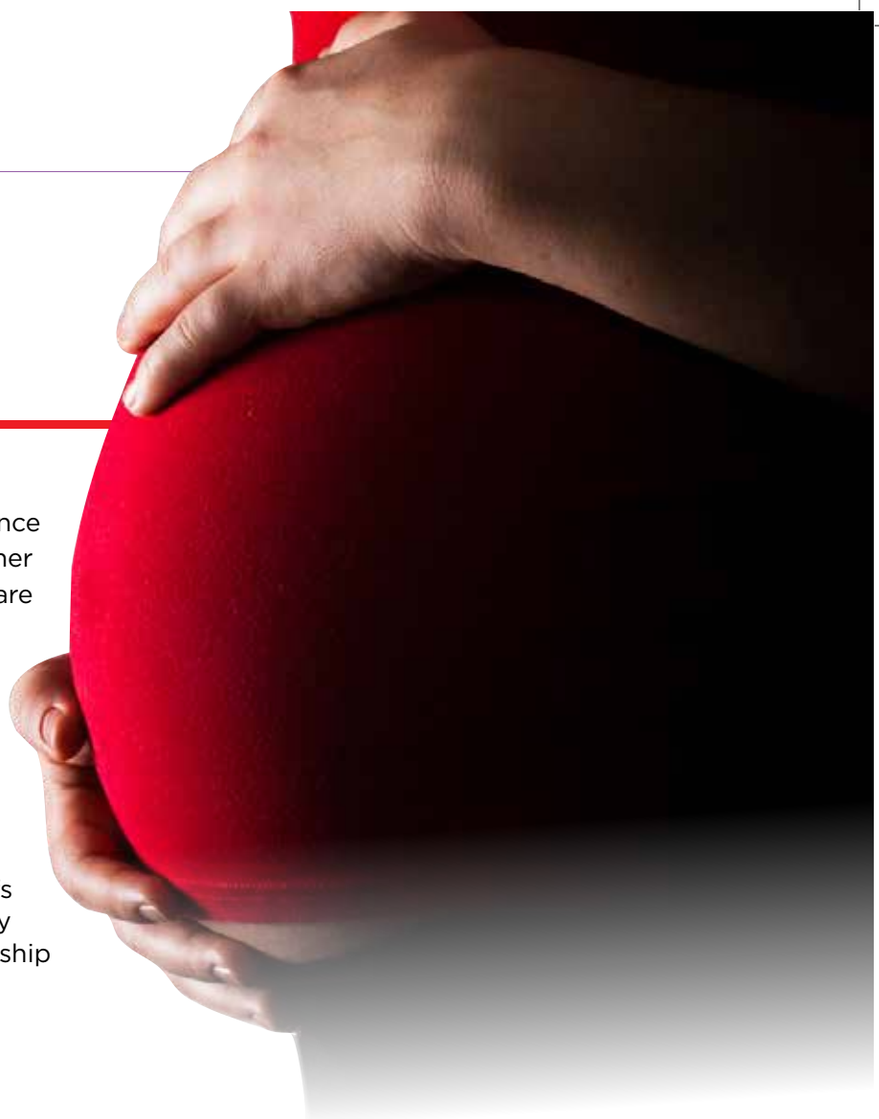
Protocol 1: The MOH Goal Oriented Anc Protocol

Important: Goals are different depending on the timing of the visit. Minimum 8 Contacts are aimed for an uncomplicated pregnancy. If a woman books later than in first trimester, preceding goals should be combined and attended to. At all visits address any identified problems, check the BP and measure the Symphysio-Fundal Height (SFH) women must receive Hb, HIV testing and Syphilis testing (RPR) routinely.

	TRIMESTER	GOAL	TIMING OF CONTACT	HISTORY TAKING	EXAMINATION	LABORATORY Investigations	PROMOTION	ACTION
FIRST CONTACT	First Trimester 0 – 12 weeks	-Confirm pregnancy -General/Risk Assessment -Health Education -Plan for delivery -Appropriate preventive interventions -Involve the male partner spouse	Contact 1: Anytime ≤ 12 weeks	-Presenting complaint -LNMP -Estimate period of gestation -Contraceptive? -Obstetric -Medical -Surgical -STI -Social: smoking alcohol/drugs -TB screening -Intimate Partner Violence (IPV) -Dietary	-General exam -Vital exam (e.g. BP, pulse) -SFH measurement -Abdominal/specific exam -Vulva exam (Speculum if indicated) -Nutritional assessment (height, weight, MUAC)	-Hb (CBC where available) -HIV test -Syphilis test (RPR) -Blood group/RhD -Urine albumen, Glucose -Gram staining for ASB, urine culture if indicated - Glucose tolerance test (GTT) (for suspicious cases/hospital) -RDT for Malaria (where indicated) -Hepatitis B test	-H/E on common pregnancy complaints -Address any problem -Involve husband in ANC -Draw up a birth and emergency preparedness plan -Counsel on PPFP methods -Danger Signs (abdominal pain, severe headache, blurred vision etc) -eMTCT -Nutrition education, Hygiene, Rest and exercise -Infant feeding -LLINS, IPTp use -Dangers of smoking, alcohol and substance abuse	-Tetanus/Diphtheria vaccine (Td) -Ferrous SO_4 -Folic acid -Treat incidental ailments -Condom use for HIV prevention in discordant couples and those at high risk -Debriefing mother on findings and course of action -Give next appointment and explain what will be done emphasising need to come back any time if there is need
2nd and 3rd Contact	Second Trimester **>13 – 28 weeks**	-Respond to abnormal Lab results -Provide preventive measures (Td, IPTp) -Exclude multiple pregnancy and fetal abnormalities -Promote nutrition and wellbeing -Assess for danger signs of Pregnancy Induced Hypertension and any other danger signs -Rule out anaemia	Contact 2: 13 – 20 Weeks Contact 3: 21 – 28 Weeks	-Ask for presenting complaints -Date of 1st foetal movements -vaginal bleeding -Social: smoking alcohol/drugs -TB screening -Intimate partner violence	-General exam -BP -SFH (symphysis Fundal Height) -Abdominal exam -rule out multiple -pregnancy -Nutritional assessment -Early Ultra Sound Scan best at 20 weeks but can be done up to 24 weeks	-Hb at 26 weeks -If BP ≥140/90 -Urine albumen, if there is glycosuria refer to hospital for GTT	-Address presenting complaints -Discuss Laboratory results and need to treat partner where necessary -Symptoms of PIH, vaginal bleeding -eMTCT/HCT -LLINs/IPTp use -Danger Signs -Nutrition & Hygiene, Rest and exercise -Male involvement -Birth and emergency preparedness plan	-Td -Ferrous SO_4 -Folic acid -IPT dose -Mebendazole -Treat incidental ailments -Use of condoms in high risk individuals/ discordant -Debriefing mother -Give next appointment and explain what will be done emphasising need to come back any time if there is need

	TRIMESTER	GOAL	TIMING OF CONTACT	HISTORY TAKING	EXAMINATION	LABORATORY Investigations	PROMOTION	ACTION
4th, 5th, 6th, 7th, 8th contact	Third Trimester 29 – 40 weeks	-Check foetal growth -Exclude anaemia -Assess for signs of PIH -Review birth and emergency preparedness plan -Exclude abnormal presentation/lie -Review delivery plan	Contact 4 30 weeks Contact 5 34 weeks Contact 6 36 weeks Contact 7 38 weeks Contact 8 40 weeks	-Ask for problems/ complications -Vaginal bleeding -Fetal movements -Intimate partner violence	-General exam -Rule out anaemia -Nutritional assessment -BP -Abdominal exam -Obstetric (SFH) -Check lie presentation	-If BP ≥140/90 -Urine albumen -Hb at 36 WOA -Midstream gram staining to rule out Asymptomatic Bacteruria at 34 weeks -Repeat HIV testing and Viral as per current guidelines (36 weeks)	-Address problems -Discuss signs of labour/ PROM -Discuss vaginal bleeding -Review delivery plan -eMTCT/HTS -LLIN/IPTp use -Postpartum FP -Sex and other postpartum Care -Infant Feeding -Danger signs -Nutrition & Hygiene, Rest and exercise -Male involvement -Cervical cancer screening	-Ferrous SO4 -Folic acid -IPT dose -Treat incidental ailments -Treat presenting ailments based on lab findings -Use of condoms in high-risk individuals/ discordant -Debriefing mother -Review and modify birth and emergency preparedness plan
Note: If not delivered by 41 weeks, immediately report to the nearest health facility								

RISK FACTORS DURING PREGNANCY



There are many risk factors that can influence the health of a pregnant woman and her unborn child. Examples of these factors are listed below.

Individual risk factors

- Adolescent pregnancy
- Anaemia
- Complications of previous pregnancy
- Syphilis
- Low economic status
- Sociocultural and religious beliefs that are harmful during pregnancy
- Involvement in an abusive relationship
- HIV-positive status
- Burning on urination
- Multiple pregnancy
- Low educational status

Community risk factors

- Endemic malaria infection
- Endemic iodine deficiency
- Great distance from a woman's home to a health facility where the required care is available
- Lack of transportation between home and a health facility
- Low socioeconomic status
- Low educational status
- Prevailing sociocultural and religious beliefs that are harmful during pregnancy
- Violence against women

Health service risk factors

- Antenatal clinics that do not have the basic supplies, equipment and drugs for antenatal care
- Staff that are not trained to provide routine and emergency care during the antenatal period
- Absence of a functional referral system for the management of complications
- Negative attitudes of health care providers toward women who have special needs
- Negative attitudes of health care providers toward pregnant adolescents
- Negative attitudes of health care providers toward women who experience violence
- Poor links between the health facility and the community and traditional providers
- Limitations of access in terms of distance and road network.

Table 1: Management chart for ANC mothers

• **Indications**	• **Place of Delivery**	• **Advise**
• Prior delivery by C/S • Age less than 16 years • Transverse lie or other obvious mal-presentation within previous 1 month • Obvious multiple pregnancy • Tubal ligation or IUD desired immediately after delivery • Documented repaired third-degree tear • History of /current vaginal bleeding • Any other complications during this pregnancy	• CEmONC facility	• Explain why delivery needs to be at a CEmONC facility • Develop the birth and emergency preparedness plan
• First birth • Previous baby born dead or died on first day • Age above 16 years • Five or more previous deliveries • Prior delivery with PET • Prior delivery by instrumental delivery • HIV positive woman.	• CEmONC	• Explain why delivery needs to be a referral level • Develop the birth and emergency preparedness plan
• None of the above	• According to woman's preference but with skilled birth attendant.	• Develop the birth and emergency preparedness plan

Give preventive measures

- Check Tetanus toxoid immunisation status and give if it is due.
- Check the woman's supply of haematinics, IPTp, anthelminthics and use of ITN. Supply these if she does not have.
- Give vitamin A (200,000 units) to all pregnant women during the antenatal period

Advice and Counsel on nutrition and self-care

Nutrition

- Spend more time counselling thin, adolescent and HIV-positive women
- Determine if there are important taboos about foods which are nutritionally important and carefully advise the woman against these taboos
- Advise the woman to eat greater amounts and variety of health foods such as beans, groundnuts, cereals, green vegetables, milk, meat, and fish together with her usual diet.

Self-care

Advise the woman to

- Take her iron/folate tablets regularly
- Have adequate rest and avoid lifting heavy objects
- Always sleep under an ITN
- Practice safer sex including use of condoms or abstain, if at risk of STI/HIV

Advice and counsel on family planning

- Counsel on the importance of family planning and ask the woman if she would like her partner or another member of the family to be included in the counselling session
- Explain that she can get pregnant as soon as four weeks after delivery if she's not exclusively breastfeeding so she should start thinking early about FP
- Ask about plans for having more children and advise on the birth interval of 2-3 years as the best for both mother and child
- Make arrangements for the woman to see an FP provider or counsel her about the different methods

Special considerations for FP counselling during pregnancy

- This counselling should be given during the pregnancy or any time when family planning information is requested for by the mother or couple.
- If the woman chooses female sterilisation (BTL), inform her that:
  a) It can be performed immediately after delivery of a placenta if there are no signs of infection (within 48 hours)
  b) If not done within the first 48 hours postpartum, she should wait till after 6 weeks
- She should plan to deliver in a hospital or health centre where such services are provided
- Ensure counselling and informed consent prior to labour and delivery
- If the woman chooses an IUD, inform her that:
- It can be inserted immediately after delivery if there are no signs of infection (up to 48 hours)
- If not done within the first 48 hours postpartum, she should wait till after 4 weeks
- She should plan to deliver in a hospital or health centre where such services are provided

PMTCT/eMTCT counselling

- Routine counselling and testing for HIV
- Prophylaxes against optimistic infections
- ART for life for those that are HIV infected
- Modified obstetric care
- Counsel on infant feeding
- ART for the mother and baby after delivery

Advise on routine follow up visits

- Encourage the woman to bring her partner or family member to at least 1 visit
- During the last visit, inform the woman to return if she does not deliver within one week after the expected date of delivery
- Recommended follow-up visits for common pregnancy complications

Counsel on prevention of hookworm infection

- Proper disposal of faeces in areas away from habitations can prevent the occurrence of infection of infective

larvae in the environment, (soil contamination)
- Health education on disease and how it is spread
- Keeping feet and legs covered, and wearing shoes can help prevent the hookworm larvae from penetrating the feet
- Keeping children's feet, legs and buttocks covered
- Washing all vegetables before eating and boiling all water
- Food hygiene and always wash hands before eating and after playing with animals
- Treatment of infected cases with mebendazole, albendazole to reduce the number of eggs passed
- Keeping latrines clean and covered

Table 2: Management of other problems/ complications

The problem	Ask the woman to return in:
Mild hypertension	1 week
Severe anaemia (on treatment)	2 weeks
HIV positive	2 weeks after taking the test.
Malaria	1 week

The birth and emergency preparedness plan

- Use the information below to support your interaction with the woman, her partner and family:
- Encourage all women to deliver with a skilled birth attendant and explain why this is important. Any complication can develop during delivery
- A skilled birth attendant usually has the knowledge, equipment, supplies and drugs that may be needed to handle complications and can also detect these complications early and refer
- For the HIV positive mother, the skilled birth attendant will provide the appropriate care and medicines for her and her baby during childbirth

Review the arrangements for delivery

- Cost of transport to the health facility, advise the pregnant woman/her partner to always set aside some money for transport to the health facility.
- Decide the means of transport
- Who will escort the woman and stay with her during delivery
- Who will look after her home while she's in hospital

What to bring to the delivery unit

- Personal effects to go with to the health centre
- The woman's Antenatal Card/chart/ book
- Sanitary pads or clean clothes for use as sanitary pads
- Baby clothing, clean warm cotton cloths
- Basin
- Soap
- Sugar and tea leaves and a cup and spoon
- Clean clothing for the mother.

Supplies needed during delivery

- At least 4 pairs of surgical gloves
- Gauze (this can be bought from a drug shop/pharmacy)
- Plastic sheet (Kaveera)
- Cotton wool
- At least four 5ml syringes with needles
- At least two razor blades
- Piece of threads (Cord ties)

Advise on signs of labour

- Painful regular contractions that increase in strength and frequency
- Blood stained mucus discharge from the vagina
- Water breaking (draining liquor)

Advise on danger signs

Advise the woman to go to hospital immediately **whether day or night WITHOUT waiting** if any of the following signs occur

- Vaginal bleeding
- Convulsions/fits
- Severe headache
- Fever or too weak to get out of bed
- Severe abdominal pain
- Fast or difficult breathing
- Swelling of the legs, hands and/or face
- Water breaking
- Reduced or no foetal movement

Fill in the birth preparedness plan below to discuss it with the partner or birth companion.

REPUBLIC OF UGANDA
MINISTRY OF HEALTH

BIRTH PREPAREDNESS PLAN

Health worker to discuss with mother preferably in presence of spouse or person she lives with:

Whom do you live with?

Who will accompany you to the health centre when labour starts?

What means of transport will you use to come to the health centre?

Whom will you leave a home to look after it while you are away?

Who will stay with you at the health centre during labour?

Would you like us to throw the after birth in our placenta pit or would you like to take it home?

Would you and your husband like to take an HIV test?

You may need to take these supplies with you to the health centre (Tick all that apply)

- 4 pairs of gloves
- Gauze: (this is a special material for dressing that can be bought from a drug shop/pharmacy)
- Plastic sheet (Ekiveera)
- Cotton wool
- Needles and syringes
- Razor blade

Personal effects to take with you to the health centre (Tick all that apply)

- Sanitary pads
- Baby clothing
- Money for emergency transport
- Basin
- Soap
- Sugar and tea leaves
- Clean clothing for you

What family planning method will you use after delivery before your next pregnancy?
Name of health worker with whom the birth plan has been made:

ANAEMIA IN PREGNANCY

Definition

Anaemia in pregnancy is a condition in which the haemoglobin level in a pregnant woman is less that 11g/dl (WHO). Anaemia is graded as:

Mild: Hb is between 8-10.9 g/dl

Moderate: Hb is between 7-7.9 g/dl

Severe: Hb is below 7g/dl

Signs and Symptoms:

In most cases, the suspicion is based on the following clinical findings:

- Feeling of tiredness, weakness, dizziness
- Pallor of mucous membranes or conjunctivae, gums, tongue and palms of hands
- Pallor of nail beds characterised by poor venous return
- Breathlessness (short of breath) during routine household

Differential Diagnosis:

- Nephorotic syndrome may present with swelling of the face and legs and pallor of mucous membranes
- Cardiac disease
- Hypertension
- Leaking ectopic pregnancy/molar pregnancy

Investigations

These can be carried out where facilities are available:

- HB estimation at first contact with every pregnant woman
- Full haemogram
- Other investigations (e.g. blood film malarial parasites, sickle cell tests, reticulocyte count, stool for microscopy and occult blood, urine analysis) are usually carried out to establish the cause.

General Management:

In case of mild and moderate anaemia, investigate and treat cause as per guidelines below. In case of severe anaemia or is in cardiac failure due to anaemia, refer to hospital and admit.

During transfer:

- Rest in propped up position
- Give oxygen by face mask and provide supportive care
- Accompany patient by a health worker
- Provide reassurance

In hospital:

- Prepare resuscitation tray
- Transfuse (with packed cells, if possible) under cover of rapidly acting diuretic (e.g., Frusemide, 20mg IV)

- Identify the cause

Specific Treatment for iron deficiency anaemia:

All grades of anaemia will require the following basic treatment modalities:

- Each unit of blood raises Hb by 0.7g per dl. Aim to bring Hb up to 10g per dl
- Limit transfusion to 3 units per day
- Give ferrous sulphate,1 tablet twice a day for three months, avoid tea and coffee soon after taking. Add vitamin C to improve absorption.
- Deworm the mother with mebendazole 500mg stat or albendazole 400mg stat (but not in the first trimester). Repeat after 3 months. Counsel on prevention of hook worm infestation.
- Counsel on diet containing protein, vitamins and iron.
- Counsel on compliance with treatment
- Review after two-four weeks

Table 3: Type of anaemia

	Mild Anaemia *Hb 8-10.9 g/dl*	**Moderate Anaemia** *Hb 7-7.9 g/dl in 1st and 2nd trimester*	**Severe Anaemia** *Hb less than 7g/dl*
Before 36 weeks	After the above treatment check her HB at 36 weeks. A good response (Hb increased by 1g) should be observed within 2 weeks. If still 9.9 g/dl or less, refer to hospital or health centre IV for more investigations. Arrange for appropriate place of delivery.	Same as for mild anaemia Check HB after 4 weeks and after you have excluded non-compliance with oral therapy. If Hb has not increased by 1 g (see dosage calculation below), then give parenteral Iron (Inferon) according to haemoglobin deficit. Continue with basic treatment and antenatal care.	Comprehensive obstetric care facility immediately, at any stage of pregnancy Carry out full investigations. Calculate total dose Inferon requirements according to HB deficit and give it as IM injection. Check Hb after 2 weeks Continue with basic treatment and antenatal care.
After 36 weeks	After the above treatment check her Hb at 36 weeks. A good response (Hb increased by 1g) should be observed within 2 weeks. If still 10.9 g/dl or less, refer to hospital or heath centre IV for more investigations. Arrange for appropriate place of delivery.	Same as for mild anaemia Provide parenteral Inferon according to haemoglobin deficit. Check Hb after 2 weeks. If HB has increased by 1.5-2.0 gm, continue with iron, folic acid, diet and antenatal supervision. If Hb has not increased, refer to hospital or health centre IV for more investigations and arrange for delivery at a facility which can provide emergency obstetric care.	Carry out full investigations Give total does Inferon If Hb remains below 6g at 37 weeks, transfuse with blood to raise Hb to 10 g/dl Refer to hospital or comprehensive obstetric care facility immediately, at any stage of pregnancy.

Note: Counsel woman to continue taking her iron tablets after delivery for more than 2 months to treat anaemia during the breast-feeding period. All women should take the iron tablets with meals but not with coffee or tea.

Parenteral Iron Therapy (Inferon)

Inferon contains the equivalent of 50mg/ml of elemental iron as an iron dextran complex. It may

be given intramuscularly or intravenously. A test does of 0.5ml (25mg) is administered and the patient watched carefully for a wheal reaction for one hour.

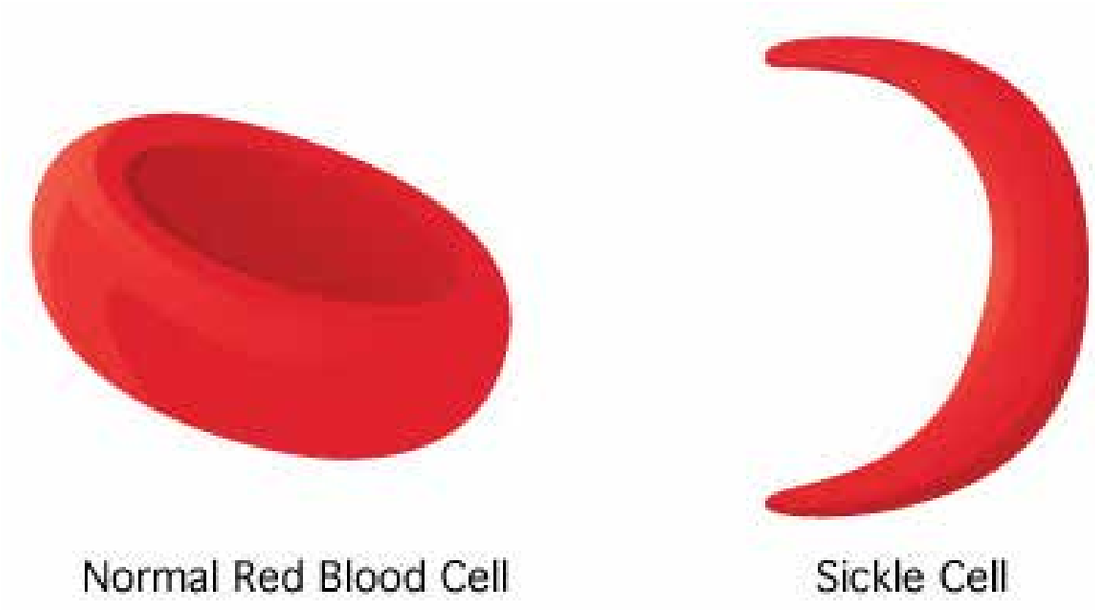
Formula for Calculating total dose of Inferon :

Hb deficit x 250mg = amount of iron required to raise Hb to desired level. Add 50% of the calculated amount to allow for depleted iron stores, foetal demands and blood loss

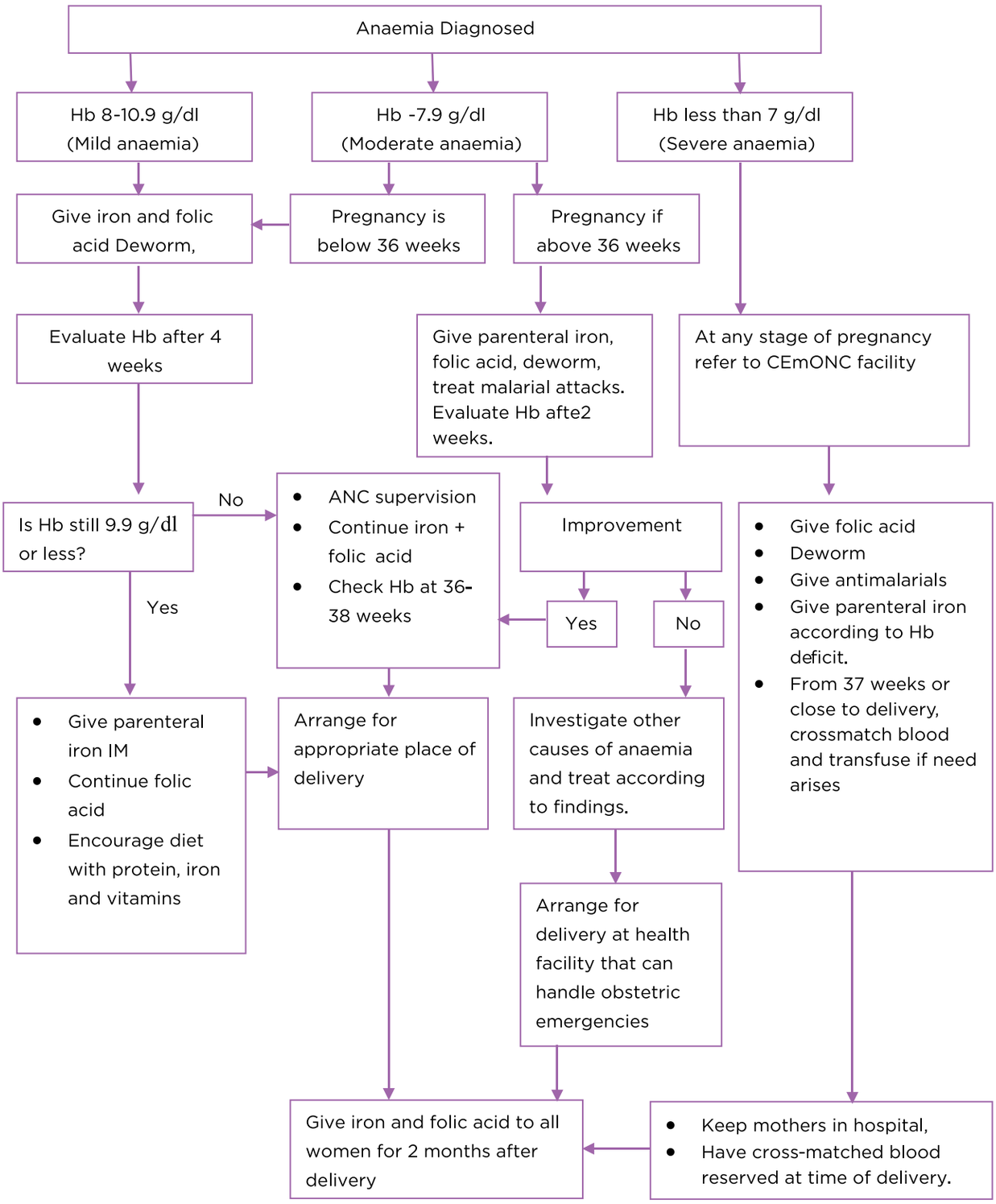
This gives the total mg required
The dose is then divided into daily or weekly doses.

Sickle-Cell Anaemia:

- Monitor every 2 weeks
- Give folic acid 5 mg once daily
- Continue or begin antimalarial prophylaxis such as chloroquine or Fansidar
- Treat existing infections
- Manage any bone pain or sequestration crisis
- Transfuse patient with packed cells under diuretic cover if Hb is below stable state or below 5g/dl
- Hospitalise the patient whenever complications develop or after 32 weeks.
- Plan time and mode of delivery
- Plan postpartum care.
- Refer to sickle cell clinic if client not registered.



Protocol 2: Management of Iron Deficiency Anaemia in Pregnancy



MANAGEMENT OF MALARIA IN PREGNANCY

Definition:

Malaria is an acute febrile condition caused by protozoa, of the plasmodium species, transmitted from one person to another through the bite of an infected female anopheles mosquito.

Signs and symptoms:

- Uncomplicated (simple) Malaria is characterized by:
- Muscle and joint pain, headaches, backache, general malaise
- Loss of appetite, nausea and vomiting at times
- Fever, chills and rigors

Severe Malaria is characterized by the above symptoms of un complicated Malaria, positive RDTs/blood slide for Microscopy and one or more of the following danger clinical or laboratory signs and symptoms):

- Confusion
- Hypoglyceamia
- Repeated Convulsions
- Coma
- Heamoglobinuria
- Shock /Circulatory collapse
- Severe anaemia
- Difficulty in breathing (due to pulmonary oedema)
- Vomiting all feeds
- Complete Refusal to feed
- Severe Dehydration and Electrolyte Imbalance
- Renal Failure
- Spontaneous Bleeding
- Others
- Jaundice
- Hyperpyrexia (Temp>39.50C)
- Hyperpasitaemia
- Prostration

Differential Diagnosis:

- Urinary tract infections
- Typhoid fever
- Pneumonia
- Meningitis
- Trypanosomiasis
- Viral infections
- Emcalampsia

Investigations – diagnosis

- Blood slide, however a negative blood slide does not rule out malaria
- Full haemogram
- Urinalysis
- Blood culture
- HIV serology

Management of Malaria in Pregnancy.

Uncomplicated malaria:

- Give oral ACTs irrespective of the gestational age. The current recommend first line treatment for malaria in Uganda is artemether-lumefantrine, the first line alternative is artesunate-amodiaquine and the second line is dihydroartemisinin-piperaquine.

- If the patient is not responding to oral ACTs e.g. due to vomiting, IV Artesunateis given, and the dose is 2.4mgs/kg at 0 hours ,12hours and 24hours. Assess to see if the patient is able to swallow; if the patient is able to swallow change to ACTs. If the patient is unable to swallow, continue with IV Artesunate given once a day for 6 more days.
- Give plenty of oral fluids. Give IV fluids if necessary.
- Give analgesic and antipyretic, paracetamol, 1gm 8-hourly.
- If fever persists, consult or transfer to emergency obstetric care facility for more extensive investigations and treatment.

Severe attacks/complicated malaria:

- If having convulsions or delirious, give Diazepam, IV. It should be given slowly for 1 minute at a dose of 0.2mgs/kg or rectal at 0.5mgs/kg. Repeat the dose if the convulsions don't stop after 10minutes. In case the convulsions don't stop with Diazepum, use other anticonvulsants like Phenobarbitone. It is important to assess for and manage hypoglycaemia.
- If in coma, maintain airway and apply all life support measures
- Reduce temperature by tepid sponging
- If at a BEmONC facility, make arrangements and transfer patient to CEmONC facility.
- Start the patient on Antimalaria.
  - First line treatment: Give IV Artesunate at all stages of Pregnancy at 2.4mgs/kg at 0hrs ,12hrs and 24hrs, Change to ACTs if the patient is able to swallow. If not able to swallow, continue with IV Artesunate given once a day for 6 more days.
  - Alternative: Give quinine dihydrochloride parentally 10mg/kg in 500mls of 5% Dextrose over a period of 4 hours 8 hourly until the patient can tolerate oral treatment to complete a 7 days course of treatment Or Parenteral Artemether at a dose of 3.2mg/kg as loading dose and continue with 1.6mg/kg once daily for 3 days.

- Give glucose IV:

50% Dextrose	25% Dextrose	10% Dextrose
25-50mls	50-100mls	125-250mls

- If no IV glucose is available, give sugar water by mouth or Nasogastric tube. To make sugar water, dissolve 4 level teaspoons of sugar (20g) in a 200mls cup of clean water.

Note: 50% Dextrose solution is irritating to veins. Dilute it with an equal quantity of sterile water or saline to produce 25% glucose solution.

Subsequent Treat

- Severe attack:
- Confirm diagnosis of cerebral malaria
- Monitor renal function
- Give antimalarials parentally
- Monitor blood sugar levels
- Maintain intake and output chart

Complications likely to Occur:

- Severe malaria which lead to confusion, convulsions, coma and severe anaemia
- Haemolytic anaemia
- Abortion
- Preterm labour
- Intrauterine foetal death

- Maternal death
- Congenital malaria

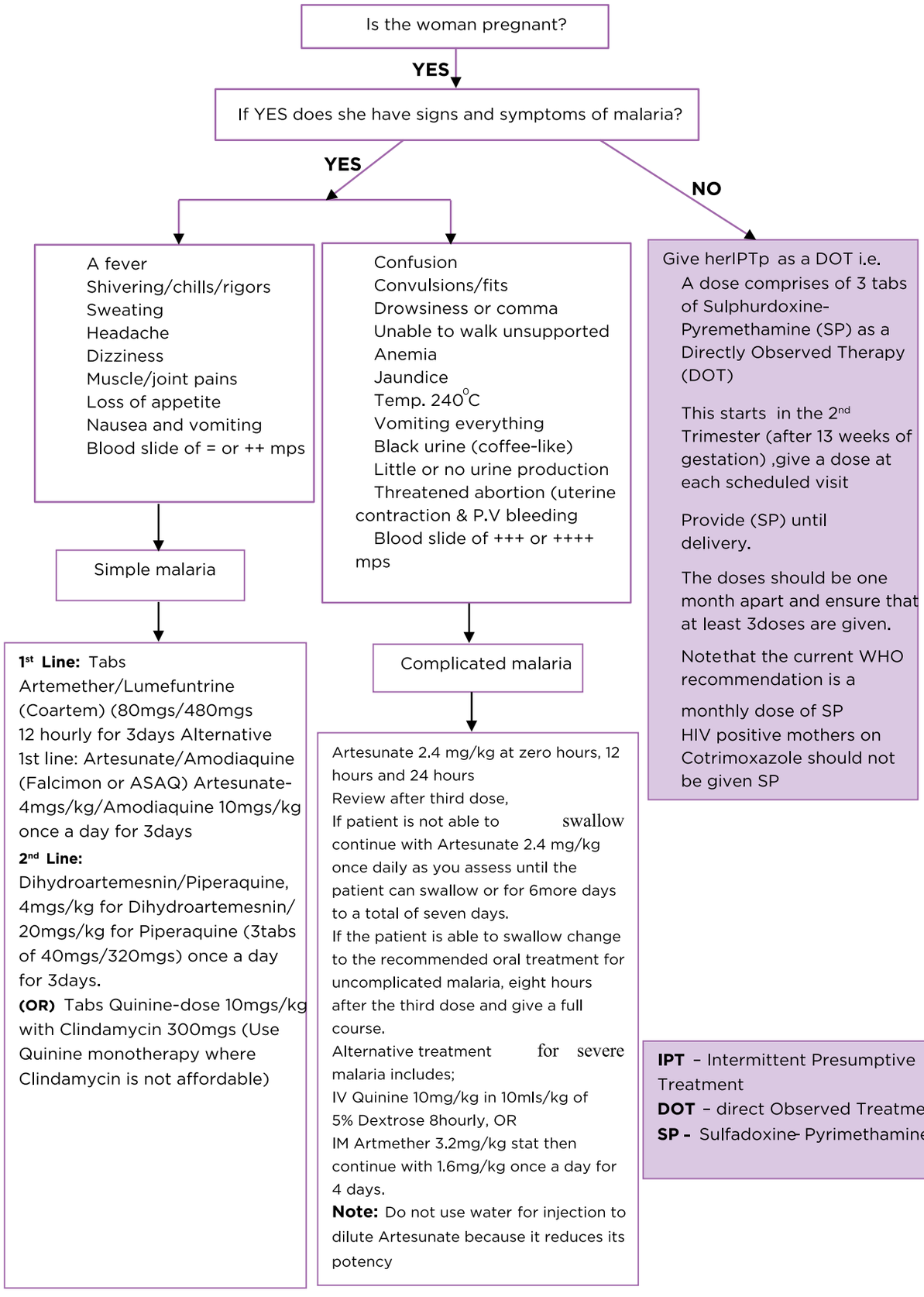
Precautions to take in Order to avoid complications

- Give intermittent presumptive treatment for all pregnant women as per schedule:
- Monitor renal function
- Control temperature quickly
- Monitor foetal well-being
- Ensure adequate glucose intake to avoid hypoglycaemia

Follow-up

- One week after treatment for malaria, repeat blood slide for malaria parasites to make sure that the patient is cured.
- Continue antimalarial prophylaxis up to 6 weeks postpartum.

Protocol 3: Management of Malaria in Pregnancy



HYPEREMESIS GRAVIDARUM

Definition

Excessive nausea and vomiting in the first half of pregnancy not responding to simple measures and destabilizing pregnancy or the mother's life. It is most common in the first three months of pregnancy, molar or multiple pregnancy.

Diagnosis

- Period of amenorrhoea
- History of nausea and excessive vomiting not responding to simple measures
- The woman has difficulty in performing normal daily duties
- Weak, dehydrated, tachycardia

Differential Diagnosis

- Malaria
- Urinary Tract Infection (Pyelonephritis and Cystitis)
- Gastrointestinal disorder
- Hepatitis
- Pancreatitis
- Central nervous system disease

Investigations

- Blood for:
- Haemogram
- Urea and electrolytes
- Malarial parasites
- Urinalysis
- Ultrasound scan to confirm pregnancy and rule out molar or multiple pregnancy

Immediate Treatment

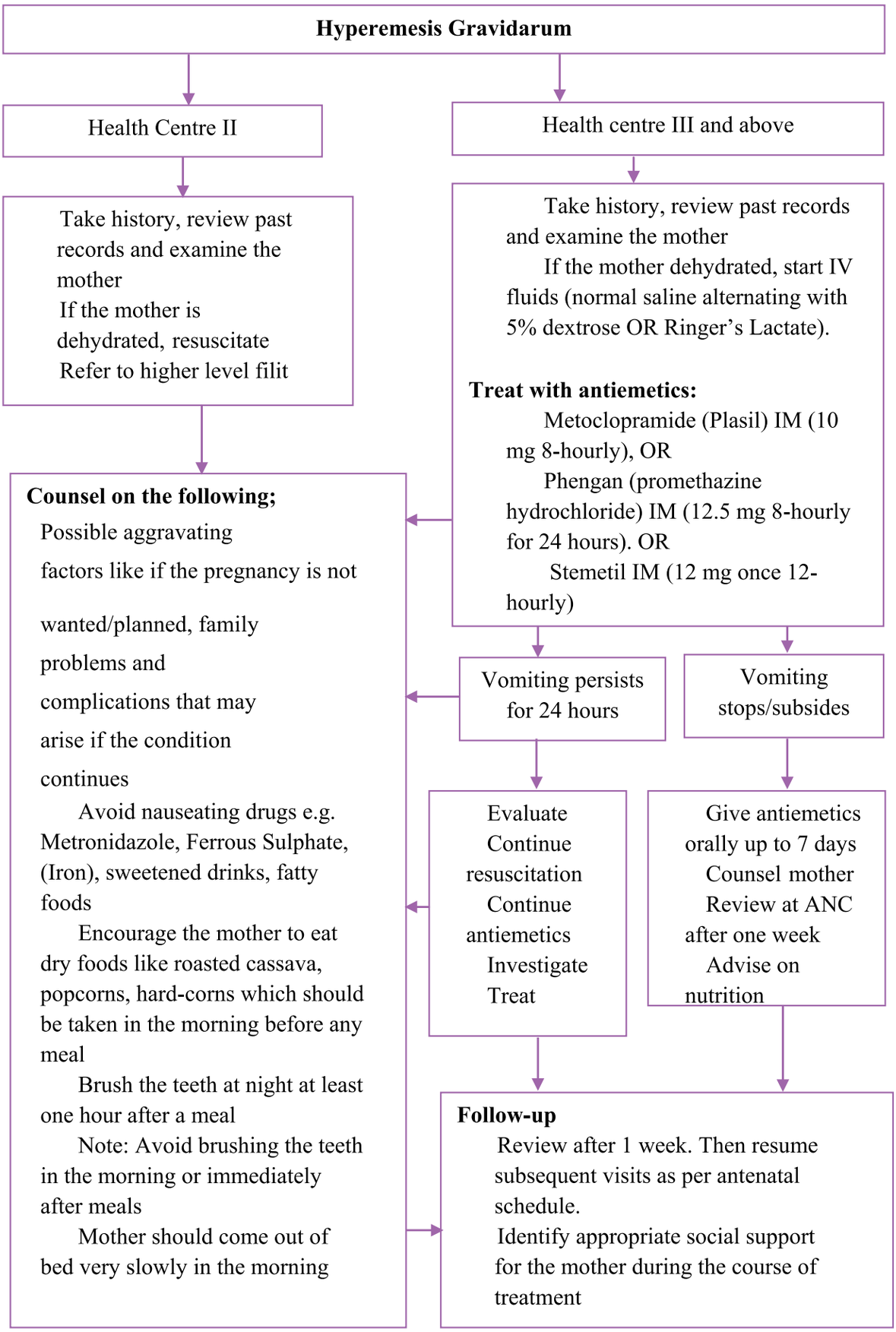
- Take history, review past records and examine the mother
- If the mother is dehydrated, start IV fluids (normal saline alternating with 5% dextrose OR Ringer's Lactate).
- Treat with antiemetics:
- Metoclopramide (Plasil) IM (10 mg 8-hourly), OR
- Phenogan (promethazine hydrochloride) IM (12.5 mg 8-hourly for 24 hours). OR
- Prochlorperazine (Buccastem, Stemetil) IM (12 mg once 12-hourly)
    - **Note:** If vomiting subsides, give antiemetics orally.
- In addition to any of the above antiemetics, give Vitamin B complex, 2ml in 500mls of Normal Saline or Ringer's Lactate, single dose
- If condition doesn't improve within 24 hours, consult or refer to higher level facility.
- Us of ginger can help reduce hyperemesis
- Note: If referring, use proper referral form
- If patient improves, encourage oral and frequent fluid intake at least three litres in 24 hours.
- Counsel on the following;
- Possible aggravating factors like if the pregnancy is not wanted/planned, family problems and complications that may arise if the condition continues
- Avoid nauseating drugs e.g. Metronidazole, Ferrous Sulphate, (Iron), sweetened drinks, fatty foods
- Encourage the mother to eat dry foods like roasted cassava, popcorns, hard-corns which should be taken in the morning before any meal
- Brush the teeth at night at least one hour after a meal
- Note: Avoid brushing the teeth in the morning or immediately after meals
- Mother should come out of bed very slowly in the morning

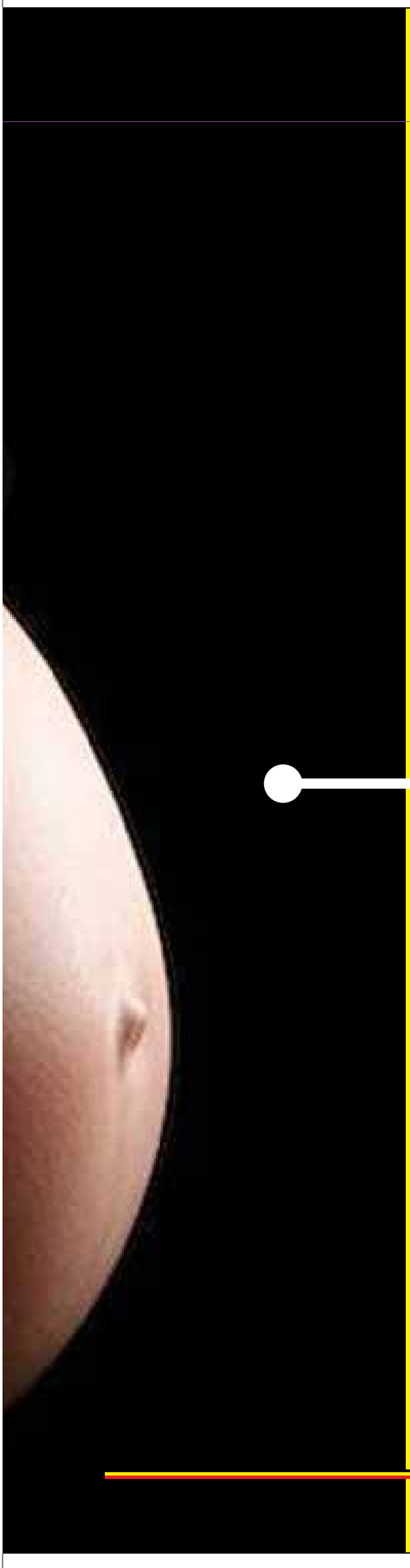
Follow-up

- Review after 1 week. Then resume subsequent visits as per antenatal schedule.
- Identify appropriate social support for the mother during the course of treatment.

Note: *Excessive vomiting can result to reduced levels of vitamin B complex. Use of vitamin B complex prevents Wernicke's encephalopathies*

Protocol 4: Management of hyperemesis Gravidarum





HIGH RISK OBSTETRICS

MANAGEMENT OF HYPERTENSIVE DISORDERS IN PREGNANCY

Definitions:

Pre-eclampsia

- Blood pressure of greater than or equal to 140/90 mmHg at least 2 readings taken at least 4 hours apart plus urine protein of 2+

OR

- Blood pressure of greater than or equal to 160/110 mmHg (confirmed within 15 minutes) with or without proteinuria after 20 weeks of gestation in a previously normotensive patient.
- Pre-eclampsia with severe features
- Pre-eclampsia with any one of the following:
- Blood pressure greater or equal to 160/110 mmHg,
- Severe symptoms: persistent headache, altered mentation, unconsciousness, persistent epigastric & / or right upper quadrant abdominal pain, visual changes (blurring of vision, sparks, scotomata, photopsia, blindness),

Note: Convulsions/fits/seizures (eclampsia). Any mother who gets fits / convulsions and a normal blood pressure should be treated as an eclamptic until ruled out.

- Reduced urine output (less than 100 mls in 4 hours or less than 0.5mls/kg/hour)
- Pulmonary oedema or Oxygen saturation (SPO2) of less than 90%
- Thrombocytopenia (platelet count of less than 100,000 /µL)
- Elevated liver enzymes (AST & ALT twice upper limit of normal of the local laboratory)
- Serum creatinine >1.1mg/dL or 90µmol/L or a doubling of baseline serum creatinine
- Intrauterine growth restriction (IUGR)
- Disseminated intravascular coagulation (DIC)
- Abnormal (absent or reversed flow) umbilical artery doppler velocimetry I.e., Resistive Index (RI) of more than 1
- Abnormal foetal cerebral artery doppler velocimetry (cerebroplacental ratio less than 1:1)
- HELLP syndrome (Haemolysis Elevated Liver Enzymes & Low Platelets)

Pre-eclampsia without severe features

Blood pressure greater than or equal to 140/90 mmHg but less than 160/110 mmHg without the severe symptoms, or laboratory / radiological findings stated above.

Pre-eclampsia without severe features

Management of Pre-eclampsia without severe features at Term (37 weeks gestation and above)

- If in health centre II and III, give loading dose of magnesium sulphate and oral antihypertensive medication and refer to a higher facility.
- At a higher facility (CEmONC facilties), admit and initiate delivery within 24 hours
- Mode of delivery should be based on obstetric assessment
- Assess foetal well-being (foetal movements, heart sounds, quantity of liquor, foetal growth) and maternal well-being and deliver appropriately.
- If cervix is favourable, and no contraindications to vaginal delivery, induce labour with oxytocin
- If cervix is not favourable Ripen cervix with Prostaglandin E2 and deliver vaginally if there is no contraindication
- In the absence of prostaglandin E2, induce with 25 micrograms of misoprostol given every 6 hours vaginally for 24 hours or oral solution every 2 hours for 12 hours,
- If there are contraindications to vaginal delivery, deliver by emergency caesarean section

Management of Pre-eclampsia without severe features before term (less than 37 weeks gestation)

- If in health centre II and III, give loading dose of magnesium sulphate and oral antihypertensive medication and refer to a higher facility.
- At a higher facility, admit and evaluate to see if she is fit for outpatient management which involves the following
- Weekly follow up in ANC by doctor
- Assess for development of severe symptoms
- Control BP with oral nifedipine, methyldopa or labetalol or a combination
- Target BP = 135/85 mmHg (130-139/80-89 mmHg)
- Weekly laboratory tests: CBC (platelets), LFT (AST &ALT), RFT (Serum creatinine)
- Weekly obstetric ultrasound scan (Foetal growth, biophysical profile, Nonstress test, umbilical artery Doppler studies)
- If <34 weeks of gestation, give corticosteroids (Betamethasone 12mg 12 hourly for 1 day or Dexamethasone 6mg 12 hourly for 2 days)
- Teach mother to monitor foetal movement. (Reduced movement & development of symptoms should prompt immediate return to hospital)
- If severe features of preeclampsia develop, admit & deliver immediately
- If severe features of preeclampsia do not develop, deliver at 37 weeks
- For mothers who may not be able to keep weekly appointments, they are better managed as inpatient

Pre-eclampsia with severe features

Management of Pre-eclampsia with severe features

Note: Admit all patients with pre-eclampsia with severe features

Goal 1: Prevent & / or control convulsions/ fits/seizures

- Give magnesium sulphate as follows
- **Loading dose:** (if not yet given from referring unit) 14 g given as IV 4g of 20% followed by IM 5g of 50% with 1ml of 2% lignocaine in each buttock.
- **Maintenance dose:** IM 5g of 50% with 1ml of 2% lignocaine in alternate buttock every 4 hours for 24 hours after delivery or last fit whichever occurred last
- If patient convulses again before the next maintenance dose give IV 2g of 20% & continue with the maintenance for 24 hours after delivery or last fit which ever occurred last.
- However, if patient continues to convulse give IV Phenytoin 1g in 500mls of saline and consult critical care team.
- Check for magnesium sulphate toxicity and signs of kidney failure before administration of subsequent doses
  - Hyporeflexia – reduced deep tendon reflexes
  - Respiratory depression (RR < 16 breaths per minute)
  - Oliguria (urine output less than <100mls in 4 hours) a sign of renal failure that can lead to toxicity, if present give half dose of magnesium sulphate.
- **IF TOXICITY PRESENT,** Stop MgSO4 and give calcium gluconate intravenously (1g of 10% over 10mins) always ensure calcium gluconate is available and not expired

Goal 2. Control blood pressure

- If BP ≥160/110mmHg, give IV Hydralazine 5mg, repeat every 30 minutes until BP <160/110 mmHg, Max total dose is 30mg in 24 hours OR
- IV Labetalol 20mg, repeat as needed every 10 minutes, can double to 40mg, then 80mg, until BP <160/110mmg Max total dose is 300mg in24 hours OR
- Oral immediate release Nifedipine 10mg Repeat BP measurement at 20-minute intervals. Maximum 3 doses. If BP remains >160/110mmHg, at 20 mins, give 10 or 20 mg orally, depending on the initial response.
- Once BP <160/110 initiate oral medication with Nifedipine starting at 20 mg 12 hourly, methyldopa at 250mg 8 hourly, labetalol starting 200mg 12 hourly or a combination of doses. Dosing should be adjusted according to the response observed.

- Target BP is 135/85 mmHg (130-139/80-89 mmHg)

Goal 3: Plan for delivery

- If the mother is at or more than 37 weeks of gestation, consider immediate delivery after stabilisation. Note that delivery should be initiated within 24 hours
- Other indications for immediate delivery or contraindications for expectant management irrespective of gestational age
  - Abnormal neurological features (intractable headache refractory to treatment, repeated visual scotomata, eclampsia or stroke)
  - Uncontrolled blood pressure of more than 160/110mmHg despite maintenance with three different classes of antihypertensive agents.
  - Pulmonary oedema or SPO2 <90%,
  - Progressive or worsening thrombocytopenia <100,000 or need for transfusion
  - Laboratory findings in (CBC, RFTs, & LFTs) in the severe range
  - Non reassuring foetal status / Abnormal foetal testing (e.g., NST or low BPP, IUGR, absent or reversed diastolic flow on umbilical artery Doppler or abnormal ductus venosus waveform) or intrauterine foetal death
  - Oligohydramnios AFI <5 cm or single deepest vertical pocket <2 cm),
  - Hemodynamic instability (shock),
  - Persistent epigastric/RUQ pain unresponsive to analgesics,
  - Myocardial infarction or cardiomyopathy,
  - Coagulopathy,
  - HELLP,
  - Placental abruption,
  - Preterm labour,
  - Preterm prelabour rupture of membranes,
- For mothers at 34 to <37 weeks of gestation, offer expectant management in hospital if there is no indication for immediate delivery as listed above

Note: *For mothers at 36 to < 37 weeks suggest to mother & caretaker initiation of delivery*

- For mothers at 24 to <34 weeks of gestation, offer expectant management in hospital if there is no indication for immediate delivery as listed above

Components of expectant management

- The mother must be admitted in hospital until delivery
- Carry out daily maternal and foetal assessment for indications for immediate delivery, 4 hourly monitoring of BP
- Do daily laboratory tests: CBC (Platelets), LFT (AST & ALT), RFT (Serum creatinine & electrolytes),
- Administer corticosteroid (IM Betamethasone 12mg 12 hourly for 24 hours OR IM Dexamethasone 6mg 12 hourly for 48 hours)
- Control blood pressure with oral nifedipine or methyl dopa or labetalol or a combination with target BP of 135/85 mmHg (130-139/80-89 mmHg)
- Ensure to complete maintenances dose of magnesium sulphate
- Do daily CTG if available,
- Monitor fluid intake and urine output,
- Do twice weekly ultrasound scan for foetal growth, BPP, umbilical artery doppler studies & NST,
- Conduct immediate delivery if an indication for immediate delivery develops.

Intrapartum care

- Route of delivery is based on standard obstetric assessment,
- Continuous maternal-foetal (CGT) monitoring if feasible,
- Treat severe hypertension promptly with intravenous antihypertensives, Neuraxial analgesia is generally safe and effective, Limit fluid intake to 60-80mL/hr

Postpartum care and follow up

Immediate and intermediate:

- Monitor vital signs every two hours,

then 4-6 hourly for at least 3 days and Complete magnesium sulphate dose.
- Repeat laboratory tests CBC (Platelets), LFT (AST & ALT), RFT (Serum creatinine daily until two consecutive sets of data are normal or trending to normal,
- Persistent severe hypertension should be treated, Tapper antihypertensives slowly after days 3 to 6

Short and long term follow up:

- Review the mother postpartum within 1 week, then every 2 weeks until 6 weeks and monthly until 3 months.
- Repeat laboratory tests at each review .
- Counsel and provide appropriate contraceptive method
- Further work up is dictated by persistent abnormalities including screening for secondary causes of hypertension or underlying renal disease with persistent proteinuria,
- Assess for depression, anxiety & PTSD.
- Offer information for increased risks for CVD, stroke, DM, VTE, & CKD, and SGA and recurrent pre-eclampsia in subsequent pregnancies. Counsel the mother that her risk of getting recurrent pre-eclampsia is 1 in 5 women
- Regular preferably yearly follow up with to monitor BP, periodic fasting lipids and blood sugar.
- Link to primary care physician appropriately (cardiologist in case of CVD or Nephrologist case of CKD

Eclampsia

Differential Diagnosis

- Cerebral malaria: usually pyrexia, convulsions and a normal blood pressure
- Meningitis: headache, fever, stiff neck and normal blood pressure
- Epilepsy: convulsions, usually no fever and no hypertension, previous history of convulsions.
- Poisoning: coma, convulsions, normal blood pressure
- Diabetic coma: no convulsions, blood pressure may be high, glycosuria, ketonuria and hyperglycaemia.

Management of Eclampsia

- Call for help; Do not leave the woman alone
- Help her lie on the left lateral position and protect her from fall or injury
- Extend her neck and keep the head in a lateral position: keep the airway clear and apply a mouth gag. (Do not attempt this during a convulsion). This will also prevent tongue injury
- Ask assistant to bring pre-assembled emergency trolley
- Administer magnesium sulphate or diazepam to control convulsions as per the regimen below
- Give hydralazine to control blood pressure (see management of severe PET)
- Establish an IV line and give normal saline or Ringer's lactate
- Catheterize with Foleys catheter to monitor urine output, attach urine bag
- Perform bedside clotting time. The clot will normally form between 4 and 11 minutes. Failure of the clot to form after 11 minutes, or a soft clot that breaks down easily, suggests coagulation problems.
- Deliver when convulsions and BP are controlled using appropriate mode of delivery. Aim to achieve delivery within 12 hours from first convulsions. Caesarean delivery is indicated for any

additional obstetric indication or if delivery is not imminent
- Monitor vital signs half hourly and urine output hourly until delivered. Reduced urinary output (<30ml per hour) may be an indication of renal damage
- Continue anticonvulsant therapy for 24 hours after last convulsion, or delivery whichever occurs last.

Drugs Used in Eclampsia

Magnesium Sulfate (MgSO4) – drug of choice

- Indications
  - To control convulsions
  - To prevent convulsions in cases of severe pre-eclampsia
- Loading Dose
  - Give MgSO4, 4g IV as 20% solution over 20 minutes. If IV access is not available immediately, give the IM dose first.
  - Follow promptly with 10 g of 50% MgSO4 solution, 5g in each buttock as deep IM injection with 1.0 ml of 2% lignocaine.
  - If convulsions occur after the loading dose, give 2g MgSO4 IV (20%) over 20 minutes.
  - If patient continues to convulse give diazepam.
- Maintenance Dose

  MgSO4 (5g of 50% solution and 1 ml lignocaine 2%) is given IM every 4 hours into alternate buttock. Before giving the dose, ensure that:
  - Respiratory rate is 16 per minute or more;
  - Urine output is 120 ml or more in the last 4 hours, i.e. 30ml per hour; and
  - Patient tendon reflexes are present and normal

  If any of the three conditions above are unsatisfactory, omit the dose. In case of respiratory depression (respiratory rate less than 16), give the antidote: Calcium gluconate 1g (10ml of 10% solution) IV slowly until respiration improves over 10 minutes.

Table 4: Making 20% MgSO4 solution from 50% MgSO4

Dose of $MgSO_4$ 20% (g)	Volume of 50% of $MgSO_4$	Volume of water for injection	Total volume of 20% $MgSO_4$
2g	4ml	6ml	10ml
4g	8ml	12ml	20ml

Give Diazepam if MgSO4 is not available.

Note: Diazepam causes significant respiratory depression in neonates and should not be used unless magnesium sulphate is not available.

- Loading dose
  - Give Diazepam 10mg IV over 2 minutes
  - If the convulsions recur, repeat the same loading dose
- Maintenance dose
  - Give diazepam, 40mg in 500ml of normal saline and titrate to keep the patient sedated, but rousable
  - Remember that maternal respiratory depression may occur when doses exceed 30 mg in 1 hour. If this occurs, ventilate patient (face mask/bag, anaesthesia apparatus, intubation, etc.) until spontaneous respiration is satisfactory

Note:

1. Anti-hypertensives: Administered as for Pre-eclampsia with severe symptoms as stated above

2. Investigate and follow up as stated for Pre-eclampsia with severe symptoms

Precautions to take in order to avoid complications

- Give hypertensive treatment to lower the blood pressure close to normal over 12 hours to reduce risk of stroke or foetal death
- Do not use diuretics except in cardiac and renal failure
- In severe pre-eclampsia and eclampsia, control the pressure and fits and terminate the pregnancy within 24 hours irrespective of the gestational age.

- Catheterise to monitor urine output
- Use magnesium sulphate as first line drug where available to control fits and even for prophylaxis in severe pre-eclampsia. The second-best drug is diazepam
- Do not use Ketamine as an anaesthetic drug in eclampsia

Prevention or risk reduction of preeclampsia in the antenatal period

High risk factors:

- Previous pregnancy with preeclampsia, especially early onset and with an adverse outcome.
- Multifetal gestation.
- Chronic hypertension.
- Type 1 or 2 diabetes mellitus.
- Chronic kidney disease.
- Autoimmune disease with potential vascular complications (antiphospholipid syndrome, systemic lupus erythematosus).

Moderate risk factors

- Nulliparity.
- Obesity (body mass index >30 kg/m2).
- Family history of preeclampsia in mother or sister.
- Age ≥35 years.
- Sociodemographic characteristics (African American race, low socioeconomic level).
- Personal risk factors (eg, previous pregnancy with low birth weight or small for gestational age infant, previous adverse pregnancy outcome [e.g., stillbirth], interval >10 years between pregnancies).

Note:

Administer low dose aspirin 75mg once daily for a mother with any one of the high-risk factors or a mother with any two of the moderate risk mothers. Start from 11 weeks of gestation but before 16 weeks of gestation. Stop the aspirin at 36 weeks of gestation

Management of Hypertensive Disorders other than PET/ Eclampsia

- Emergency care may be necessary if a patient has stroke or malignant hypertension. Give hypertensive therapy or treatment with hydralazine or nifedipine and arrange to deliver the mother or transfer to emergency obstetric care facilities.

Before 37 completed weeks:

- Maintain antihypertensive therapy
- Consult physician and manage jointly
- Monitor pregnancy progress, the foetus may often be small for gestation age
- Counsel the mother or couple about the need to deliver at term
- See every two weeks

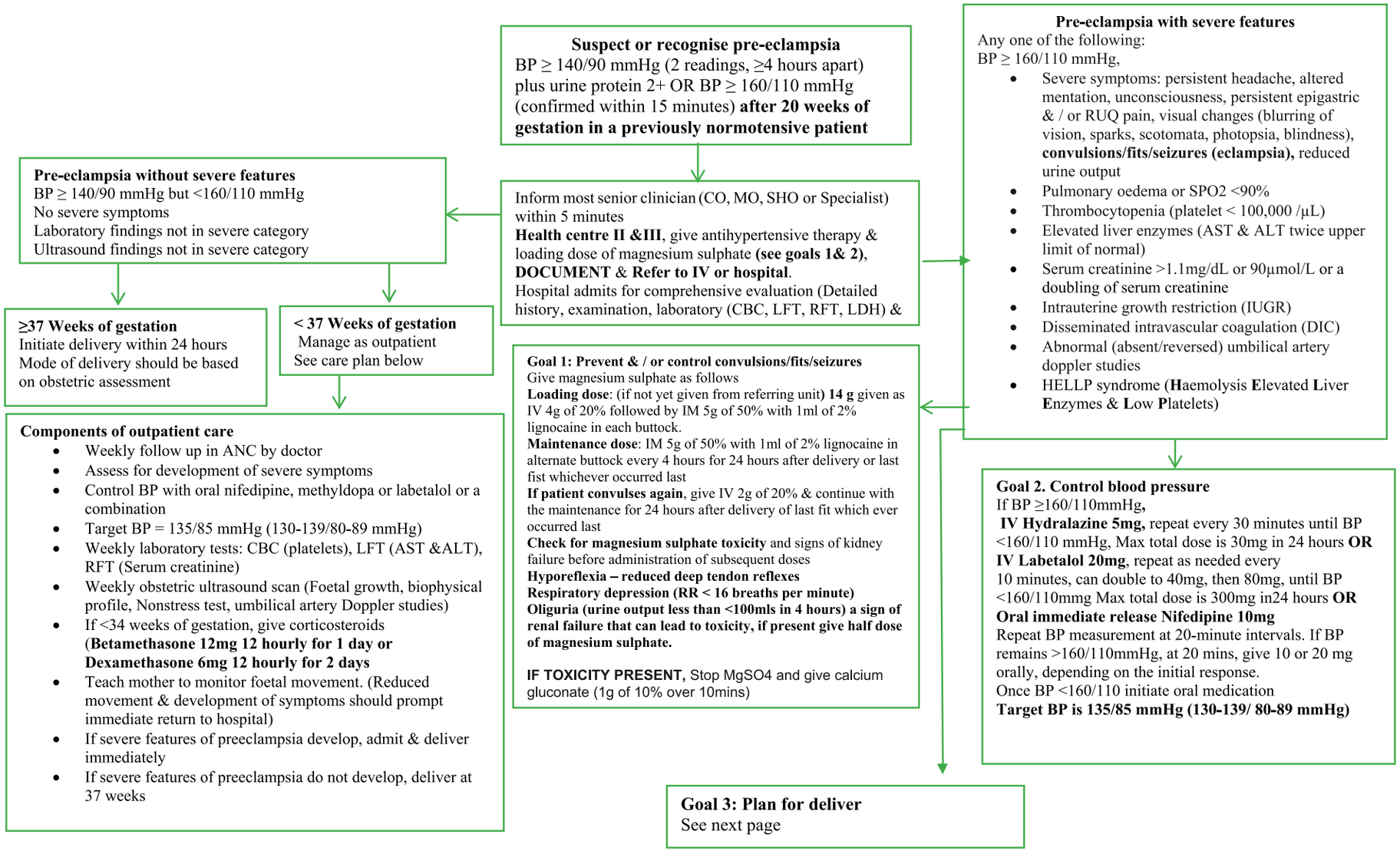
At 37-40 weeks gestation:

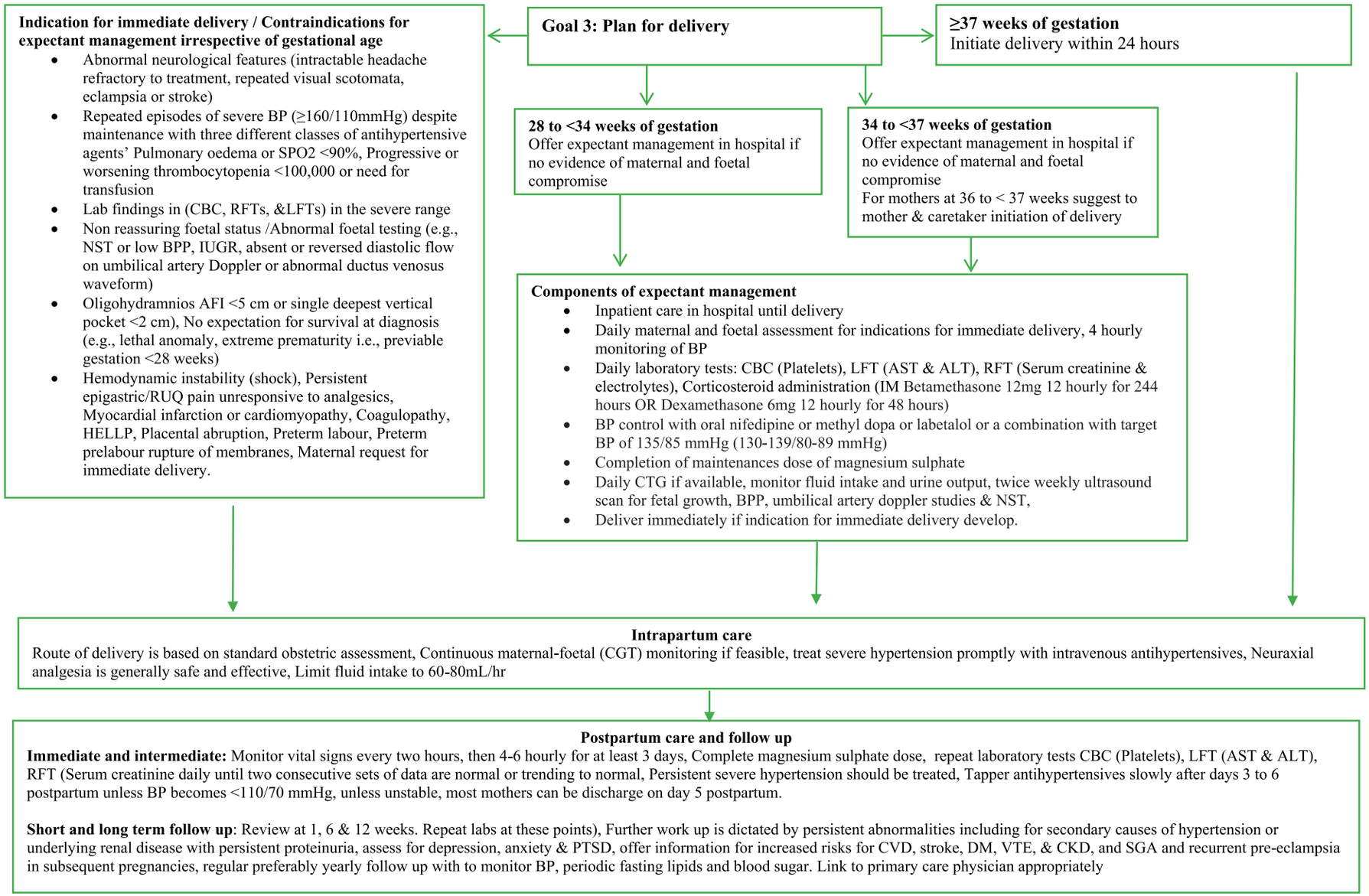
- Maintain antihypertensive therapy
- Await spontaneous labour
- If blood pressure control is poor, admit to the emergency obstetric care facility and arrange delivery
- Pregnancy should not exceed 40 weeks. If she has completed 40 weeks, arrange delivery.

Note:

After the delivery the mother is followed up and managed with the physician.

Protocol 5: Management of pre-eclampsia




Goal 3: Plan for delivery
≥37 weeks of gestation
Initiate delivery within 24 hours
28 to <34 weeks of gestation
Offer expectant management in hospital if no evidence of maternal and foetal compromise
34 to <37 weeks of gestation
Offer expectant management in hospital if no evidence of maternal and foetal compromise
For mothers at 36 to < 37 weeks suggest to mother & caretaker initiation of delivery
Indication for immediate delivery / Contraindications for expectant management irrespective of gestational age
Abnormal neurological features (intractable headache refractory to treatment, repeated visual scotomata, eclampsia or stroke)
Repeated episodes of severe BP (≥160/110mmHg) despite maintenance with three different classes of antihypertensive agents' Pulmonary oedema or SPO2 <90%, Progressive or worsening thrombocytopenia <100,000 or need for transfusion
Lab findings in (CBC, RFTs, &LFTs) in the severe range
Non reassuring foetal status /Abnormal foetal testing (e.g., NST or low BPP, IUGR, absent or reversed diastolic flow on umbilical artery Doppler or abnormal ductus venosus waveform)
Oligohydramnios AFI <5 cm or single deepest vertical pocket <2 cm), No expectation for survival at diagnosis (e.g., lethal anomaly, extreme prematurity i.e., previable gestation <28 weeks)
Hemodynamic instability (shock), Persistent epigastric/RUQ pain unresponsive to analgesics, Myocardial infarction or cardiomyopathy, Coagulopathy, HELLP, Placental abruption, Preterm labour, Preterm prelabour rupture of membranes, Maternal request for immediate delivery.
Components of expectant management
Inpatient care in hospital until delivery
Daily maternal and foetal assessment for indications for immediate delivery, 4 hourly monitoring of BP
Daily laboratory tests: CBC (Platelets), LFT (AST & ALT), RFT (Serum creatinine & electrolytes), Corticosteroid administration (IM Betamethasone 12mg 12 hourly for 244 hours OR Dexamethasone 6mg 12 hourly for 48 hours)
BP control with oral nifedipine or methyl dopa or labetalol or a combination with target BP of 135/85 mmHg (130-139/80-89 mmHg)
Completion of maintenances dose of magnesium sulphate
Daily CTG if available, monitor fluid intake and urine output, twice weekly ultrasound scan for fetal growth, BPP, umbilical artery doppler studies & NST,
Deliver immediately if indication for immediate delivery develop.
Intrapartum care
Route of delivery is based on standard obstetric assessment, Continuous maternal-foetal (CGT) monitoring if feasible, treat severe hypertension promptly with intravenous antihypertensives, Neuraxial analgesia is generally safe and effective, Limit fluid intake to 60-80mL/hr
Postpartum care and follow up
Immediate and intermediate: Monitor vital signs every two hours, then 4-6 hourly for at least 3 days, Complete magnesium sulphate dose, repeat laboratory tests CBC (Platelets), LFT (AST & ALT), RFT (Serum creatinine daily until two consecutive sets of data are normal or trending to normal, Persistent severe hypertension should be treated, Tapper antihypertensives slowly after days 3 to 6 postpartum unless BP becomes <110/70 mmHg, unless unstable, most mothers can be discharge on day 5 postpartum.
Short and long term follow up: Review at 1, 6 & 12 weeks. Repeat labs at these points), Further work up is dictated by persistent abnormalities including for secondary causes of hypertension or underlying renal disease with persistent proteinuria, assess for depression, anxiety & PTSD, offer information for increased risks for CVD, stroke, DM, VTE, & CKD, and SGA and recurrent pre-eclampsia in subsequent pregnancies, regular preferably yearly follow up with to monitor BP, periodic fasting lipids and blood sugar. Link to primary care physician appropriately

INTRA UTERINE FETAL DEATH

Death of a fetus prior to delivery after 26 weeks of gestation.

RISK FACTORS

- Pre-eclampsia/eclampsia
- Hypertension
- History of prior IUFD
- Diabetes Mellitus
- Infection (TORCHES and Malaria)
- Placental dysfunction
- Congenital birth defects
- Cord accidents
- Placental Abruption
- Preterm labor and PROM
- Oligohydramnios
- Uterine rupture
- Antiphospholipid syndrome
- Multiple gestation
- Prolonged pregnancy
- Hemoglobinopathies
- Advanced maternal age
- Rhesus incompartibility,

Clinical diagnosis (symptoms and signs)

- Absent fetal movements and fetal heartbeat.
- Regression of signs and symptoms of pregnancy
- Reduced/stagnant fundal height
- There may be lactation
- Mother may have signs of labour or bleeding

Investigation

- Obstetric ultra sound scan confirms the diagnosis
- Complete blood count, bleeding and clotting time
- Blood grouping and cross-matching
- Blood slide for malaria
- Random blood sugar
- Syphilis test (VDRL or TPHA)
- Rhesus factor
- Urinalysis
- Others (antiphospholipid antibodies, HIV)

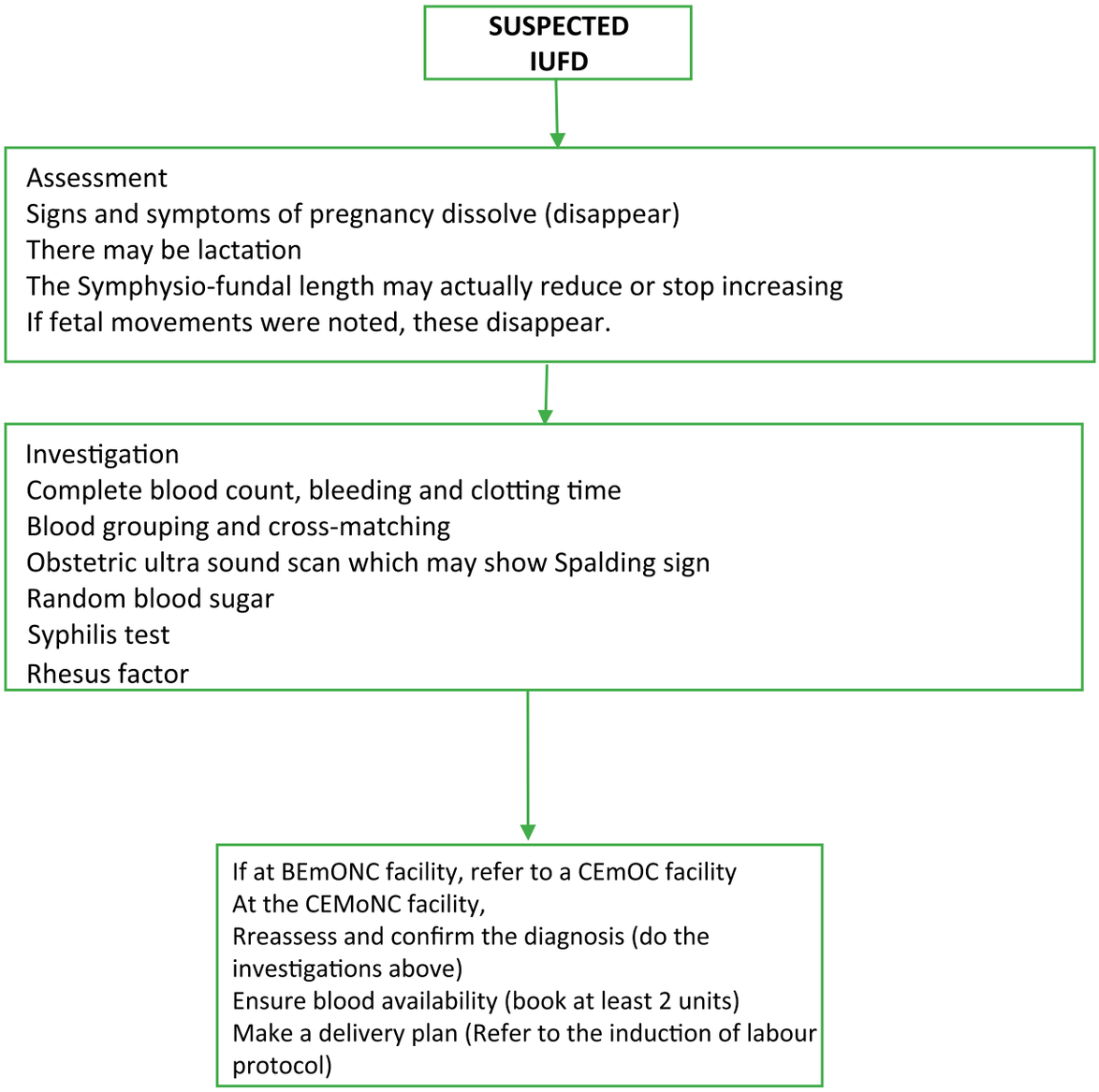
Initial management

- Counsel the mother and family on the diagnosis and plan of management.
- Do available investigation as above
- Refer to a CEmONC facility

At CEmONC facility

- Reassess and Confirm the diagnosis
- Do the investigations (above)
- Ensure blood availability(book at least 2 units)
- Make a delivery plan(Refer to the induction of labour/labour protocol)

Protocol 6: Management of Intrauterine fetal death



BREECH PRESENTATION

A condition whereby the foetus lies longitudinally in the uterus with head in the fundus and buttocks in the pelvis (lower pole of the uterus)

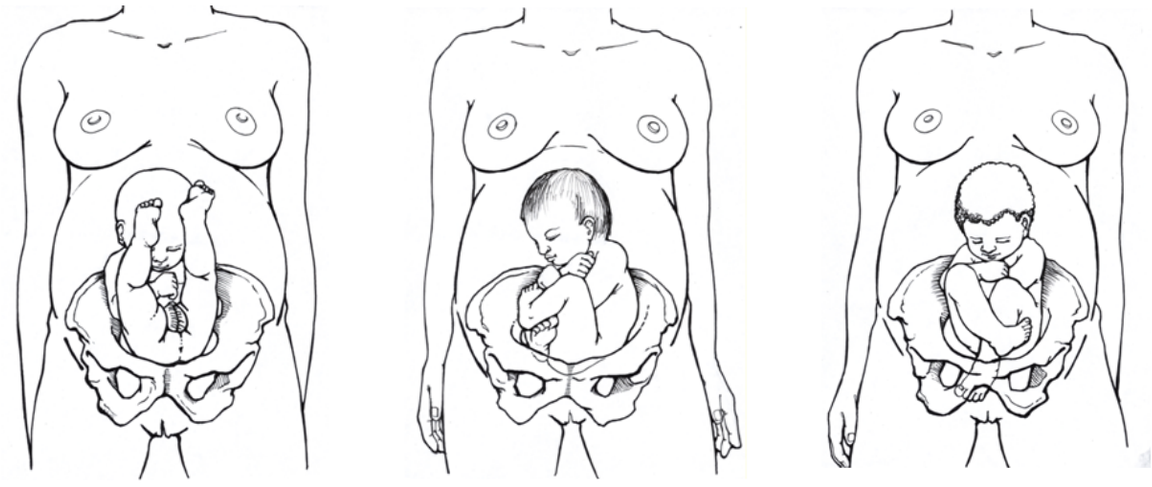
Predisposing Factors

- Grand multiparity
- Placenta praevia
- Prematurity
- Multiple pregnancy
- Uterine tumours e.g., fibroids

Types

- Frank breech
- Complete breech
- Footling breech

Types of Breech Presentations



Frank breech **Complete breech** **Footling breech**

Diagnosis

- Abdominal examination confirming the foetal buttocks (pelvic palpation) and the foetal head in the uterine fundus (fundal palpation)
- Vaginal examination (for mothers in labour) may reveal the foot, dimple or testes if membranes ruptured

Differential Diagnosis

- Face presentation on vaginal examination
- Shoulder presentation
- Fibroids in lower segment

Investigations

- Ultrasound scan to confirm presentation, maturity, foetal size, placenta location and liquor volume

Management (Antenatal)

- If the gestational age is below 36 weeks, reassure the mother to continue attending ANC and re assess at 36 weeks.
- If gestational age is 36 weeks or more, refer to comprehensive emergency obstetric care facilities to plan for delivery Mother with breech presentation at 37 weeks or more should be offered External Cephalic Version unless there is a contraindication.
- Assess to exclude the following contraindications for external cephalic version (ECV)
  - Patient planned for elective caesarean section
  - Previous uterine scar
  - Multiple pregnancy
  - Antepartum haemorrhage (placenta praevia, abruption placenta)
  - Rhesus negative mothers
  - Ruptured membranes
  - Uterine abnormalities (bicomuate, fibroids, etc.)
  - HIV positive mothers (unsuppressed viral load)
  - Intrauterine growth restriction (IUGR) Congenital abnormalities e.g., Hydrocephalus
  - Oligohydramnios or polyhydramnios
  - Pre-eclampsia and Hypertension in pregnancy
  - History of preterm labour

Prerequisites to perform ECV

1. Ensure it's a Singleton pregnancy
2. Gestational age ≥ 37 weeks
3. No contraindication to Vaginal delivery
4. Foetal well-being established prior to procedure
5. Adequate amniotic fluid volume
6. Position of foetus known prior to procedure
7. Facilities for immediate caesarean section delivery

External cephalic version procedure

- Obtain the woman's fully informed signed consent. This discussion should include the following information:
  - A policy of offering ECV at 37 weeks will reduce the need for caesarean section.
  - Success is approximately 30% to 50%, and is dependent on the experience of the health care provider, as well as parity of the woman.
  - The procedure may be safely repeated until the head is deeply engaged in the pelvis, or rupture of membranes has occurred.
  - Sedation and tocolysis may be used.
- Assess foetal well-being prior to beginning the procedure. In addition to asking the woman about the foetal movements, auscultate the foetal heart. If available, a 20-minute non-stress test or biophysical profile may also be carried out before the procedure is started.
- Re-confirm the foetal position with careful abdominal palpation. An ultrasound examination should be performed to confirm the position. In some settings, real-time ultrasound is done during the procedure to check progress and to monitor the foetal heart rate. In other settings, a second health care provider may monitor the foetal well-being throughout the procedure using a Doppler or fetoscope.
- The abdomen may be lubricated with ultrasound gel or powder to make the procedure easier.

Procedure

- Dislodge the buttocks from the pelvis, pushing upwards and then laterally.
- Grasp the head and direct it downwards.
- Slowly rotate the foetus by pushing upwards and to the side of the foetal back with the hand holding the buttocks, at the same time guiding the head downwards and to the opposite side.
- When the head reaches a lower level than the buttocks, manoeuvre the head

over the pelvic inlet.

- If the forward roll attempt fails, a backward flip (i.e., the opposite direction) may be attempted.
- If an ultrasound is available, such patients should be admitted in a comprehensive emergency obstetric care facility till labour ensues.
- If there are contraindications to ECV or ECV fails, assess pelvis. If pelvis is small or borderline, plan for caesarean section otherwise plan for vaginal breech delivery.
- The mother can stay in the ANC clinic for 4 hours as you listen to the foetal heart.

Instructions to the mother

Tell the mother to come back if

1. There is vaginal bleeding
2. If the mother starts feeling abdominal pain.
3. If she thinks the baby has reverted to its original position.
4. Reduced foetal movements

Complications of ECV

1. Failure of ECV
2. Intrauterine death is rare but may occur secondary to cord accident, maternal-foetal haemorrhage, or may be unexplained
3. Placental Abruptio
4. Rupture of the membranes
5. Stimulation of labour
6. Foetal bradycardia
7. Risk of Isoimmunization

Subsequent Management (Antenatal)

- Continuous counselling and reassurance of the mother
- Continue with regular antenatal visits
- Re-asses the mother prior to repeat ECV where it failed or where it succeeded but reverted to breech

Management of breech in Labour

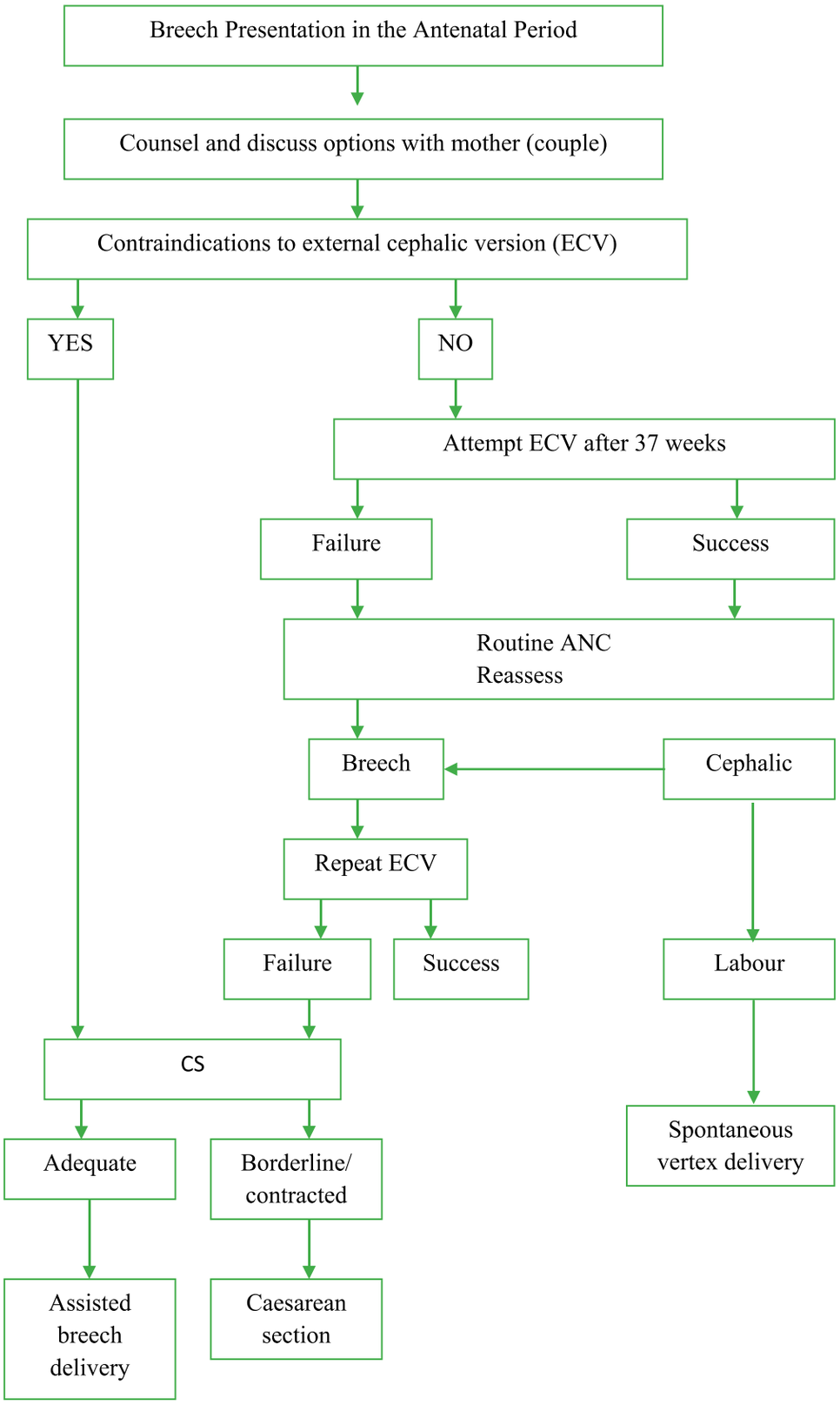
Refer to CeMONC facility

- If preterm and less than 34 weeks, allow vaginal delivery
- Give steroids
- If gestation is 34 weeks or above, assess the pelvis carefully and decide on appropriate more of delivery

Contraindications to breech vaginal delivery

- Contracted pelvis
- Big baby (more than 3.5 kg estimated weight)
- Deflexed or hyper-extended head
- All scarred uterus previous uterine scar for C-section, myomectomy and cornual ectopic pregnancy
- Congenital abnormalities (e.g., abdominal tumour, neck tumour)
- Prime gravida

Protocol 7: Antenatal management of breech presentation



GESTATIONAL DIABETES

Definitions;

- Gestational diabetes is a carbohydrate intolerance resulting in hyperglycaemia of variable severity with onset or first recognition during pregnancy.
- Diabetes in pregnancy is diagnosed if one's fasting blood glucose ≥7.0 mmol/l and/or 2-h blood glucose ≥11.1 mmol/l following a 75 g oral glucose load. This may be pre-existing diabetes type 1 and 2
- Gestational diabetes mellitus is a fasting plasma glucose 5.1–6.9 mmol/l and/or 2-h plasma glucose 8.5–11.0 mmol/l following a 75 g oral glucose load. (WHO 2013)
- Hyperglycemia first diagnosed in pregnancy; altered glucose tolerance not high enough to qualify as diabetes in pregnancy or gestation diabetes mellitus.

Screening for Gestation diabetes mellitus and hyperglycemia first diagnosed in pregnancy

WHO updated criteria for diagnosis of gestation diabetes in pregnancy (WHO 1999)
Fasting plasma glucose ☐7 mmol/L, 2-hour plasma glucose ☐ 7.8mmol/L. (one criterion is required for diagnosis)

Pre- conception Counselling;

- Risks of uncontrolled diabetes to both mother and baby
- Ways to mitigate these risks; glycemic control, lifestyle modification, nutrition and dietary counselling, exercise, weight loss,
- Role of self-monitoring and help acquiring a glucometer
  Advice on attempting to achieve glucose levels close to normal in order to reduce risk of congenital abnormalities in baby which are all directly proportional to poor glycemic control in first ten weeks of pregnancy. This includes;
  - neuro-tube defects,
  - congenital heart disease,
  - renal abnormalities
- Contraception; prolong pregnancy till glycemic control achieved
- Screening; Eye exam, LFT, RFT, urinalysis, HBA1C, urine albumin creatinine ratio, lipid profile, serum vitamin B12
- Medications; stop ACEI, ARBs, Statins, Start folic acid
- Fetal kick counting for antenatal surveillance

Targets for glycemic control

- Fasting and pre-prandial plasma glucose <5.3 mmol/L (95.4 mg/dl)
- 1hr post prandial glucose <7.8 (140.4mg/dl)
- 2 hour post prandial plasma glucose <6.7mmol/L (120.6mg/dl)
- Aim for HBA1C <=6.5%
- Individualized targets in patients with hypoglycemia

FETAL SURVEILLANCE AND TIMING OF DELIVERY;

- Start at 30- 32 weeks of gestation, and then weekly until delivery stick to the updated FANC Model
- Advise a foetal anatomical survey ultrasound at 24 weeks for early identification of any congenital anomalies.
- Uncomplicated DM, induce labour at 38-40 weeks gestation to decrease risk of still birth
- Induction before 38weeks of gestation for fetal/ maternal obstetric indications.

Table 5: Insulin dosing in pregnancy

Weeks' gestation	Total daily dosing (This can be adjusted according to blood glucose levels obtained on home glucose self-monitoring)
Week 1-18	0.7 U/kg actual body weight
Week 18-26	0.8 U/kg actual body weight
Week 26-36	0.9 U/kg actual body weight
Week 36-40	1.0 U/kg actual body weight
After delivery if overt diabetes	0.5 U/kg actual body weight

Adopted from Jovanovic, Clin Obstet Gynecol 2000)

Table 6: Recommended weight gains in pregnancy

Pre-pregnancy BMI (KG/M2)	Recommended range total weight gain (kg)
<18.5	12.5-18
18.5-24.9	11.5-16
25-29.9	7.0-11.5
>/30	5.0-9.0

Adopted from institute of medicine guidelines for gestational weight gain in singleton pregnancies May 2009

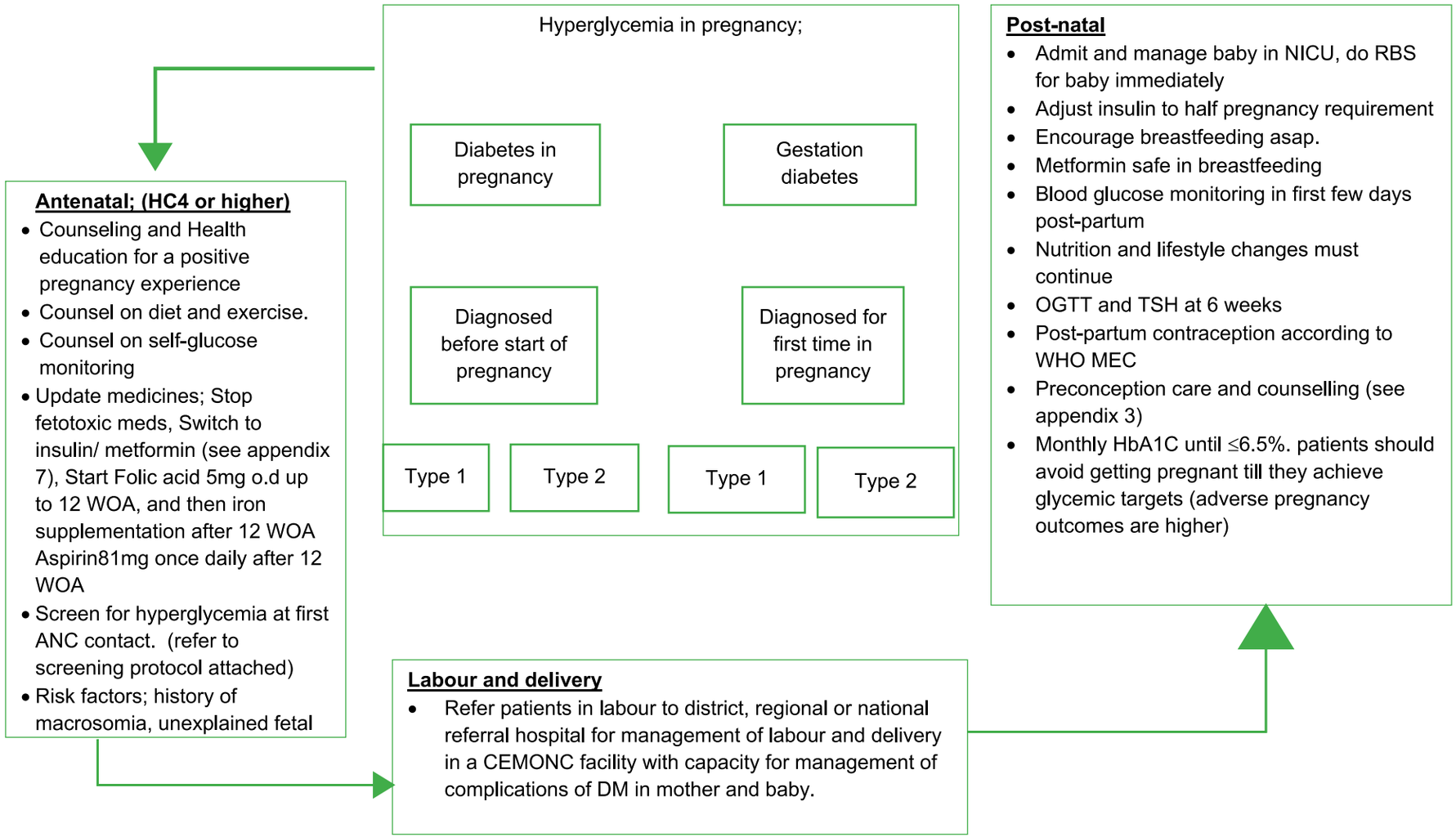
Antenatal corticosteroids given to improve fetal outcomes where indicated. Where given, insulin doses should be adjusted accordingly.

Table 7: Recommended dosing of insulin following dose of betamethasone

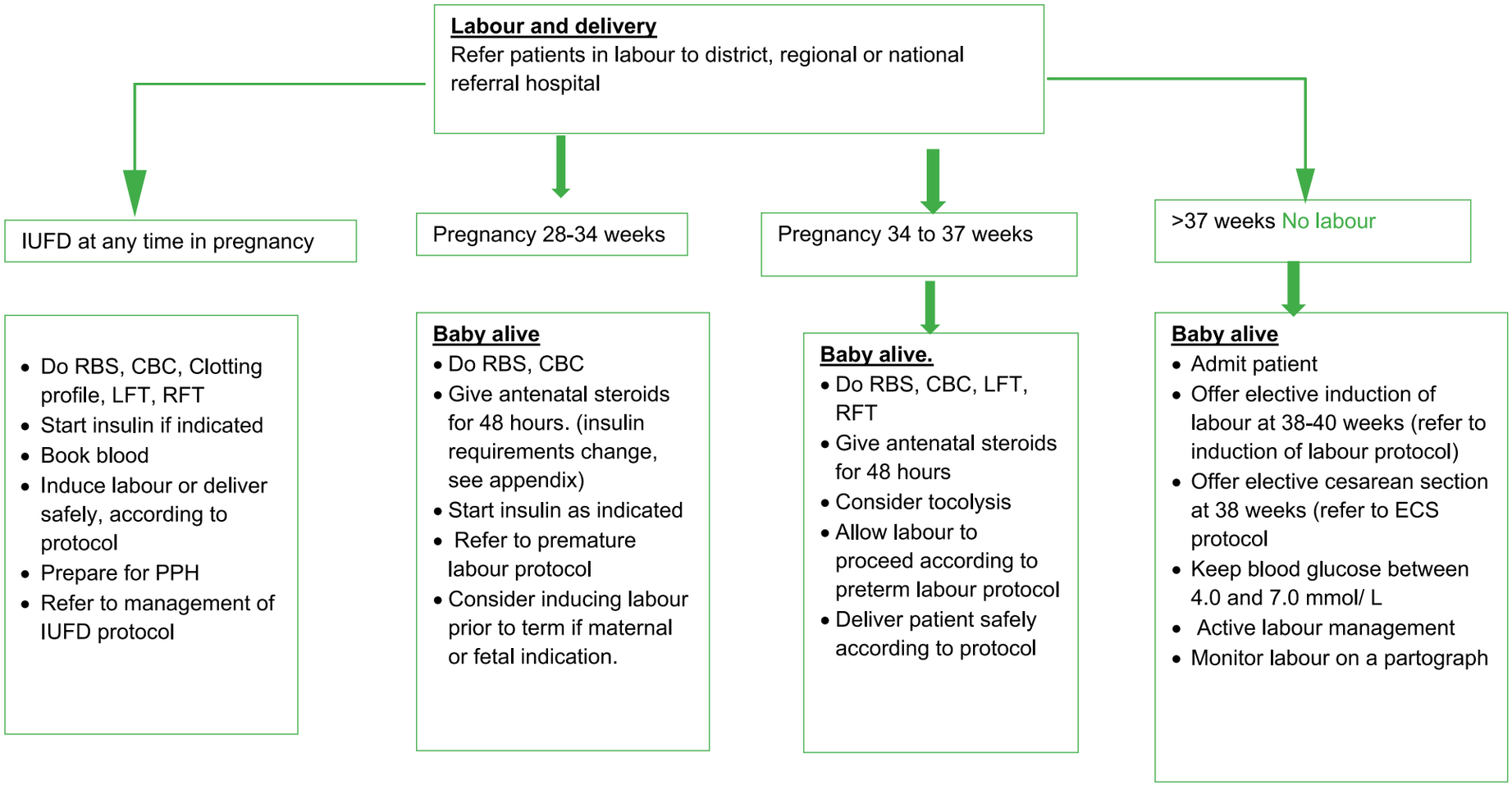
Following first dose of betamethasone	
Day 1	Increase night insulin by 25%
Day 2 and 3	Increase all insulin doses by 40%
Day 4	Increase all insulin doses by 20%
Day 5	Increase all insulin doses by 10%
Day 6 and 7	Gradually taper to pre-betamethasone dose

Adopted form Mathiessen et al 2002

Protocol 8: Hyperglycaemia in pregnancy



Protocol 9: Hyperglycaemia in labour and delivery



PRETERM (PREMATURE) LABOUR

Definition

Labour occurring between 26-37 weeks of gestation.

Symptoms and Signs

- Regular uterine contractions, at least two in ten minutes lasting 20-40 seconds
- Cervical effacement and dilation

Risk factors

- PPROM
- Hypertensive disorders in pregnancy
- Multiple pregnancy
- Malaria
- UPPER/UTI
- Cervical incompetence
- Drugs and medicines
- Trauma
- Fetal abnormalities
- Unclear/unknown factors

Differential Diagnosis

- Braxton-Hicks contractions
- False labour
- Complications associated with fibroids or ovarian tumours
- Urinary tract infection
- Acute appendicitis

Investigations

- Blood slide for malaria parasites
- Urinalysis, culture and sensitivity
- Ultrasound scan
- CBC

Management

- Take a thorough history to pick symptoms for the risk factors, General examination of the mother and the unborn baby
- Conduct an Obstetric examination, admit once at a CEmNOC site or refer after administration of emergence of medicines out of BEmNOC facility.
- Establish and manage identifiable cause (e.g. malaria, pyelonephritis)
- Counsel the mother and her companion on her condition
- If mother in latent phase of labour administer emergence medicines (ANC steroids ie i.v/i.m Dexamethasone, Antibiotics, MgSO4, antimalarials)
- Encourage bed rest and fetal wellbeing monitoring.

If mother in established labour, refer to labour management protocol.

ensure no contra indication to vaginal birth

Call for help during delivery (skilled assistant to manage the premature baby)

- Prepare equipment for resuscitation of premature baby. Refer to premature resuscitation protocol.
- Preterm births are at risk of precipitate labour.
- Conduct delivery very carefully as small baby may pop out suddenly. In particular, control delivery of the head assess the need for elective episiotomy to avert intra cranial bleeding)

Foetus well and less than 34 weeks:

- Rehydrate patient, as needed.
- Give antibiotics
- Give I.M Dexamethasone 6mg 12hourly x 4 doses.
- If <32 WoG administer 4gm of 20% MgSO4, I.v over 30 minutes for Neuroprotection

Note: *Tocolytic agents are only indicated for pregnancies between 26 and 34 weeks of Gestation as to allow for ANC steroids to work. Examples Of Tocolytics Include.*

- Indomethacine P.o or PR 50 to 100mg loading dose FOLLOWED BY 25MG PO 6hourly for 48hours. Don't Give After 32 Weeks
- Calcium channel blockers eg. Nifedipine 20 to 30mg start then 10 to 20 mg Po for every 8hours up to 48 hours
- Less effective but commonly used is MgSO4 IV 20% 6gm slow bolus over 20 minutes followed by continuous infusion of 2gms 20% until Tocolysis is achieved. Please monitor for MgSO4 toxicity especially Urine output , absence of Deep Tendon Reflexes, Respiratory Depression.
- Beta blockers 2 Adrenagic receptor agonists Terbutaline subcutaneous intermittent injections 0.25mg every 20 to 30 minutes up to 4 doses or until Tocolysis is achieved. Then give 0.25mg every 3 to 4 hours until uterus quiescent for 24hours.

Subsequent Treatment

- If labour subsides, keep in the ward until satisfied with patient's condition and then discharge or keep until delivery
- Counsel appropriately if cause known (e.g. fibroids)
- Continue and complete treatment of underlying cause (e.g.,malaria, pyelonephritis)

If active phase and cervical dilation 4 cm or more and baby 34 weeks or more:

- Transfer of patient to a comprehensive emergency obstetric care facility is dependent on proximity of referral site and imminence of delivery.
- Monitor labour
- If membranes are intact, keep intact for as long as possible
- Keep patient in bed
- Alert paediatrician that a premature baby is expected.

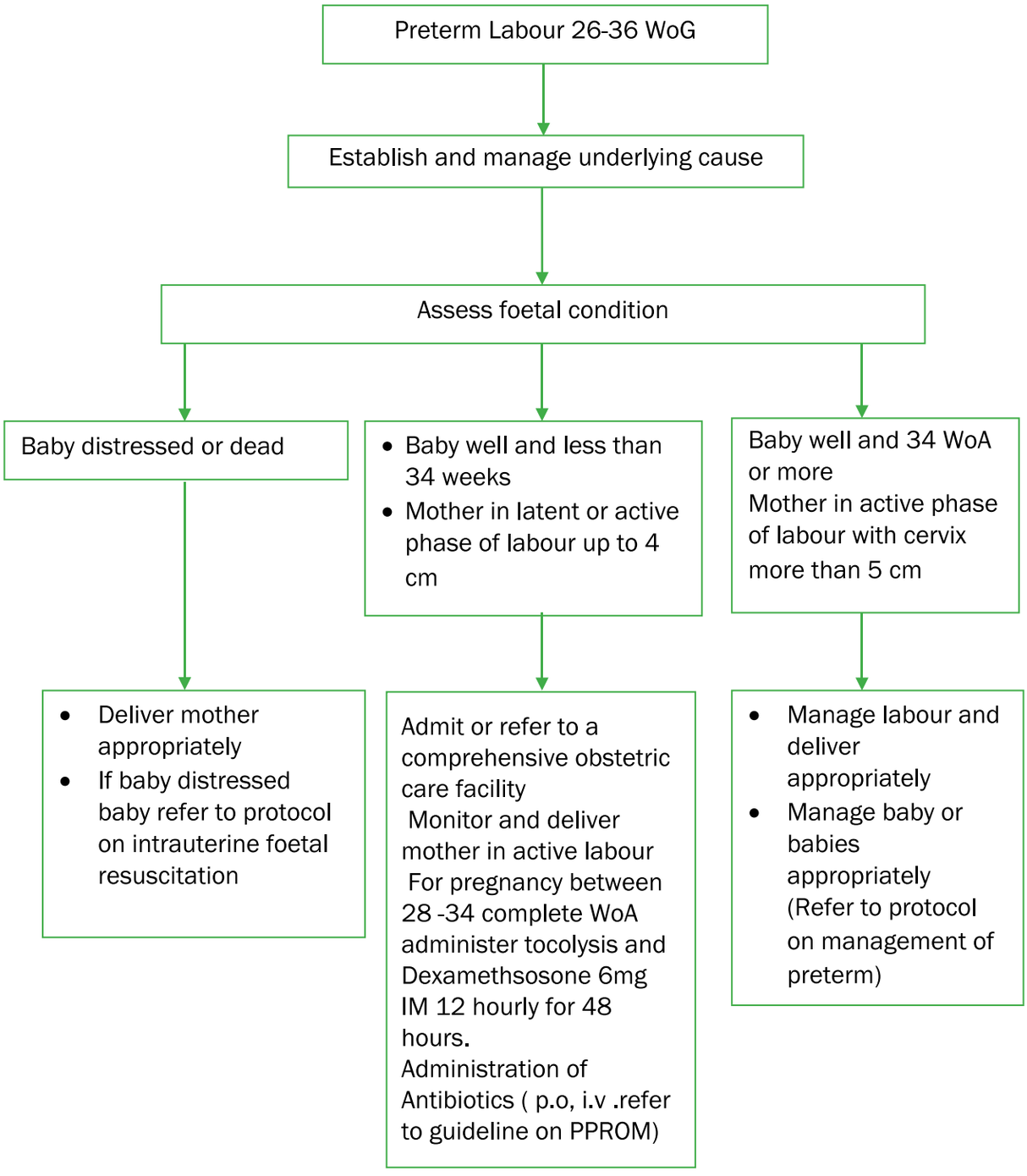
2nd Stage

- Conduct second stage normally
- Perform episiotomy only if required
- Precautions to Take in Order to Avoid Complications
- If labour is established and membranes are intact, keep the membranes intact as long as possible
- Avoid use of respiratory depressants (e.g. Pethidine or diazepam) during labour

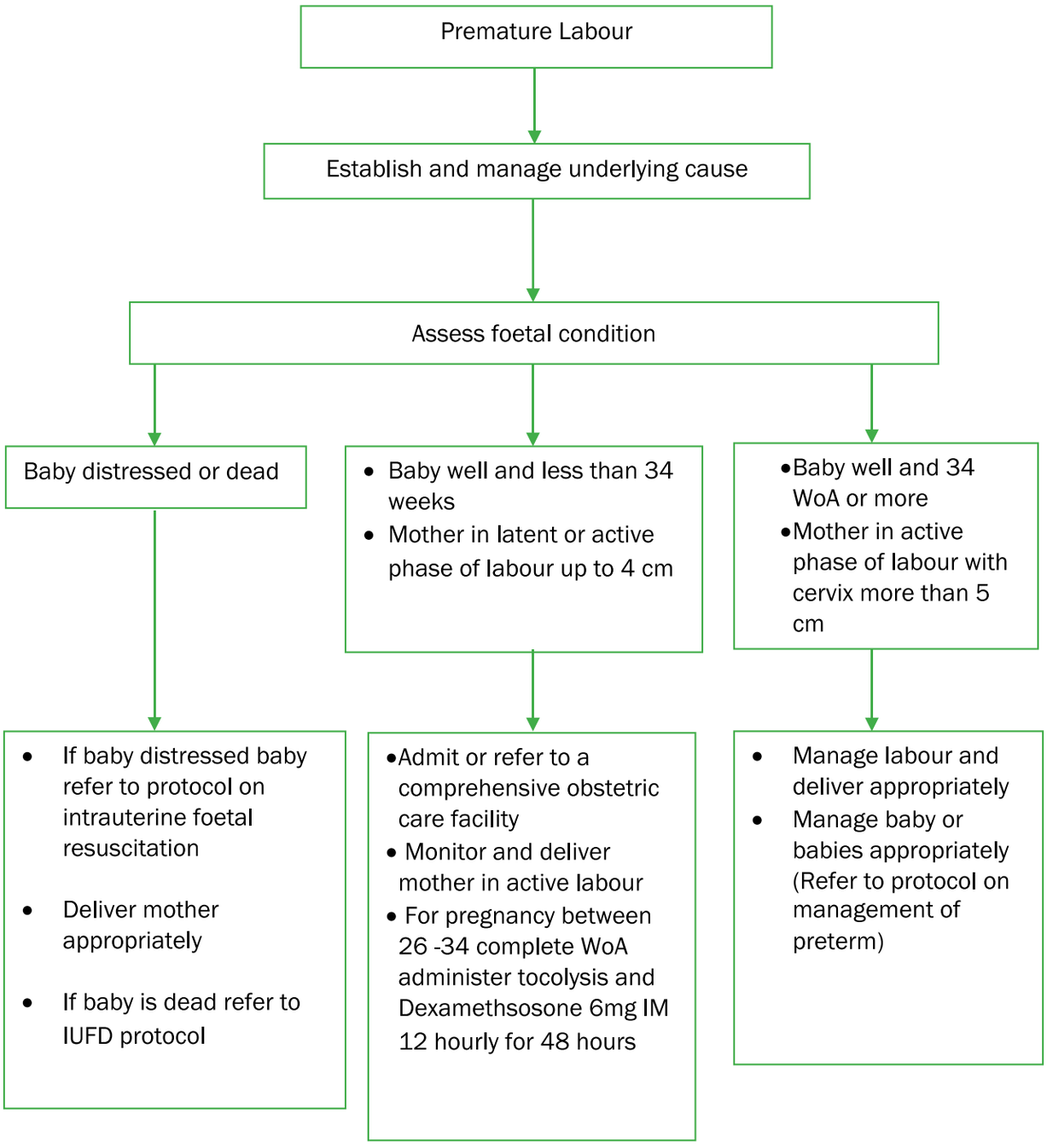
Follow-up

For preterm baby – see neonatal care guidelines

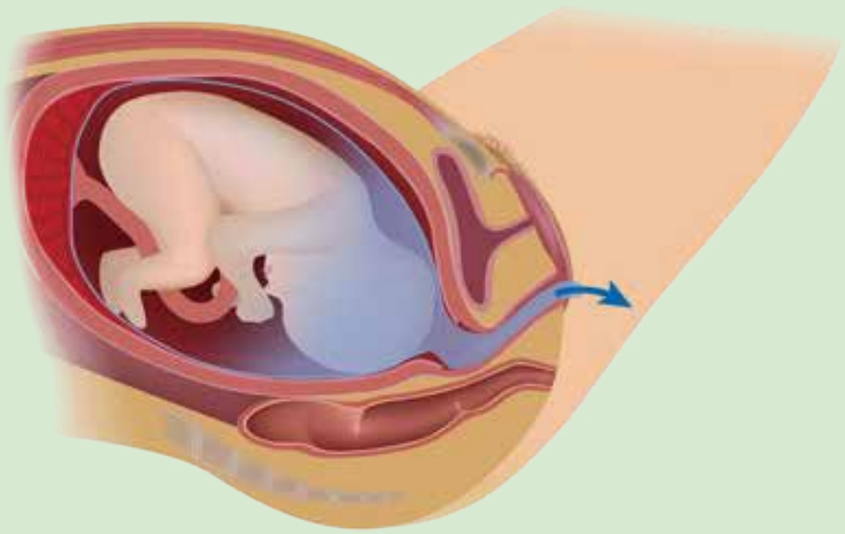
Protocol 10: Management of preterm labour



Protocol 11: Management of premature Labour



PRE-LABOUR RUPTURE OF MEMBRANES (PROM)



Definition

Spontaneous rupture of the membranes before the onset of labour

- Preterm: before 37 completed weeks of gestation
- After 37 completed weeks of gestation

Symptoms and Signs:

- Sudden "gush" of amniotic fluid or a slow trickle of fluid from the vagina before the onset of labour after 26 weeks of gestation
- Speculum examination using sterile Cusco speculum to inspect the cervix. Fluid may be seen leaking from the cervix or a pool of fluid in the posterior fornix. Look for the umbilical cord. If there is no active drainage of liquor but evidence of Oligohydramnios, and reduced symphyseal fundal length/ fundal height in pregnancy, this is suggestive of Prelabour rupture of membranes.

Investigations

- ultrasound scan -Oligohydramnios suggestive of PROM

Others

- pH: Amniotic fluid alkaline (7.0 – 7.5) or changes red litmus paper to blue, Nitrazine yellow test turn blue.
- Amniotic fluid sample for analysis (gram stain, culture and sensitivity
- Ferning test (arborisation) typical of dried amniotic fluid
- Complete Blood Count (look for leukocytosis, Hb)

Differential Diagnosis

- Urinary incontinence

Immediate Treatment

If BEmONC facility, give pre referral treatment and refer to CEmONC facility

- Encourage bed rest
- Monitor foetal heart rate half hourly for the first hour, then 2hourly, then 6 daily
- Usually, labour will start spontaneously within 24 hours
- If not in labour after 24 hours induce, if no contraindication to vaginal delivery
- If there are indications for caesarean section, this should be done
- Give prophylactic antibiotics oral antibiotics Azithromycin 1g single dose/ Erythromycin 500mg 6 hourly for 5 days.
- If no evidence of infection, continue antibiotics for 24 hours postpartum
- If evidence of infection, use IV broad spectrum antibiotics continue treatment for 5 days

Preterm pregnancy (26-37 weeks)

- Recommend bed rest; plan delivery (in consultation with paediatrician where possible by 37 weeks provided there is no suspicion of intrauterine infection and level of amniotic fluid
- Avoid digital vaginal examinations
- Monitor for signs of infection (uterine tenderness, temperature, pulse, colour of liquor and foetal heart sounds) twice daily.
- Do ultrasound scan twice a week
- Do complete Blood count every 72 hours
- Administer broad-spectrum antibiotics Iv ampicillin 2gm start for prophylaxis
- Give steroids to induce lung maturity (IM dexamethasone 6mg 12 hourly for 48 hours prior to planned delivery). Repeat the dose of dexamethasone if delivery does not occur within seven days after the last dose.
- IV magnesium sulphate, 4g of 20% single dose for foetal neuroprotection
- Liaise with a paediatrician for new-born care.

Post-delivery observations

- Monitor signs of infection (uterine tenderness, temperature, pulse, lochia, purulent vaginal discharge, tender sub involuted uterus).
- Baby's condition, cord care, temperature

Precautions to Take in PROM in Order to Avoid Complications

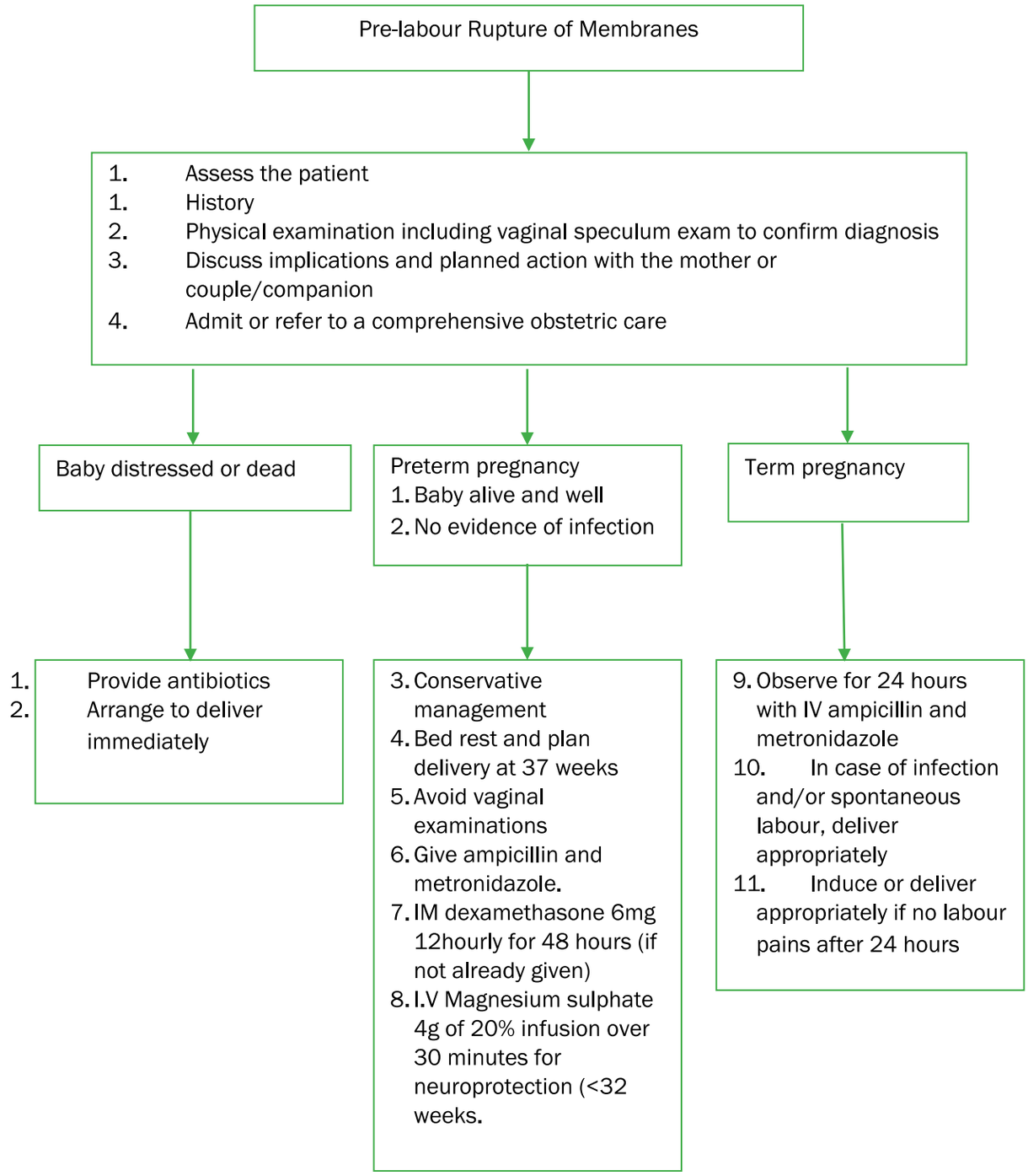
- Encourage mother to maintain good personal hygiene
- Bed rest to avoid cord prolapse
- Avoid digital vaginal examinations
- Observe aseptic technique

Follow-up

if no complications, follow routine postnatal care

- Monitor the mother and baby for signs of postpartum and neonatal infection
- If premature, manage as for premature infant

Protocol 12: Pre-labour rupture of membranes



MULTIPLE PREGNANCY

- The term multiple pregnancy is used to describe the development of more than one foetus in utero. Multiple pregnancy is now common in people who use fertility drugs.

Types of multiple pregnancy

- Twin pregnancy is the commonest (two babies)
- Triplets (three babies)
- Quadruplets (four babies)
- However, there may be higher order multiples

History

- A family history of twins should alert the medical worker
- History of hyperemesis gravidarum in a pregnancy growing faster than the previous one

Examination

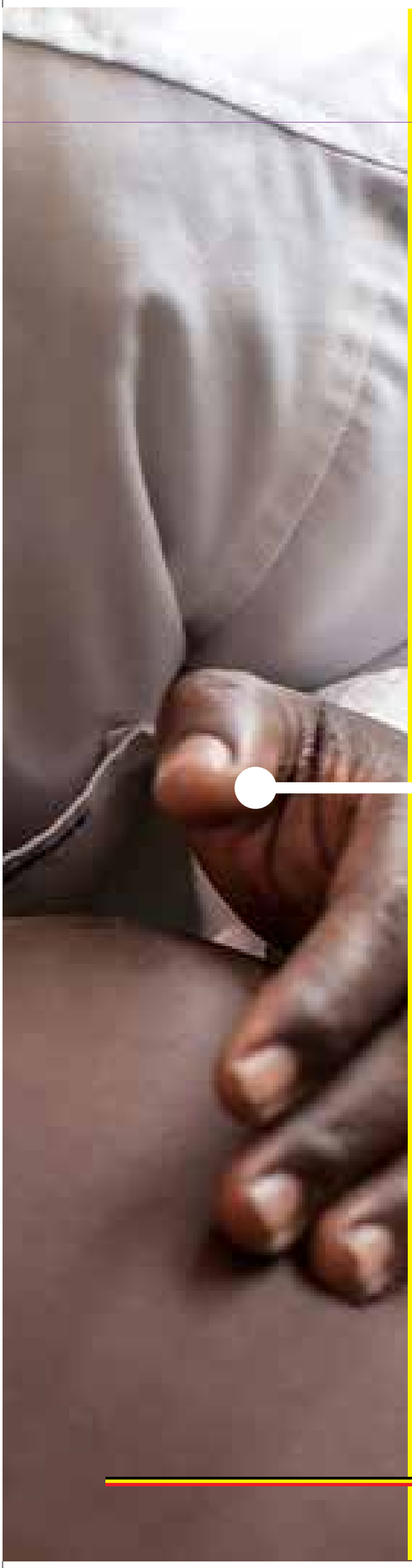
- On inspection
  - Grossly distended abdomen
- On palpation
  - Fundal height maybe greater than the weeks of amenorrhea
  - There may be multiple foetal parts felt
  - More than two foetal poles maybe felt
  - In some cases, the abdomen might be difficult to palpate

Management of multiple pregnancy

- Management should start at the antenatal clinic by providing quality antenatal care to detect hypertension, anaemia, polyhydramnios, etc
- Ensure that the mother takes iron and folic acid

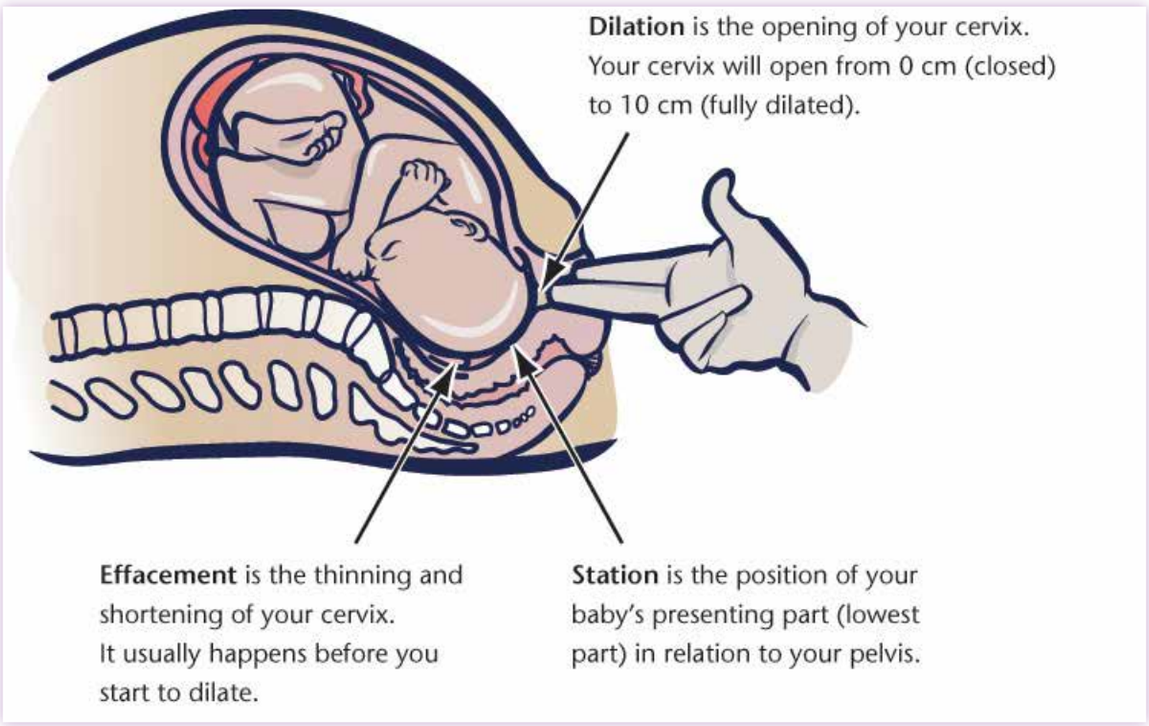
During labour:

- Put an IV infusion and take off blood for grouping and cross matching



INTRAPARTUM CARE

MANAGEMENT OF FIRST STAGE OF LABOUR



The first stage of labour is the period from the onset of true labour to complete (full) dilatation of the cervix.

The first stage of labour is divided into the latent and active phases:

- Latent phase: cervix less than 5 cm dilated
- Active phase: cervix 5cm or more dilated
- Latent phase of labour is generally not charted on the labour care form
- Duration of active phase of first stage of labour
- Primigravida: 8-2 hours
- Multigravida:6-8 hours

Management of woman in active phase of labour

History of this labour:

- When did contractions begin?
- How frequent are contractions? How strong?
- Have your waters broken? If yes, when? Was liquor clear or green?
- Have you had bleeding? If yes, when? How much?
- Is the baby moving?
- Do you have any concern? Check records or
- Ask when the delivery is expected
- Determine if preterm (less than 8 months pregnant).
- Review the birth plan.

Previous pregnancies:

- Number of prior pregnancies/deliveries.
- Any prior caesarean section, forceps, or vacuum, or other complication such as postpartum haemorrhage or Early Neonatal Death?
- Any prior third-degree perineal tears?

Review ANC Card (Current pregnancy) check for:

- Syphilis status
- Hb results
- Tetanus immunization status
- HIV status (refer to HIV protocol)
- Hepatitis B status
- Receiving any medication.
- Weights of previous babies at birth

LOOK, LISTEN, FEEL

- Observe the woman's response to contractions:
  - Is she coping well or is she distressed?
  - Is she pushing or grunting?
- Check abdomen for:
  - caesarean section scar.
  - horizontal ridge across lower abdomen (if present, empty bladder and observe again).
- Feel abdomen for:
  - contractions frequency, duration, any continuous contractions?
  - foetal lie - longitudinal or transverse?
  - foetal presentation - head, breech, other?
  - more than one foetus?
  - foetal movement.
- Listen to the foetal heart beat:
  - Count number of beats in 1 minute.
  - If less than 120 beats per minute, or more than 160, turn woman on her left side and count again.
- Measure blood pressure if > 140/90mmhg (refer to Pre-eclampsia guidelines)
- Pulse rate
- Oxygen saturation
- Urine output
- Measure temperature.
- Look for pallor.
- Look for sunken eyes, dry mouth.
- Respiratory rate
- Pinch the skin of the forearm: does it go back quickly?

Next: Perform vaginal examination and decide stage of labour

Differential Diagnosis of Labour

- False labour which is characterized by irregular uterine contractions not associated with cervical effacement and dilatation
- Urinary tract infection
- Appendicitis
- Abruptio placenta
- Intestinal obstruction

Investigations to Ensure the mother is "Fit for Labour"

- Blood haemoglobin level
- Blood grouping and cross-matching and Rhesus factor (for high-risk mothers)
- Urinalysis: protein, sugar and acetone

Subsequent Management of Labour

Observe record and interpret the following on the partogram:

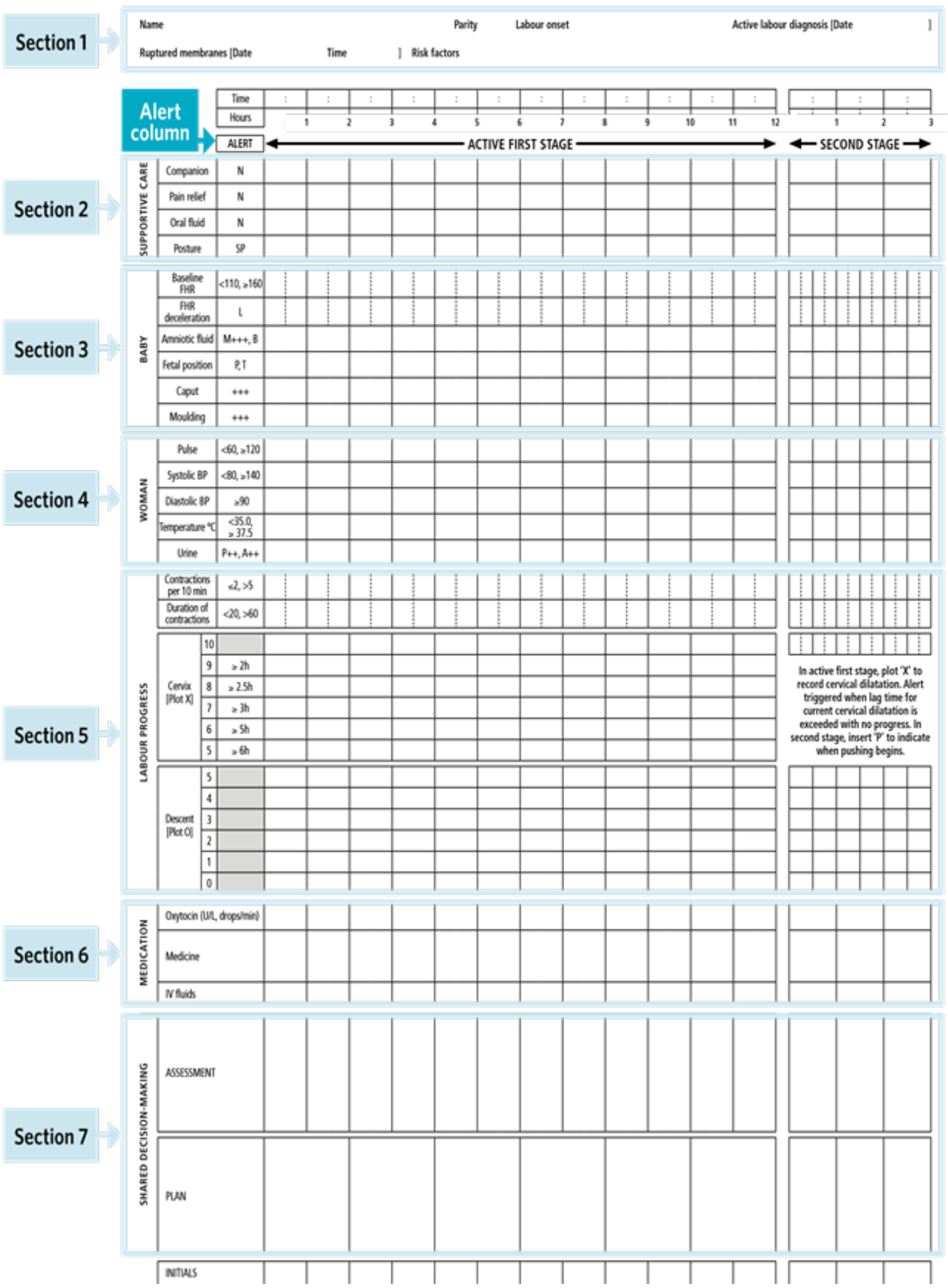
General condition of the mother:

- General condition/hydration state
- Temperature, pulse, blood pressure
- Fluid intake/output
- Urine protein/acetone 2-hourly
- Medication given

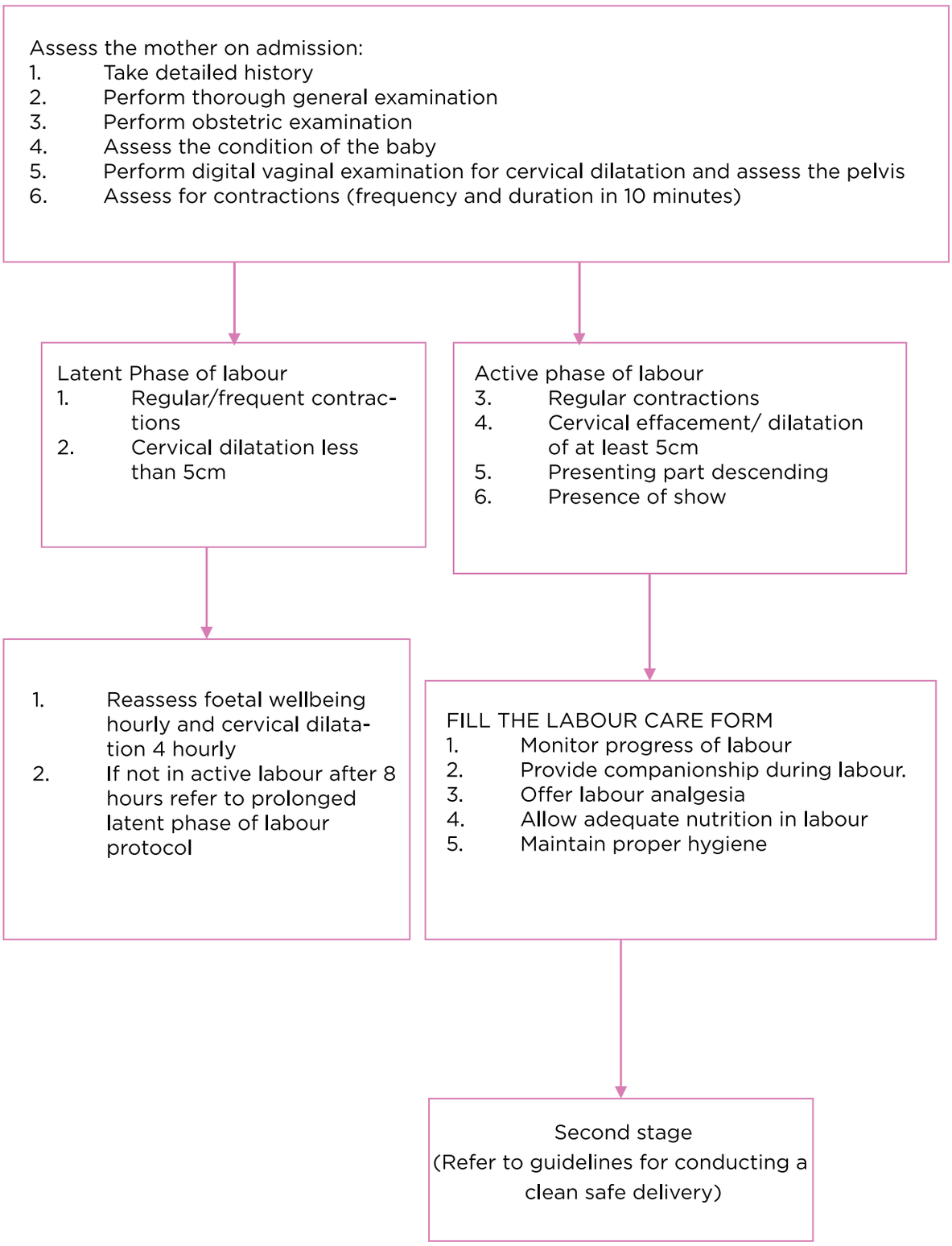
Abdominal and pelvic examination:

- Level of the head above the pelvic brim in fifths (descent of the head)
- Foetal heart rate (every half hour in active phase) – should be listened to before, during and after a contraction
- Frequency and duration of contractions, half hourly in active phase
- Cervical effacement and dilatation, 4-hourly or when membranes rupture to include cord prolapse
- Appearance of liquor if membranes ruptured
- Application of presenting part to the cervix
- Degree of moulding
- Caput formation
- Position of presenting part

WHO LABOUR CARE GUIDE



Protocol 13: Management of first stage of labour on admission



SECOND STAGE OF LABOUR

The second stage of labour is the period which begins when the cervix is fully dilated and ends with the delivery of the baby. It usually lasts 30 minutes in multigravida and 45 minutes in primigravida.

Diagnosis

The diagnosis is made on finding:

- The cervix is fully dilated (10 cm).
- The following signs may be seen:

a. gaping anus
b. sweating
c. urge to bear down.

Management:

Ensure all delivery equipment and supplies, including newborn resuscitation equipment, are available, and place of delivery is clean and warm (25°C).
Ensure bladder is empty by encouraging frequent urination. May catheterize if necessary.
Assist the woman into a comfortable position of her choice. Allow her to stay with her labour companion
Stay with her and offer her emotional and physical support.
Allow her to push as she wishes with contractions.
Wait until head visible and perineum distending.

Monitor Mother and baby every 5 minutes:

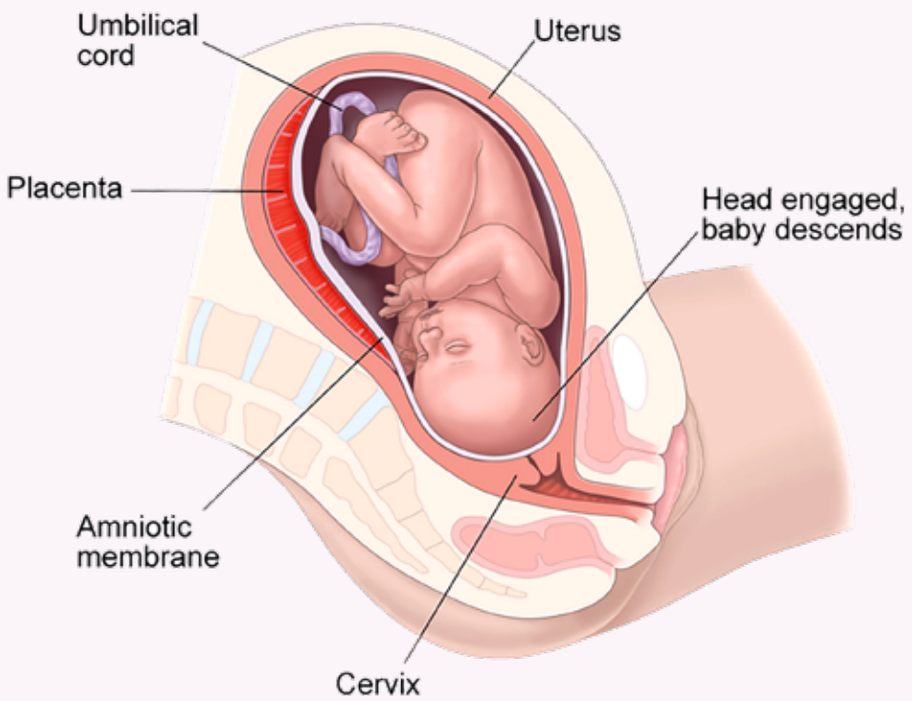
- For emergency signs, e.g., central cyanosis, difficulty in breathing and shock, using rapid assessment (RAM)
- Frequency, intensity and duration of contractions.
- Foetal heart rate
- Perineum thinning and bulging.
- Visible descent of foetal head during contraction.
- Mood and behaviour (distressed, anxious)
- Record findings regularly in Labour record and Labour Care Form
- Give Supportive care
- Never leave the woman alone.

Deliver the baby

- Place a clean cloth over the mother's abdomen
- Ensure controlled delivery of the head:
  - Keep one hand gently on the head as it advances with contractions.
  - Support perineum with other hand and cover anus with pad held in position by side of hand during delivery.
  - Leave the perineum visible (between thumb and first finger).
  - Encourage rapid breathing with mouth open.
- Feel gently around baby's neck for the cord.
- Check if the face is clear of mucus and membranes. If there is mucus, clean with a sterile gauze
- Wait for spontaneous rotation of shoulders and deliver (within 1-2 minutes).
- Apply gentle downward pressure to deliver top shoulder.
- Then lift baby up, towards the mother's abdomen to deliver lower shoulder.
- Note time of delivery
- Place baby on the mother's abdomen or on a warm clean dry surface
- Dry the baby thoroughly with a dry cloth
- Leave the baby on the mother's abdomen to maintain warmth (skin to

skin)

- Assess baby's breathing while drying.
- If the baby is not crying, observe breathing:
  - breathing well (chest rising)?
  - not breathing or gasping?
- Palpate mother's abdomen Exclude second baby.
- Give one of the following uterotonic agent: Oxytocin, carbetocin, misoprostol or ergometrine. Oxytocin (10 IU IV/IM) is the recommended uterotonic of choice. If oxytocin is not available or quality is uncertain administer one of the following; heat stable carbetocin (100 mcg, IV/IM) or misoprostol (400-600mcg oral) or ergometrine (0.2mg IM). Ergometrine should only be administered after excluding hypertensive disease in pregnancy
- Watch for vaginal bleeding.
- Change gloves. If not possible, wash gloved hands with antiseptic.
- Delay cord clamping for 3 minutes or until the cord stop pulsating
- Clamp and cut the cord
  - put ties tightly around the cord at 3 finger breaths (6cm) and 5 finger breaths (10cm) from baby's abdomen.
  - cut between ties with sterile instrument.
  - observe for oozing blood.
- Leave baby on the mother's chest/abdomen in skin-to-skin contact. Place identification label.
- Cover the baby; cover the head with a hat.
- Encourage initiation of breast-feeding within one (1) hour of birth



Protocol 14: Management of 2nd stage of labour

Second Stage of Labour

(Full cervical dilatation, adequate contractions without any contraindication to vaginal birth)

Preparation for delivery (ensure the delivery instruments are sterile)

1. Keep the delivery room ready at all times. Ensure privacy in case you have more than one mother. Prepare space for the companion
2. Ensure conducive environment (warm room, closed windows)
3. Prepare warm clothes for the baby
4. Prepare equipment and ensure sterile delivery sets are ready
5. Resuscitation bed and equipment ready
6. In expulsive stage, the second skilled birth assistant must draw the Oxytocin
7. When episiotomy is indicated prepare lignocaine and sutures

1. Ensure every woman in labour achieves a positive childbirth experience.
2. Allow the mother to decide on her preferable position of delivery and support her to enjoy respectful maternity care
3. Observe universal infection prevention practices
4. Provide emotional, physical comfort and support including a labour companion of the mother's choice
5. Monitor foetal heart rate every 5 minutes
6. Assess for descent of presenting part
7. Assess and record contractions every 5 minutes
8. Measure and record blood pressure and pulse rate – every 30 minutes
9. Take and record respiratory rate – every 15 minutes
10. Observe mother for bleeding
11. If the mother feels like bearing down encourage her to push if she is in the expulsive phase of second stage
12. Conduct the delivery

13. Encourage the mother to bear down with each contraction
14. Assess need for episiotomy.
15. Deliver the head with contractions
16. Clear the baby's airway as soon as the head is born
17. Feel for the cord around the neck. If loose cord, slip over the head. If tight, double clump, cut and unwind
18. Deliver the baby and place on the clean warm cloth on the mother's abdomen and note the time of delivery
19. Palpate the abdomen to exclude second baby
20. Give IM oxytocin 10IU to the mother's anterior outer aspect of the thigh with a flexed hip within one minute of delivery of the baby. Dry the baby, provide skin to skin contact
21. Assess APGAR score at 1 minute and 5 minutes and resuscitate as required (refer to asphyxia protocol)
22. Delay cord clamping for 1 to 3 minutes if baby is well. If baby unwell, refer to Neonatal resuscitation protocols
23. Firmly clamp the cord at 3-5 finger breadths (6cm-10cm) from the baby's abdomen and cut in between the two clamps (use cord scissors/sterile blade)
24. Deliver the placenta and membranes by controlled cord traction and note the time (Refer to protocol for management of third stage of labour)
25. Congratulate and thank the mother
26. Initiate breast feeding within 30 minutes
27. Write complete delivery notes and schedule immunisation

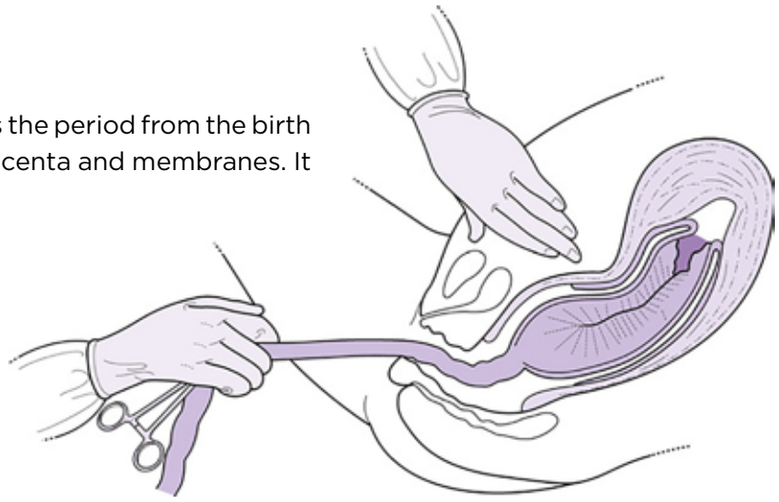
Subsequent Management

- Prepare for third stage of labour

Precautions to Take in Order to Avoid Complications

Stay with the mother all the time and reassure her
Carry out observations and interpret findings, watch for bleeding
Make sure the bladder is empty throughout labour
Encourage the mother not to push prior to signs of separation of the placenta
Listen to the foetal heart after each contraction
Prevent postpartum haemorrhage (PPH) by giving oxytocin or ergometrine at delivery of anterior shoulder

THIRD STAGE OF LABOUR



The third stage of labour is defined as the period from the birth of the baby to the delivery of the placenta and membranes. It normally lasts 5-30 minutes.

Management:

Ensure Active Management of the third stage of labour is offered to all mothers.

- Administer a uterotonic agent within 1 minute of childbirth: Oxyctocin (10 IU IV/IM) or misoprostol (400-600µg orally), or carbetocin (100mcg IV/IM) or ergometrine (0.2mg IM).
- Delay cord clamping and cutting for 3 minutes or until the cord stop pulsating
- Clamp and cut the cord
  - put ties tightly around the cord at 2 cm and 5 cm from baby's abdomen.
  - cut between ties with sterile instrument.
  - observe for oozing blood.
- Wait for a contraction and then place left hand above the symphysis pubis hold back the uterus
- Wind the cord around the clamp and with the right apply firm steady traction on the cord in a downward, outward and then upward movement
- Receive the placenta with both hands when it appears at the vulva
- Deliver the membranes slowly
- Perform examination of the placenta immediately for completeness.
- Massage the uterine fundus and expel clots from the uterus and vagina
- Clean the vulva, and examine vaginal walls, cervix and perineum for tears and lacerations
- Repair episiotomy and/or tears after infiltrating with 1% lignocaine
- Assess blood loss (one kidney dish is approximately 500mls of blood)
- Examine placenta for infarcts, retroplacental clot, cord vessels, etc.
- If the mother has chosen to breastfeed, put the baby on breast within the first one hour.

Monitor Mother and Baby every 15 minutes for 2 hours:

Mother:

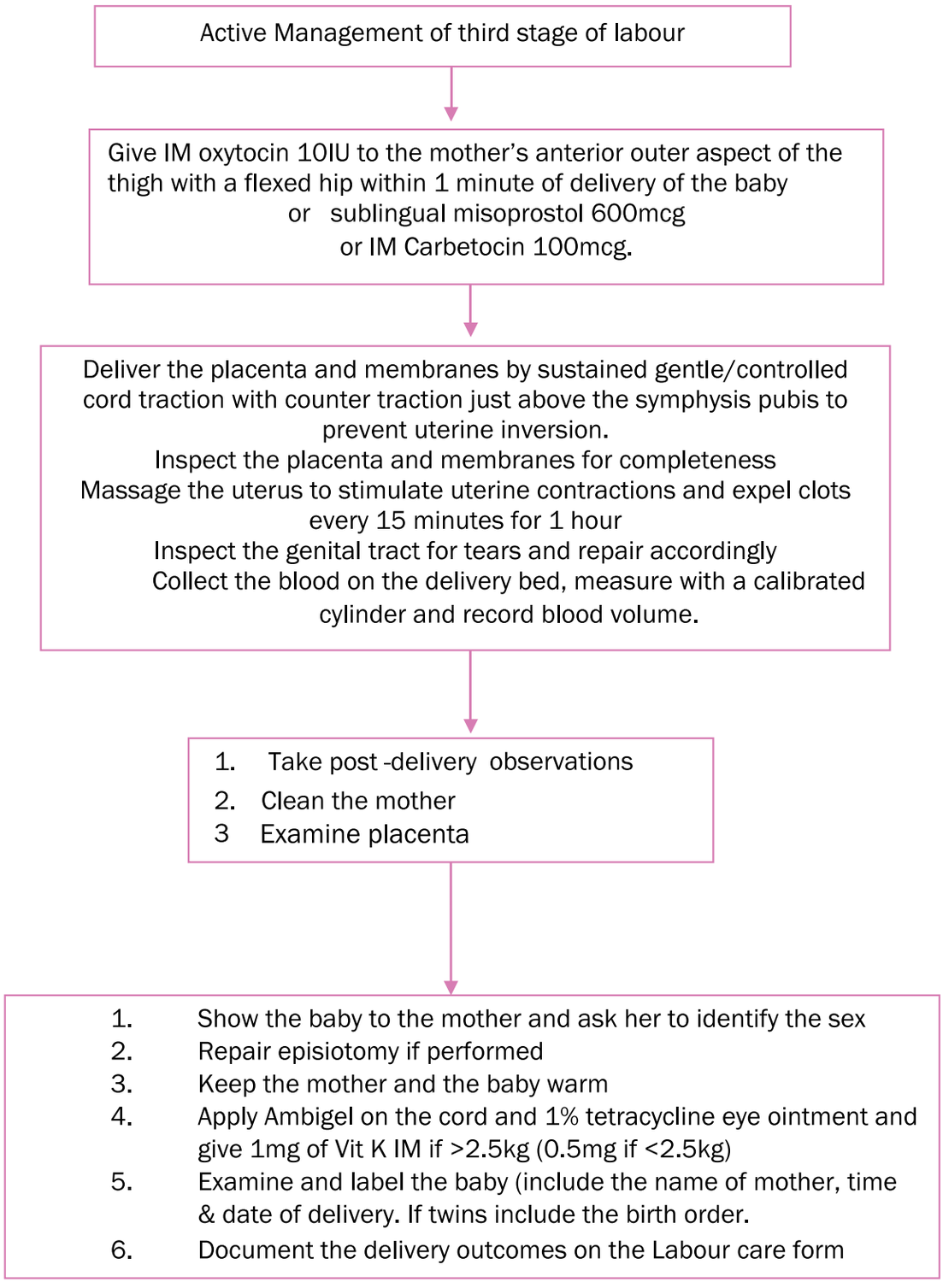
For emergency signs, e.g., difficulty in breathing, central cyanosis and shock using rapid assessment and management (RAM).

- Feel if uterus is well contracted.
- Mood and behaviour
- Record findings, treatments and procedures in Labour Progress Chart
- Give Supportive care.
- Do not leave the woman alone. Encourage her to be with her birth companion.

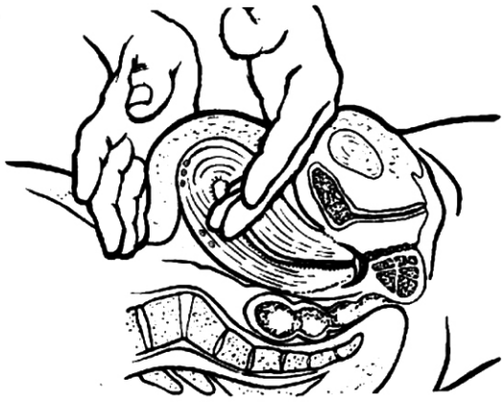
Baby:

- Breathing: listen for grunting, look for chest in-drawing and fast breathing.
- Warmth: Ensure the baby is kept warm by wrapping it in a dry clean cloth and put a cap on the head also check the temperature every after 30 minutes
- Feeding: Ensure that the baby is feeding adequately
- Check the cord for bleeding and ensure it is well ligatured

Protocol 15: Routine management of third stage



MANAGEMENT OF FOURTH STAGE AND FIRST 24 HOURS



The Fourth stage of labour is the first hour following delivery of the placenta

Immediate management.

Mother:

- Never leave the woman and new born alone.
- Monitor for evidence of bleeding by inspecting the vulva half hourly for 2 hours, then 6-hourly for 24 hours.
- Check fundal height half hourly for two hours, and 6 hourly for 24 hours
- Observe vital signs – blood pressure, pulse, respiration rate and level of consciousness (half hourly for 2 hours, then every 6 hours for 24 hours)
- Make mother comfortable; encourage her to pass urine as soon as she feels the bladder is full, or every 4 hours.
- Give the mother a warm drink.

Baby:(refer to essential new born care guidelines)

- Wipe the baby dry and keep warm
- Tie and shorten the cord, breastfeed and keep with the mother
- Examine the baby thoroughly from head to toe
- Apply an antimicrobial on the eyes within 1 hour of birth, either tetracycline ointment, or 1% silver nitrate drops, or 2.5% povidone iodine drops.
- Provide cord care using ambigel
- Give vitamin K

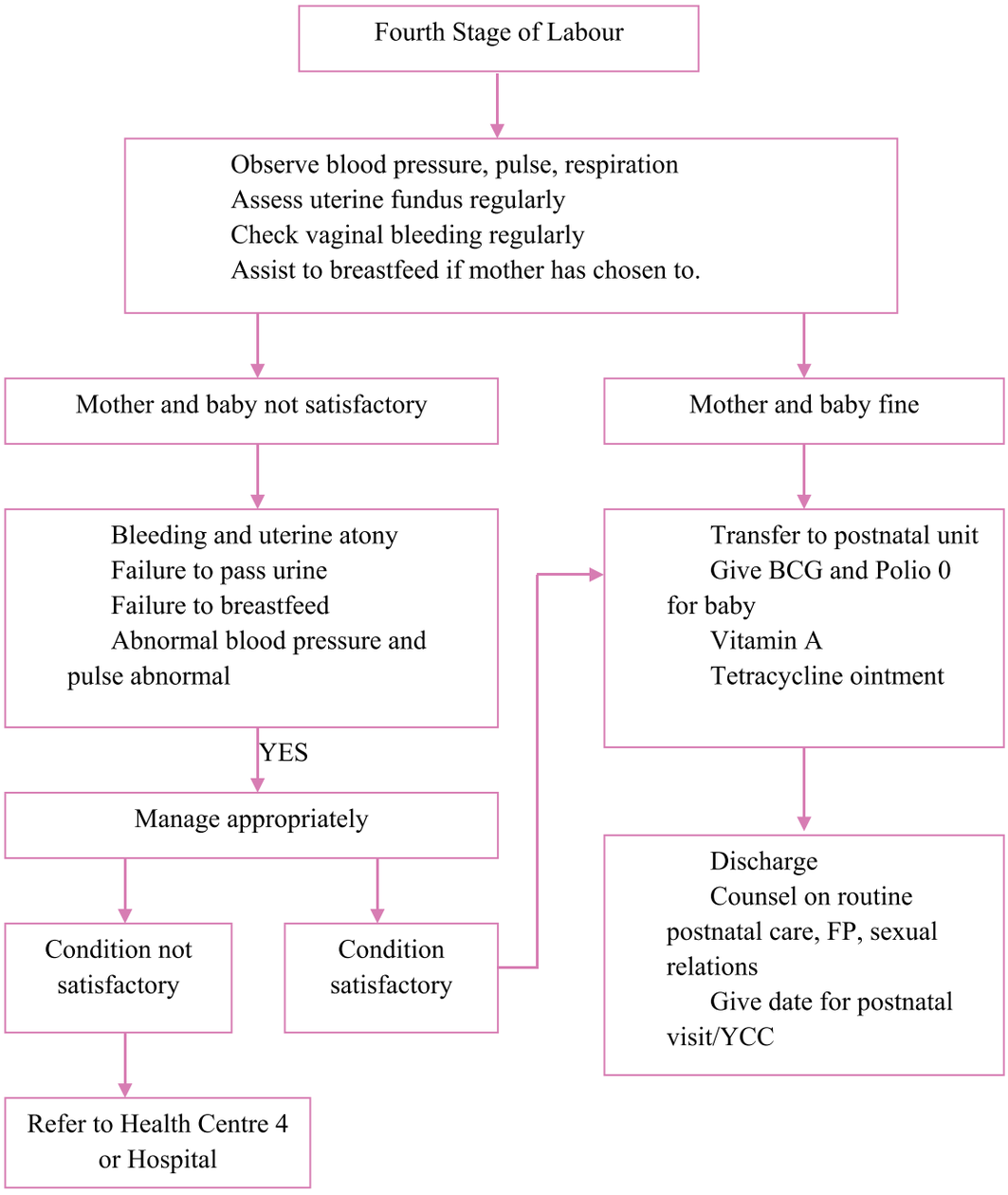
Subsequent management.

- If observations remain stable, transfer to the postpartum ward after one hour
- If any abnormality arises, (e.g., postpartum haemorrhage, postpartum eclampsia), manage accordingly
- Mother is transferred to postnatal ward where observations are continued at 6-hour intervals
- Give the mother 200,000 IU of vitamin A.
- Give the mother mild analgesics if needed (paracetamol)
- Arrange for infant immunisations (BCG, Polio 0)
- Counsel the mother on breast feeding, genital hygiene, care for the baby, FP
- Discharge, provide written delivery and birth details and give postnatal appointment

Follow-up

- Counsel Mother on breastfeeding, diet, personal hygiene, postnatal and neonatal care, family planning and sexual relations
- Discharge from the postnatal ward after 24 hours
- Review mother and baby at 6 days and 6 weeks

Protocol 16: Management of FOURTH STAGE OF LABOUR



INDUCTION AND AUGMENTATION OF LABOR

Definitions

- **Induction of labor** refers to artificial stimulation of uterine contractions before spontaneous onset of labour with the purpose of accomplishing successful vaginal delivery
- **Augmentation** refers to interventions to correct ineffective uterine contractions in already established labor
- **Cervical ripening** is a physiological process occurring throughout the latter weeks of pregnancy. When delivery is necessary and ripening has not had time to occur, or has failed to be initiated, this natural process has to be accelerated.

Indications for induction of labor

MATERNAL

- Preeclampsia/ eclampsia
- PROM
- >=41 weeks of Gestation
- Abruptio placenta
- Chorioamnionitis
- Medical conditions-Ddiabetes, Heart disease, renal disease, chronic hypertension
- FETAL
- IUFD
- Foetal anomaly incompatible with life
- IUGR

PREREQUISITES for labor induction

- No contraindication for vaginal birth
- Establish indication and obtain Informed consent
- Confirm gestational age
- Assessment of foetal size & presentation
- Pelvic assessment for adequacy
- Cervical assessment (Bishop's score)
- Availability of trained personnel

Bishop's score

CERVICAL PARAMETER	SCORE			
	0	1	2	3
DILATATION	CLOSED	1-2cm	3-4	5cm 0r more
LENGTH	>4	3-4	1-2	0
CONSISTENCY	FIRM	INTERMIDIATE	SOFT	-
POSITION	POSTERIOR	CENTRAL	ANTERIOR	-
BABY'S HEAD STATION	-3	-2	-1/0	+1/+2

Interpretation

Score < 6, unfavorable cervix: Do cervical ripening with prostaglandins
Score 6 or more Induce with oxytocin

METHODS OF INDUCTION

Mechanical: Balloon catheters, Luminaria tents Synthetic osmotic dilators

Hormonal: Oxytocin, Prostaglandins PGE2, Misoprostol.

Several effective methods of cervical ripening and induction of labour are used for initiating labour at or around term. However, the following are more commonly used: Sweeping the membranes, Artificial rupture of membranes (ARM), Prostaglandin E2 (PGE2), Intravenous oxytocin (Syntocinon) and Catheter induction for selected cases of one previous non classical uterine scar

Before procedure:

Do fetal heart monitoring

Ensure the woman has emptied her bladder Monitor maternal pulse, blood pressure, respiration rate.

Do Abdominal palpation to confirm cephalic presentationon and vaginal examination to obtain a modified Bishop score.

a) Prostaglandins

They act on the cervix to enable ripening by a number of different mechanisms including relaxation of cervical smooth muscle to facilitate dilation and also allow for an increase in intracellular calcium levels, causing contraction of myometrial muscle.

Contraindications to prostaglandins

1. Known hypersensitivity to Misoprostol, dinoprostone gel, Cervidil pessary or its constituents (triacetin, colloidal silica or urethane)
2. History of previous uterine surgery including caesarean section
3. Grand multiparity (five or more previous births)
4. Signs of foetal compromise

Dosage and administration

- Intravaginal mode of administration
- Dinoprostone gel (PGE2): Dose of 2mg 6 hourly 2 doses maximum.
- Cervidil pessary (10mg vaginal insert)

Single dose of 10 mg of dinoprostone (releases a mean dose approximately 4 mg dinoprostone over 12 hours). slower release than gel, shortens the interval from induction-to-delivery and can be removed when hyperstimulation occurs.

Remove pessary if:

1. Uterine hyperstimulation occurs
2. Labour becomes established
3. After SROM or before AROM
4. Syntocinon augmentation should not be commenced within 30 minutes of removal of Cervidil

Adverse effects include Gastrointestinal (e.g., nausea, vomiting), back pain, fever. Increased intraocular pressure in women with a history of glaucoma and Uterine hypercontractility (more than five contractions in 10 minutes, or contractions lasting more than 2 minutes), Placental abruption or uterine rupture or very rarely, genital oedema and anaphylactic reaction.

Prostaglandin E1 (PGE1)-Misoprostol (Cytotec)

- Orally 25mcg (in solution) every 2 hours, maximum 8 doses or when labor is established
- How to make the oral solution: Dissolve 200mcg (1 tablet) of misoprostol in 200mls of drinking water. Give 25mls of the solution every 2 hours
- Vaginally 25mcg every 6 hours maximum 4 doses

b) Oxytocin

Oxytocin is used for both induction and augmentation of labor.

Methods by infusion avoid bolus

In multigravida

- Infuse oxytocin 2.5 units in 500 mL of normal saline at 10 drops per minute (Approximately 2.5 millilUnits per minute).
- Increase the infusion rate by 10 drops per minute every 30 minutes until 3 contractions lasting 30 to 40 seconds in

10 minutes) and maintain that rate until delivery is completed.

- If **hyperstimulation occurs** (any contraction lasts longer than 60 seconds), or if there are more than four contractions in 10 minutes, stop the infusion, change the giving set, put IV crystalloid, put patient in left lateral position, administer oxygen and inform the doctor. If there are **not three contractions in 10 minutes,** each lasting more than 40 seconds with the infusion rate at **60 drops per minute:**
  - Increase the oxytocin concentration to 5 units in 500 mL of normal saline and adjust the infusion rate to 30 drops per minute (15 mIU per minute) and titrate upto 60 drops per minute.

In primigravida

- Infuse oxytocin 5units in or normal saline at 10 drops per minute;
- Increase infusion rate by 10 drops per minute every 30 minutes as stated above.
- If good contractions are not established at 60 drops per minute , repeat with 10 IU in 500mls of saline and if still no progress,(60 mIU per minute), deliver by caesarean section.

NOTE:*1) Do not use oxytocin within 8 hours of using misoprostol*

2)The frequency, strength and duration of contraction and fetal heart rate must be monitored throughout the augmentation

When to stop induction

- Uterine hyperactivity
- Fetal distress
- Less than 3 contractions lasting 30 to 40 seconds in 10minutes with maximum dose of oxytocin stated above

Mechanical techniques

a) Stripping of the Membranes

Stripping of the membranes causes an increase in the activity of phospholipase and prostaglandin as well as causing mechanical dilation of the cervix, which releases prostaglandins.

Risks of this technique include infection and accidental rupture of the membranes

b) Artificial rupture of membranes (ARM)

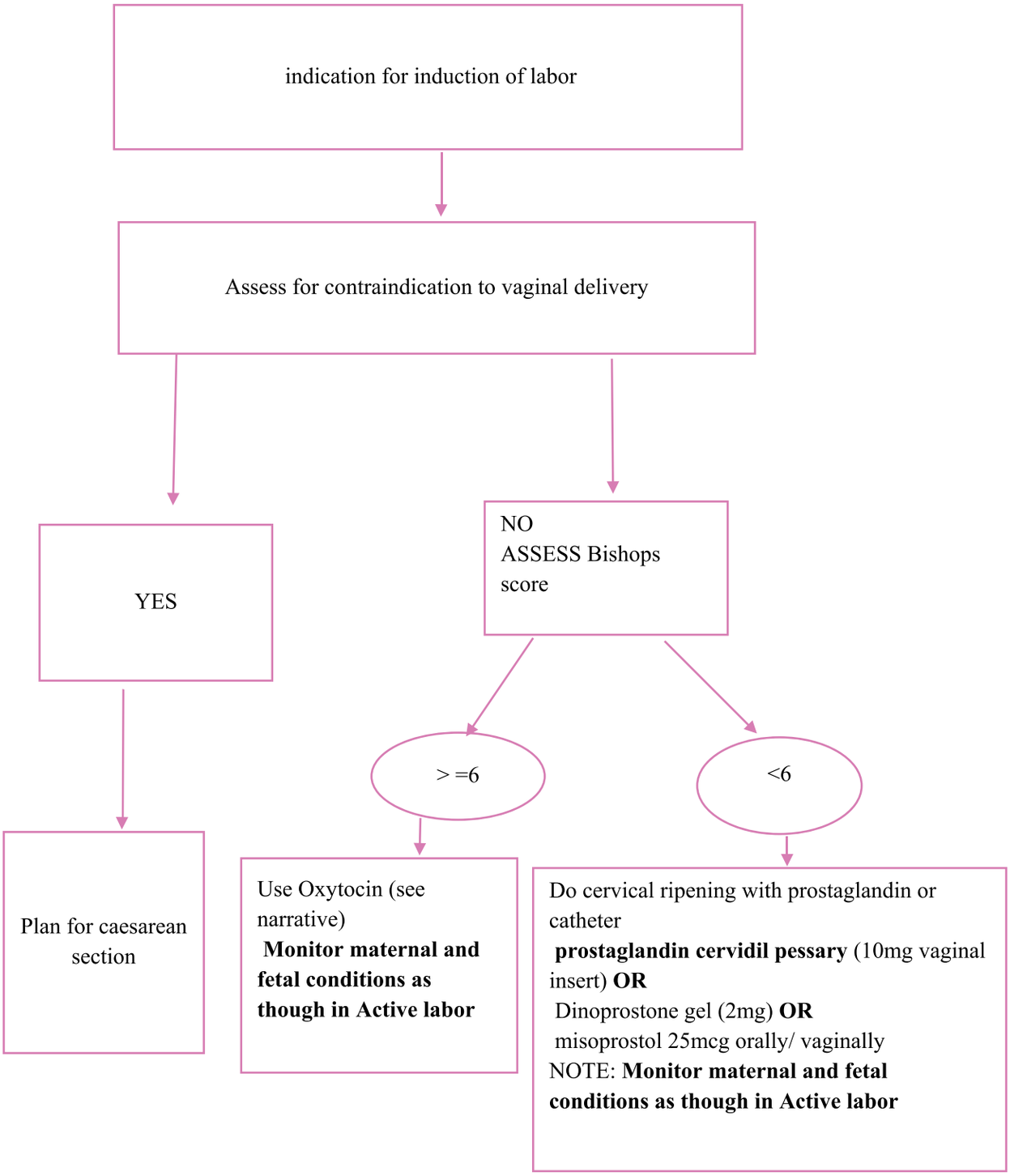
ARM is a surgical procedure to induce or augment labour. The delivery should be within 24 hours.

Catheters.

The Foley catheter is an effective alternative to prostaglandins for cervical ripening and labour induction. Contraindicated in cervicitis or vaginitis, history of vaginalbleeding,

- Review for indications.
- Gently insert a high-level disinfected speculum into the vagina.
- Hold the catheter with a high-level disinfected forceps and gently introduce it through the cervix. Ensure that the inflatable bulb of the catheter is beyond the internal os.
- Inflate the bulb with up to 60 mL of water.
- Coil the rest of the catheter and place in the vagina.
- Leave the catheter inside until contractions begin, or for at least 12 hours.

Protocol 17: Induction of labor



AUGMENTATION OF LABOUR USING OXYTOCIN

In multigravida

- Infuse oxytocin 2.5IU in 500 mL of normal saline at 10 drops per minute. This is approximately 2.5 millilUnits per minute.
- Increase the infusion rate by 10 drops per minute every 30 minutes until a good contraction pattern is established (contractions lasting more than 40 seconds and occurring three times in 10 minutes).
- Maintain this rate until delivery is completed.
- **If hyperstimulation occurs** (any contraction lasts longer than 60 seconds), or if there are more than four contractions in 10 minutes, stop the infusion and relax the uterus using tocolytics:
  - IV MgSO4 4g of 20% solution give slowly over 10-15 minutes
  - Salbutamol 10 mg in 1 L IV fluids (normal saline or Ringer's lactate) at 10 drops per minute.
- If you fail to achieve three contractions in 10 minutes, each lasting more than 40 seconds with the infusion rate at 60 drops per minute:
  - Increase the oxytocin concentration to 5IU in 500 ml of normal saline and adjust the infusion rate to 30 drops per minute
  - Increase the infusion rate by 10 drops per minute every 30 minutes until a satisfactory contraction pattern is established or the maximum rate of 60 drops per minute is reached.

In primigravida

- Infuse oxytocin at a higher concentration up to 10IU in 500 ml of normal saline at 30 drops per minute
- Increase infusion rate by 10 drops per minute every 30 minutes until good contractions are established;
- If good contractions are not established at 60 drops per minute, this is failed augmentation. Deliver by caesarean section.

NOTE: *The frequency, strength and duration of contraction and fetal heart rate must be monitored on the Labor care form throughout the augmentation.*

When to stop Augmentation:

- Uterine hyperactivity
- When foetal distress is diagnosed
- No good contractions (3 to 4 contractions lasting more than 40 seconds in 10 minutes) at 60 drops per minute

BREECH DELIVERY

Note: If in early labour Refer urgently to CEmONC facility

Contra-indications to vaginal breech delivery 1. Previous Caesarean Section 2. Estimated foetal weight of more than 3.5kg/less than 2.5kg 3. Sacro posterior position (risk of aftercoming head entrapment under the pubic bone). 4. Preterm delivery less than 37 weeks 5. Prime Gravida 6. Footling breech	
Consider breech delivery in 1. Frank or complete breech >37 weeks of gestation 2. Estimated birth weight between 2500 to 3500 grams. 3. Adequate pelvis 4. Availability of skilled birth attendant experienced in breech delivery 5. Easy access to safe Caesarean Section	
Technique of breech delivery	• Explain the necessity of effective pushing in the second stage of labour • Call for additional help • Ensure bladder is empty (insert a urethral catheter) • Insert a large bore Intravenous canula • Prepare for newborn resuscitation • Confirm full dilatation of the cervix • Assist the woman into a position that will allow the baby to hang down during delivery, for example, propped up with buttocks at edge of bed or onto a breech delivery bed • Episiotomy may be considered when the breech distends the perineum • If extended breech, wait until the popliteal fossae are visible. You will then press the index and middle finger into the popliteal fossa to flex the knee of one leg laterally. Grasp the foot at the ankle joint to deliver it (Pinard's manoeuvre). Repeat this on the other leg. • Encourage mother to push until the umbilicus is visible. Gently pull down a loop of umbilical cord with two hands to avoid cord avulsion. • Encourage the mother to push until the scapula blades are visible. • Do not pull on the baby. • Check if the arms are flexed on the chest, deliver them • If the arms are extended, perform Loveset's manoeuvre (Rotate the body to facilitate delivery of the arms) • Do not pull on the breech or compress the woman's abdomen. Maintain flexion of the foetal head by keeping the body hanging by the head • When the hairline is visible, the head is delivered by maintaining it in flexion by placing the fingers over the nose bridge and malar eminences, the fingers of the other hand on the occiput and the shoulders (Mauriceau-Smellie-Veit manoeuvre) • Or raise the baby in upward and forward direction towards the mother's abdomen until the nose and mouth are free. The assistant gives supra pubic pressure during the period to maintain flexion (Burns-Marshal maneuver)

	• Deliver the baby - When buttocks are distending, performing an episiotomy if necessary. - Allow buttocks, trunk and shoulders to deliver spontaneously during contractions. After delivery of the shoulders allow the baby to hang until next contraction.
• **If the head does not deliver after several contractions**	• Place the baby astride your left forearm with limbs hanging on each side. • Place the middle and index fingers of the left hand over the molar cheek bones on either side to apply gentle downwards pressure to aid flexion of head. • Keeping the left hand as described, place the index and ring fingers of the right hand over the baby's shoulders and the middle finger on the baby's head to gently aid flexion until the hairline is visible.
If trapped arms or shoulders	• Feel the baby's chest for arms. If not felt: Hold the baby gently with hands around each thigh and thumbs on sacrum. • Gently guiding the baby down, turn the baby, keeping the back uppermost until the shoulder which was posterior (below) is now anterior (at the top) and the arm is released. • Then turn the baby back, again keeping the back uppermost to deliver the other arm. • Then proceed with delivery of head as described above.
If trapped head (and baby is dead)	• Tie a 1 kg weight to the baby's feet and await full dilatation. • Then proceed with delivery of head as described above. NEVER pull on the breech DO NOT allow the woman to push until the cervix is fully dilated. Pushing too soon may cause the head to be trapped.

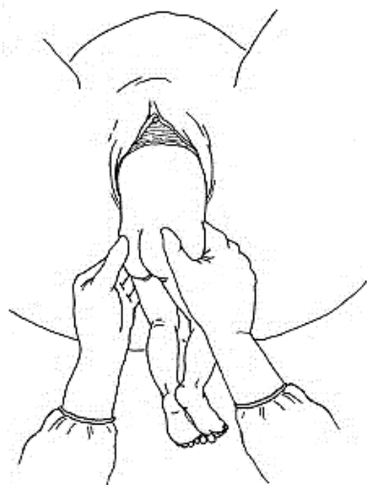
DELIVERY OF THE BUTTOCKS AND LEGS

- Once the buttocks have entered the vagina and the cervix is fully dilated, tell the woman she can bear down with the contractions.
- If the perineum is very tight, perform an episiotomy.
- Let the buttocks deliver until the lower back and then the shoulder blades are seen.
- Gently hold the buttocks in one hand, but do not pull.
- If the legs do not deliver spontaneously, deliver one leg at a time:
  - Push behind the knee to bend the leg;
  - Grasp the ankle and deliver the foot and leg;
  - Repeat for the other leg.

Do not pull the baby while the legs are being delivered.

- Hold the baby by the hips, as shown in Fig below. Do not hold the baby by the flanks or abdomen as this may cause kidney or liver damage.

Hold the baby at the hips, but do not pull



DELIVERY OF THE ARMS

ARMS ARE FELT ON CHEST

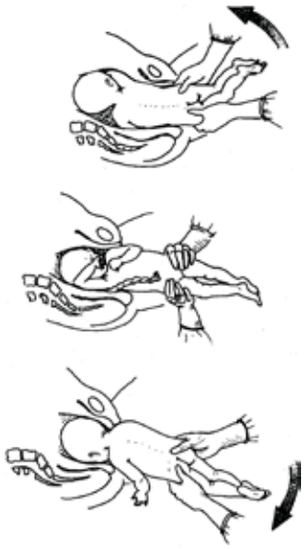
- Allow the arms to disengage spontaneously one by one. Only assist if necessary.
- After spontaneous delivery of the first arm, lift the buttocks towards the mother's abdomen to enable the second arm to deliver spontaneously.
- If the arm does not spontaneously deliver, place one or two fingers in the elbow and bend the arm, bringing the hand down over the baby's face.

ARMS ARE STRETCHED ABOVE THE HEAD OR FOLDED AROUND THE NECK

Use the Loveset's manoeuvre (Fig below:

- Hold the baby by the hips and turn half a circle, keeping the back uppermost and applying downward traction at the same time, so that the arm that was posterior becomes anterior and can be delivered under the pubic arch.
- Assist delivery of the arm by placing one or two fingers on the upper part of the arm. Draw the arm down over the chest as the elbow is flexed,
- with the hand sweeping over the face.
- To deliver the second arm, turn the baby back half a circle, keeping the back uppermost and applying downward traction, and deliver the second arm in the same way under the pubic arch.

Loveset's manoeuvre

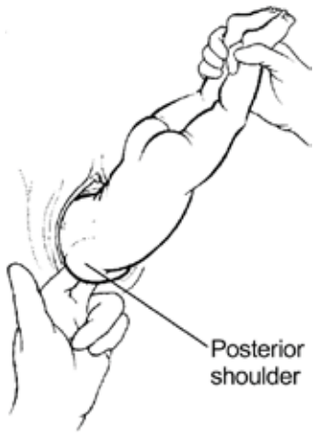


BABY'S BODY CANNOT BE TURNED

If the **baby's body cannot be turned to deliver the arm that is anterior first,** deliver the shoulder that is posterior **(Fig below):**

- Hold and lift the baby up by the ankles.
- Move the baby's chest towards the woman's inner leg. The shoulder that is posterior should deliver.
- Deliver the arm and hand.
- Lay the baby back down by the ankles. The shoulder that is anterior should now deliver.
- Deliver the arm and hand.

Delivery of the shoulder that is posterior



DELIVERY OF THE HEAD

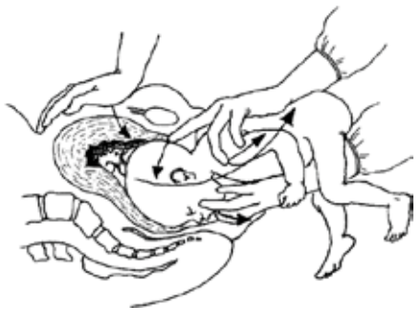
Deliver the head by the Mauriceau Smellie Veit manoeuvre (Fig below) as follows:

- Lay the baby face down with the length of its body over your hand and arm.
- Place the first and third fingers of this hand on the baby's cheekbones and place the second finger in the baby's mouth to pull the jaw down and flex the head.
- Use the other hand to grasp the baby's shoulders.
- With two fingers of this hand, gently flex the baby's head towards the chest while pulling on the jaw to bring the baby's head down until the hairline is visible.
- Pull gently to deliver the head.

Note: Ask an assistant to push above the mother's pubic bone as the head delivers. This helps to keep the baby's head flexed.

- Raise the baby, still astride the arm, until the mouth and nose are free.

The Mauriceau Smellie Veit manoeuvre



ENTRAPPED (STUCK) HEAD

- Catheterize the bladder.
- Have an assistant available to hold the baby while applying Piper or long forceps.
- Be sure the cervix is fully dilated.
- Wrap the baby's body in a cloth or towel and hold the baby up.
- Place the left blade of the forceps.
- Place the right blade and lock handles.
- Use the forceps to flex and deliver the baby's head.
- If unable to use forceps, apply firm pressure above the mother's pubic bone to flex the baby's head and push it through the pelvis.

FOOTLING BREECH

A footling breech baby (Fig below) should usually be delivered by caesarean section.
Single footling breech presentation, with one leg extended at hip and knee

- Limit vaginal delivery of a footling breech baby to:
  - advanced labour with fully dilated cervix;
  - preterm baby that is not likely to survive after delivery;
  - delivery of additional baby(s) in multiple gestation.
- To deliver the baby vaginally:
  - Grasp the baby's ankles with one hand;
  - If only one-foot presents, insert a hand into the vagina and gently pull the other foot down;
  - Gently pull the baby downwards by the ankles;
  - Deliver the baby until the back and shoulder blades are seen;
  - Proceed with delivery of the arms.

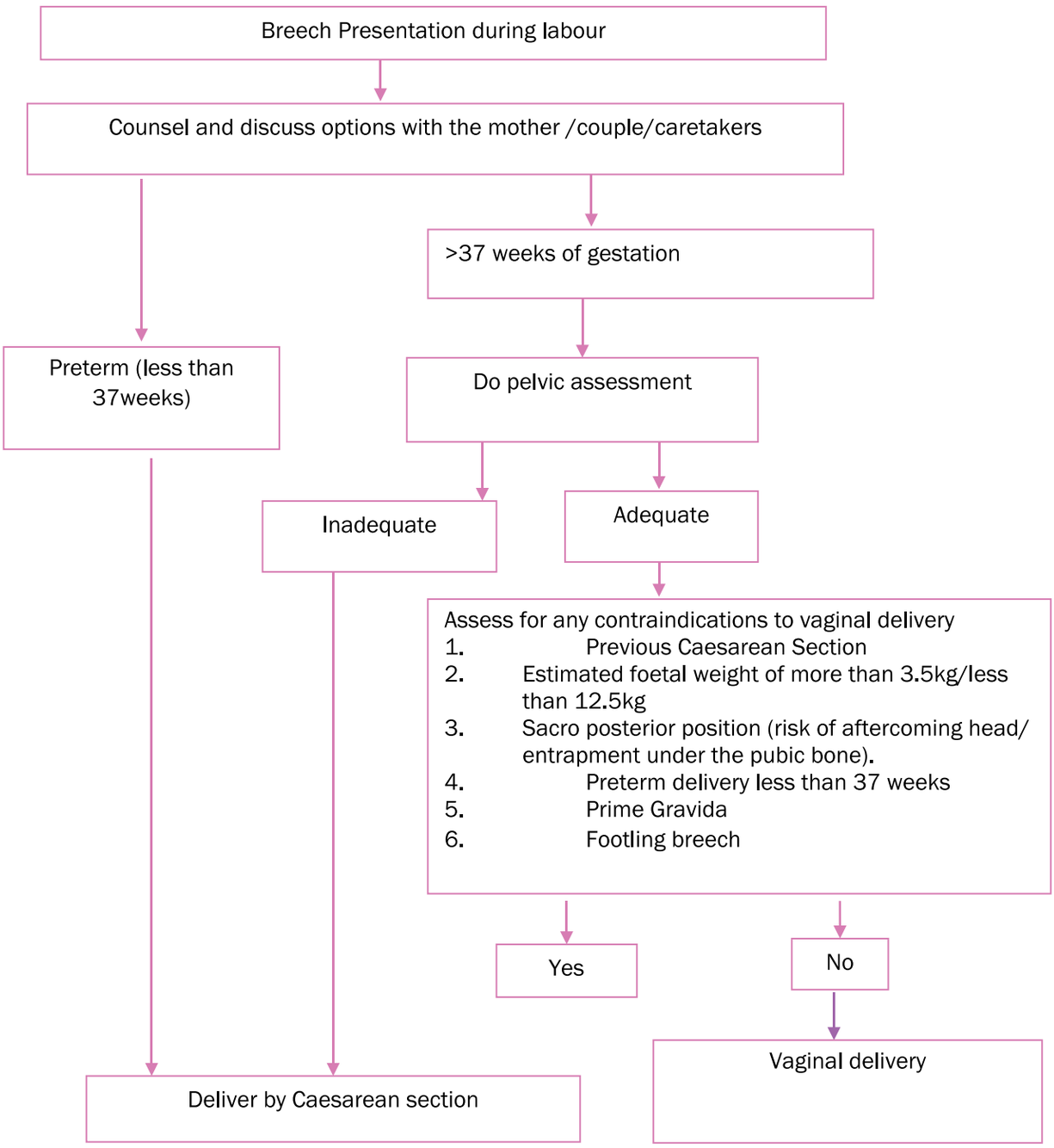
BREECH EXTRACTION

- Wearing high-level disinfected or sterile gloves (wear long gloves if available), insert a hand into the uterus and grasp the baby's foot.
- Hold the foot and pull it out through the vagina.
- Gently pull on the foot until the back and shoulder blades are seen.
- Proceed with delivery of the arms.
- Give a single dose of prophylactic antibiotics after breech extraction:
- ampicillin 2 g IV PLUS metronidazole 500 mg IV;
- OR cefazolin 1 g IV PLUS metronidazole 500 mg IV.

POST-DELIVERY CARE

- Suction the baby's mouth and nose.
- Clamp and cut the cord.
- Give oxytocin 10 units IM within one minute of delivery and continue active management of the third stage.
- Examine the woman carefully and repair any tears to the cervix or vagina or repair episiotomy.

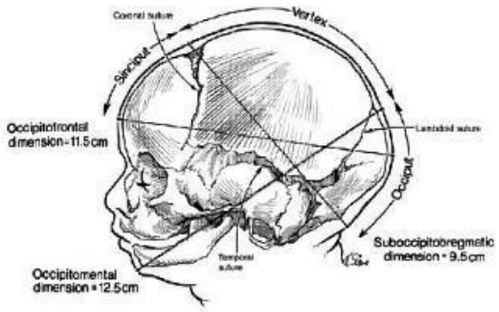
Protocol 18: Breech presentation during labour



FACE PRESENTATION

Face presentation refers to a foetal presentation in which the foetal face from forehead to chin is the leading foetal part descending into the birth canal.
In face presentation, the neck is hyper extended and the face presents, the submento-bregmatic diameter is the largest leading diameter.

Foetal head diameters



Predisposing Factors

- Cephalopelvic disproportion
- Foetal torticollis (shortening of posterior foetal neck muscles)
- A large neck mass/tumour (goitre or hygroma)
- Anencephaly
- Preterm birth/low birth weight
- Macrosomia
- Polyhydramnios
- Multiple nuchal cord
- Multiparity

Diagnosis

In labour:

- On vaginal examinations typical landmarks such as alveolar margins and mouth, the nose (nasal bridge), supra-orbital ridges are felt.
- The fontanelles and sutures are generally not palpable

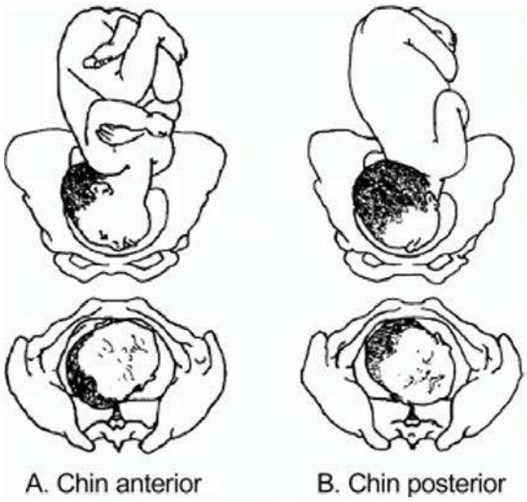
Differential Diagnosis

- Uterine fibroid in lower pole of the uterus
- Breech presentation
- Brow presentation

Investigations

Ultrasound scan to confirm a hyperextended neck and exclude congenital abnormalities

Mento anterior and mento posterior positions



Immediate management

- Refer to CeMONC facility
- In mento-anterior position, allow labour to progress and deliver vaginally if no contraindications
- In mento-posterior or transverse position deliver by C-section

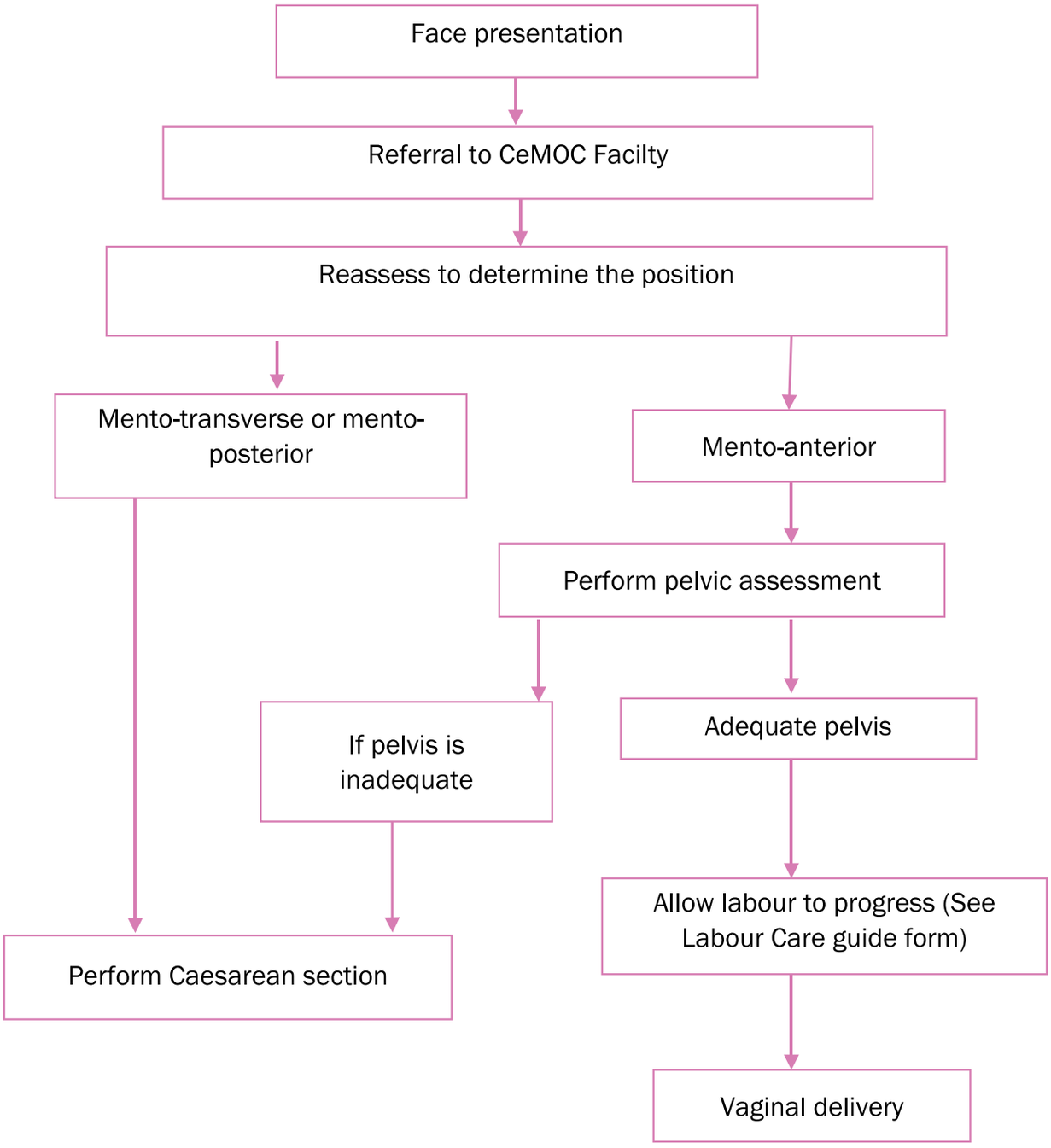
Precautions to Take in Order to Avoid Complications

- It is important to be sure whether position is mento-anterior or posterior, if in doubt, consult.
- Monitor labour
- Perform emergency caesarean section were indicated
- Avoid frequent vaginal examinations because it traumatises the face
- Take care not to traumatise the baby during examinations

Follow-up

- Counsel mother (couple) on baby's facial appearance at birth (swollen and bruised face)
- Offer routine postnatal care

Protocol 19: Management of Face Presentation

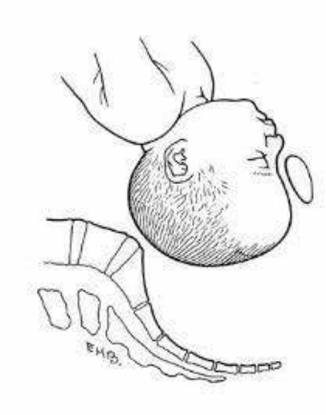


BROW PRESENTATION

Brow presentation occurs when the foetal neck is in extension and the orbital ridge and the anterior fontanelle present at the pelvic inlet, i.e., the presenting diameter is the mento-vertical.

Predisposing Factors

- Cephalopelvic disproportion
- Foetal torticollis (shortening of posterior foetal neck muscles)
- A large neck mass/tumour (goitre or hygroma)
- Anencephaly
- Preterm birth/low birth weight
- Macrosomia
- Polyhydramnios
- Multiple nuchal cord
- Multiparity



Diagnosis

- Suspected on abdominal inspection and palpation (a prominent head that does not descend into the pelvis)
- On vaginal examination: identify important landmarks such as root of the nose, the supra-orbital and the anterior fontanelle.

Differential Diagnosis

- Breech presentation
- Face presentation
- Hydrocephaly
- Fibroids in lower uterine segment

Management:

- Refer to CEmONC facility
- If diagnosis is certain, perform emergency caesarean section

Precautions to Take in Order to Avoid Complications

- Early diagnosis and appropriate management
- Avoid augmentation or instrumental delivery

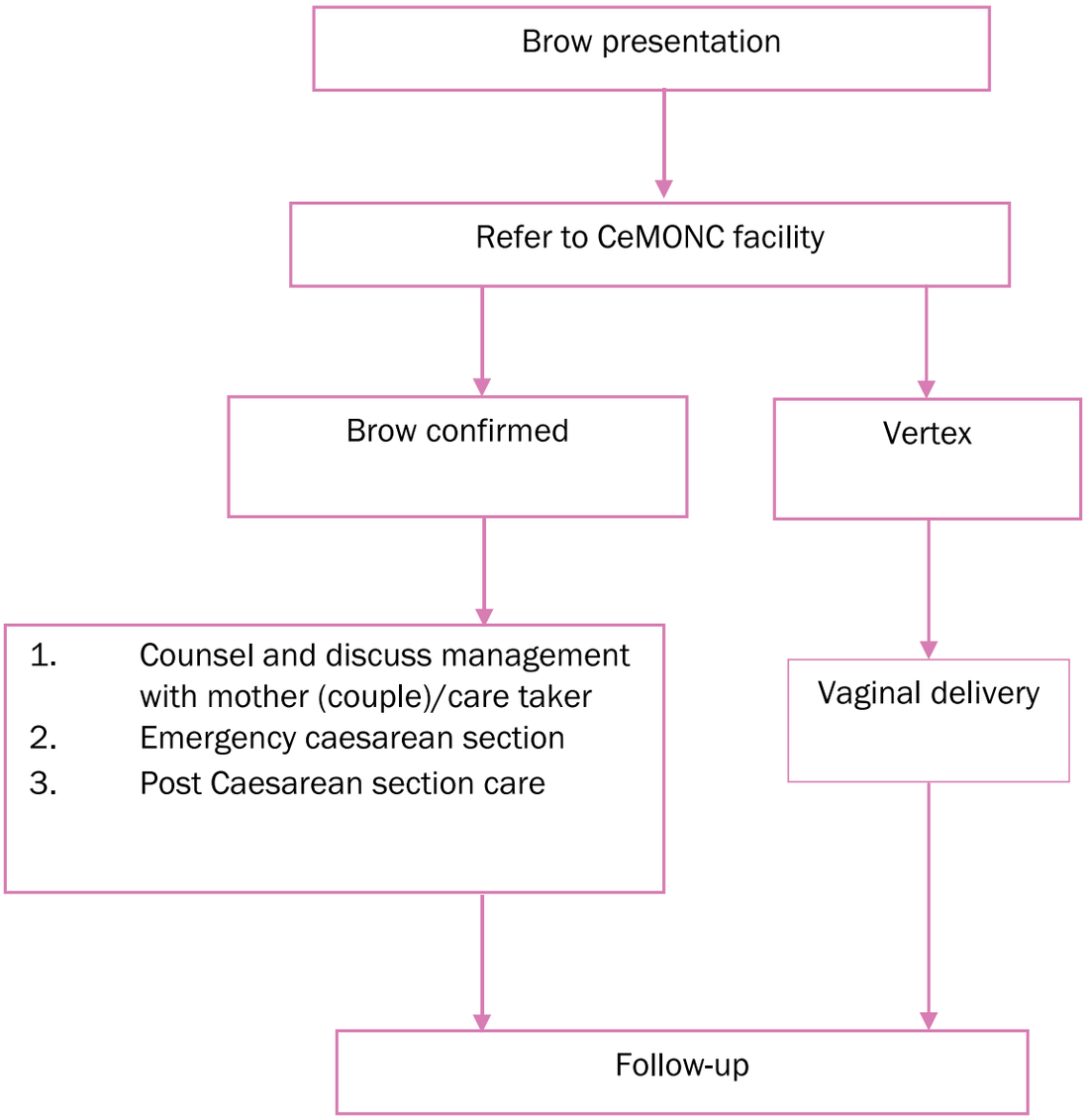
Complications of neglected or undiagnosed brow

- Obstructed labour
- Ruptured uterus
- Foetal or maternal death

Follow-up:

- Provide postnatal care
- Counsel and advise on mode of delivery for subsequent babies.

Protocol 20: Brow presentation



TRANSVERSE LIE

Transverse lie occurs when the long axis of the foetus is perpendicular to the long axis of the uterus.

Diagnosis

- On inspection, shape of uterus appears broader than its length
- Abdominal palpation – The fundal length is usually less than the weeks of gestation
- Foetal poles (head and breech) found on sides of the abdomen
- No presenting part in the lower segment of the uterus
- Confirm diagnosis by ultra sound scan

Differential Diagnosis

- Extra uterine pregnancy
- Fibroids in pregnancy
- Multiple pregnancy
- Ovarian tumour in pregnancy
- Polyhydramnios
- Bifid uterus

Investigations

- Ultrasound scan (placental location, liquor assessment, foetal maturity, foetal size and presence of foetal abnormalities)

Management

Antenatal:

ECV should be done only at comprehensive emergency obstetric care facilities

- Perform ECV at 37 weeks, if not contraindicated (refer to breech section
- If ECV fails plan for caesarean section
- For persistent transverse lie, do an elective caesarean section

If the mother comes in Labour:

- refer to CEmONC facility
- Perform an emergency caesarean section.

In labour with dead foetus:

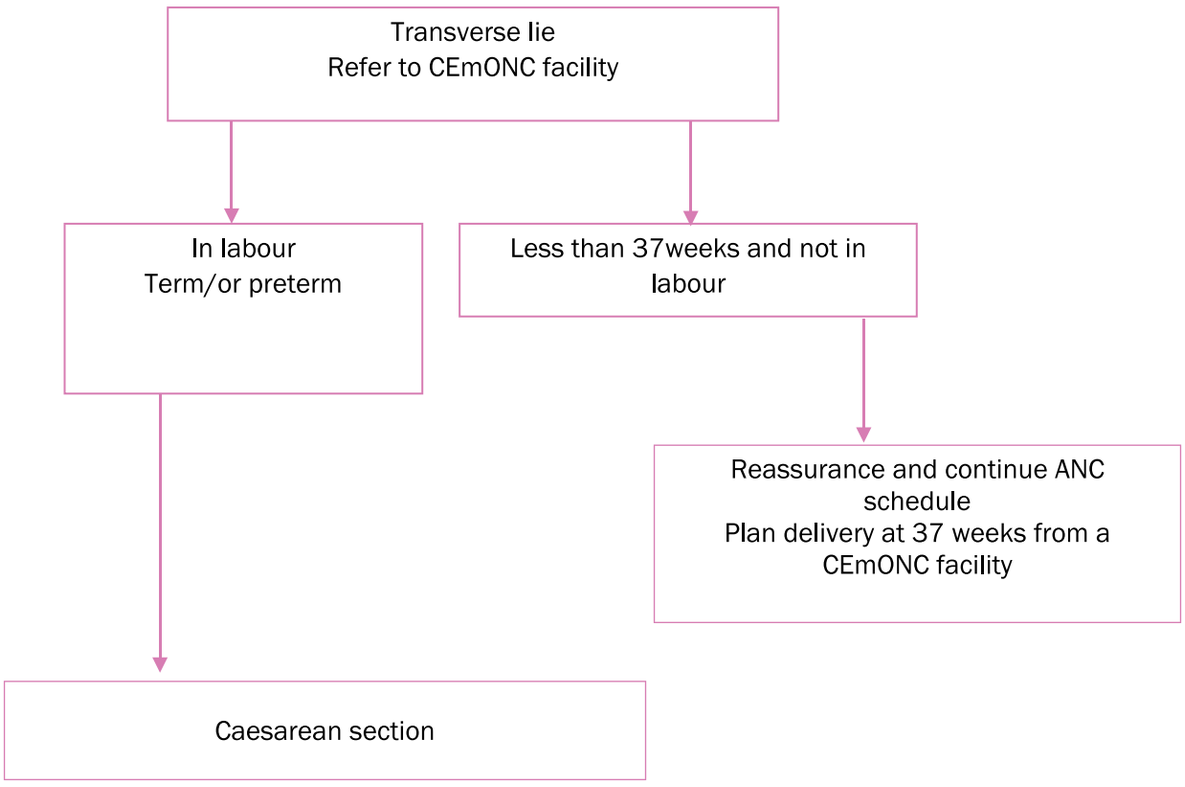
If possible, perform an ultrasound scan to exclude abnormalities of the uterus and the baby

- Do coagulation profile (bleeding and clotting time) before delivery, group, cross-match and book at least 2 units of blood
- Note: There may be room for vaginal delivery as breech after internal podalic version in case of a small baby estimated as ≤3.0kg and if membranes intact in selected cases
- Perform emergency caesarean section if there is doubt or in case of another obstetric complication or contraindication to podalic version or vaginal delivery

Follow up:

- Refer to postnatal care guidelines

Protocol 21: Management of transverse lie



SHOULDER PRESENTATION

This occurs when the shoulder becomes the presenting part (usually as a result of neglected transverse/oblique lie in labour.

Diagnosis

- Abdominal palpation when the head is felt in the iliac fossa not in line with the long axis of the uterus (oblique lie)
- Vaginal examination may reveal high presenting part if membranes are intact. If membranes are ruptured, vaginal examination may reveal signs of obstruction, cord or arm prolapse
- Foetal ribs and a scapula may be felt lying across the internal os if membranes are ruptured.

Differential Diagnosis

- Multiple pregnancies
- Breech presentation
- Grossly malformed foetus

Investigations

- Ultrasound scan

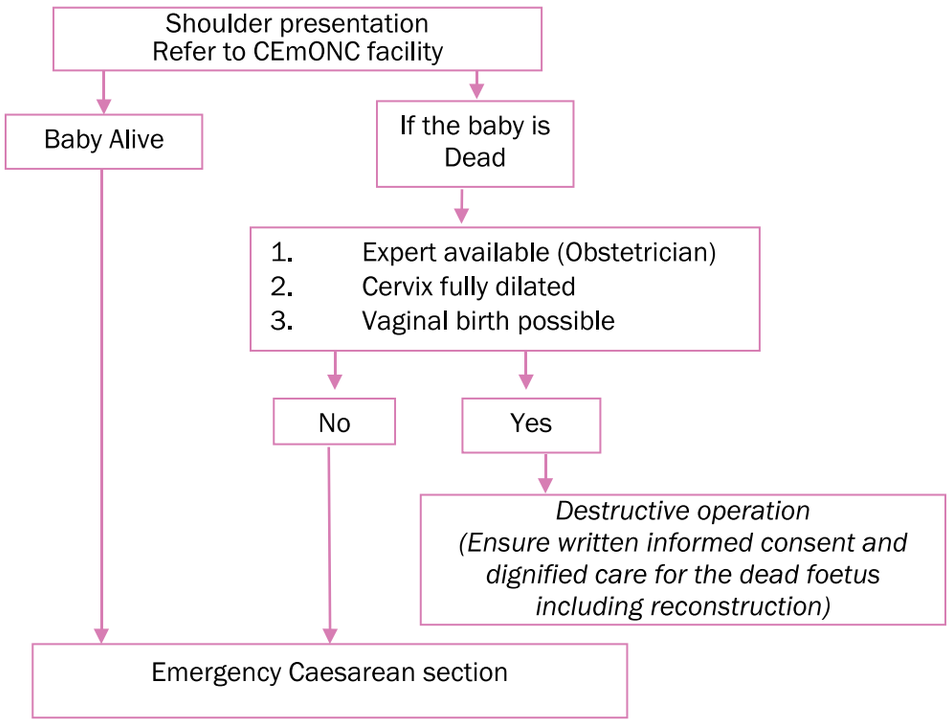
Management (Refer to CEmONC facility with an obstetrician)
All procedures to be done at comprehensive emergency obstetric care facilities.

- Counsel the mother (couple) and explain procedures
- Resuscitation if in obstructed labour
- If foetus is alive, perform a caesarean section
- If foetus is dead, cervix is fully dilated, attending doctor is obstetrician perform a destructive operation (decapitation, embryotomy/evisceration).
- Otherwise, perform a caesarean section
- Provide antibiotic cover.

Precautions to take in order to avoid complications

- Carefully evaluate and decide on the mode of delivery
- Do not attempt internal podalic version
- Do not attempt destructive delivery except by experienced obstetrician
- Detect and promptly manage any genital tract injuries
- Follow up with routine postnatal care

Protocol 22: Management of Shoulder presentation



SHOULDER DYSTOCIA (STUCK SHOULDERS)

Sign:

The foetal head has been delivered but the shoulders are still stuck and cannot be delivered.

Note:

- Be prepared for shoulder dystocia at all deliveries, especially if a large baby is anticipated.
- Have several persons available to help.

Diagnosis

- The foetal head is delivered but remains tightly applied to the vulva.
- The chin retracts and depresses the perineum.
- Traction on the head fails to deliver the shoulder, which is caught behind the symphysis pubis.

Management

Note: Observe high-level infection measures during the whole procedure:

- Be calm, don't panic, don't pull, do not push or pivot
- Shout for help. Urgently mobilise all available personnel.
- Prepare for new born resuscitation
- Explain the problem to the woman and her companion.
- Ask the woman to lie on her back while gripping her legs tightly flexed against her chest, with knees wide apart. Ask the companion or other helper to keep the legs in the position (McRoberts Manoeuvre).
- Make bilateral generous episiotomy to reduce soft tissue obstruction and to allow space for manipulation.
- With the woman on her back ask her to flex both thighs bringing her knees as far up as possible towards her chest. Ask two assistants push up her flexed knees firmly unto her chest.

If the shoulders are still not delivered;

- Remain calm and explain to the woman that you need her cooperation to try another position.
- Assist her to adopt a kneeling on "all fours" position and ask her companion or second assistant to hold her steady- this simple change of position is sometimes sufficient to dislodge the impacted shoulders and achieve delivery (Gaskins manoeuvres).
- Insert a hand into the vagina; grasp the humerus of the arm that is posterior and, keep the arm flexed at the elbow, sweep the arm across the chest. This will provide room for the shoulder that is anterior to move under symphysis pubis.

Note:

- *Avoid excessive traction on the foetal head as this may result in brachial plexus injury*
- *Do not apply fundal pressure. This will further impact the shoulder and can result in uterine rupture.*

- If the shoulder still is not delivered: insert a hand into the vagina along the baby's back;
- Apply pressure to the shoulder that is anterior in the direction of the baby's sternum to rotate the shoulder and decrease the diameter of the shoulders;
- If needed, apply pressure to the shoulder that is posterior in the direction of the sternum.

If all the above measures fail to deliver the shoulder, other options include:

- Fracture the clavicle to decrease the width of the shoulders and free the shoulder that is anterior;
- Apply traction with a hook in the axilla to extract the arm that is posterior and deliver the baby
- Give the mother appropriate antibiotics to prevent infection
- Complete delivery

COMPOUND PRESENTATION

Refers to foetal presentation in which an extremity presents alongside the part of the foetus closest to the birth canal.

Contributing Factors:

- Small babies
- Mothers with flat pelvis

Diagnosis

- On vaginal examination, multiple foetal parts are felt in the birth canal.

Management

- Perform a rapid evaluation of the general condition of the mother including vital signs (pulse, blood pressure, respiration, temperature)
- **Assess Foetal condition:**
  1. Listen to the foetal heart rate immediately after a contraction.
  2. Count the foetal heart rate for a full minute at least once every 30 minutes during the active phase and every five minutes during the second stage.
  3. If there are foetal heart rate abnormalities (less than 120 or more than 160 beats per minute) manage as foetal distress.
- If the membranes have ruptured, observe for meconium staining.
- Provide encouragement and supportive care
- Review progress of labour using a labour care form

Second stage

Assess the mother to determine the mode of delivery

- Vaginal delivery can occur only when the foetus is less than 2.5kg or dead and macerated. Arrested labour occurs in the expulsive stage.
- Avoid pushing foetal extremities back into the uterus to reduce risk of ruptured uterus.
- Proceed with management for normal child birth. Emergency Caesarean section may be performed when the foetus is a live, on case-by-case basis

PROLONGED LABOUR

Prolonged latent phase of labour

Latent phase is the first stage of labour during which cervical dilatation is less than 5 centimetres. It normally lasts up to 8 hours from the initial examination, and mainly cervical effacement occurs at this time. A latent phase lasting more than 8 hours is prolonged.

Diagnosis

Diagnosis is made when the mother gets two or more regular contractions every 10 minutes for 8 hours and cervical dilatation remains less than 5 cm.

Causes

- Poor uterine contraction
- Cervical dystocia

Differential diagnosis:

- False labour
- UTI
- Pressure related pelvic pain

Immediate management

- Refer to CEmONC facility
- Assess the patient for the 4Ps: passage, passenger, powers and psychological preparedness
- If the contractions have worn off, the diagnosis is false labour; allow the patient to rest for 24 hours; then discharge if there are no risk factors. counsel her to return immediately if signs intensify.

- If contractions persist, re-examine patient to see if she has proceeded into active phase.
- If contractions remain mild, consider augmentation with oxytocin in normal saline if there are no contraindications as below
- **In multigravida,** infuse oxytocin 2.5 units in 500 mL of normal saline at 10 drops per minute. This is approximately 2.5 milliunits per minute. Increase the infusion rate by 10 drops per minute every 30 minutes until a good contraction pattern is established (contractions lasting more than 40 seconds and occurring three times in 10 minutes). Maintain this rate until delivery is completed.

If **hyperstimulation** occurs (any contraction lasts longer than 60 seconds), or if there are more than four contractions in 10 minutes, stop the infusion and relax the uterus using tocolytics: Salbutamol 10 mg in 1 L IV fluids (normal saline or Ringer's lactate) at 10 drops per minute.

If you fail to achieve **three contractions in 10 minutes** each lasting more than 40 seconds with the infusion rate at **60 drops per minute,** Increase the oxytocin concentration to 5 units in 500 mL of dextrose (or normal saline) and adjust the infusion rate to 30 drops per minute and increase the infusion rate by 10 drops per minute every 30 minutes until satisfactory contraction pattern is established or the maximum rate of 60 drops per minute is reached.

In primigravida you may infuse oxytocin at a higher concentration: Infuse oxytocin 10IU in 500 ml of normal saline at 30 drops per minute; Increase infusion rate by 10 drops per minute every 30 minutes until good contractions are established

If **good contractions are not established at 60 drops per minute,** this is failed Augmentation. Deliver by Emergency caesarean section.

NOTE: The frequency, strength and duration of contraction and foetal heart rate must be monitored throughout the augmentation.

Stop Augmentation when there is documented

1. Uterine hyperactivity
2. Foetal distress

- If there are contraindications, patient should be delivered by caesarean section urgently.
- If the augmentation does not result into active labour in 4 hours, perform caesarean section.

Subsequent Treatment

- For all patients who progress into the active phase of labour, monitor appropriately with the labour care form. Conduct second and other stages of labour accordingly.

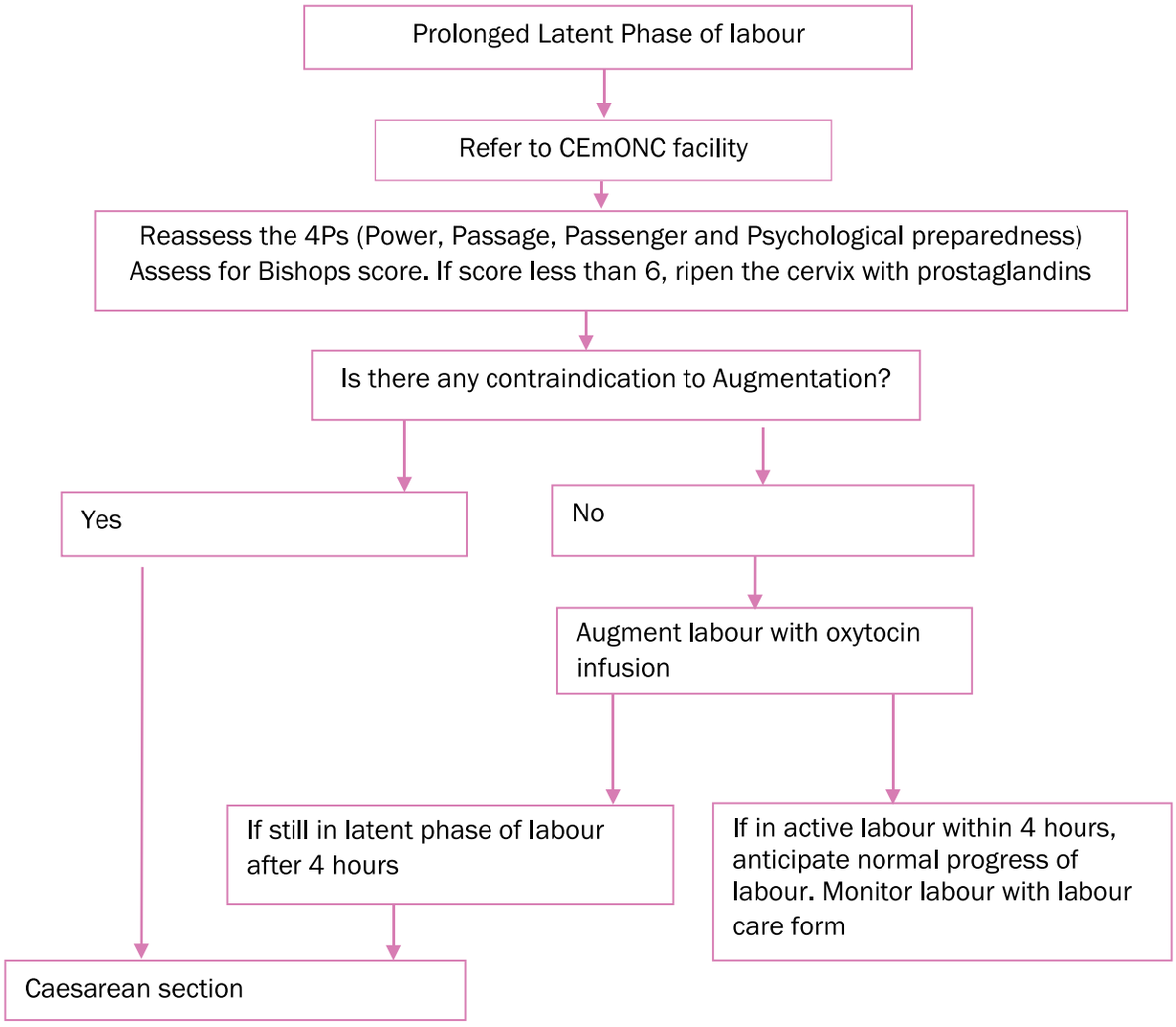
Precautions to take in order to avoid complications

- Exclude cephalo pelvic disproportion before administering oxytocin infusions
- Avoid artificial rupture of membranes until active phase of labour
- Start antibiotic treatment if membranes have been ruptured for more than 12 hours
- Perform caesarean section if there are contraindications to oxytocin infusion and/or vaginal delivery.

Follow-up

- Postpartum care and YCC

Protocol 23: Management of prolonged latent phase



PROLONGED ACTIVE PHASE

Active phase is the first stage of labour during which the cervix is dilated 5cm or more up to full dilatation (10cm). The active phase is prolonged when the rate of cervical dilatation is less than 1cm per hour.

Diagnosis

The diagnosis of prolonged active phase is made retrospectively based on findings from vaginal examinations to assess the rate of cervical dilatation.

Immediate and emergency treatment

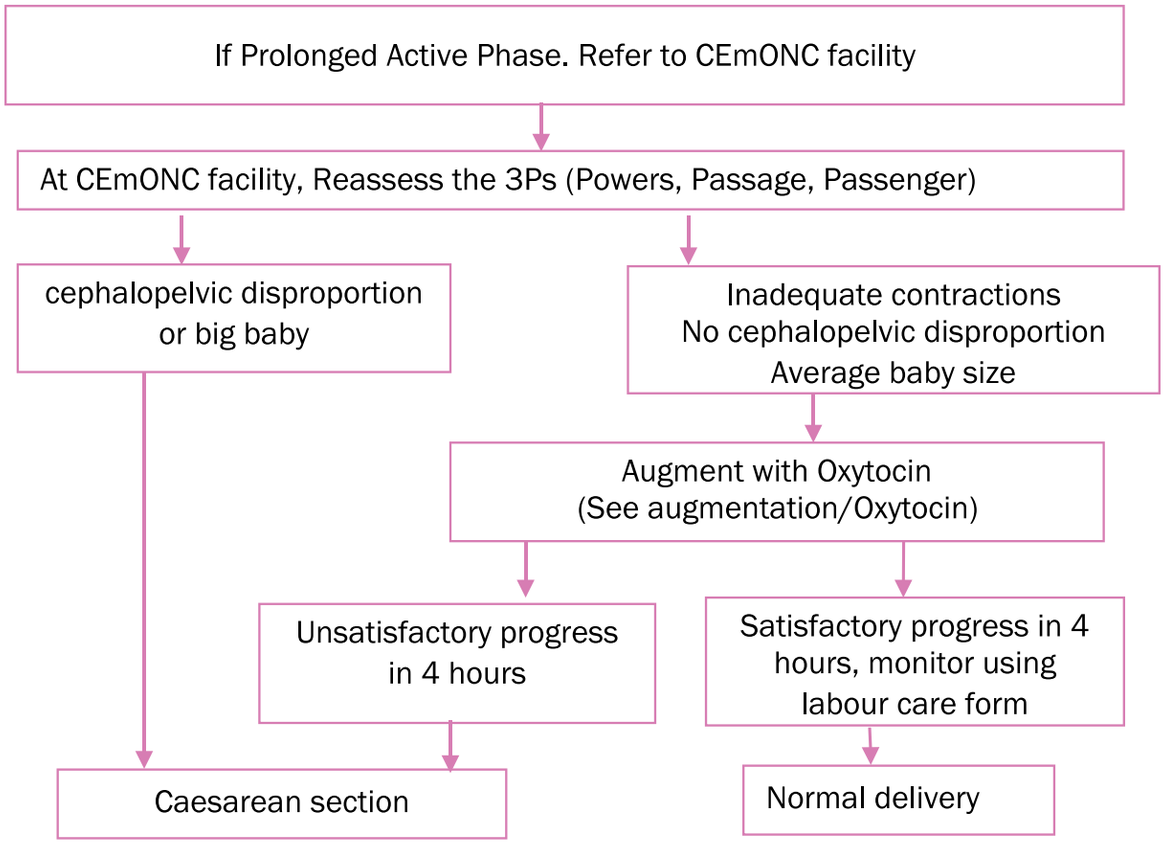
- At CEmONC, reassess the 3Ps to exclude malposition or malpresentation. If no abnormalities exist, rupture membranes and observe closely.
- Carry out any other appropriate interventions such as IV fluids if the patient is dehydrated, empty the bladder.
- Augment with oxytocin if contractions are inadequate, if contraindication to oxytocin do caesarean section

- Continue monitoring labour and record progress on the labour care form
- Expected outcome is vaginal delivery. In case of failure of progress or foetal distress, deliver by caesarean section.

Precautions to take in order to avoid complications

- Limit the number of vaginal examinations
- Use the labour care form correctly and make decisions promptly

Protocol 24: Prolonged active labour



CORD PROLAPSE

The cord is said to prolapse when it lies in front of the presenting part of the baby after the membranes have ruptured. While cord presentation is when the cord is leading the way with intact membranes.

Risk factors for cord prolapse

Any condition that prevents the presenting part getting well applied to the lower uterine segment. These may include:

- Multiparity
- High head
- Prematurity
- Malpresentation (Transverse lie, breech)
- Polyhydramnios
- Multiple pregnancy
- Uncontrolled amniotomy (Artificial Rupture of Membranes)

Diagnosis

- History of rupture of membranes
- Vaginal examination after rupture of

the membranes reveals loops of cord in the birth canal. Determine if the cord is pulsating or not

Emergency Treatment

This is very significant if the foetus is alive and is more than 28 weeks gestation. The aim of management is to deliver the foetus within 30 minutes before hypoxia and death result from cord compression.

If the cord is pulsating and patient is in first stage of labour

Replace the cord into the vagina with warm saline-soaked sterile gauze.

- Remove pressure of the presenting part by putting patient in knee chest or exaggerated Trendelenburg position, insert foleys catheter and fill the bladder with 500mls of normal saline and spigot and release the spigot at the start of caesarean section
- Perform intrauterine resuscitation including administration of IV fluids and oxygen
- Give oxygen to the mother by mask.
- Monitor the foetal heart continuously by palpating the cord
- Counsel mother on the condition of the baby.
- If in BEmONC, refer mother to comprehensive emergency obstetric care facilities for urgent Caesarean section. Carry delivery kit during referral and mother must be accompanied by a skilled birth attendant
- Maintain knee chest position during referral

In CEmONC facility and in first stage with live foetus:

- Carry out emergency pre-operative care.
- Perform emergency Caesarean section.

If the cord is pulsating and patient is in second stage of labour:

- Rule out cephalopelvic disproportion and malpresentations.
- If in doubt about pelvic capacity, perform Caesarean section
- If pelvis and presentation are normal, deliver by aid of episiotomy, forceps or vacuum extraction.

If the cord is not pulsating and patient is in first or second stage of labour:

- Rule out any contraindication to vaginal delivery (e.g., cephalopelvic disproportion, malpresentation).
- Allow labour to progress.

Subsequent Treatment

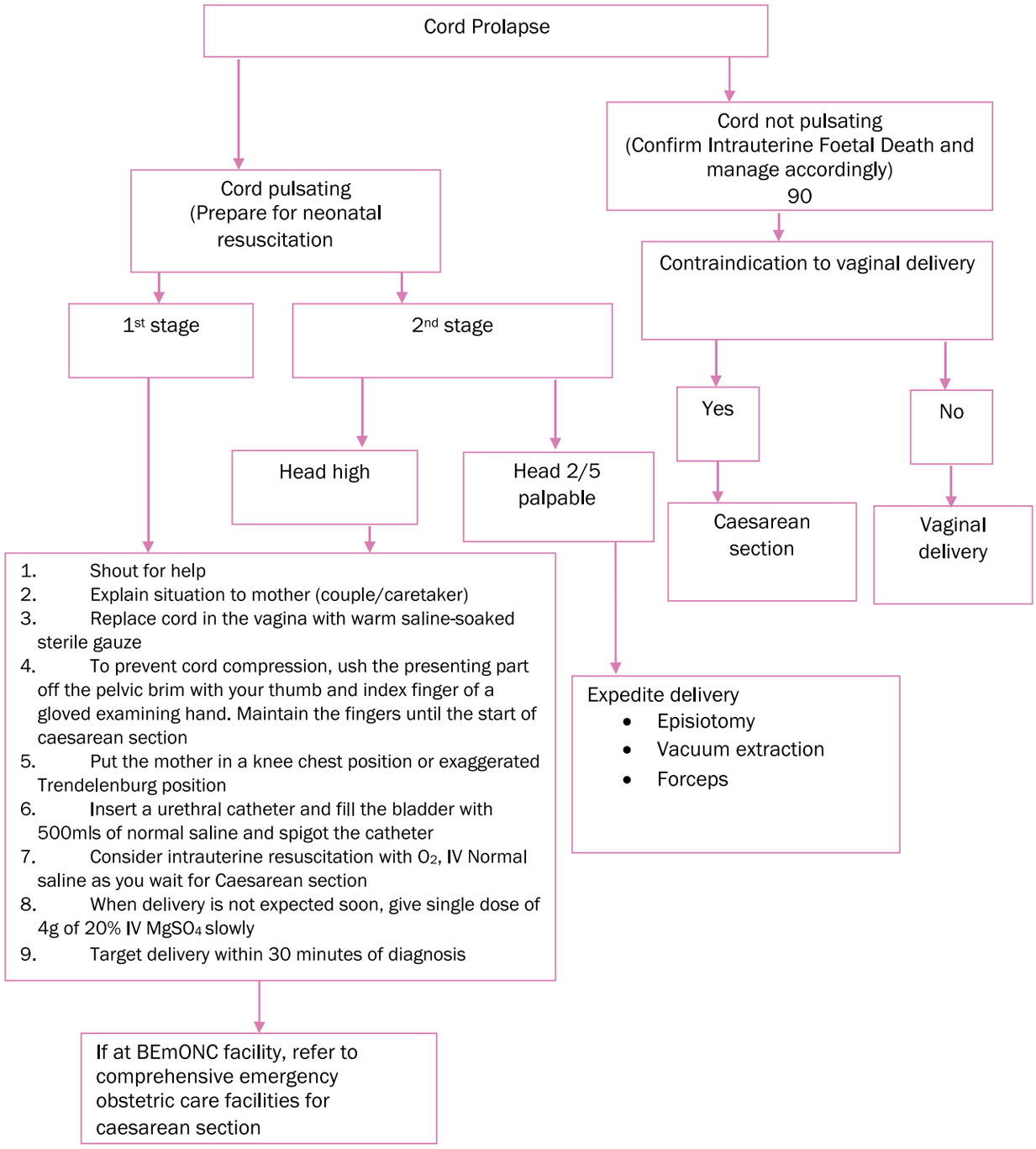
- Conduct routine postoperative care.
- Counsel the mother on breastfeeding, diet, family planning and sexual relationships.
- Provide supportive counselling if baby died.

Precautions to take in order to avoid complications

Apply the following principles to definitive management:

- Remove pressure from the cord.
- Keep the cord warm.
- Refer promptly to CEmONC or deliver quickly (within 30 minutes) if in CEmONC
- Preparedness to manage distressed baby.
- Mothers presenting with cord presentation should be delivered by emergency caesarean section, do not perform Artificial rupture of membranes

Protocol 25: Management of cord prolapse



FOETAL DISTRESS

Foetal distress occurs when the foetus suffers from oxygen deprivation and becomes hypoxic. It is also known as non- reassuring foetal heart rate pattern.

Signs and Symptoms:

- Detection of an abnormal foetal heart rate or rhythm:
  - Foetal tachycardia (foetal heart rate more than 160/min, an early sign of foetal distress)
  - Foetal bradycardia (foetal heart rate less than 120/min, a late sign of foetal distress)
  - Late deceleration (Foetal heart rate deceleration after a uterine contraction, followed by a delayed recovery).
  - Variable decelerations as detected by Continuous cardiotocography or foetal Doppler ultrasonography.
  - Passage of meconium-stained amniotic fluid grade 2 or 3 in cephalic presentation. Passage of meconium in breech presenting foetus should not be confused for foetal distress

Differential Diagnosis

- Breech passing meconium

Emergency Treatment at BeMONC

If the foetal heart rate remains abnormal for 3 consecutive contractions:

- Explain condition of the baby to the mother and birth companion.
- Perform a vaginal examination to assess cervical dilatation. Assess the state of membranes whether intact or ruptured, exclude cord presentation prolapse.
- **Do intrauterine resuscitation:**
  - Change mother's position (left lateral position is preferred).
  - Give oxygen by face mask or the nasal catheter (4 to 6 litres per a minute), if available.
  - Give IV normal saline or Ringer's lactate (1 litre in the first 30 minutes)
  - If in second stage without contraindication to vaginal birth, prepare for delivery and neonatal resuscitation.
  - Refer to comprehensive emergency obstetric care facility if mother is in first stage.
- Continue monitoring foetal heart rate every 15 minutes as you contact and wait for transport.

In CEmONC facility, stop oxytocin in case the mother was on induction.

- Explain condition of the baby to the mother and her companion.
- Do intrauterine resuscitation as stated in BEmONC
- Perform a vaginal examination to assess cervical dilatation. Assess the state of membranes whether intact or ruptured, exclude cord presentation/ prolapse.
- If in second stage, expedite for emergency delivery with assisted vaginal delivery or by emergency caesarean section.

Note; *to include a reference (why crystalloid normal saline or lactate) is preferred instead of dextrose*

After hydration:

- With at least 1 litre of N/S or R/L in 30 minutes and ensure 2L of crystalloids in 1hour If foetal heart rate remains abnormal, prepare for an emergency Caesarean section if in first stage.
- If in second stage, deliver quickly with an aid of vacuum extraction or forceps.
- Prepare for new-born resuscitation. (Refer to resuscitation section)

Subsequent Treatment

- Immediate postpartum care.
- Observe baby in nursery for 24 hours if 5-minute Apgar score is less than 7.
- Provide antibiotics to baby if membranes have ruptured greater than 6 hours.
- Explain and counsel grieving parents if baby has died.

Precautions to take in order to avoid complications

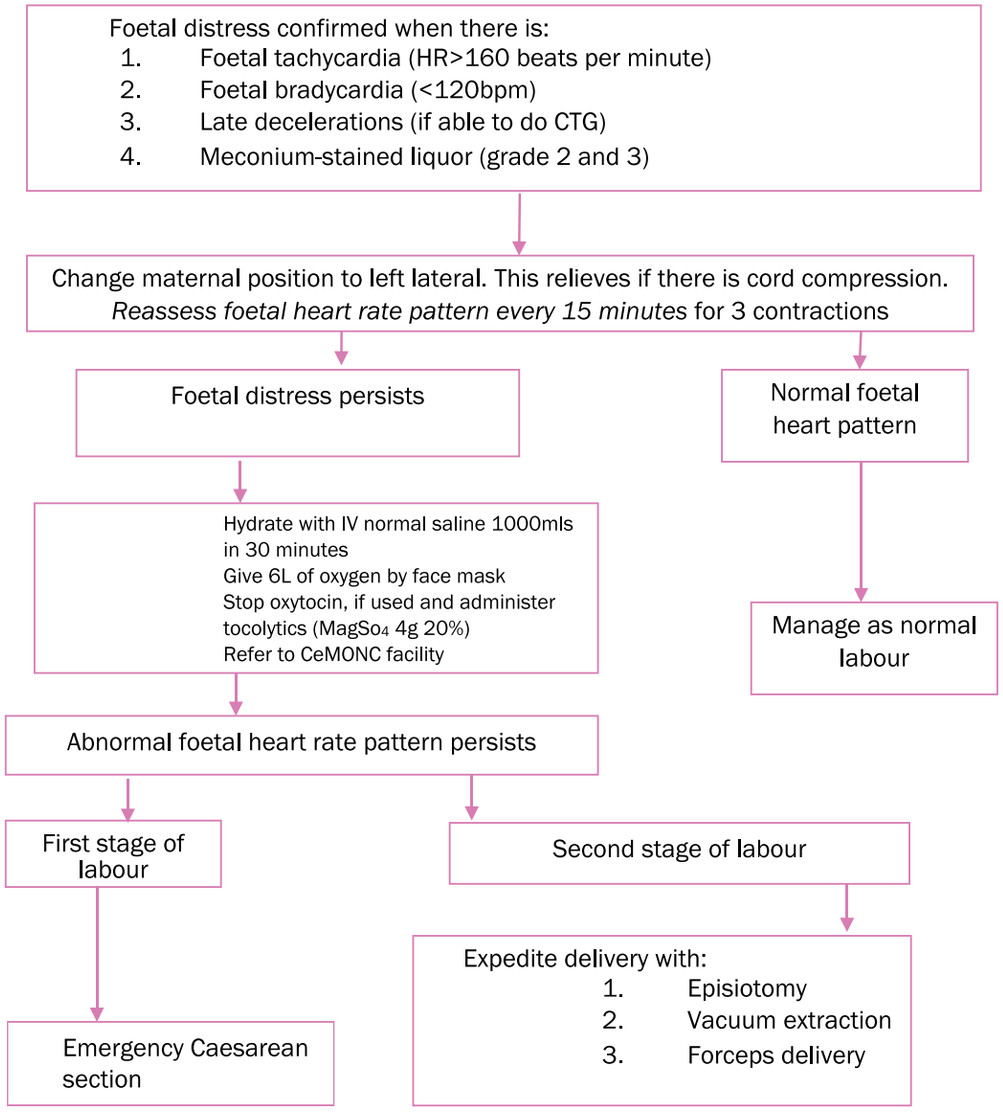
- Be prepared for quick delivery.
- Be prepared to manage distressed baby.
- Rule out cord presentation or compression during routine management of labour.

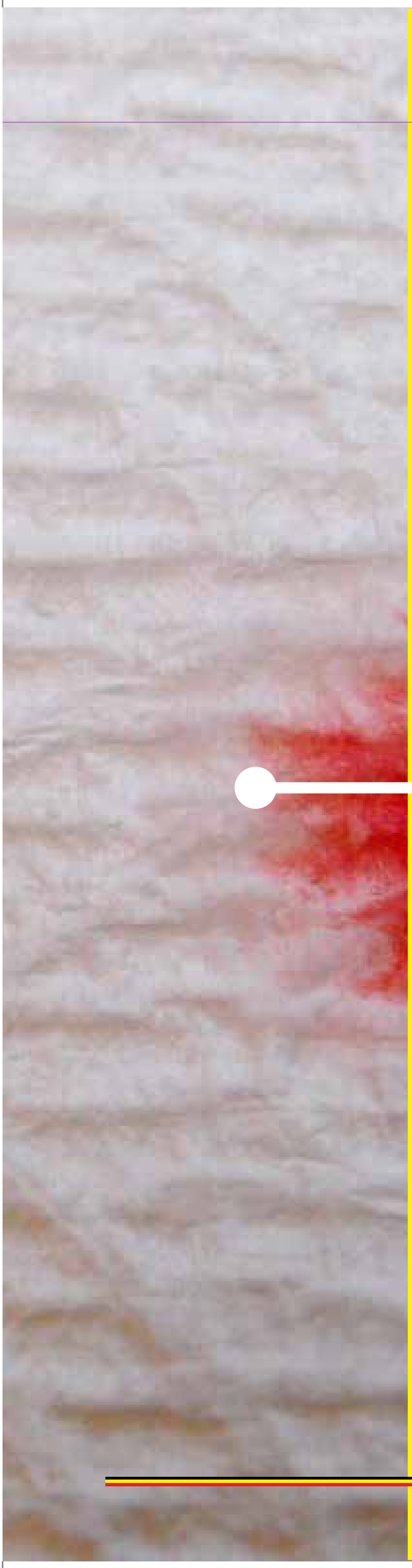
- Record foetal heart rate every quarter hour. Test urine for acetone and correct any dehydration/ketosis.
- Use labour care form
- Deliver promptly; use the most appropriate route.
- Manage any other identified maternal causes of foetal distress.

Follow-up

- Review the baby in the first 24 hours if baby is stable continue with treatment as indicated in the resuscitation section.
- If the baby remains stable, review after 1 week, then 6 weeks, continue follow-up in the young children's clinic. It is recommended that babies born with asphyxia neonatorum are reviewed annually up to 5 five years.
- Advise mother (couple) on appropriate child spacing.

Protocol 26: Management of foetal distress (without cord prolapse)





HAEMORRHAGE

MANAGEMENT OF HAEMORRHAGE DUE TO ABORTION

Immediate management

- Quickly assess patient's condition. If in shock, resuscitate:
- Take blood for haemoglobin, grouping and cross-matching.
- Set up an IV line, using wide-bore needle 16 gauge
- Transfuse with crystalloids (lactated Ringer's or normal saline solution).
- Monitor urinary output. Pass Foley catheter.
- Perform vaginal examination and manually remove products of conception and clots from the vagina and cervix.
- Give oxytocic as needed (misoprostol 800mcg rectally or 10 units of oxytocin in 1 L of normal saline).
- Start antibiotic therapy.
- Give oxygen by face mask, if needed.
- Arrange for evacuation of the uterus (MVA or evacuation with curettage).
- Give analgesics for pain control.

Subsequent management

- Evacuate uterus (MVA preferable).
- Identify and suture any lacerations (vaginal/cervical).
- If uterine perforation is suspected treat as intra-abdominal injury.
- Administer broad-spectrum antibiotics.
- Transfuse with blood if estimated blood loss is > 1500 ml.
- Give ferrous sulphate/folate tables or inferon (depending on the Hb).
- Counsel on and provide post-abortion contraception.
- Refer to hospital for other reproductive healthcare needs.

Precautions to take in order to avoid complications

- Maintain a high index of suspicion for early diagnosis and treatment.
- Resuscitate adequately.
- Ensure removal of all retained products (suction evacuation is preferable).
- Replace excessive blood loss by transfusion.
- Look for and repair visceral injury during emergency laparotomy for suspected uterine perforation treat as intra-abdominal injury

Follow-up

- Review after 2 weeks and then 6 weeks; recheck haemoglobin.
- Continue with ferrous sulphate and folate if still needed (i.e., Hb < 10 g/dl).
- Counsel and provide family planning appropriately

MANAGEMENT OF ABORTION COMPLICATIONS

Definition

Abortion is expulsion of products of conception before 26 weeks gestation. The purpose of assessing patients:

Make a diagnosis of abortion

- Determine if it is induced or spontaneous
- Identify complications
- Determine management

Diagnosis

- Signs or symptoms of pregnancy (amenorrhoea, nausea/vomiting, breast changes)
- Vaginal bleeding of variable severity
- Passage of products of conception, liqour or blood clots
- Symptoms and signs of shock may be present (dizziness, weakness, tachycardia, hypotension, pallor)
- Symptoms and signs of acute abdomen, if there is intrabdominal injury there is abdominal pain, fullness, and abdominal tenderness, etc.)

Table 8: Types of abortion

Clinical types of abortion					
Diagnosis	**Bleeding**	**Cervix**	**Uterine size**	**Others signs**	**Management**
Threatened abortion	Slight to moderate	Not effaced Not dilated	Equal to dates by last normal menstruation period	Positive pregnancy test Cramping minimal or absent Uterus soft	Confirm viability by ultrasound scan Rest at home or health facility abstain from sex for two weeks from last bleeding .Room for progesterone , smooth muscle anti-spasmodics & antibiotics
Inevitable abortion	Moderate to heavy	Dilated and effaced, membranes may be ruptured	Less than or equal to dates by LNMP	May be severe cramping	Evacuate if 12 weeks and below; if above 12 weeks augment with oxytocin or 600mcg misoprostol Antibiotics Analgesia
Missed abortion	No bleeding (pregnancy symptoms cease)	Cervix is closed	Uterine size is less than gestation age	No abdominal pain	**<12 weeks** use MVA or misoprostol 800 mcg oral, vaginal or rectal 3hrly 2 doses 13-26 weeks (IUFD) Misoprostol 200 mcg vaginal, sublingual, buccal 4-6 hrly at most 5 doses.
Incomplete abortion	Slight to heavy bleeding	Dilated/open	Less than or equal to dates by LNMP Not firmly contracted	Cramping Partial expulsion of products of conception	**<12 weeks** use MVA or misoprostol 600 mcg oral, 400mcg sublingual 400-600 vaginal single dose. 13-26 weeks (IUFD) Evacuation of the products of conception
Complete abortion	Little bleeding or bleeding has stopped	Soft or closed and no RPOC	Less than by LNMP Firmly contracted	Less or no cramping Expulsion products of conception Uterus firm	Confirm by ultrasound scan Treat complication if any and proceed the other aspects of post care

Note:

- MVA is the preferred method of uterine evacuation to treat abortion 12 weeks and less
- the risk of complications is decreased,
- access to services is increased, and
- the cost of post-abortion services is reduced.
- Retained products of conceptions should be sent for histology to exclude GTD

Differential Diagnosis abortion

- Ectopic pregnancy
- Bleeding due to submucous uterine fibroid
- Dysfunctional uterine bleeding
- Some complications of family planning methods which cause bleeding (e.g., Depo-Provera, IUD)
- Sexual trauma
- Genital malignancies
- Management of abortion should be done on clinical guidelines, and investigations should not delay management.
- Initiate management of shock and sepsis before manual vacuum aspiration (MVA). However, MVA should not be delayed.
- Ultrasound scan
- CBC/Blood for haemoglobin level
- Blood for grouping and cross-matching
- Urinalysis
- Pregnancy test

MANAGEMENT OF SEPSIS FOLLOWING ABORTION

Definition

- Presence of localised or generalised infection involving the genital tract following an abortion.

Risk factors for sepsis

- Retained products of conception
- Performing abortion in an unsafe environment
- Use of unsafe or crude method to end pregnancy
- Delay in seeking care following unsafe abortion
- Presence of intro-abdominal injury

Diagnosis

- Assess severity of sepsis. In mild/ moderate sepsis, the vital signs are stable and temperature is less than 38.5°C (101 .5°F) with no signs of shock
- suspect sepsis if:
- Hyperthermia temp>38C OR Hypothermia temp< 36C
- RR>25 bmp
- Heart rate >110bpm
- Altered level of consciousness
- Evidence of infection on CBC

Abdominal signs

- Guarding with rebound tenderness
- Presence of a mass or free fluid
- Low or absent bowel sounds
- Adnexal tenderness
- Foul smelling discharge per vagina
- Systolic BP <90mmhg

Investigations

- Blood grouping and cross match
- CBC to asses level of anemia, evidence of infection
- Abdominal ultra sound scan may reveal fluid pockets with internal echoes , retained products, perforations of the myometrium and foreign body.
- Culture and sensitivity where available
- Management
- Refer to CEmONC facility after initial resuscitation and starting antibiotics and analgesics At the CEmoNC Facility
- Continue with resuscitation Give IV crystalloids (N/S or R/L) at least 3L in 24 hours
- Give IV/1M broad-spectrum antibiotics for 5 days or change depending on culture and sensitivity results
- Evacuate retained products of conception appropriately.

- Arrange and erform exploratory laparotomy if uterine perforation or abscess is suspected.
- Inspect and make sure there is no other intrabdominal organ injury
- Hysterectomy may be considered in extensive uterine damage
- Correct any anaemia. Transfuse if Hb < 10 g/dl or haematocrit < 30%.
- If response to emergency treatment is unsatisfactory, review antibiotic therapy in line with blood culture and endocervical culture reports.
- Monitor for signs of renal failure and manage or refer appropriately
- Counsel patient and next of kin on the consequences of the procedure risks and complications.
- Counsel woman and partner on post-abortion family planning.

POST-ABORTION COUNSELLING

Definition

- Post-abortion counselling is the process of immediate patient-provider interaction and the use of verbal and non-verbal communication skills to determine the client's needs and make informed choice and acts on it.

- The specific objective of post-abortion counselling should include:
- What to consider for effective counselling on post-abortion client
- Empathy for spontaneous loss of pregnancy
- Identification of factors leading to induced abortion
- Discussion on the risks and consequences of unsafe abortion
- Arrival at an informed choice of management of reproductive options
- Use of chosen method safely and effectively

The steps for counselling:

Use GATHER steps:

Greet

- Greet patient. (Welcome woman and the person accompanying her
- Decide if this is the right time to proceed in the counselling.
- Introduce yourself.
- Encourage her to relax.
- Explain purpose of meeting.
- Show empathy; do not be judgmental.
- Ensure privacy; assure client of confidentiality.

Ask

- Establish age, marital status, cultural orientation. Ask about reproductive goals.
- Ask about the recent abortion experience.
- Was it spontaneous or induced?
- If not using contraception prior to last pregnancy, ask why not (e.g., previous side effects/complications, no access to contraceptives, religious or cultural reasons, spousal dissent, etc.) and how she intends to prevent a recurrence.
- Did she have any complications with the recent abortion? Is she still on medication? If so, specify.
- Ask about her health in general. Identify any basic medical condition that may be a contraindication to a specific contraceptive method.
- Explore her reproductive health needs, concerns and goals. Ask how she intends to prevent STIs in future.
- At all times, avoid being judgmental or biased

Tell

- Tell patients about the consequence of abortion and about the prevention of unintended pregnancies.
- Explain about all available methods of contraception, how they are used and how soon after abortion they can be started. Let client handle all methods.
- If abortion was spontaneous and patient intends to become pregnant again soon, counsel on preconception care, antenatal care.
- Respond to questions and concerns.
- Tell patient about rapid return of fertility, the recovery process, long-term effects and warning signs of complications.

Help

- Inform the client on the characteristics, benefits, limitations and side effects of each method.
- Explain that barrier methods may also be needed to protect against STIs, including HIVIAIDS.
- Let client make her own “informed decision” on method to use.
- Give more information about the method chosen and encourage the client to repeat the information back to you, to ensure she understands.
- Confirm the suitability of her chosen method by conducting the appropriate medical assessment.
- If suitable, provide the chosen contraceptive method.
- Inform client about possible side effects and warning signs.

Explain

- Ask the client to repeat all instructions about how to use the method and about process for re-supply.
- Encourage her to ask questions or state any concerns.
- Respond to all questions and concerns.

Refer

- Give appointment date for return and explain whom she is likely to see.
- Provide specific instructions for return visit.
- Inform on where to go if she has any problem(s)-preferably a clinic near her home.
- Refer to other related services that she may need (e.g., fertility services).

GESTATIONAL TROPHOBLASTIC DISEASE MANAGEMENT

Definition:

It is a proliferative disorder of trophoblastic (placental) cells arising from gestational rather than maternal tissue.

Types

- Hydatid form mole: These are benign resulting from an aberrant fertilization event that leads to a proliferative process.
  - Complete
  - Partial
- Malignant GTD : These follow any gestational experience like molar pregnancy, spontaneous/induced abortion or pregnancy
  - Persistent/invasive gestational trophoblastic neoplasia (GTN)
  - Choriocarcinoma
  - Placental site trophoblastic tumours

CLINICAL MANIFESTATIONS:

A premenopausal woman with abnormal vaginal bleeding and:

- Signs and symptoms of early pregnancy
- Enlarged uterus
- Pelvic pressure or pain
- Anaemia
- Hyperemesis gravidarum
- Hypertension/Preeclampsia before 20 weeks of gestation
- Vaginal passage of hydropic vesicles
- Missed menstrual periods
- Positive pregnancy test
- Theca lutein cysts
- Hyperthyroidism

RISK FACTORS

- Extremes of maternal age (<17 years and over age 35 years)
- History of previous GTD
- Maternal blood type AB, A, or B
- History of infertility
- Deficiency in vitamin A
- Current smoking (>15 cigarettes per day)

Investigations

- Ultrasound scan: snow storm appearance, luteal cysts
- Elevated beta Human chorionic gonadotropin higher than the gestational age
- CBC, blood grouping/crossmatch RFT, LFT
- Histopathology following evacuation
- Metastatic work-up

Differential diagnosis

- Abortion
- Secondary PPH
- Endometriosis/adenomyosis
- Chronic leaking ectopic pregnancy

Hydatidiform mole

	Complete	Partial
Incidence/ pregnancies	**1/750**	**1/1500**
Origin	Fertilization of an empty ovum by two sperms or a single sperm that duplicates, resulting in a 46 XX or 46 XY karyotype.	Fertilization of a haploid ovum by two sperm or duplication of one sperm, resulting in a triploid karyotype (69 XXY, 69 XXX, 69 XYY).
Embryonic/foetal tissue	Typically absent (may be present in few cases)	May be present
Uterine size	Often large for dates	Often small for dates
Theca lutein cysts	Present in ≤25 percent	Rare

Malignant GTD

Diagnosed histologically and/or by plateau or rise in quantitative serum Beta hCG following any form of pregnancy.

Choriocarcinoma: It is the most aggressive GTN, and is characterized by early vascular invasion and widespread metastases and irregular vaginal bleeding

Other clinical features include:

- Those indicative of metastatic disease:
  - Respiratory symptoms (eg, cough, chest pain, haemoptysis)
  - signs of gastrointestinal bleeding
  - Haematuria
  - Intracerebral bleeding
  - Hepatic involvement from advanced disease may cause epigastric or right upper quadrant pain.
- Enlarged uterus and bilateral ovarian cysts.
- Vaginal metastases (very vascular and prone to bleeding and infection).
- **Placental site trophoblastic tumours:** These are slowly-growing malignant tumours that are derived from intermediate cytotrophoblast cells that are present in the placenta (unlike choriocarcinoma, which arises from villous trophoblast).

Clinical features:

- They present months to years after a term gestation.
- Irregular vaginal bleeding
- Enlarged uterus are common
- Amenorrhea
- nephrotic syndrome
- relatively low relative hCG compared to the tumour volume.

TREATMENT

Complete and partial mole:

1. Suction curettage:

It is a definitive therapy for most patients.
Ensure that a pre-evacuation beta-hCG is done.
The procedure is done at vacuum pressures of 50 to 60 cm Hg under anaesthesia and oxytocin.

Note:

- Administer prophylactic or therapeutic antibiotics
- Administer Anti-Rh(D) immune globulin to Rh(D) negative women
- Book blood
- Surgical management of complete and partial mole is must be done by experience of clinicians at GTD referral centres (CEmONC facility)
- IV access and blood should be available
- Be prepared to manage these complications:
  - Thyroid storm
  - Pulmonary embolization of trophoblastic tissue
  - Sepsis

Post Molar follow up:

Effective contraception should be given throughout the follow-up period (refer to Family planning guidelines).

Do baseline hCG levels within 1-week post-evacuation, 2 weeks and 4 weeks if unchanged or increasing, refer to gynae-oncology centre.

A plateau or rise in hCG suggests persistent trophoblastic disease, and necessitates chemotherapeutic treatment.

Histologic confirmation of choriocarcinoma necessitates referral.

In case of challenges with investigative capacity (Serum Beta hCG assays, ultrasonography and pathology, refer to gyn-oncologist

COEXISTENT VIABLE FETUS: A molar pregnancy can coexist with a viable foetus and are associated with haemorrhage, preeclampsia, preterm birth and persistent gestational trophoblastic neoplasia. This should be managed at CEmONC facility.

MANAGEMENT OF SUBSEQUENT PREGNANCIES:

Placenta should be evaluated by a pathologist following any spontaneous or therapeutic abortion or delivery.

Malignant disease

GTN is curable and one of the most chemotherapy-responsive cancers.

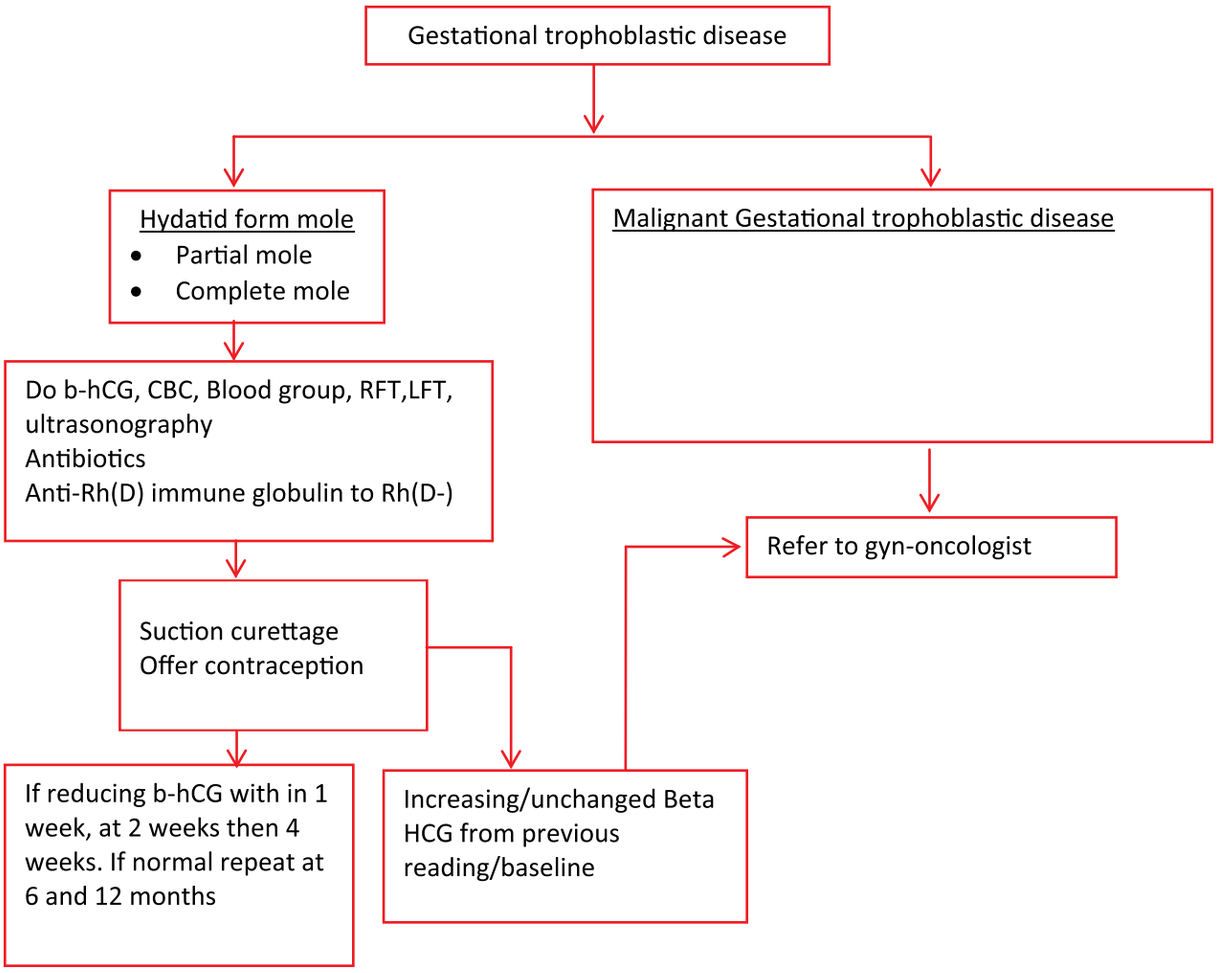
Metastasis occurs to the:

- Lungs
- Vagina
- Liver
- CNS

Treatment

Once diagnosis made, referral to a centre with ability to offer chemotherapy is advised.

Protocol 27: Management of Gestational Trophoblastic Disease



ECTOPIC PREGANCY

Definition

Pregnancy outside the uterine cavity usually in the tubes but may be in the ovary, abdomen or liver

Diagnosis

This is an emergency and a high index of suspicion is required for the identification of patients with ectopic pregnancy. Table 3 below shows the clinical features of different types of ectopic pregnancy.

Table 9: Clinical Features of Different Types of Ectopic Pregnancy

Clinical Features	Probable Type of Ectopic Pregnancy		
	Unruptured	Acute Ruptured	Slow leaking
Pregnancy symptoms	+/-	+/-	+/-
Vaginal bleeding	+/-/	+/-	+/-
Abdominal pain	Intermittent colicky	++ Severe constant generalized	+ Mild
Pallor	–	++	+/-
Shock	–	+/-	+/-
Abdominal tenderness - with guarding	+/-	+	+
Cervical changes (softening/	+	+	+
Cervical motion tenderness	+	+	+
Adnexa tenderness/mass	+/-	+	+
Ultrasound -Gestational Gestational sac outside uterus Free fluid in the pouch of Douglas	 + -	 +/- +/-	 +/- +
Pregnancy test	+	+	+/-

Note: *that a negative pregnancy test does not always exclude an ectopic pregnancy.*

Differential Diagnosis

- Abortion
- Acute/chronic pelvic inflammatory disease (PID)
- Torsion or rupture of an ovarian cyst
- Acute appendicitis

Emergency Treatment

Pre-Referral

- Establish an intravenous line with normal saline to run in slowly.
- Consult or arrange to transfer to comprehensive emergency obstetric care facility.
- Explain problem and possible treatment options to the primary client and family

At CEmONC facility

- Counsel about the management cross-match blood, get consent and arrange for immediate laparotomy where indicated
- At surgery, inspect ovaries and fallopian tubes before surgically excising the suspected bleeding tube (salpingectomy). If possible conserve the tube (salpingoplasty)
- Provide analgesia
- Laparoscopic surgery is preffered where available
- A ruptured ectopic pregnancy with significant haemoperitoneum does not require a diagnostic laparoscopy.

Medical management indicated if:

- HCG > 5000miu/ml
- Gestational sac <4cm
- No foetal heart on ultrasound scan
- Patient able to follow through with the follow ups
- Patient hemodynamically stable
- Medical management using Methotrexate:
- Single dose 0f IM Methotrexate 50mg per meter squared of body surface are

The formula for; Body surface Area = the square root of product of the weight in kg times the height in cm divided by 3600.

$$\sqrt{\frac{\text{height (cm)} \times \text{weight (kg)}}{3600}}$$

- Do baseline investigations: CBC, RFTs and LFTs Follow up
- Provide postoperative analgesia and nursing care as appropriate.
- Give counselling on prognosis for future fertility.
- Counsel and provide family planning if desired.
- Correct anaemia with iron tablets.
- Schedule for follow-up visit within 4-6 weeks

Follow up,

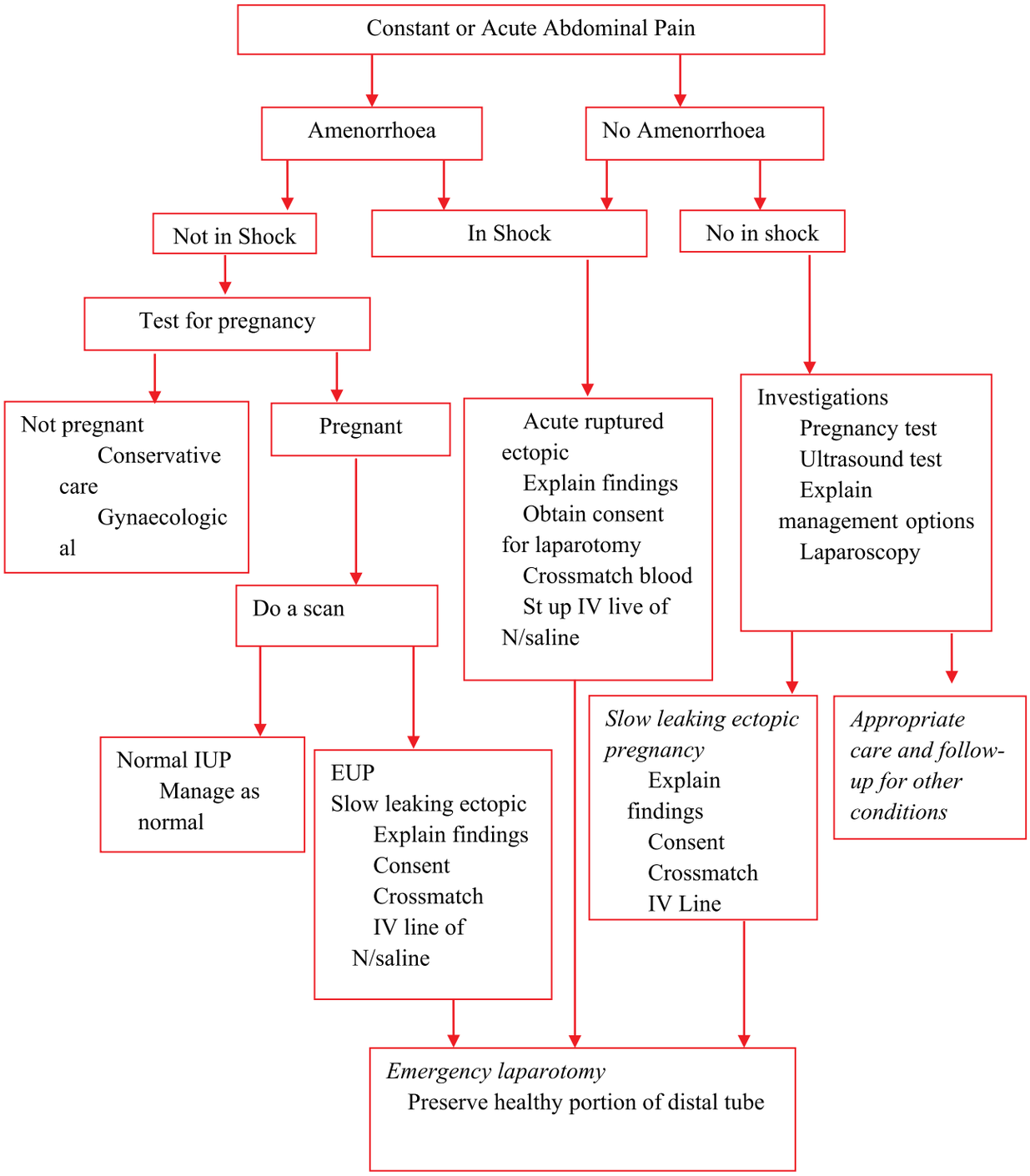
- Do serum hCG on days 4 ,7 and day 14 or until <15miu/ml
  - If on day 7, the Serum hCG is not less than 15% drop from that of day 4, give additional dose of methotrexate.
  - If serum hCG is rising on day 7, or ruptured or haemodynamic instability, abandon medical management and perform surgical management

Precautions to Take in Order to Avoid Complications

- To preserve chances of future fertility, do not remove healthy portions of the tube which may be reconstructed in the future.
- Once the bleeding point is tied off, resuscitate aggressively, give blood as a priority.
- Avoid auto transfusion if gestational sac has ruptured.
- Specimen taken out should be taken for histology for nature of pregnancy.

Note: *Do not run fluids very fast after making a diagnosis. Patients with raptured ectopic pregnancy are kept alive because of a low blood pressure. Raising the blood pressure with over infusion of IV fluids increases the BP that removes the platelets plugs and bleeding resumes.*

Protocol 28: Management of Ectopic Pregnancy



ANTEPARTUM HAEMORRHAGE

Definition

Any bleeding from or into the birth canal which occurs at or after 26 weeks of gestation or 800 grams and before birth of the baby.

Causes:

The three life-threatening causes of antepartum haemorrhage (APH) that need to be quickly identified and managed are abruptio placenta, placenta praevia and ruptured uterus. Other local cause includes vasa previa, genital tract infection (GTI), tumours of the vulva/vagina/cervix, polyps, cervical erosion, urethral caruncle, etc. These are conditions to be considered after the exclusion of the first three major causes listed above.

Diagnosis

Factors that may aid differentiate Placenta praevia from abruptio placenta are summarized in table 2 below.

Table 10:Clinical features of Antepartum Haemorrhage

Clinical Feature	Probable signs and symptoms are dependent on severity)	
	Abruptio Placenta	Placenta Praevia
Vaginal bleeding	• Passage of dark blood which may not clot. • Sometimes there will be no bleeding, seen externally.	• May be preceded by small warning bleeds • Bright red bleeding (or dark, if clotted in the vagina)
Abdominal pain	• Constant pain which usually precedes vaginal bleeding • May have history of trauma	• No pain unless in labour
Abdominal palpation findings	• Woody hard and tender uterus • Foetal parts difficult to feel depending on severity	• No uterine tenderness • Abnormal foetal lie or presentation • Presenting part high
Foetal heart auscultation	• Bradycardia (FH<100/min) OR • Foetal tachycardia (FH>160/min), OR • Absent	• Usually normal but can be distant, • Bradycardic or • Tachycardic or • Absent

Other causes of APH may present with normal clinical findings except vaginal bleeding.

Differential Diagnosis of APH

- Abruptio Placenta
- Placenta previa
- Ruptured Uterus
- Differentials for concealed abruptio include:
- Degenerative fibroids
- Twisted ovarian cyst
- Acute appendicitis

Investigations:

- Blood for CBC/Hb, platelet count
- Blood grouping and cross-matching
- Ultrasound scan
- Bedside clotting time, prothrombin time (PT), activated partial thromboplastin time (aPTT)
- Urinalysis (for proteinuria to exclude Pre-eclampsia commonly associated with abruptio)

Management of APH

- All mothers with APH must be managed at CEmONC facility
- Pre-referral care
  - Do not perform a digital V/E but inspect the vulva
  - Establish an IV line and give IV fluid normal saline or ringers lactate
  - Refer the woman urgently
- The management of APH depends on the cause, gestation age, maternal/foetal condition and severity of the bleeding
- For abruptio placenta follow the management protocol indicated in figure 6, and for placenta praevia refer to management protocol (Figure 7)
- For a patient with APH where the foetus is alive and placenta previa type II, posterior, type III, IV deliver by emergency C-section and ensure enough blood otherwise, vaginal delivery can be attempted if the mother is not bleeding actively for placenta previa type I and II anterior.

Preparedness for complications

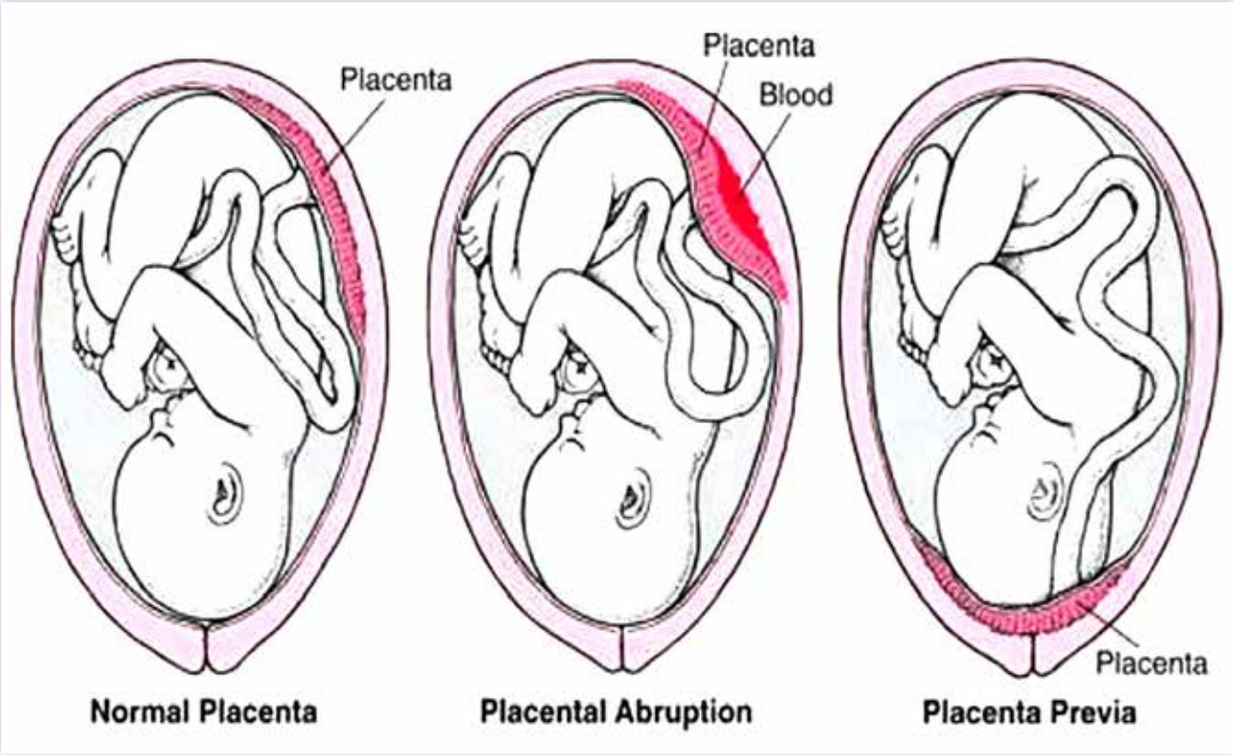
- Grouping and cross-matched blood
- Keep emergency tray replenished with supplies at all times
- Counsel client and companion about her condition.

Precautions in APH management

1. **4 DON'TS**
   - Digital vaginal exam
   - Bladder catheterization
   - Rectal examination
   - Rectal enema

2. **WHEN NOT TO DELIVER**
   - Preterm
   - Alive foetus
   - Stable mother
   - Not in labour
3. **WHEN TO DELIVER**
   - Term
   - Dead foetus
   - Labour
   - Mother unstable

ABRUPTIO PLACENTA



Definition

Refers to bleeding into the genital tract after at or after 26 weeks of gestation and before delivery in a normally situated placenta(fundus)

Causes or Predisposing factors to abruptio placenta

- Previous history of abruptio placenta
- Direct trauma to the abdomen
- Hypertensive disorders of pregnancy
- Polyhydramnios
- Short cord
- Chorioamnionitis
- Uncontrolled Artificial Rupture of Membranes
- Folate deficiency
- Smoking
- External cephalic version (ECV)

Differential diagnosis of abruptio placenta

- Placenta previa
- Uterine rupture
- Vasa previa
- Trauma to the abdomen
- Degenerating fibroids
- Severe cystitis
- Pyelonephritis
- Ovarian cyst torsion
- Bleeding ectopion
- Cervical polyps or malignancy

Investigations

- Blood grouping and cross-matching, book blood products preferably packed red blood cells or whole blood and platelets
- Blood for CBC/Hb, platelet count
- Ultrasound scan
- Bedside clotting time, prothrombin time (PT), activated partial thromboplastin time (aPTT)
- Urinalysis (for proteinuria to exclude pre-eclampsia commonly associated with abruptio)

Treatment for abruptio placenta

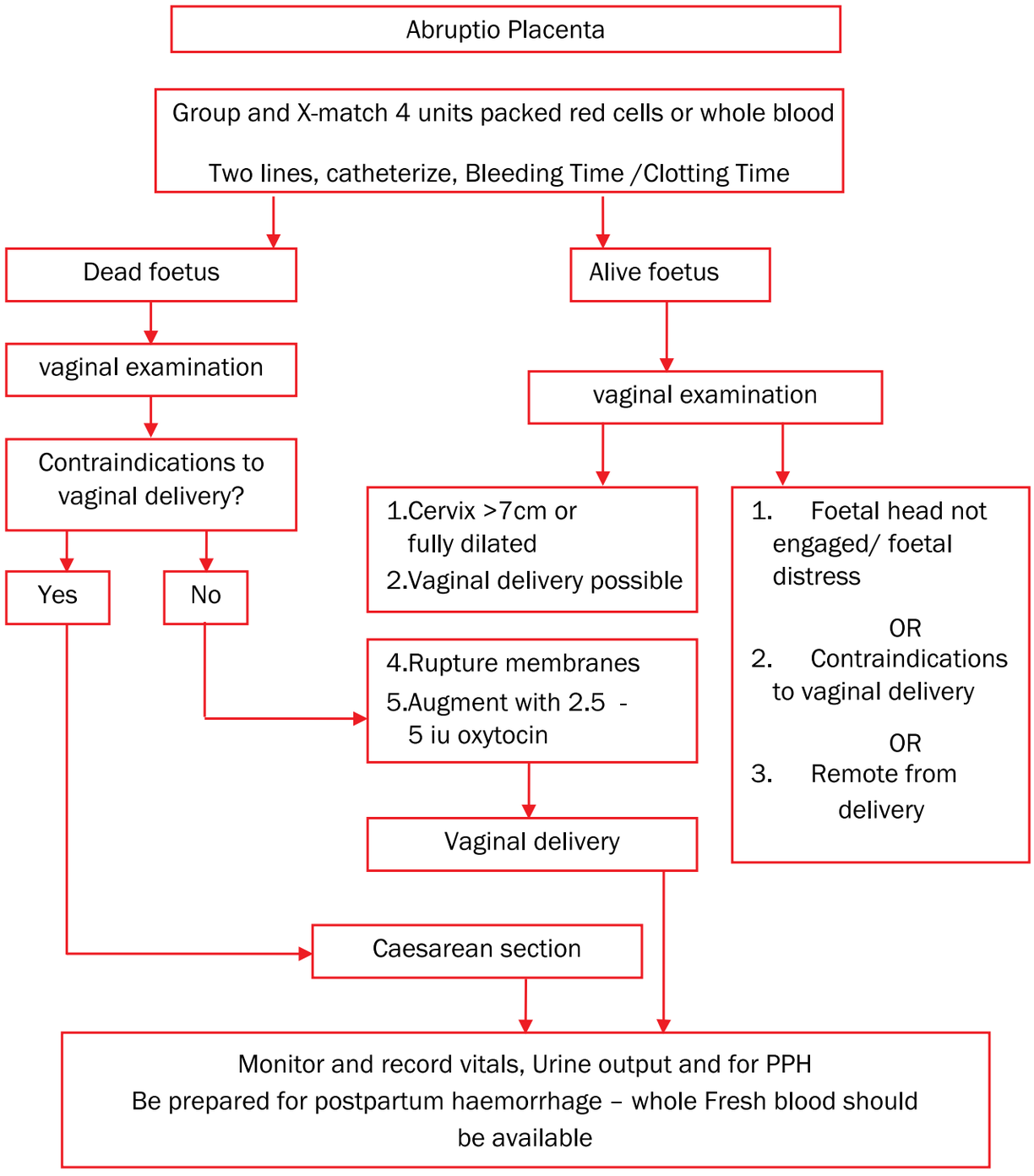
- Initiate continuous foetal heart rate monitoring since the foetus is at risk of becoming hypoxemic and developing acidosis.
- Secure intravenous access. Place one

wide-bore intravenous line (16G); two if the patient presents with signs of moderate or severe abruption, such as
  - moderate to heavy bleeding,
  - hypotension,
  - tachysystole,
  - uterine hypertonicity and tenderness,
  - coagulopathy, or an abnormal foetal heart rate pattern
- Notify the anaesthetic team in moderate to severe abruptio to help in management of hemodynamic instability, bleeding disorders and potential need for emergency CS.
- Maintain crystalloids to keep urine output to 30mls/hr
- Anticipate delivery within 24 hours

a) Abruptio Placenta with alive foetus:
- If the mother is haemodynamically stable with cervical dilatation more than 7cm or in second stage, with no contraindication to vaginal delivery, do artificial rupture of membranes and allow the mother deliver vaginally with close monitoring (monitor every 15 minutes).
- If the maternal condition deteriorates (Per vaginal bleeding, haemodynamic state), deliver by emergency caesarean section
- Perform bedside ultrasound scan to determine the presence of abruptio placenta
- If delivery is remote or more than 1 hour, proceed to deliver by emergency caesarean section
- Prepare for neonatal resuscitation (refer to neonatal resuscitation section

b) Abruptio placenta with dead foetus
- If there is no contraindication to vaginal delivery and the mother is haemodynamically stable, rupture the membranes, augment labour with Oxytocin 2.5-5 IU (see Section on Induction and Augmentation of labour) in 500mls of saline and allow the mother deliver vaginally.
- However, if the condition of the mother is deteriorating, proceed to deliver by caesarean section.
- Anticipate and prepare for PPH due to atony and Couvelaire uterus.

Protocol 29: Protocol on Abruptio Placenta



PLACENTA PREVIA

Definition

Refers to painless vaginal bleeding due to low lying placenta after 26 weeks of gestation or before delivery of the baby

Table 11: Types of placenta Previa

GRADE	TYPE	DESCRIPTION	CLASSIFICATION
I	Lateral	Placenta is located in the upper segment but encroached on lower segment	**Minor** vaginal delivery is possible
IIa (anterior) IIb (posterior)	Marginal previa	Placenta touches but does not overlap the internal os	**Minor** IIa: Vaginal delivery possible) IIb: Deliver by C/S
III	Partial previa	Placenta partially covers os	**Major** deliver by C/S
IV	Complete	Placenta completely covers the internal cervical os	**Major** deliver by C/S

Causes or risk factors for PP

- Previous history of PP
- Uterine scars e.g. C/S, D&C, myomectomy
- Multiple pregnancy
- Multiparity
- Elderly (>35 years of age)
- Male foetuses
- Smoking cigarettes

Differential diagnosis

- Abruptio placenta
- Vasa praevia
- Cervical polyps
- Bleeding ectopion
- Cervical cancer

Investigations

- Ultrasound scan to localize the placenta, foetal wellbeing,
- Blood for CBC/Hb, platelet count
- Blood grouping and cross-matching

Treatment

A) Gestational age 26-37 weeks with no bleeding

The diagnosis usually made through incidental ultrasound scan

- Counsel and avoid strenuous activity including sexual coitus.
- Give corticosteroids if <34 WOA, IM dexamethasone 6mg every 12hrs for 24 hours
- Continue with routine haematinics
- If no theatre facilities/blood refer to CEmONC facility
- If mother is stable and foetus alive, continue conservative management till 37 weeks gestation.
- Discuss with the mother & family on

birth preparedness and complication readiness
- Counsel mother to continue with ANC & report hospital if bleeding starts.
- Hospitalize if bleeding is revealed
- Perform repeat ultrasound scans at 32, and 36 weeks

B) Gestational age 26-37 weeks with mild bleeding

Mild bleeding in placenta praevia is where there is no decompensation or deranged vital signs, or immediate danger to mother and foetus

- Discuss with the mother & family on birth preparedness and complication readiness.
- Admit or refer to a functional CEmOC facility till delivery
- Avoid strenuous activity including sexual coitus that results into orgasm.
- Give corticosteroids if <34 WOA; IM dexamethasone 6mg every 12hrs for 24 hours
- Rhesus negative mothers should receive anti-D immunoglobulin 300mg
- Continue with routine or daily monitoring of foetal wellbeing and haematinics
- If mother is stable, no active bleeding and foetus alive, Continue till 37 weeks gestation.
- If minor placenta praevia induce labour if no contraindication to vaginal delivery.
- If degree of placenta praevia is minor type IIb and major deliver by C/S.

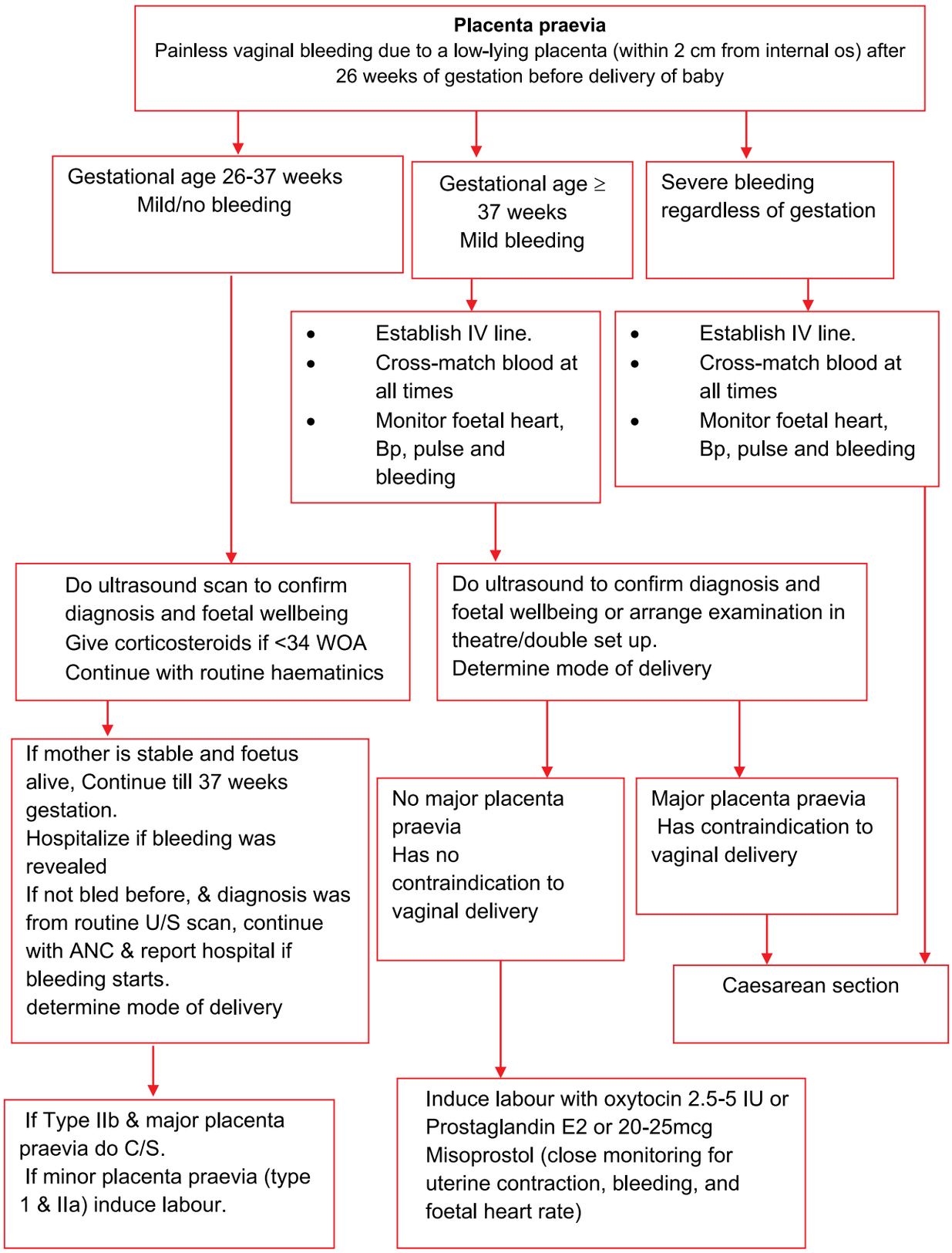
Indications for immediate delivery by C/S

- Active bleeding (+haemorrhagic shock)
- Gestational age ≥ 37 weeks with mild bleeding
- Evidence of IUGR
- None-reassuring foetal status
- IUFD

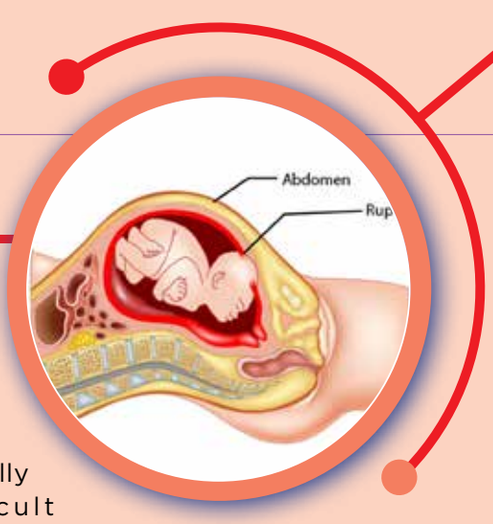
Note

Placenta praevia is associated with morbidly adherent placenta. Adequate preparation and expertise are a pre-requisite. Consent the mother for possible hysterectomy.

Protocol 30: Placenta Praevia



RUPTURED UTERUS



Definition

A partial or complete tear of the gravid uterus.

Predisposing Factors

- Previous operations on the uterus
  - Myomectomy
  - Caesarean section, wedge resection in previous cornual ectopic pregnancy
- Obstetric manoeuvres on the uterus
  - Breech extraction
  - Manual removal of the placenta
  - Poorly applied forceps
- History of previous perforation of the uterus
- Grand multiparity
- Uterine hyper stimulation (inappropriate use of oxytocin, misoprostol or herbs)
- Macrosomia
- Malpresentation

Signs and Symptoms:

In labour:

- Vaginal bleeding
- Oedema of the lower vagina and vulva (Kanula sign)
- Retained placenta
- Cessation of uterine contractions following hypertonic uterine contractions
- Continuous abdominal pain/tenderness
- Signs of shock
  - Restlessness
  - Sweating
  - Hypotension (low blood pressure)
  - Pulse rises (tachycardia)
- Hypovolaemia
- Deformity of uterine and abdominal outline
- Displacement of the uterus to one side with tenderness after delivery
- Easily palpable foetal parts
- Dislodged presenting part
- Foetal heart sounds irregular or absent

Uterine rupture may present before onset of labour and woman presents with;

- History of trauma to the abdomen
- Previous operations on the uterus, especially history of classical caesarean section
- Usually difficult to palpate the abdomen
- Vaginal bleeding not proportional to profound signs of shock
- Other signs as when in labour

Differential diagnosis of ruptured uterus

- Placenta praevia
- Bowel obstruction
- Extrauterine pregnancy
- Ruptured spleen or liver, if it follows an accident
- Abruptio placenta

Investigations

- Do blood grouping and cross matching
- Take off blood for haemoglobin level

Emergency treatment

For detailed steps to be followed refer to protocol on management of ruptured uterus.

Start resuscitation.

- Set up IV line (crystalloids) (e.g., lactated ringer's solution or normal saline) preferable
- Administer IV tranexamic acid (TXA) 1 gm over 10 minutes
- Refer to CEmONC facility on Non-pneumonic Anti-Shock Garments (NASG)
- Give oxygen by face mask / nasal catheter.
- Transfuse with blood
- Catheterise for continuous bladder drainage.
- Provide parenteral broad-spectrum antibiotics
  - IV ampicillin 2g 6 hourly for 48 hrs;
  - IV metronidazole 500mg 8 hourly

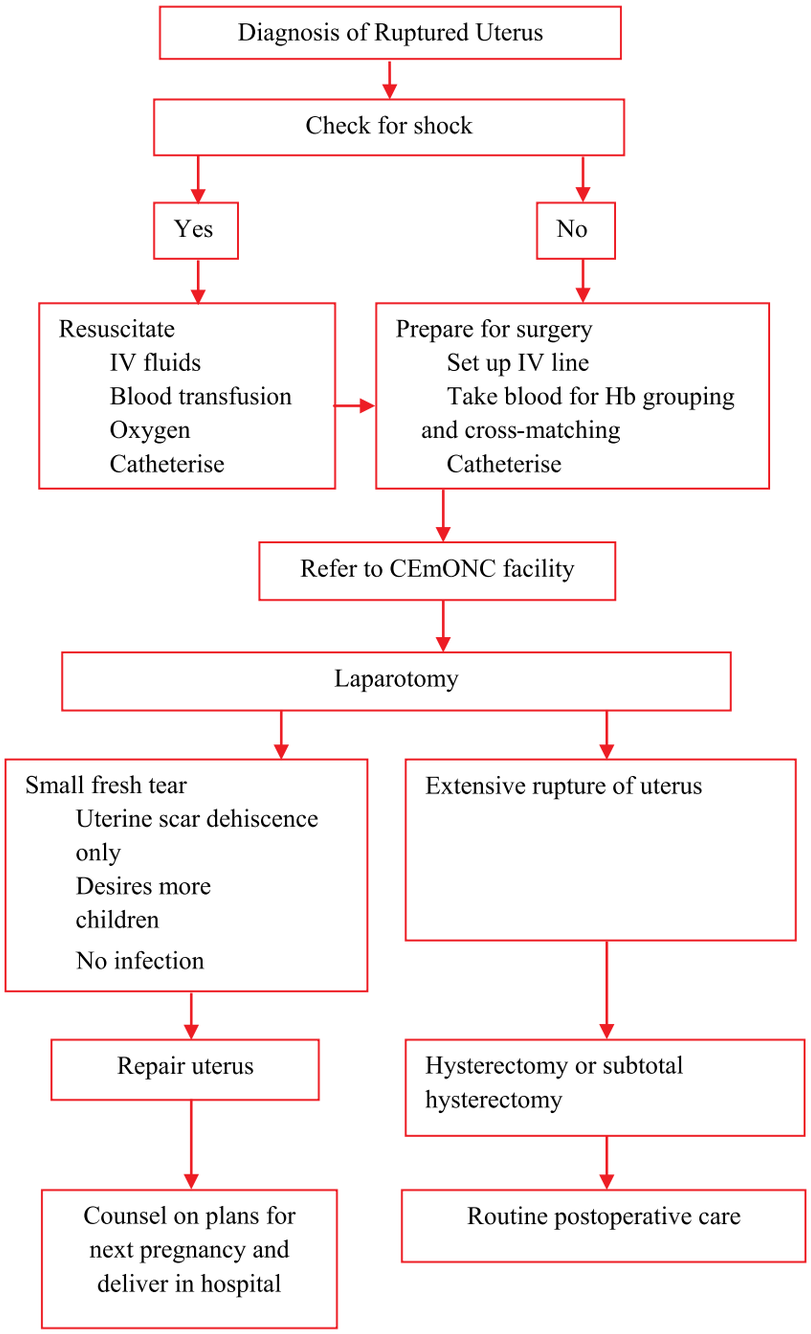
for 48 hrs

- Surgery
  - Perform laparotomy after stabilizing the patient.
  - Repair of uterus if possible
  - Perform a sub-total hysterectomy (if unable to repair uterus or control bleeding posterior tear of uterus, necrotic edges, avulsed vessels, non-viable uterus, extensive tears where the apex cannot be located)
- Continue with IV fluids
- Continuous bladder drainage for 14 days

Follow-up

- If hysterectomy performed, counsel the woman on consequences including future reproductive plans
- Review in postnatal clinic.
- Gynaecology clinic and do Pap smear

Protocol 31: Management of Ruptured Uterus



POSTPARTUM HAEMORRHAGE

Definition:

Bleeding from the birth canal after the birth of the baby until 6 weeks postpartum, amounting to 500 ml or more after vaginal delivery and 1000 ml or more after caesarean section, or any amount that causes deterioration of the maternal condition (systolic BP, <90mmHg, pulse rate>100bpm, urine output <30mls/hr and altered level of consciousness)

Types

- Primary PPH
- Secondary PPH

Primary Postpartum Haemorrhage

Definition:

Bleeding from the birth canal after the birth of the baby within the first 24 hours after delivery

Predisposing Factors (4T)

Note: Every pregnant woman is at risk of PPH without necessarily having an identifiable risk factor

- Uterine atony
  - Retained placental fragments and membranes
  - Prolonged labour
  - Over-distended uterus (e.g., polyhydramnios or multiple pregnancy, big baby)
  - Full bladder
  - Grand multiparity
  - Anaesthetics agents (e.g., halothane)
  - Uterine fibroids
  - Induction and augmentation of labour with oxytocin
  - Chorioamnionitis
- Trauma
  - Trauma to the genital tract (vaginal, cervical or uterine)
  - Ruptured uterus•
  - Precipitate labour
  - Caesarean section
  - Assisted vaginal delivery
  - Big baby
- Tissue
  - Retained placenta
  - Placenta accreta
  - Retained membranes
  - Blood clots
- Coagulation disorders

Note: Prolonged haemorrhage from all those causes listed above can lead to coagulation disorder.

Additional risk factors for coagulopathy include:

- Intrauterine foetal death
- Preeclampsia and eclampsia
- Uterine infections (chorioamnionitis)
- Use of anticoagulants
- Amniotic fluid embolism

Diagnosis of PPH

May be able to elicit any precipitating factor or risk factors listed above. However, diagnosis is based on:

History of bleeding in the immediate post-partum period

- Visual estimation of blood usually underestimates blood loss. Direct observation of excessive vaginal bleeding (more than one sanitary pad socked in 5 minutes).
- Symptoms and signs of shock (rapid pulse >100 bpm, low blood pressure; SBP<90mmhg, and the shock index >1.0).
- Caution: Increase in PR and drop in BP occur when more than 1500 mls of blood is lost
- Deteriorating general condition of mother
- Pale mucous membranes
- Cold extremities
- Increased respiratory rate
- Signs of reduced brain perfusion (confusion, restlessness, or drowsiness)
- Tears or swelling on the genital tract may be visible on examination

Investigations

- Haemoglobin and haematocrit estimation
- Blood grouping and cross-matching, Rh factor
- Blood for clotting time, prothrombin time, partial thromboplastin time and platelet count

Emergency Management

Note: Every facility delivery suite MUST have a PPH emergency box

The following are the steps to follow in management of PPH cases

- Call for help (Ring a bell).
- Assess for airway, breathing and circulation (ABC)
- Empty the bladder.
- Rub the uterus to encourage contraction.
- Set up 2 large bore IV lines with 16G canula and start IV crystalloids (e.g., normal saline or Ringers lactate). Run 2L fast, then 40 drops/minute until blood is available
- Order for a minimum of 2 units of cross-matched packed red cells or whole blood
- Give IV oxytocin 10 IU IV or misoprostol 800mcg sublingual or IM ergometrine 0.2 mg (in a non-hypertensive mother)
- Maintain with oxytocin 20 units/l L normal saline
- If bleeding persists inject 250 mcg (1 ml) of carboprost intramuscularly; repeat every 15 to 90 minutes as needed. The total dose should not exceed 2 mg.
- Tranexamic acid (TXA) should be used in all cases of PPH, regardless of whether the bleeding is due to genital tract trauma or other causes within 3 hours of birth.
- TXA should be administered at a fixed dose of 1 g in 10 mL (100 mg/mL) IV at 1 mL per minute (i.e., administered over 10 minutes), with a second dose of 1 g IV if bleeding continues after 30 minutes or if bleeding restarts within 24 hours of completing the first dose
- Deliver the placenta by controlled cord traction if not yet delivered.
- If placenta is already delivered, look for cause, manage bleeding and treat (e.g., if tears/lacerations, suture them).
- Expel clots from the vagina.

If placenta is retained:

- Perform a manual removal under anaesthesia
- If bleeding persist, continue oxytocin drip (20 units in 1L normal saline) total maximum dose of Oxytocin is 60 IU in 3 litres of normal saline as infusion not boluses
- Massage the uterine fundus.
- Reassure the mother/relatives.
- Check and record vital signs and bleeding every 15 minutes until the condition is satisfactory then 2 hourly for 24 hours.

Inspect placenta to see if it is complete. If placenta has been removed and the mother is still bleeding, manage as atonic uterus:

- Empty the bladder, as needed.
- Give oxytocin or IM/IV ergometrine.
- Massage the uterine fundus.
- Set up drip and allow to run fast and add oxytocin 20 IU in 1000ml of normal saline (60 drops per minute for the first 1L of saline then 40 drops per minute for the next 2L of normal saline containing oxytocin)
- Inspect genital tract for tears/trauma.
- Perform a speculum examination to exclude vaginal and cervical tears.
- Perform abdominal aortic compression.
- Perform internal bimanual compression of the uterus.
- If bleeding persists, apply uterine balloon tamponade, non-pneumonic anti-shock garment (NASG) and consult for further surgical intervention or refer to CEmONC facility (with IV fluids containing oxytocin).
- Give initial dose of broad-spectrum antibiotics IV ampicillin 2 gm 6 hourly for 24 hours

Management of traumatic postpartum haemorrhage (Tears):

After excluding other causes of primary postpartum haemorrhage (e.g., atony of the uterus, retained pieces of placental tissue or membranes), the following steps should be taken:

- Continue IV fluids (normal saline, followed by plasma if the patient is in shock).
- Estimate blood loss and transfuse as needed.
- Get a good source of light and inspect the perineum and vaginal walls for lacerations.
- Insert a Cusco vaginal speculum and inspect the cervix for lacerations. If there is no speculum, part the vaginal wall using fingers to visualize the genital tract
- Repair lacerations and tears.
- If cervix is torn and bleeding, hold the bleeding edges with sponge forceps and repair in theatre if you have the skills or, if not, refer.
- If ruptured uterus is suspected resuscitate. Refer to CEmONC facility.
- Take observations and record accordingly

In comprehensive emergency obstetric care facility Surgical management in theatre:

- Examine woman under anaesthesia
- Inspect genital tract for tears and repair.
- Explore uterus to exclude retained placental products and membranes.
- If bleeding persists, perform laparotomy. If the uterus is atonic, apply uterine compression sutures (B-lynch), ligation of uterine and ovarian vessels, internal iliac vassals or perform hysterectomy as a last resort.
- NOTE: During laparotomy if atony is due to couvelaire uterus, and compression sutures not able to achieve haemostasis satisfactorily, perform a timely hysterectomy

Management of DIC secondary to haemorrhage

- Dilution of coagulation factors is the primary cause of coagulopathy in major blood loss following volume replacement with crystalloid or colloid and transfusion of red cell components.
- During DIC, all coagulation factors, especially fibrinogen, factor V, factor VIII and factor XIII, are depleted.
- Those at risk are women who have been exposed to prolonged hypoxia, hypovolaemia or hypothermia (for instance, owing to inadequate resuscitation)

Haemostasis may be assessed by:

- (i) clinical observation; DIC should be suspected when there is profuse bleeding from the site of trauma and oozing from the sites of venepuncture and intravenous line insertions
- (ii) laboratory-
  - activated partial thromboplastin time and prothrombin time (aPTT/ PT) ratio,
  - Clauss fibrinogen
  - Platelet count

Treatment

- Women experiencing ongoing PPH should be considered for treatment with 1 gm intravenous tranexamic acid
- If DIC is strongly suspected and clotting studies take a long time, transfusion of Fresh Frozen Plasma (FFP) should be considered before result are available if haemorrhage is otherwise difficult to control. FFP before haemostatic tests are available may be justified for placental abruption, AFE or if recognition of PPH has been delayed.
- Administer FFP 12-15 ml/kg to keep the activated partial thromboplastin time (aPTT) and prothrombin time ratios less than 1:5.
- Transfusion of platelets There is consensus that platelets should be transfused at 75 x109/L to maintain a level > 50 x109/L during ongoing PPH
- if no coagulation results are available and bleeding is ongoing, then, after 4 units of RBC, 4 units of FFP should be infused and 1:1 RBC : FFP transfusion maintained until haemostatic test results are known
- In cases of massive ongoing bleeding where women have been given 8 units of RBCs and 8 units of FFP and no coagulation results or platelet count are available then two pools of

cryoprecipitate and one pool of platelets may be given

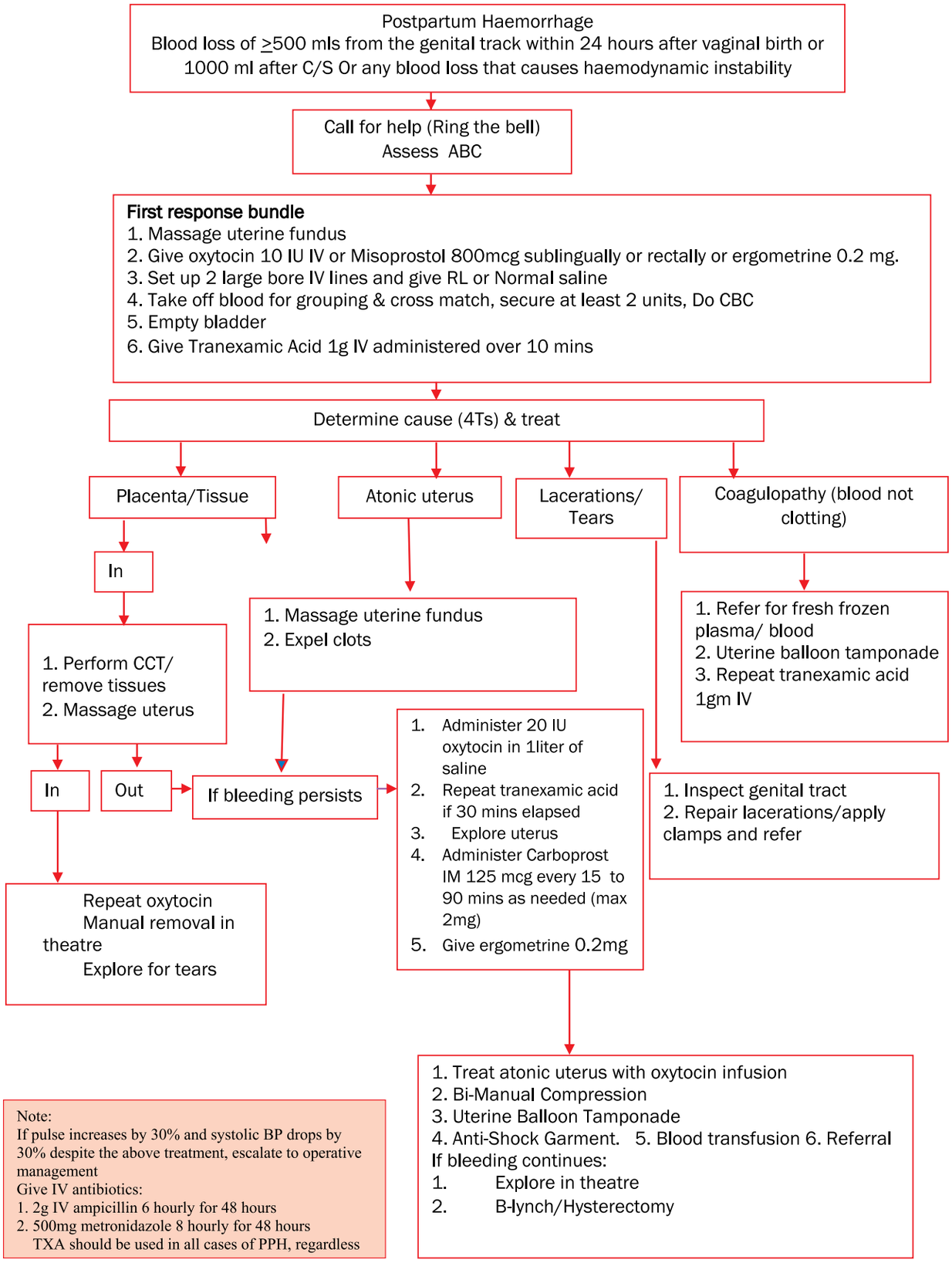
Subsequent Treatment

- Monitor patient's condition by checking vital signs (blood pressure, pulse, temperature, level of consciousness) every 5 minutes until stable (Systolic BP>90mmhg and urine output>30ml/hour) and then every 15 minutes for 2 hours then every 30 minutes for 4 hours
- Provide warmth
- Review previous management.
- Continue IV fluids until the blood pressure/pulse are within the normal ranges.
- Ensure continuous bladder drainage for 24 hours
- Inform relatives of treatment modalities.
- Document & maintain accurate records.
- Correct anaemia with haematinics/blood.
- Provide broad-spectrum antibiotics IV ampicillin 2g 6 hourly for 48 hours.
- Provide appropriate Analgesics
- Explain to the mother/spouse about what has been done and long-term consequences (e.g., amenorrhoea/infertility)

Follow-up

- Correct anaemia with haematinics
- Counsel mother on rest, a good diet to prevent additional morbidity and possible complications
- Review after 6 days and after 6 weeks
- Counsel couple to delay next pregnancy and offer contraceptive of choice
- Encourage future deliveries in comprehensive emergency obstetric care facility

Protocol 32: Management of primary postpartum haemorrhage



SECONDARY POSTPARTUM HAEMORRHAGE

Definition:

Excessive bleeding from the genital tract which occurs after 24 hours and up to 6 weeks after delivery, most commonly between 10 and 14 days postpartum.

Predisposing Factors

- Retained products of conception-
- Puerperal sepsis
- Ruptured uterus
- Trauma
- Poorly repaired caesarean section incision (edge left with gaping or window)

Differential diagnosis

- Gestational trophoblastic disease
- Rectal bleeding (haemorrhoids)
- Cancer of the cervix
- Dehiscence of caesarean section wound
- Haematuria

Investigations

- CBC/Haemoglobin grouping and cross matching
- High vaginal or cervical swab for microscopy, culture and sensitivity when infection is suspected
- Ultrasound scan to exclude retained products of conception
- Serum HCG to exclude GTDs
- Prothrombin time and activated partial thromboplastin time (aPTT)

Emergency treatment

Assess maternal condition for features of:

a) Hypovolaemic shock

- Pulse rate >110bpm
- SBP<90mmhg
- Cold extremities
- Altered Level of consciousness
- Shock index >1.0

B) Evidence of sepsis:

- Hyperthermia temp>38oC or Hypothermia temp< 36 oC
- Respiratory rate >25 per minute
- Heart rate >110bpm
- Evidence of infection on CBC

ANY 2 0F THE ABOVE plus any one from below is evidence of sepsis

- Adnexal tenderness
- Foul smelling discharge per vagina
- Foul smelling discharge from C/section site
- Systolic BP <90mmhg
- Altered mental status

Management of secondary PPH

If the patient is haemodynamically unstable (hypovolaemic shock), perform the following as immediate measures

- Start IV infusion using a large bore (16 gauge or largest available) cannula.
- Infuse normal saline or lactated Ringer's solution; run it fast (1 litre in 15 minutes) until she stabilizes. It may be necessary to give 3 litres to correct shock.
- Remove any retained products of conception visible in the vagina or cervix.
- Give oxytocin 10 IU. Add 20 units oxytocin per litre of IV fluids and run at 40 drops per minute or 800mcg of misoprostol or IM Carboprost 250 mcg (can be repeated after 15 minutes)
- Transfuse with blood as needed.
- Give broad-spectrum antibiotics depending on local sensitivity pattern and availability
- Refer to CEmONC facility if bleeding persists

Subsequent Treatment

- If bleeding persists, arrange for exploration of uterus under general anaesthesia.
- If retained products of conception are found or suspected, evacuate uterus digitally and with a manual vacuum aspirator (MVA) or sponge-holding forceps and wide blunt curettage where MVA kit is not available.
- If uterine rupture/perforation is suspected, (signs of acute abdomen, guarding, peritonitis) proceed to perform exploratory laparotomy with or without postpartum hysterectomy. The patient may require intensive care management and therefore need to consult critical care team

- Correct anaemia.
- Provide good nursing care which includes:
  - Physical comfort and hygiene
  - Emotional support and counselling
  - Medical instructions/monitor
  - Keep record and report changes to doctor
  - Continue with antibiotic treatment

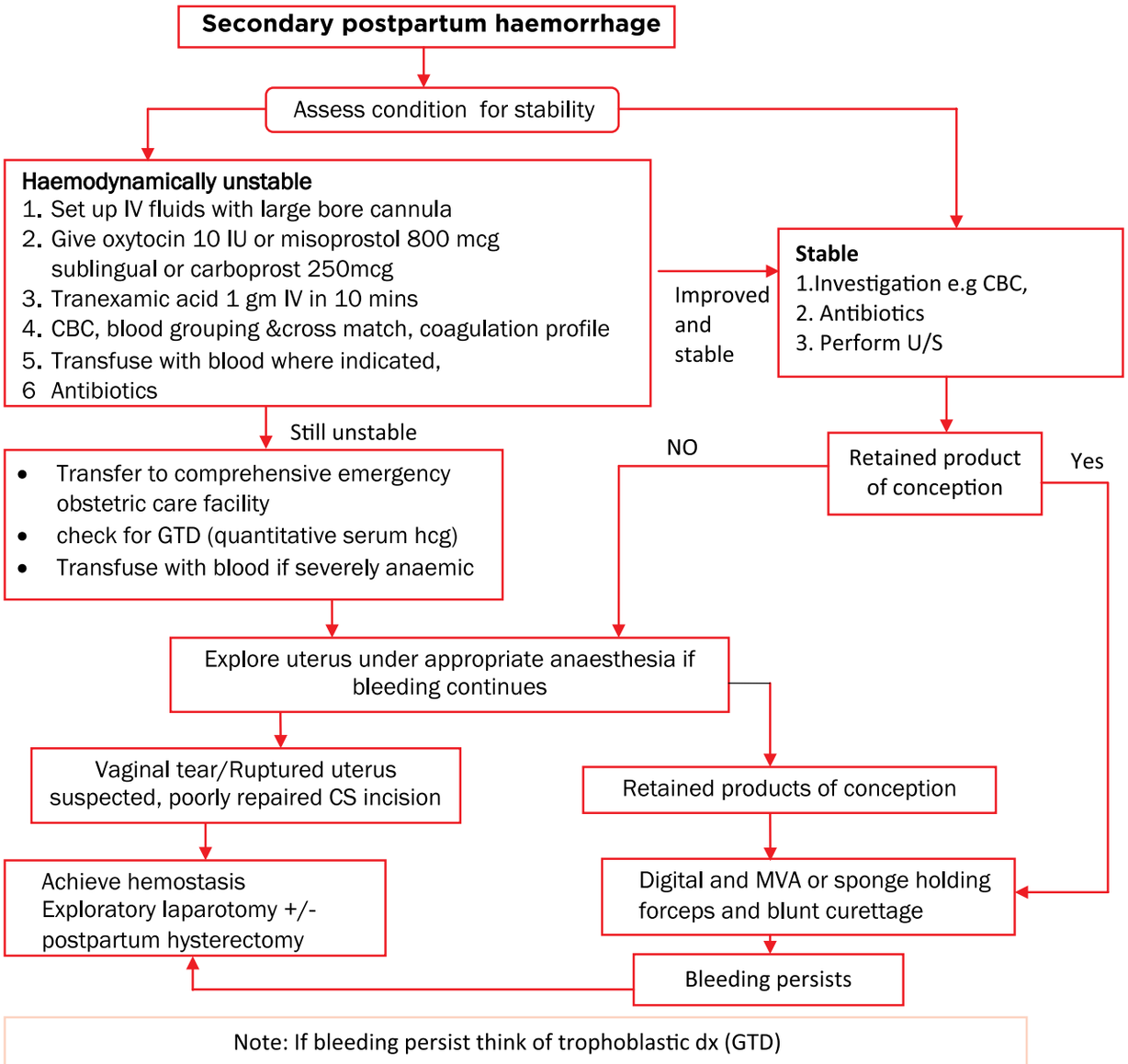
Precautions to take in order to avoid complications

- Universal precautions should be followed at all times
- Infection prevention measures should be strictly followed during labour and the postpartum period.
- Handle an infected uterus gently as there is an increased risk of perforation.
- Suction methods of uterine evacuation are safer than blunt curettage.
- Avoid excessive curettage in order to prevent Asherman's syndrome in future (intrauterine adhesions).

Follow-up

- Keep mother in hospital until she is out of danger

Protocol 33: Management of secondary postpartum haemorrhage



THE REPUBLIC OF UGANDA
MINISTRY OF HEALTH

THE PPH EMERGENCY BOX

Item	Type	Quantity
Drugs		
Oxytocin		1 box of 10 ampoules
Misoprostol		1 strip of 10 tablets
Ergometrine		3 ampoules
Tranexamic acid IV		3 ampoules
IV access		
Cannula	G 14/ G16/G18	3 each
Infusion set	Normal	2
Blood infusion set	Normal	5
Syringes and needles	2 mls, 5mls, 10mls, 50mls	3 each
Vacutainers	Purple and red	3 each
Elasto-plasts (plaster)	Roll	1 roll
Surgical gloves	Size 7.5	5 pairs
Gynecological gloves	-	2 pairs
Clean gloves	-	1 box of 100 pairs
Alcohol swabs	-	10 pieces
Tourniquet	-	1
IV fluids	Normal saline (0.9%), Ringer's lactate	2 bottles of 500mls each
Surgical blades	Size 24	2

Others:		
Urethral catheter	G 16	2
Urinary bag	-	2
K-Y jelly	-	1 tube
Oxygen mask with re-breathing bag	-	1
Uterine balloon (e.g., Bakri, Condom balloon kit)		1
Measuring jar	-	1 of 500mls
Vaginal speculum	Cuscos (large)	1
Sutures (absorbable)	2/0	4 pieces
	0	4 pieces
Lignocaine	vial-	1 of 10 mls
Perineal repair kit (pack)		
	long artery forceps	2
	mosquito artery forceps	2
	Needle holder	2
	Ring forceps	1
	Dissecting forceps	2
	Scissors	1
	Sims speculum	1
	Absorbable Sutures	1

Proforma for PPH and PPH poster – 1 on PPH Box
Note
1. PPH is the leading cause of maternal mortality. In charge of labour suite should check it every morning that the items in available. Reserve these items to only treatment of PPH
2. Ensure you have oxygen cylinder at the facility

BLOOD TRANSFUSION

SECTION A: INTRODUCTIONS

A1: Definitions

ITEM	DEFINITION	SYNONYMS
Blood component	Red cells, platelets or plasma, separated from whole blood	
Blood Pack	A sterile, flexible plastic bag for the collection and storage of blood	Blood Unit
Blood Product	A therapeutic product made from (human) blood,	
Blood Transfusion Service/Centre	A national or regional service that collects blood from donors, processes, tests, stores and distributes it to health facilities.	Blood Establishment Blood bank
Clinically significant red cell antibody	Antibody to a red cell antigen that can cause a clinically important adverse reaction, such as delayed haemolytic reaction or sensitisation to RhD.	
Collect blood component	Pick up from the Hospital Blood bank laboratory blood that has been selected and compatibility tested for an individual patient	
Compatibility test	Laboratory procedure to detect the presence of antibody in patient's serum that reacts with the red cells in a pack of donor blood.	Pre-transfusion test Cross-match
Cryoprecipitate	Prepared from fresh frozen plasma by collecting the precipitate formed during controlled thawing at +4C, and re-suspending it in 10-20 ml plasma	
Fresh frozen plasma	Plasma separated from one whole blood donation within 6 hours of collection and then rapidly frozen to -25C or colder	

Group and screen	Laboratory procedure to determine the patient's blood (usually the ABO group and Rh D type) and to detect any clinically significant red cell antibodies in the patient's serum	Type and screen Group and hold serum
Hospital Blood Bank laboratory	A division of a hospital where blood products are stored and where compatibility testing is performed to reduce the risk of transfusion related adverse events	Hospital blood bank
Issue blood component	Handover and documentation by the Hospital Blood Bank Laboratory of blood selected for a patient	
Liquid plasma	Plasma separated from whole blood and stored at +4C-+6C	
Plasma derivative	A licensed pharmaceutical product manufactured from human blood for example Immunoglobulin, Factor VIII Concentrate	Plasma fraction
Paediatric pack	Small volume whole blood or packed red cells unit calculated according to the child body weight	Pedi pack
Platelet concentrate	Platelets prepared from a donation of whole blood by a method based on centrifugation. Can also be prepared by platelet-apheresis	Platelets
Red cell concentrate	The red cells from a blood donation from which most of the plasma has been removed.	Packed Red Cells Red cells
Regional blood collection centre	Part of the UBTS blood collection programme, but does not process, test or supply blood directly to hospitals.	
Transfuse	Infuse the contents of a blood component pack to the patient using a blood administration set	Administer blood
Whole blood	Blood collected from a donor into an approved container (pack) containing a solution that is an anticoagulant and also maintains the viability of red cells during storage	

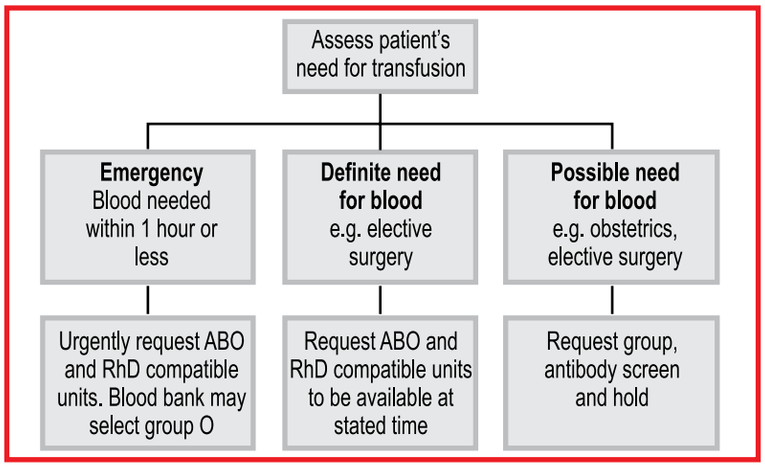
A2: Abbreviations

AfSBT	Africa Society of Blood Transfusion		
AHG	Anti Human Globulin	APH	Ante Partum Haemorrhage
BC	Blood component	BTS	Blood Transfusion Service
Cryo	Cryoprecipitate	DIC	Disseminated Intravascular Coagulopathy
FFP	Fresh frozen plasma	G&S	Group and screen
HBBL	Hospital Blood Bank laboratory	Hb	Haemoglobin
ICU	Intensive care unit		
OPD	Out patients department	NTRF	National Transfusion Record Form
PTT	Platelet concentrate	PPH	Post Partum Haemorrhage
RCC	Red cell concentrate	SOP	Standard Operating Procedure
UBTS	Uganda Blood Transfusion Services	RhD	Rhesus D
WHO	World Health Organization	WB	Whole blood

SECTION B: THE TRANSFUSION PROCESS

This includes all of the steps that must be done carefully to transfuse a patient safely. The process starts by assessing the patient's need for blood (fig 2).

Fig 2. Assessing the need for blood transfusion



The first step is to decide if the patient needs a transfusion, which blood component; the quantity needed and how urgently it is required.

The steps in the Transfusion Process are described in 4 Procedures, which are simple step - by - step guides to show what to do and what must be documented on a standard form (UBTS-HOS-FM-01-02)

Procedure 1; Steps of ordering blood components

Ordering Blood Components from the Hospital Blood Bank Laboratory	
For Use by	**Clinical staff who makes request for blood for a patient**
Identify the patient	**Complete section 1 of the Transfusion Record Form** ASK THE PATIENT TO TELL YOU THEIR IDENTITY This must match the patient identity on the clinical notes. In unconscious or confused patients ask the attendant to state the patients surname and given name.
Inform the patient	Explain the risks and benefits of the transfusion to the patient or attendant
	Complete section 2 of the Transfusion Record Form Fill in the clinical and laboratory data relating to the decision to transfuse. Record the patient's consent to or refusal of transfusion Fill in Surname, given name and signature of requester of blood.
State blood requirements	**Complete Part 2 of the Transfusion Record Form** State the component, number of units, time when required and the place where it is required (e.g. ward, theatre, ICU, OPD)
Take the sample Complete the details on the label of the sample tube	**Obtain and label the patient's blood sample** Ask patient to state their surname and given name 1. Prepare the venepuncture site 2. Withdraw the sample and place it in a sample tube of an approved type LABLE THE TUBE AFTER DRAWING THE SAMPLE AT BEDSIDE.

Procedure 2: Selection of component units for a patient, pre transfusion

Selection of component units for patient and pre-transfusion testing	
For use by:	**Staff in the hospital blood bank laboratory**
Reception of request and pre-transfusion sample	CHECK that the patient sample is in the approved tube (one with no anti-coagulant, Red or Yellow top), volume is sufficient (5 mls) , the tube is correctly labeled. CHECK that all sections of Parts 1 and 2 of the NTR Form have been completed and are legible. Record the patient information in the Laboratory Register. If sample or blood request form is incomplete or information is inconsistent, ask the requesting clinical staff to correct it
Compatibility testing	Determine the patient's ABO and RhD type, perform antibody screen on patients serum, select component packs, and cross-match with patient's serum. Record results in Laboratory Register.
Issuing blood component	1. The issuing laboratory staff must enter on NTR Form Part 3 the number, ABO Group and Rh Type of each pack and the Cross-match result for each Pack 2. The issuing laboratory staff must record the units to be issued in the Laboratory Register 3. The issuing staff should attach a compatibility label to each pack stating the patient's name, hospital number, ABO type, and the date of issue. 4. The person who collects blood from the Blood Bank must record in the laboratory register that the units have been collected from the blood bank

Procedure 3: Collection of blood units from the hospital blood bank laboratory

Collection from Blood Bank	
For Use by:	Person who collects blood from the hospital blood bank laboratory for the patient awaiting transfusion
Purpose:	To standardize the collection of blood components from hospital blood bank laboratory and receipt in the clinical area and document the steps using the National Transfusion Record Form
Collect blood from hospital blood bank laboratory and receiving it in the clinical area	Health worker collecting blood from hospital blood bank lab should bring the patient's Transfusion Record Form showing the patient identification details. Laboratory staff should check that the blood packs issued are those that have been selected for this patient. The Packs should be delivered promptly to the clinical area. The packs should be carried in a cool box. If not available, use a tray and covered with a clean towel. On receipt in the clinical area the unit numbers and the time of receipt should be recorded in the Blood Received Book

Procedure 4; Administration of blood to the patient

Administration of blood to the patient **To standardize the administration of blood and documentation of the step in the National blood form**	
For use by:	Person who checks and transfuses blood to the patient.
Intravenous line	Ensure the patient has an intra-venous line already established
Reception of unit of blood	C Check the blood unit for the any discoloration, haemolysis, presence of precipitates (Fig 4) Check the date of expiry on the unit label. Is it not expired?
Administration	Check unit details and match them with the patient identifiers in the clinical notes at the bedside. Check that patient's details match the compatibility label on each pack
Use delivered packs promptly	Red Cells and Whole Blood: Transfusion of each pack should be completed within 4 hours after removal from a blood transfusion fridge with controlled temperature storage (+20C to + 60C) Platelets: Start transfusion as soon as possible after receipt and Infuse over 20 to 30 minutes FFP, Plasma: start infusion within 4 hours from removal of the transfusion fridge at 10-20 ml/kg/hour Returning unused blood should be within 4 hours of collection from the blood fridge with the compatibility form
Monitoring the transfusion	Before starting the transfusion, document on the Transfusion Record Form the patient's pulse rate, blood pressure, temperature and respiratory rate Repeats Pulse, BP, Temperature and Respiratory rate 15 minutes after the start of the transfusion. During the transfusion, observe the patient for any evidence of an adverse reaction ie fever, rash.

The transfusion process includes; receiving, storage, ordering, selecting, testing for compatibility, administrating blood components.

B1: Ordering Blood Components

- The in charge clinician must fill the request form ordering blood(UBTS-HOS-FM-01-02)
- The request form for blood or blood components, shall accompany the recipient's blood specimens, be legible and include the following information; Recipient's given name and surname, Hospital number, Date of birth, sex, hospital and ward, Name of the individual ordering the blood, Quantity and specific blood or blood components needed, Routine or emergency. Date and time the blood is required, Clinical diagnosis/ reason for transfusion. Name and signature of the individual completing the request form, Date and time the request form was completed
- The individual taking the recipient's specimen must label the specimen with at least the following information; Recipient's first name and surname, Hospital number, Name of hospital and ward, Date taken, Name or signature of individual taking the blood specimen,
- The request form and blood specimens which are received in the laboratory shall be reviewed. In case of discrepancy, incomplete forms, unsuitable specimens, or doubt, the specimen shall not be used. A new specimen and request form shall be requested and used, If additional transfusions are required and the time period since the last specimen was drawn is more than 72 hours, a new specimen shall be submitted to perform compatibility testing,

Once the decision is made to transfuse the patient, decide which blood component is indicated, the quantity needed and how urgently it is required, use standard operating procedure 1

- Clinician in charge of treating the patient must use (UBTS-HOS-FM-01-02) for ordering the blood component

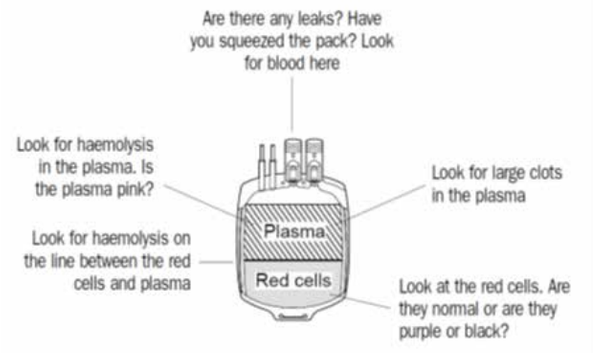
B2: Selection of component units for a patient and pre- transfusion testing

- Whole blood and red cells must be ABO and RhD compatible
- Hospitals must have a procedure determining the circumstances for the trans¬fusion of RhD positive red blood cell-containing components to RhD negative recipients. For women not in their reproductive age you can give Rhesus D +ve blood if they are Rhesus D -ve. If the mother is in her reproductive age and in an emergency situation you can give rhesus +ve blood if they are rhesus -ve and administer 4000IU of antiD within 72 hours of blood transfusion.
- If clinically significant unexpected antibodies are detected in the recipient or the recipient has a history of such antibodies, whole blood or red blood cell components, which do not have corresponding antigens and are compatible shall be prepared for transfusion. If antigen typing of donor blood is not possible, crossmatch compatible blood shall be issued
- Plasma and platelet components shall be ABO compatible for transfusion
- When the staff of the hospital blood bank laboratory receive the request, their task is to select the appropriate blood components, test to ensure that they are compatible with the patient's blood sample, label them and have them ready for collection. These steps are described in procedure 2 above

B3: Collection of blood component from hospital Blood Bank:

The clinical unit staff will collect the blood from the hospital blood bank laboratory. The essential steps in doing this safely are described in procedure 3 above.

Fig 3: Checking the condition of the unit of blood before transfusion



Staff in the clinical unit has the responsibility of checking that the blood unit is in date and to detect evidence of damage or contamination
The Black cells and dead cells

B4: Administration of blood components to the patient

The medical practitioner/transfusion practitioner shall educate the patient/family, in a language that they understand;

- Inform about benefits and risks of transfusion
- Describe the risks, benefits and treatment alternatives (including non-treatment)
- Provide an opportunity to ask questions
- Allow the right to accept or refuse transfusion
- obtain consent for the transfusion from the patient

- Before transfusion;
- Inspect and confirm the expiry date on the label confirmed
- Used only if its appearance is normal (no clot, normal colour) and the expiry date has not been exceeded
- Ensure two individuals (health providers) shall verify the identity of the patient at the bedside, the blood component, blood group and cross matching report and associated records.
- Assess and record vital signs of the patient prior to transfusion

- Use a sterile, pyrogen-free and disposable transfusion set with filter.
- Do not add any medication to the blood components.

- Transfuse one unit of blood component for not more than 4 hours.
- Where possible use one administration unit per unit
- For long term transfusion the intravenous (IV) line shall be changed at least every 24 hours
- All identifications attached to the blood component container shall remain attached during and after transfusion. The transfusion record/sticker shall be included in the patient's file
- Regulate the speed of the transfusion and observe the patient for the first 15 minutes at the start of the transfusion, approximately every hour during the transfusion and periodically for 24 hours after the transfusion to observe any evidence of untoward reaction.
- Stop transfusion in-case of a transfusion reaction with the signs below;
  urticaria,
  sudden on-set of fever,
  Difficulty in breathing,
  hypotension
- Inform the clinical team, Return the blood and transfusion set to the blood bank for compatibility testing.
- Platelets shall be administered through a standard platelet filter.
- Plasma that has been thawed shall not be refrozen. The transfusion shall be completed within 4 hours of completion of thawing

SECTION C: BLOOD COMPONENTS

This section presents the blood components supplied by UBTS, their indications, and the precautions to be taken when using blood components

C1: Blood components supplied by UBTS (Table 1)

BLOOD COMPONENT	Abbreviation	AVAILABILTY	Indications
Whole blood	WB	Readily available in all blood banks	Whole blood contains stable plasma proteins (fibrinogen albumin, globulins, etc.) and so increases plasma volume. Whole blood is indicated where there is massive blood loss and reduction of blood volume as well as all blood components. It may lead to volume overload, especially in pregnant women with severe anaemia
Fresh whole blood	FWB		
Red cells concentrate/ Packed cells	RCC	Readily available in all blood banks	Each unit of red cell concentrate provides the same amount of red cells as a whole blood unit, Red cell concentrate should be used for patients with severe anaemia who may be at risk of circulatory overload. - Cardiac failure - Presence of infection: e.g. pneumonia, malaria - Obstetric history -Anticipated delivery:
Platelets	Plt	Prepared and availed on prior request	
Cryoprecipitate	Cryo	Prepared and availed on prior request	

Fresh frozen plasma/Fresh Plasma	FFP	Readily available in all blood banks	

Properties, specifications, and storage conditions are available in (Annex E4)

C2: General Principles

The following general principles aim at ensuring rational and optimal blood use in all Uganda's Hospitals.

- Transfusion blood according to individual patient needs and UBTS national guidelines
- Minimize blood loss to reduce need for transfusion. In patients with acute loss, give effective resuscitation (IV replacement fluids, oxygen etc.) while assessing the need for transfusion. Ratio of Blood: Crystalloids- 1:3. Take vitals & decide on need for BFT
- Do not use the Haemoglobin value (although important) as the only criteria for starting transfusion. The decision should be supported by the need to relieve clinical signs and symptoms and prevent morbidity and mortality.
- Be aware of the risks of transfusions eg infections Only prescribe transfusion when the benefits are likely to out way the risks.
- Clearly record the reason for the transfusion in the patient's notes.
- Monitor the patient on blood transfusion

General principles pertaining to Anaemia in Pregnancy

- Consider transfusion only if anaemia is likely to cause or has already caused clinical signs of hypoxia
- Do not transfuse more than necessary , match the dose to the patient's size and blood volume loss. Note that one unit of blood will raise the HB value in an adult patient by 1 gm /dl
- If transfusion is necessary:
  - Give one unit (preferably of red cell concentrate) over 2-4 hours
  - Give a rapidly acting diuretic, e.g. frusemide 40 mg IM
  - Reassess the patient
  - If symptoms of severe anaemia persist, give a further 1-2 units

Caution;

- Patients may be precipitated into cardiac failure by infusion of blood or other fluids.

C3: Indications for red cell concentrates and for whole blood

The main indication for any red cell component is to restore oxygen carrying and delivering capacity of blood when it is critically reduced by anaemia.

Red cell concentrate/Packed cells

Each unit of red cell concentrate provides the same amount of red cells as a whole blood unit, Red cell concentrate should be used for patients with severe anaemia who may be at risk of circulatory overload.

Whole blood

Whole blood contains stable plasma proteins (fibrinogen albumin, globulins, etc.) and so increases plasma volume. Whole blood is indicated where there is massive blood loss and reduction of blood volume as well as all blood components. It may lead to volume overload, especially in pregnant women with severe anaemia

C4: Red cell transfusion in pregnancy

In addition to Haemoglobin levels, the decision to transfuse blood in pregnancy should be weighed against patient's clinical needs as well:

Factors to be considered

- Stage of pregnancy
- Cardiac failure
- Presence of infection: e.g. pneumonia, malaria
- Obstetric history
- Anticipated delivery:

C4.1: Duration of pregnancy <36 weeks

Transfusion is indicated if

- Hb 7 g/dl or less irrespective of clinical condition
- Hb >8 g/dl consider the clinical condition eg;
  - Established or incipient cardiac failure or clinical evidence of hypoxia
  - Pneumonia or other serious bacterial infection
  - Malaria
  - Pre-existing heart disease

C 4.2: Duration of pregnancy 36 weeks or more

Transfusion is indicated if

- Hb 8 g/dl or less irrespective of clinical condition
- Hb 8-10 g/dl consider the clinical condition above.

C. 4.3: Elective caesarean section

If there is history of antepartum haemorrhage (APH), postpartum haemorrhage (PPH) or previous Caesarean section

- Hb 8-10 g/dl: Establish/ confirm blood group and save freshly taken serum for cross matching
- Hb<8 g/dl: Have 2 units of blood cross matched and available pre-operatively:

C. 4.4: Obstetric Haemorrhage

Obstetric bleeding may be unpredictable and massive and results into hypovolemic shock. However, the signs may not be obvious due to the physiological changes induced by pregnancy, therefore it is essential to monitor and investigate a patient with an obstetric hemorrhage, even in the absence of signs of hypovolemic shock.

The principles and management of obstetric hemorrhage do not differ from those of acute hemorrhage and shock from other causes and are discussed in Section C 11

Haemorrhage leads to hypovolaemia. This can be classified into four classes, based on the patient's clinical signs and assuming the normal blood volume of an adult to be 70 ml/kg. This is a useful guide, but patients may not fit a precise class and variations will occur. A patient's response to hypovolaemia is influenced by age, medical disorders: e.g. diabetes, ischaemic heart disease, renalfailure, pre-eclampsia and by medications.

The WHO classification of hypovolaemia

CLASSIFICATION OF HYPOVOLAEMIA IN THE ADULT

	Class I Mild	Class II Progressing	Class III Severe	Class IV End stage
% of blood volume lost	<15%	15–30%	30–40%	>40%
Volume lost in 70 kg adult	<750 ml	750–1500 ml	1500–2000 ml	>2000 ml
Pulse rate	Normal	>100	>120	>140 but variable in terminal stages of shock
Pulse pressure	Normal	Reduced	Very reduced	Very reduced/ absent
Systolic blood pressure	Normal	Normal	Reduced	Very reduced
Capillary refill	Normal	Prolonged	Very prolonged	Absent
Respiratory rate	Normal	20–30	30–40	>45 or slow sighing respiration
Mental state	Alert	Anxious	Confused	Comatosed/ unconscious
Urine output	>30 ml/hr	20–30 ml/hr	5–20 ml/hr	< 5 ml/hr

C 5: Transfusion In Elective Surgery

C 5.1: Principles of pre surgical management

- Patients should be evaluated preoperatively to detect anaemia.
- Anaemia should be treated and, if possible, its cause diagnosed and treated before planned surgery.
- In a patient who is already anaemic, a further reduction in oxygen delivery due to acute blood loss or the effects of anaesthetic agents may lead to decompensation.
- An adequate preoperative haemoglobin level for each patient undergoing elective surgery should be determined, based on the clinical condition of the patient and the nature of the planned procedure
- A higher preoperative Hb level will be needed before elective surgery in the following situations:
- Inadequate compensation for the anaemia
- Significant co-existing cardio respiratory disease

- Major surgery or significant blood loss expected

C6: Platelets

C.6.1: Indications for platelet transfusion

Prevention of bleeding due to thrombocytopenia

If possible, prior to transfusion the reason for thrombocytopenia should be established.

Thrombocytopenia caused by marrow failure

The following transfusion triggers are considered appropriate:

- Platelet count is <10,000/μL and no additional abnormalities exist.
- Platelet count is between 10,000 and 20,000/μL and coagulation abnormalities exist or there are extensive petechiae or ecchymosis.
- Patient is bleeding at sites other than skin and platelet count is <40,000/μ L.
- Patients with accelerated platelet destruction with significant bleeding (such as autoimmune thrombocytopenia or drug-induced thrombocytopenia).
- Bleeding with qualitative platelet defect documented by history and/or laboratory tests
- Diffuse microvascular bleeding after massive transfusion

Precautions in platelet transfusion

- Due to the short shelf life of platelets, they should be kept in the laboratory for as short a time as possible, and transfused within 30 mins.
- Platelets must be stored at 20 – 24 C degrees under continuous agitation or rocking.

C7: Fresh Frozen Plasma

C7.1: Indication

- Bleeding preoperative, or massively transfused patients with a deficiency of multiple coagulation factors (Patients with bleeding and/or urgent invasive procedures on warfarin therapy Vitamin K will reverse the warfarin defect in about 12 hours).
- Thrombotic thrombocytopenic purpura and related syndromes.
- Disseminated Intra-vascular coagulation (DIC)
- Such as in septicaemia following surgery, abruptio placenta and post abortion sepsis
- Congenital or acquired coagulation factor deficiency when no specific coagulation factor concentrate is available

C.7.2: Precautions in plasma transfusion

- Do not transfuse plasma products for volume expansion,
- Plasma product transfusions should be ABO compatible.
- The usual starting dose is 10mls /kg 3 units for a 70-kg patient).
- An assessment of the effect of the product on the bleeding problem should be made before continuing therapy.

Intravenous access

Insert two cannulae (14 g or 16 g in an adult) in the antecubital fossae or any large peripheral vein. Asepsis must be maintained.

Do not put IV lines in injured limbs.

If intravenous access in a peripheral vein is not possible, cannulate the external jugular vein or femoral vein.
Alternatively, consider a venous cut-down or the intra-osseous route.

Fluid resuscitation

Give intravenous fluids as soon as the patient is received in the health unit to restore the circulating blood volume rapidly and maintain organ perfusion.

Infuse normal saline (sodium chloride 0.9%) as rapidly as possible in a volume at least three times the estimated volume lost in order to correct hypovolaemia

Give initial fluid bolus of 30 ml/kg of crystalloid, or 20 ml/kg of colloid, over 5 minutes to any patient showing signs of more than 15% blood loss (Class II hypovolaemia and above).

Assess the patient's response to guide further fluid infusion.

Transfusion

If urgent transfusion is essential, do not wait for fully cross-matched blood, but use un-cross-matched group O negative blood as you start the process of cross-matching. Whole blood is preferable to red cell concentrate as it provides additional volume and contains fibrinogen. Platelets and fresh frozen plasma may be required.

Reassess the patient's clinical condition during transfusion.

- Detect any change in the patient's condition.
- Assess patient's response to resuscitation.
- Signs of normovolaemia being re-established
  - Decreasing heart rate
  - Reduced capillary refill time
  - Return of peripheral pulses
  - Increasing urine output
  - Normalizing arterial pH
  - Return of normal blood pressure
  - Improving conscious level
  - Slow rise in CVP
- Check for evidence of abnormal bleeding e.g. DIC (see section C 13)

Monitoring patient response to transfusion

The management strategy should be based on the patient's response to initial resuscitation and fluid administration.

- Rapid improvement

Some patients respond quickly to the initial fluid bolus and remain stable after it is completed. These patients have usually lost less than 20% of their blood volume.

- Transient improvement

Patients who have lost 20–40% of their blood volume or are still bleeding will improve with the initial fluid bolus, but circulation deteriorates when fluid is slowed.

- No improvement

Failure to respond to adequate volumes of fluids and blood requires immediate surgical intervention to control exsanguinating haemorrhage. In trauma, a failure to respond may also be due to heart failure caused by myocardial contusion or cardiac tamponade.

C8 Massive Transfusion

Massive transfusion is usually defined as administration of 10 units of packed red blood within 24hours (three units of whole Blood and above) or replacement of the entire blood volume in 24 hours, or more than 4 units of packed red blood cells in less than one hour
3 packed cells = 1 whole blood

Massive tranfussion protocol ratio 1:1:1 (packed cells, FFP, Platelets)

Morbidity and mortality tend to be high among such patients because of the initial trauma and the tissue and organ damage secondary to haemorrhage and hypovolaemia. It is often the underlying cause and consequences of major haemorrhage that result in complications, rather than the transfusion itself. However, administering large volumes of blood and intravenous fluids may itself give rise to the following complications.
Examples of patients who may need massive transfusion in the Ugandan setting include;

1. Antepartum
2. postpartum haemorrhage
3. Raptured uterus
4. Severe trauma
5. Abortion
6. Puerperal sepsis
7. Ectopics

Complications of massive transfusion

- Acidosis
- Hyperkalaemia
- Citrate toxicity
- Hypothermia
- Dilution of fibrinogen and coagulation factors

General recommendations

- Restore circulating blood volume Insert wide bore peripheral cannulae
- Give adequate volumes of warmed crystalloid
- Aim for normal blood pressure above 90/60 mmHg, Palse <100b/m and urine output (>30ml / h)
- Contact key personnel on duty Clinician in charge / anaesthetist / blood bank / hematologist
- Arrest bleeding – Early surgical / obstetrical intervention
- Red cell transfusions must be ABO compatible
- Utilize group O 'emergency blood' immediately
- If 'emergency' group O red cells have been used, switch to ABO identical red cells as soon as possible
- Group O Rh positive blood should be transfused to group O negative individuals who are not of child bearing age and who do not have pre-formed Rh antibodies
- Platelet transfusions should be ABO identical
- Large volume plasma transfusions should be ABO compatible
- In the setting of massive transfusion, preferably transfuse red cells that have been stored for less than 7 days

C:9 Disseminated intravascular coagulation (DIC)

DIC is the abnormal activation of the coagulation and fibrinolyticsystems, resulting in the consumption of coagulation factors and platelets. DIC may develop during the course of a massive blood transfusion, the effects of hypovolaemia, trauma or obstetric complications.

Management

Treatment of the coagulopathy should be directed at correcting the underlying causes of DIC and of bleeding. Blood losses should be replaced with whole blood if available. Treatment of the coagulopathy will depend on the resources available.

- If there is prolongation of the prothrombin time (PT), give ABO compatible fresh frozen plasma in a dose of 15 ml/kg.
- If the APTT is also prolonged, If none give 10–15 units of ABO-compatible cryoprecipitate, which contains Factor VIII and fibrinogen.
- Give platelet concentrates only when the patient shows clinical signs of microvascular bleeding: i.e. bleeding and oozing from mucous membranes, wounds, raw surfaces and catheter sites. The patient's platelet count falls below 50 x 109/L.
- Give sufficient platelet concentrates to stop the microvascular bleeding and to maintain an adequate platelet count.
- Consider platelet transfusion in cases where the platelet count falls below 20 x 109/L, even if there is no clinical evidence of bleeding, because there is a danger of bleeding into critical sites , such as the brain

SECTION D: COMPLICATIONS OF TRANSFUSION

D1: Acute Complications

Acute transfusion reactions occur during or shortly after (within 24 hours) of the transfusion. When an acute reaction first occurs, it may be difficult to decide on its type and severity as the signs and symptoms may not be specific or diagnostic. However, with the exception of allergic urticarial and febrile non-haemolytic reactions, all are potentially fatal and require urgent treatment. In an unconscious or anaesthetized patient, hypotension and uncontrolled bleeding may be the only signs of an ABO incompatible transfusion. In a conscious patient undergoing a severe haemolytic transfusion reaction, signs and symptoms may appear within minutes of infusing only 5–10 ml

of blood. The early signs and symptoms caused by a bacterially contaminated unit may be very similar. For this reason, close observation during the first 10-15 minutes of the infusion of each unit is essential.

Signs and symptoms of severe acute transfusion reaction

CATEGORY 3: LIFE-THREATENING REACTIONS

Signs	Symptoms	Possible causes
■ Rigors ■ Fever ■ Restlessness ■ Hypotension (fall of ≥20% in systolic BP) ■ Tachycardia (rise of ≥20% in heart rate) ■ Haemoglobinuria (red urine) ■ Unexplained bleeding (DIC)	■ Anxiety ■ Chest pain ■ Pain near infusion site ■ Respiratory distress/ shortness of breath ■ Loin/back pain ■ Headache ■ Dyspnoea	■ Acute intravascular haemolysis ■ Bacterial contamination and septic shock ■ Fluid overload ■ Anaphylaxis ■ Transfusion-associated acute lung injury (TRALI)

D 1.1: Immediate action

- If an acute transfusion reaction is suspected, first check the blood pack labels and the patient's identity.
- If there is any discrepancy, stop the transfusion immediately and consult the blood bank.
- In an unconscious or anaesthetized patient, hypotension and uncontrolled bleeding may be the only signs of an incompatible transfusion.
- In a conscious patient undergoing a severe haemolytic transfusion reaction, signs and symptoms may appear very quickly – within minutes of infusing only 5–10 ml of blood.
- Close observation at the start of the infusion of each unit is essential.

Further management of acute transfusion reaction

CATEGORY 3: LIFE-THREATENING REACTIONS

Immediate management

1. Stop the transfusion. Replace the infusion set and keep IV line open with normal saline.
2. Infuse normal saline (initially 20–30 ml/kg) to maintain systolic BP. If hypotensive, give over 5 minutes and elevate patient's legs.
3. Maintain airway and give high flow oxygen by mask.
4. Give adrenaline (as 1:1000 solution) 0.01 mg/kg body weight by slow intramuscular injection.
5. Give IV corticosteroids and bronchodilators if there are anaphylactoid features (e.g. broncospasm, stridor).
6. Give diuretic: e.g. frusemide 1 mg/kg IV or equivalent.
7. Notify the doctor responsible for patient and blood bank immediately.
8. Send blood unit with infusion set, fresh urine sample and new blood samples (1 clotted and 1 anticoagulated) from vein opposite infusion site with appropriate request form to blood bank for investigations.
9. Check a fresh urine specimen visually for signs of haemoglobinuria.
10. Start a 24-hour urine collection and fluid balance chart and record all intake and output. Maintain fluid balance.
11. Assess for bleeding from puncture sites or wounds. If there is clinical or laboratory evidence of DIC (see p. 115—117), give platelets (adult: 5–6 units) **and** either cryoprecipitate (adult: 12 units) *or* fresh frozen plasma (adult: 3 units).
12. Reassess. If hypotensive:
    - Give further saline 20–30 ml/kg over 5 minutes
    - Give inotrope, if available.
13. If urine output falling or laboratory evidence of acute renal failure (rising K^+, urea, creatinine):
    - Maintain fluid balance accurately
    - Give further frusemide
    - Consider dopamine infusion, if available
    - Seek expert help: the patient may need renal dialysis.
14. If bacteraemia is suspected (rigors, fever, collapse, no evidence of a haemolytic reaction), start broad-spectrum antibiotics IV.

D2: Delayed Complications

Delayed complications from transfusion basically fall into two categories:
D 2.1: Delayed Complications from Transfusion:
These occur days, months or even years after the transfusion has been completed, they include; Delayed hemolytic reaction, Post-transfusion purpura,TA-GvHD, Iron overload (in patients who receive repeated transfusions.

D 2.2: Transfusion-transmitted Infections:

Viral hepatitis B and C, HIV-I and HIV-2, HTLV-I and II,Treponema pallidum (Syphilis), Chaga's disease, Malaria,CMV,WNV, Other rare infection.

POSTPARTUM CARE

POSTPARTUM CARE

Introduction:

The postpartum period covers a critical transitional time for a woman, her new-born and her family, both on a physiological as well as an emotional and social level.

The postpartum period receives very little attention and care compared to pregnancy and labour in spite of the fact that the majority of maternal deaths and disabilities occur during this period. The attention usually shifts to the new-born baby and the mother gets little care both at home and at the health facility.

Definitions:

- Puerperium: The term puerperium refers to the period of six weeks after delivery when it is assumed the woman's condition returns to non-pregnant state.
- Postpartum: The term postpartum refers to a period for the mother from the end of 3rd stage of labour up to six weeks or more.
- Postnatal: The word postnatal is reserved for any reference to the baby after delivery, not the mother.

Needs of the mother and baby in the postpartum period:

Women in the postpartum period will need:

- Support from the health care providers, partner and family.
- Time to care for the baby
- Help with domestic tasks
- Maternity leave or rest from heavy domestic work
- Information and counselling on:
  - Care of the baby and infant feeding
  - What happens in their bodies
  - Self care and hygiene
  - Contraception
  - Nutrition
  - Resumption of sexual activities
  - HIV prevention and/or management
  - Immunisation of the infant
  - Resumption of work

Women may fear inadequacy, loss of marital intimacy, isolation, dealing with constancy of caretaking for the baby and others.

The baby in the postnatal period needs:

- appropriate feeding;
- parental care;
- easy accessibility of the mother;
- adequate warmth;
- a safe and clean environment,
- nurturing, cuddling and stimulation;
- protection from diseases, harmful practices, abuse and violence;
- acceptance of sex, appearance and size.

Maternal complications in the postpartum period:

- Postpartum haemorrhage
- Pre-eclampsia
- Puerperal genital tract infection
- Thromboembolic disease.
- Complications of the urinary tract.
- Puerperal mastitis
- Psychological problems

Other kinds of morbidity:

- Backache
- Headaches
- Bladder problems
- Constipation
- Haemorrhoids
- Extreme tiredness

Care in the postpartum period:

The first 24 hours of delivery are very important, then the first 6 days and six weeks.

- Support of the mother and her family in the transition to a new family constellation and response to their needs.
- Prevention, early diagnosis and treatment of complications and diseases of the mother and the infant. This includes the prevention of vertical transmission of diseases from mother to infant.
- Referral of mother and infant for specialist care to hospital if necessary.
- Education on baby care
- Promotion of breastfeeding
- Educate on maternal nutrition and supplementation if necessary
- Counselling on contraception and family planning
- Provision of postpartum contraceptives according to mother's decision
- Immunisation of the infant.

The first hours (24hours) after birth:

- Care of the newborn has been described already
- Care of the mother: This should be part of the continuum of care from antenatal and delivery care:
  - Monitoring vital signs every 30 minutes after delivery for the first one to two hours (pulse, blood pressure, temperature, respiration) then six hourly for 24 hours.
  - Monitoring vaginal bleeding hourly in the first six hours, care of the perineum and personal hygiene (wash hands before handling the baby, wash perineum after using the toilet, change perineum pads every four to six hours or more frequently if there is a heavy lochia, and bathe daily)
  - Encouraging the mother to eat a well-balanced diet and take a lot of fluids.
  - Talk to family members such as partner, and mother in-law to encourage them to help ensure the woman eats enough and avoid hard physical work.
  - Give oral analgesic for severe after pains and/or perineal pain.
  - Cuddling the baby and putting the baby on to the breast
  - Advise on adequate time to sleep and rest.
  - Ensure mother's bladder is emptied hourly.
  - Encourage the mother not to insert anything in the vagina
  - Emphasise that there should be someone near the mother all the time
  - Avoid sexual intercourse until the perineum injuries are healed.
  - Counsel and offer post partum family planning

NB: Each time before the health provider leaves the mother and baby, he/she should assure him/herself that they are in good condition and re-assure that they are well. In a health facility, the care is continued until she is discharged usually 24 hours to 48 hours after normal delivery. If birth took place at home or before arrival to the facility, the mother and family must report to the health facility for further management.

At the time of discharge from the health facility, the health worker should:

- Perform physical examination (general condition, vital signs, breasts, uterine fundus, episiotomy and perineum) and address the woman's complaints if any.
- Do a general physical exam of the new-born
- Review the records
- Review observations and confirm their normality
- Discuss with the woman her fears and concerns
- Confirm the woman is coping well with breast-feeding
- Counsel on resumption of sexual intercourse after 6 weeks and use of condom if possible
- Counsel on family planning, STI and HIV

and provision of post-partum family planning according to the woman's choice.

- Inform the next-of-kin or partner on special needs of the mother and the new-born, signs any abnormal condition that may require attention of a health worker. And what to do in case of emergency and subsequent visits at home or in the health facility
- Immunisation of the new-born
- Documentation is explained and given to the woman
- Appointment for the home visit and visit to the health facility after 6 days.

The first week:

- If the woman spends the first week in the health facility because she developed complications or because she was delivered by caesarean section, then the opportunity of prolonged contact with the skilled health worker is greater. The recovery of the mother is more closely supervised and establishment of successful breastfeeding confirmed. The activities listed above are performed spread over a wider period, the discharge activity should follow the same schedule.
- If the woman is discharged from the health care facility before the first week is over or delivered at home, health workers in the formal health care system should make contact with her by the end of the first week. During this visit the health worker will carry out all the activities as at the time of discharge with appropriate modifications. The baby is observed with the guidelines on care of the new-born. The supportive role of the family or baby sitter is emphasised.

At six Weeks:

At this time, many of the changes the woman experienced during pregnancy will have reverted to pre-pregnant state. Many women will have resumed household work. This visit should take place in a health facility so that the woman can also benefit from other services at the same visit:

- Counselling on family planning and receive a method based on informed choice.
- Immunisation of the baby and give mother TT if dose is due.
- Perform cancer cervix screening
- Specialist treatment for problems such as urinary incontinence, prolapse, piles and chronic backache
- Advice on special exercises for abdominal and pelvic floor muscles.

Care for the HIV Positive Mothers and Babies:

MOTHER:

After Delivery 0-24 hours:

Health education:

- Review her decision on infant feeding options.
- If opted to breastfeed, support mother to initiate breast feeding
- Counsel on exclusive breast feeding for 6 months, using good technics such proper positioning and attachment of the baby to the breast.
- After 6 months she should start complementing until one year then wean the baby off the breast
- If mother opted not to breastfeed, review the first criteria to determine whether she can still afford
- All babies receiving replacement feeding need regular follow-up and their mothers need support to provide correct replacement feeding.
- Adherence on ARV treatment.
- Encourage to join psychosocial groups
- Immunisation according to schedule
- Family planning: dual method – counsel and offer PPFP
- Nutrition and hygiene
- Supplements
- Continue with Cotrimoxazole
- Counsel on disclosure to partner or next-of-kin depending on her choice
- Link her to other ARV services
- Give appointment for next visit

If a woman does not know her HIV status

- Counsel on the need to know her HIV status following the HIV testing protocols in the country
- Start the mother on ARV immediately if positive.
- Counsel on the importance of exclusive breast feeding, condom use and family planning
- Explain to her the risk of HIV transmission:
  - The risk of infecting the baby is higher if the mother is newly infected
  - It is very important to avoid infection during pregnancy and breast feeding

2 Weeks:

- Take history
- Examine mother
- Provide treatment as appropriate
- Counsel and support on infant feeding and family planning
- Link to ARVs treatment centres

6 Weeks:

- Take history
- Examine mother
- Provide treatment as appropriate
- Counsel and support on maternal nutrition, infant feeding and family planning (dual method)
- Cancer cervix screening
- Involve partner/spouse
- Link to ARVs treatment centres
- Refer to psycho-social support in the community.

BABY

2 weeks:

- Do physical examination with emphasis on the umbilical cord stump
- Check nutrition status.
- 6 weeks:
- Do physical examination both mother and baby
- Check for oral sores in the baby
- Initiate Cotrimoxazole
- Give immunisation (pentavalent vaccine + Polio 1).
- Check breastfeeding, infant and maternal nutritional status

BREAST ENGORGEMENT

Breast engorgement means the breasts are full of milk and are painful. This usually occurs when a mother makes more milk than her baby uses or when there is no breastfeeding (by choice of if the mother lost the baby).
The mother's breasts may become firm, painful and swollen which makes it hard for the baby to breastfeed.

Treatment

- For breastfeeding mothers, advise to empty the breast (manually by expressing the milk or with breast pump)
- Warm compress and encourage breastfeeding
- If mother is not breastfeeding for example in case of stillbirth, neonatal death, or by choice, advise her to avoid expressing the milk, apply cold compress, or cabbage leaves as required and wear a firm supporting bra, and give;
  - Tablet Ibuprofen 400mg 8 hourly for 3 days
  - Bromocriptine* 2.5mg 12 hourly for 14 days (Problem of rebound engorgement) OR
  - Cabergoline 0.5mg 2 tablets as a stat dose immediately after delivery to stop the production of breast milk.

Note: *Do not breastfeed/give baby any expressed breastmilk once pharmacological treatment is initiated. Bromocriptine has been associated with an increased risk of maternal stroke, seizures, cardiovascular disorders, death and possibly psychosis*

Follow-up

- Return after 1 week and 6 weeks to postnatal clinic

MASTITIS

Definition

Mastitis is inflammation of the breast tissue that results in breast pain, swelling, warmth and redness. The patient may also have fever and chills.

Predisposing Factors

- Cracked nipples
- Breast engorgement
- Oral infection in the baby

Differential Diagnosis

- Breast abscess
- Breast engorgement

Investigations

In severe cases only:

- Culture of breast milk
- Complete Blood Count (CBC) for white blood count

Management

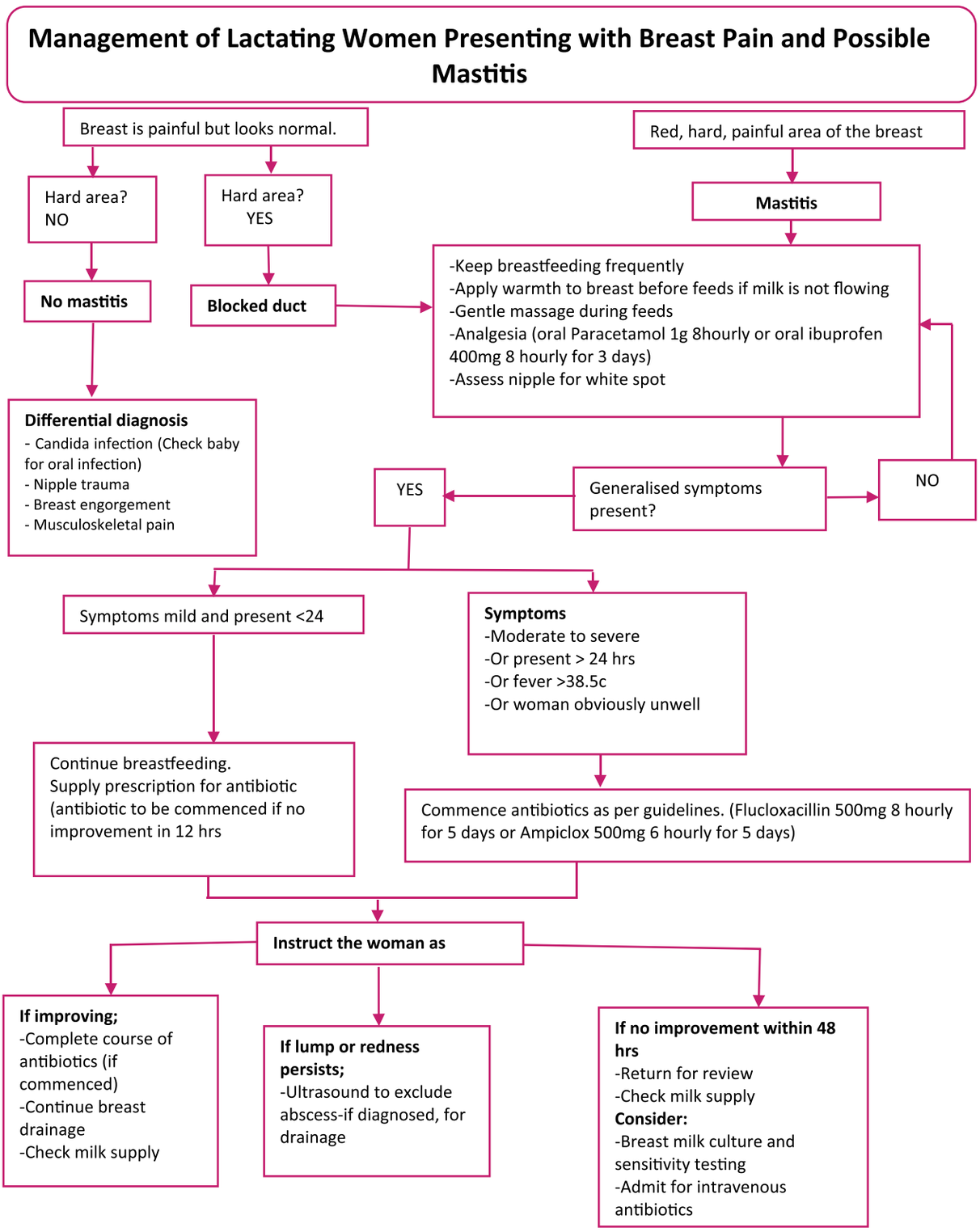
- Counsel and reassure the mother.
- Encourage breastfeeding on the unaffected breast.
- Demonstrate proper position and breast attachment
- Place warm compress over the breast before breastfeeding to allow free flow of milk.
- Apply cold compress to affected breast after breastfeeding.
- Give antibiotics (oral flucloxacillin 500mg 8 hourly for 5 days or ampiclox 500 mg 6 hourly for 5 days,
- Oral analgesia, ibuprofen 400mg 8 hourly for 3 days or paracetamol 1gm 8 hourly for 3 days.).

Subsequent Treatment

- If condition does not subside within 48hours, review and treat according to culture and sensitivity.
- Treat infection in baby's mouth if present
- Precautions to Take in Order to Avoid Complications
- Continue breastfeeding to keep breasts empty
- Treat baby's infection (e.g., oral thrush)
- Educate patient on causes, treatment and best breastfeeding practices
- Ensure compliance with antibiotic therapy to avoid abscess formation

Follow-up

- Return after 1 week and 6 weeks to postnatal clinic
- Attend appropriate clinic


Management of Lactating Women Presenting with Breast Pain and Possible Mastitis
Breast is painful but looks normal.
Red, hard, painful area of the breast
Hard area? NO
Hard area? YES
Mastitis
No mastitis
Blocked duct
-Keep breastfeeding frequently
-Apply warmth to breast before feeds if milk is not flowing
-Gentle massage during feeds
-Analgesia (oral Paracetamol 1g 8hourly or oral ibuprofen 400mg 8 hourly for 3 days)
-Assess nipple for white spot
Differential diagnosis
- Candida infection (Check baby for oral infection)
- Nipple trauma
- Breast engorgement
- Musculoskeletal pain
YES
Generalised symptoms present?
NO
Symptoms mild and present <24
Symptoms
-Moderate to severe
-Or present > 24 hrs
-Or fever >38.5c
-Or woman obviously unwell
Continue breastfeeding.
Supply prescription for antibiotic (antibiotic to be commenced if no improvement in 12 hrs
Commence antibiotics as per guidelines. (Flucloxacillin 500mg 8 hourly for 5 days or Ampiclox 500mg 6 hourly for 5 days)
Instruct the woman as
If improving;
-Complete course of antibiotics (if commenced)
-Continue breast drainage
-Check milk supply
If lump or redness persists;
-Ultrasound to exclude abscess-if diagnosed, for drainage
If no improvement within 48 hrs
-Return for review
-Check milk supply
Consider:
-Breast milk culture and sensitivity testing
-Admit for intravenous antibiotics

CRACKED/SORE NIPPLES

Definition

Loss of epithelium covering considerable area of the nipple or a small, deep fissure situated at either the tip or base of the nipple, resulting in sore or painful nipples.

Causes

- Improper positioning and attachment of the baby on the breast
- Baby with oral thrush
- Severe dry skin
- Breast eczema

Diagnosis

- Take history.
- Perform breast (nipple) examination.

Management

- Counsel and demonstrate to the mother proper positioning and attachment of the baby on the breast.
- Advise to continue breastfeeding.
- Express some breast milk and apply it around the affected nipple and leave it exposed.
- Keep nipple clean and moist.
- If crack is deep and painful, rest affected breast but express the breast milk from it frequently; baby may be fed on this milk with cup and spoon.
- Provide health education and counselling.
- Give analgesics.
- If severe pain or swelling occurs, manage as mastitis.

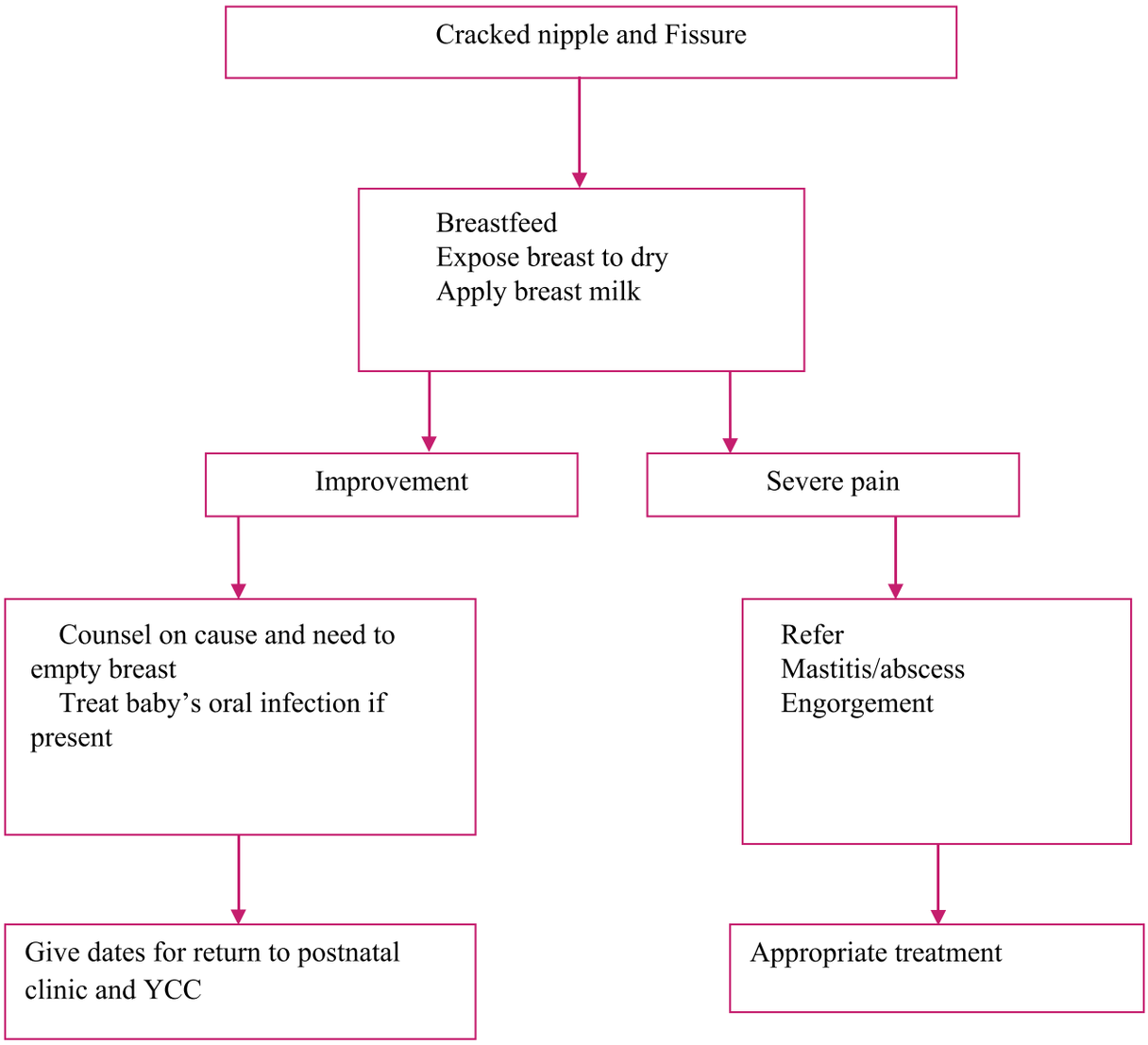
Precautions to Take in Order to Avoid Complications

- Start counselling for breastfeeding in antenatal period.
- Initiate early if she chooses breastfeeding
- Avoid infection of breasts by keeping them clean.
- Avoid engorgement by feeding baby on demand.
- Properly position and fix baby to breast (part of areola should be inside baby's mouth).
- Treat infection from baby's mouth (e.g., thrush).
- Ensure complete emptying of the breast after feeding.

Follow-up

- At each appointment of Postnatal clinic and YCC;
- Look for healing of the nipples
- Check for proper attachment technique

Protocol 35: Management of cracked/sore nipples



PUERPERAL SEPSIS

Definition

Puerperal sepsis is infection of the genital tract at any time between the birth of the baby to the forty-second day following delivery or post-abortion. It is characterised by fever after delivery and offensive vaginal discharge.
Puerperal pyrexia is febrile morbidity in the puerperium in which the body temperature rises to 380 (100.40 F) or higher on any 2 of the first 10 days postpartum.

Sign and Symptoms:

Puerperal sepsis is characterised by:

- Temperature> 38°C
- Tachycardia
- Lower abdominal pain
- Sub-involuted uterus
- Foul-smelling lochia
- Pus discharge from the vagina
- Laboratory examination of discharge will reveal causative bacteria

Differential diagnoses

- Malaria
- UTI
- Upper and lower respiratory tract infection (URTI)
- Mastitis
- Breast abscess
- Thrombophlebitis/deep vein thrombosis (DVT)
- Wound infection (abdomen/episiotomy)

Investigations

- Swabs: from genital tract - high vaginal swab; and/or from the wound
- Urinalysis:
- Chemistry (Urine dipstick), Microscopy, culture and sensitivity
- Blood:
- Malaria Rapid Diagnostic Test (RDT)
- Blood slide for malaria parasites
- Complete blood count (CBC)
- Culture and sensitivity in severe cases
- Blood grouping and cross-matching in case of severe anaemia

Emergency Treatment If in shock or dehydrated:

- Assess general condition.
- Record vital signs
- Give IV fluids (dextrose or normal saline).
- Start broad-spectrum antibiotics IV
- Ampicillin 500mg 6hourly PLUS Gentamycin 80mg 12 hourly PLUS IV Metronidazole 500mg 8hourly for 3 days

NOTE:

- Give the above combination of antibiotics until the woman is fever-free for 48 hours.
- The antibiotics are usually given for 3days, however, if fever is still present on the third day continue with antibiotics until she is fever free for 48 hours
- Oral antibiotics are not necessary after stopping IV antibiotics
- Give 100 mg hydrocortisone IV 12 hourly (two doses)
- Transfuse if severely anaemic.
- Refer or consult.

Subsequent Treatment

Identify the site of infection and treat accordingly:

- Remove any retained placenta and membranes.
- For mastitis, breast abscess, UTI and URTI, refer to the respective sections
- For septic thrombophlebitis/DVT: give anticoagulant therapy, antibiotics, etc.
- For wound infection: irrigate wound, surgical debridement, give antibiotics and re-suture when wound is clean.
- Prevention of Puerperal Sepsis
- Strict observation of infection prevention procedures.
- Swab and drape for delivery.
- Use sterile or high-level disinfected instruments.
- Avoid unnecessary pelvic examinations and prolonged labour.
- Use prophylactic antibiotics only for emergency Caesarean sections.
- Prevent haematoma formation in wounds by ensuring adequate haemostasis.

Precautions to Take in Order to Avoid Complications

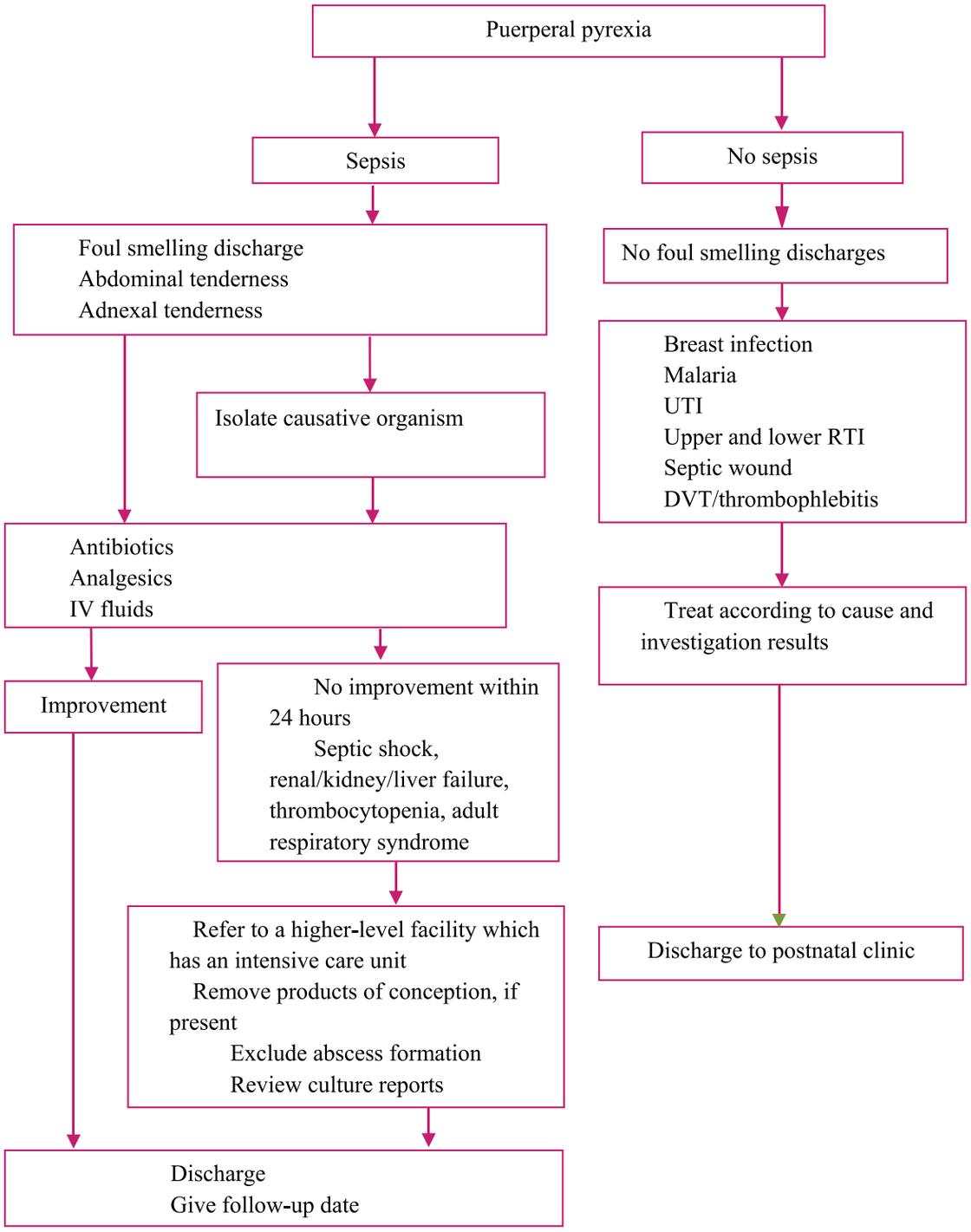
- Early detection and treatment of all infections during pregnancy/labour/ puerperium to prevent systemic involvement.

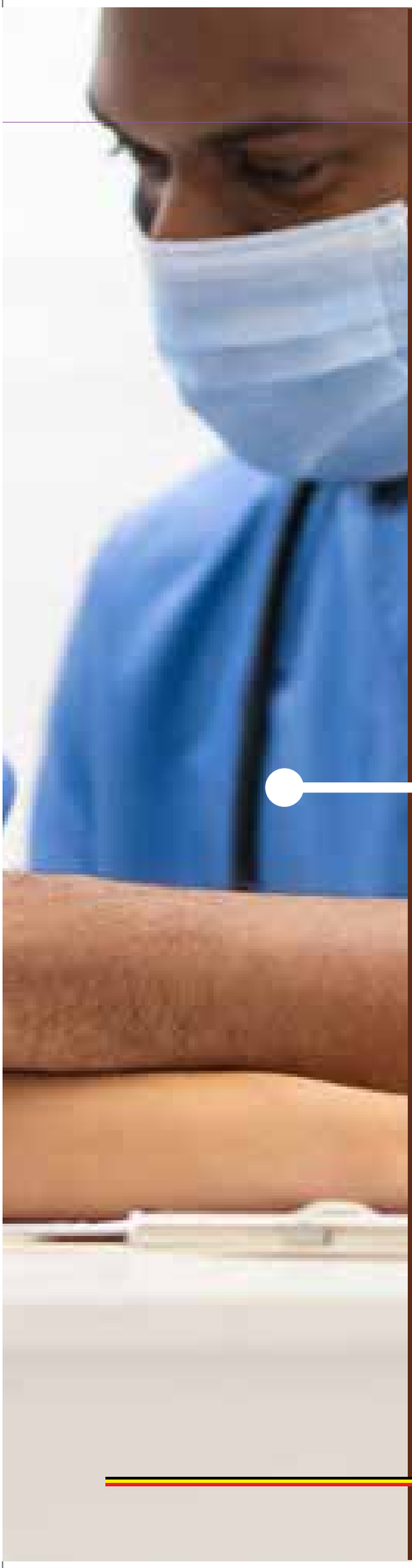
- Proper use of broad-spectrum antibiotics and change to appropriate antibiotics upon receipt of culture report.
- Counselling of patient to complete the full course of drugs

Follow-up

- Review after 1 week and then again in 6 weeks or as needed.
- Mother should be advised to abstain from sexual intercourse for at least 6 weeks.
- Counsel on future pregnancies

Protocol 36: Management of puerperal sepsis





MATERNAL INFECTIONS

URINARY TRACT INFECTIONS IN PREGNANCY

Definition

The colonisation and infection of the urinary system.
Infection of the urinary tract commonly presents as cystitis and/or pyelonephritis. In pregnancy there is often incomplete emptying of the bladder. Stagnant urine can lead to infection extending from the bladder (cystitis), upwards to the ureters and kidneys (pyelonephritis). Urinary Tract Infections maybe asymptomatic only detectable on urinalysis. Therefore, routine urine testing using test strips should be carried out on every antenatal visit. Ensure early diagnosis and prompt appropriate treatment to minimize complications.

Signs and Symptoms:

- The patient may present with the following signs and symptoms:
- Dysuria
- Frequency of micturition
- Urgency to urinate
- Lower abdominal pain and tenderness
- Haematuria
- Fever with chills
- Loss of appetite
- Loin pains (Lower back)
- General malaise
- Nausea and vomiting

Differential Diagnosis

- Malaria
- Typhoid fever
- Pressure from the presenting part or growing uterus in early pregnancy may present as lower abdominal pain
- Appendicitis
- Pelvic inflammatory disease and salpingitis
- Ectopic pregnancy especially during the first three months
- Brucellosis

Investigations

Urine for:

- Sugar
- Protein Nitrites
- Leucocytes
- Red Blood Cells (RBCs)
- Microscopy (pus cells)
- Culture and sensitivity, where possible

To exclude other causes of symptoms:

- Blood slide
- Malaria Rapid Diagnostic testing kit (mRDT)
- Complete Blood Count (CBC), where possible
- Blood culture and sensitivity, if indicated
- Immediate Treatment
- In cases of hyperpyrexia, tepid sponge and give antipyretic like paracetamol 1g 8 hourly until temperature is controlled
- Very ill and dehydrated patient or with excessive vomiting may require intravenous fluids.

Note: *Don't give non-Steroid anti-inflammatory drugs like Aspirin, diclofenac, mefenamic acid to pregnant women*

Subsequent Treatment

- Continue to control temperature.
- Maintain fluid intake and output chart and keep well hydrated.
- Counselling on the following;
- Encourage frequent intake of oral fluids.
- Counsel on personal hygiene.
- Advise on frequent emptying of the bladder
- Counsel on the importance of early detection of signs of recurrence of UTI and report to health centre
- Adherence to medication

Cystitis:

- Treat as outpatient if mild, and admit if severe.
- Give amoxicillin 500 mg 3 times daily

OR Nitrofurantoin 100 mg 8 hourly for 5 days.

Pyelonephritis:

- Take history of illness and obstetrical condition.
- Examine patient for signs and symptoms of the infection.
- Observe: temperature, pulse, respiration and blood pressure twice a day.
- Tepid sponge if temperature is very high.
- Obtain a mid-stream specimen of urine (MSSU) and send for chemistry using the urine dipstik, microscopy and culture and sensitivity if indicated.
- Ensure adequate hydration by oral or IV route.
- Continue with paracetamol for pain and to lower temperature
- Commence antibiotic therapy while awaiting culture report:
- Amoxicillin 500 mg - 1 g 6-hourly for 5 days, and Gentamicin, 5 mg/kg/day in 3 divided doses 1M (maximum of 80 mg 8-hourly) OR
- Ampicillin 2g IV every 6 hours plus Gentamycin 80mg 8 hourly IV single dose for 7 days. Once the woman is fever free for 48 hours, give amoxicillin 1g by mouth three times per day to complete 14 days of treatment
- Tablets Cephixime 200mg 8 hourly for 14 days
- Tablets Cefloxime 250mg 8 hourly for 14 days

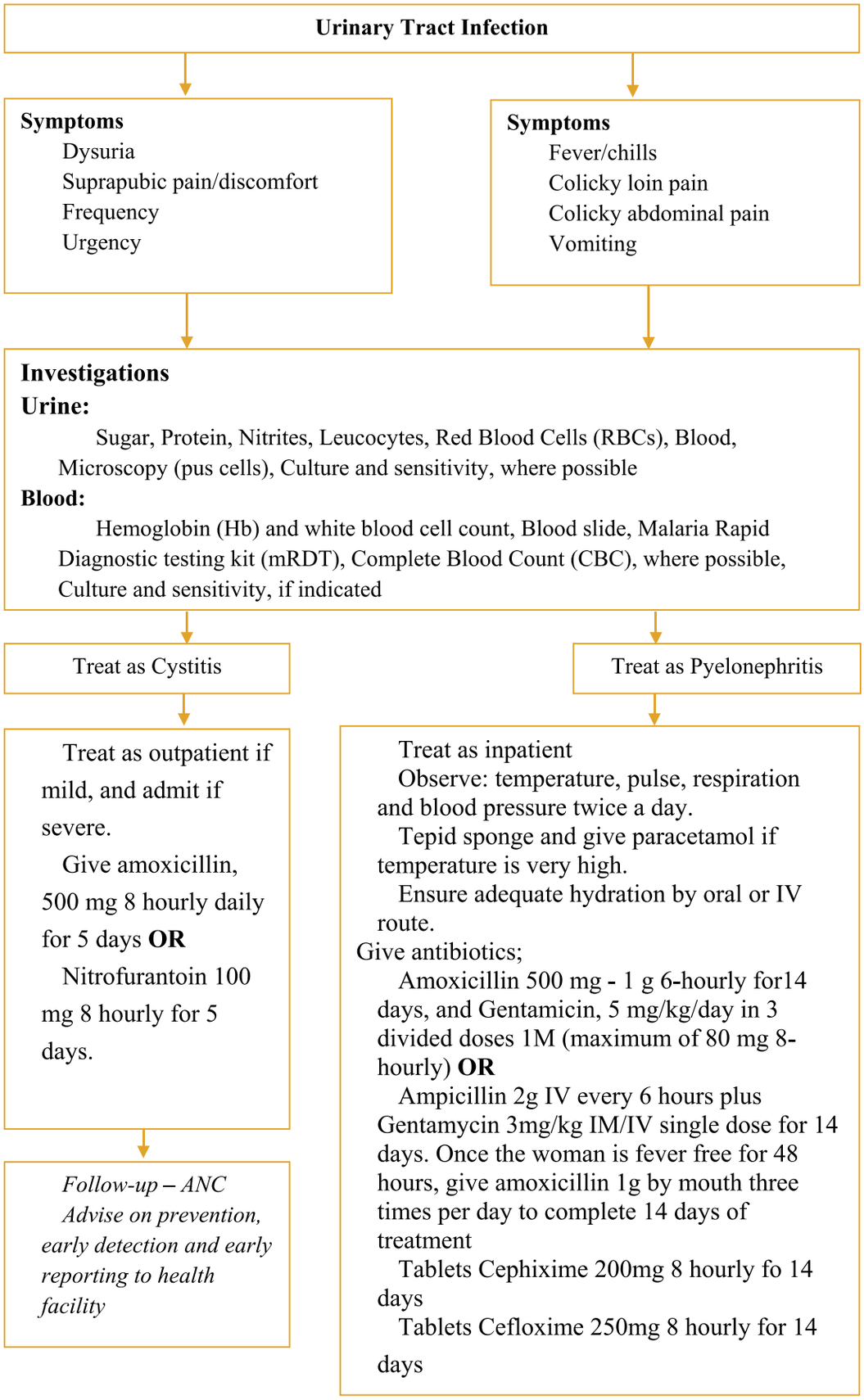
Note:

- Clinical response is expected within 48 hours. If there is no clinical response in 72 hours re-evaluate results and antibiotic coverage
- If symptoms are severe, admit the mother

Follow-up

- Review after 2 weeks

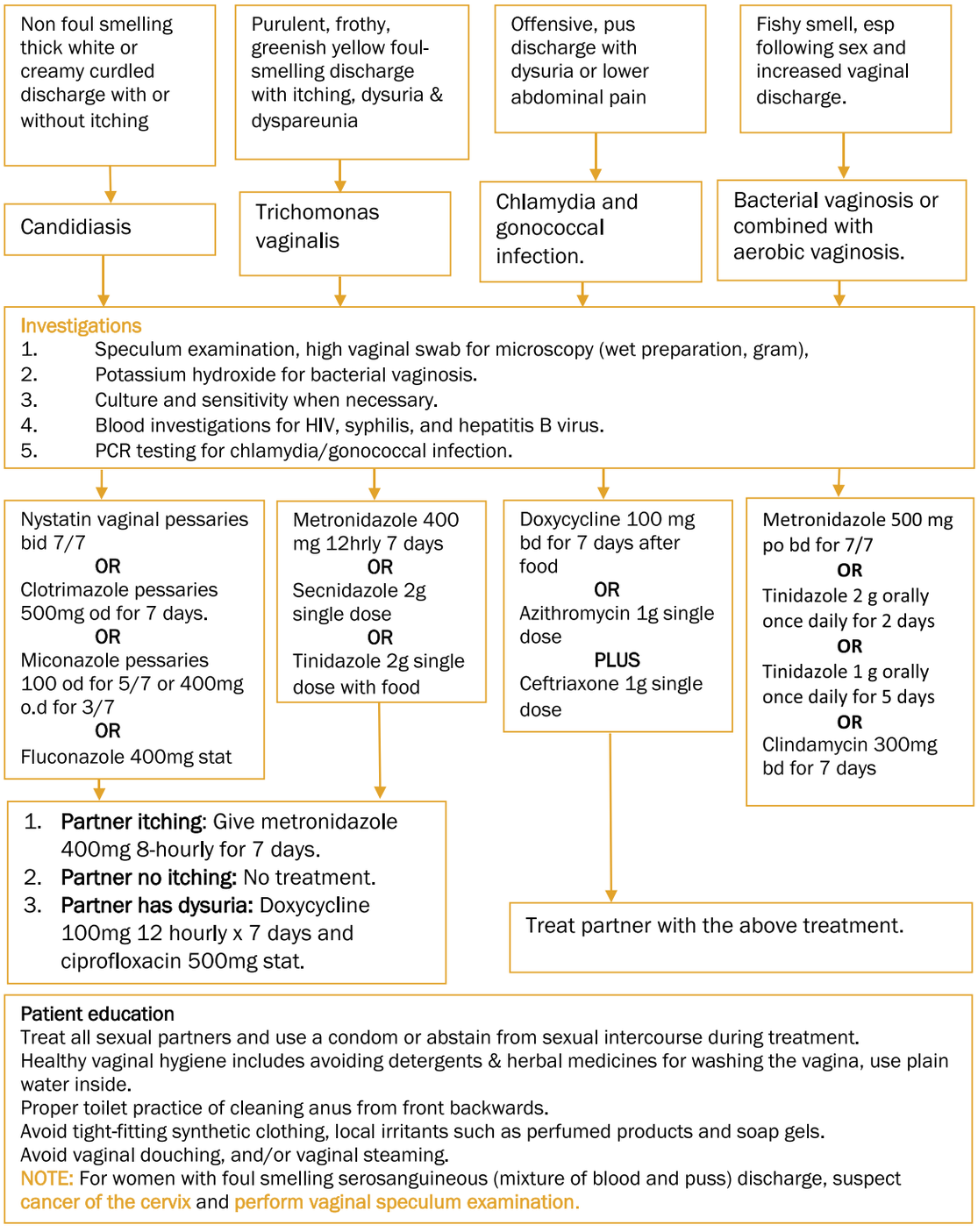
Protocol 37: Management of urinary tract infection



ABNORMAL VAGINAL DISCHARGES

Vaginal discharges in pregnancy are common and may be normal. A normal discharge may present as a slight increase in amount but is colourless, odourless and is not associated with pain, itching on passing urine, or lower abdomen pain and backache.

Protocol 38: Abnormal Vaginal Discharge

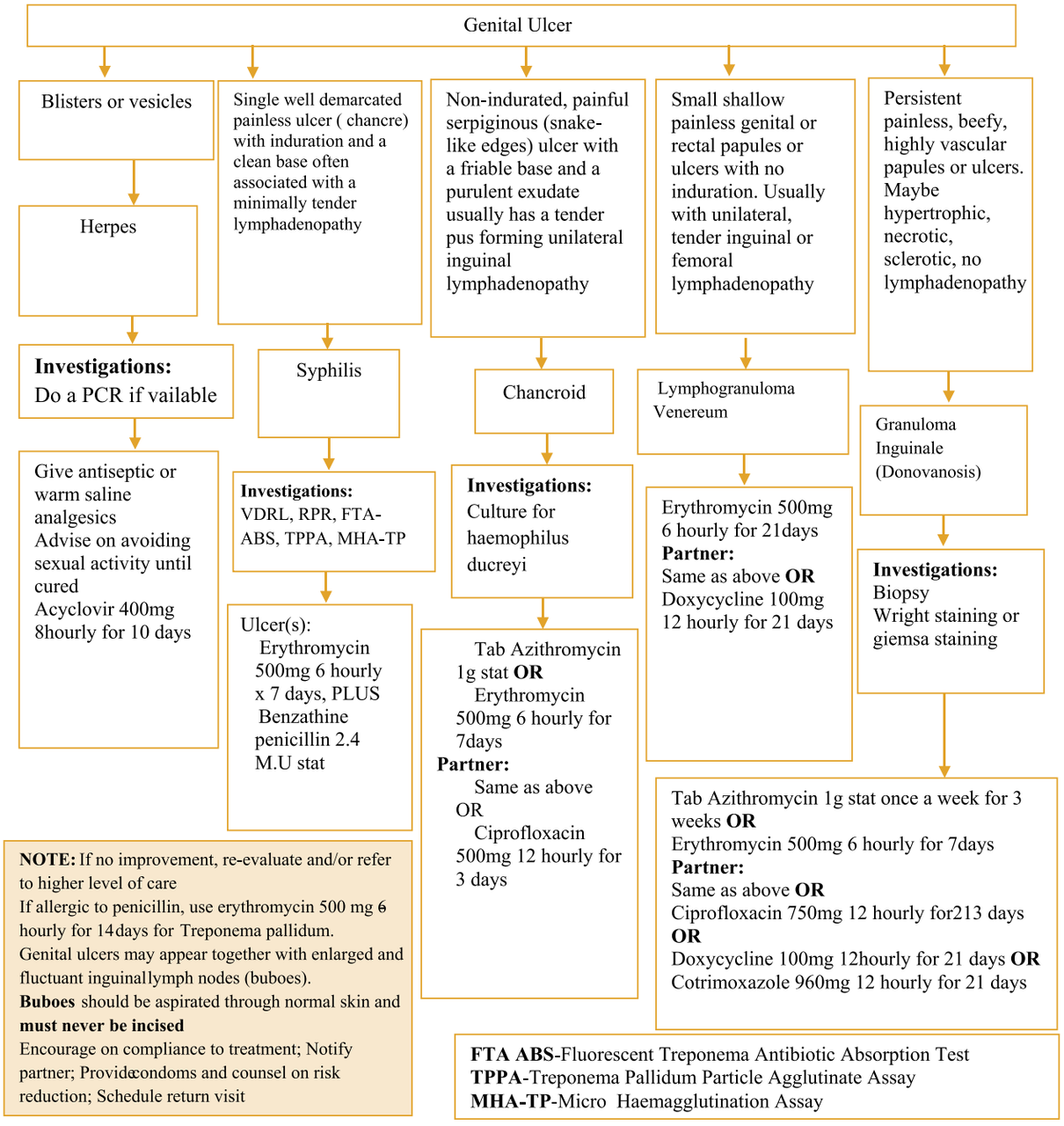


GENITAL ULCERS

Definition:

Discontinuation of the skin or mucous menbranes.it can be ulcerative, erosive, pustular or vascular with or without lymphadenopathy. the causes are sexually transmitted infections and non STI related conditions e.g drug

Protocol 39: Genital Ulcer



Protocol 40: Bartholin's Abscess

Bartholin's Abscess

- Painful swelling on one or both side of the introitus at 4 & 8 O'clock positions.
- Patient may find it hard or impossible to walk, sit, or have sexual intercourse.
- Fever may be present in one-fifth of patients.
- Previous history of vulval mass especially Bartholin's cyst
- Assess for Comorbidities, including diabetes or immunosuppression.
- Genital exam may reveal a tender fluctuant Bartholin's gland – usually

Investigations

1. Exudate from the mass for Culture & Sensitivity to exclude methicillin-resistant S. aureus.
2. No role for imaging studies in the evaluation of a Bartholin mass.
3. No role for blood tests unless systemic infection is suspected.

Management can be by any of the following options

1. Marsupialization using a cruciate or longitudinal incision under 1% lignocaine. Stitch the edges using 3/0 vicryl to leave the incision open.
2. If available, consider
    a. Incision and Drainage and insertion of WORD CATHETER for 4 weeks OR
    b. Silver nitrate laser ablation and placement of a Jacobi ring catheter OR
    c. Fractional CO_2 laser ablation with PRP (Platelet rich plasma).
3. In case of recurrence after marsupialization, consider gland excision

Additional supportive care includes

4. Antibiotics are not usually indicated in the immunocompetent patient after marsupialisation
5. If needed, give Flucamox (Flucloxacillin+Amoxycillin) 500mg 8hrly for five days, OR Ampiclox 500mg 6hrly for five days OR Azithromycin 500mg once a day for three days
6. Give analgesia.
7. Sitz bath using salty warm water (salty warm compress)
8. Abstain from vaginal intercourse until when fully healed.

Note: Do not perform Incision and drainage alone because the abscess will re-occur, unless if there is lack of expertise and there is urgent need to relieve symptoms. In which case, after I&D, pack with gauze and refer for **marsupialization. Gauze packing should be removed within 24-48 hours.**

Patients older than 40 years should have a biopsy to rule out Bartholin gland cancer.

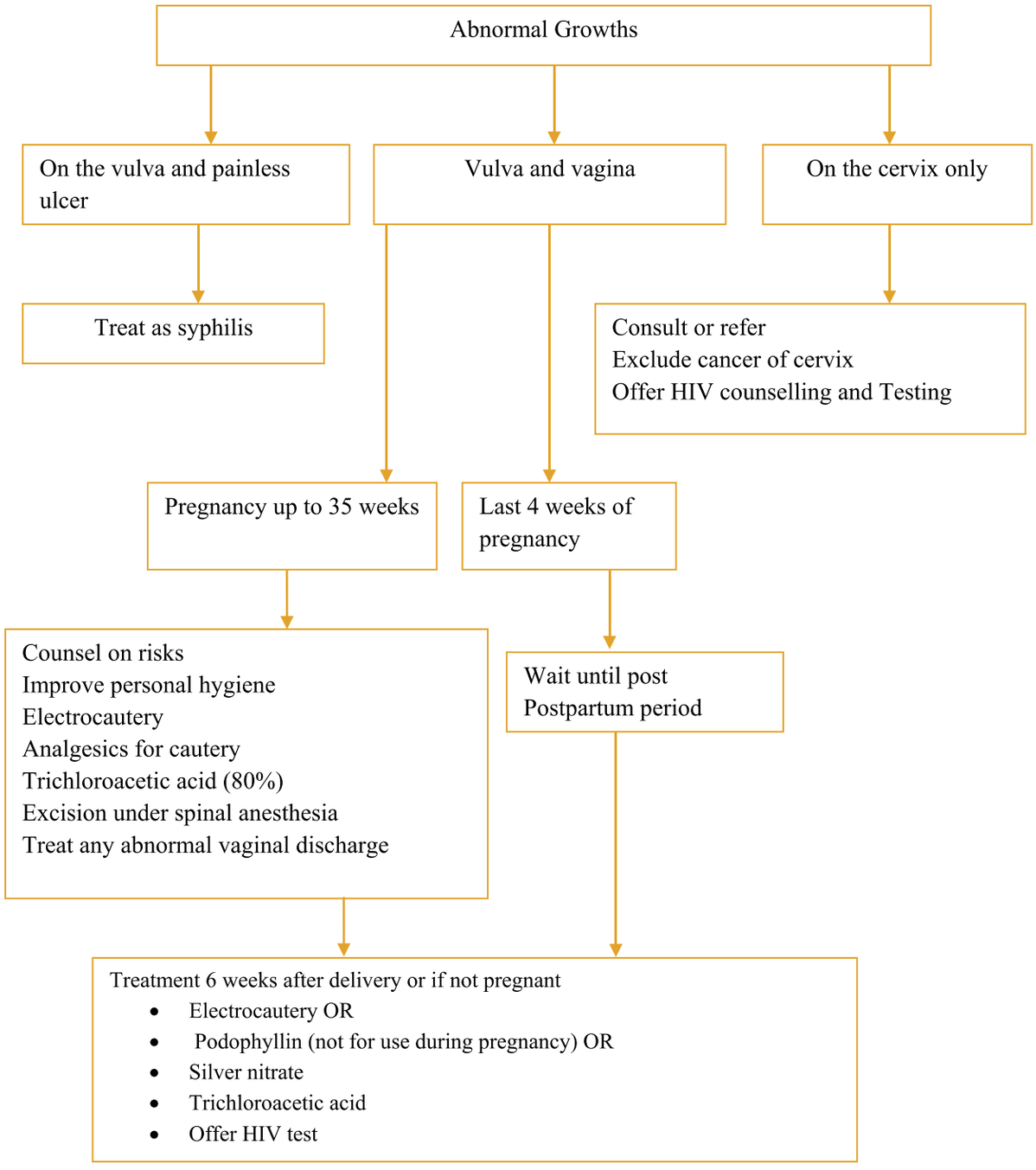
Follow up.

1. Notify and treat partner with similar treatment as above.
2. Counsel couple on HIV/AIDS/STI testing, prevention and encourage use of barrier methods.
3. Schedule return visit. If the abscess resolves no further management is required.
4. If the abscess recurs 2 or more times, gland excision is recommended.

GENITAL WARTS

These are fern-like painless growth on the vulva, vagina or cervix

Protocol 41: Genital Warts



BREAST ABSCESS

Definition

Breast abscess is a formation of pus in an inflamed breast.

Signs and Symptoms

- Breast pain
- Preceding mastitis or cracked nipples
- Localised fluctuant area of the breast with shiny overlying skin
- Fever and general malaise

Differential Diagnosis

- Other breast lumps, such as the breast adenoma (breast mouse) especially in young women between 15-35 years and occasionally carcinoma of the breast in older women.

Investigations

- Culture and sensitivity of pus
- Haemoglobin level
- White blood cell count

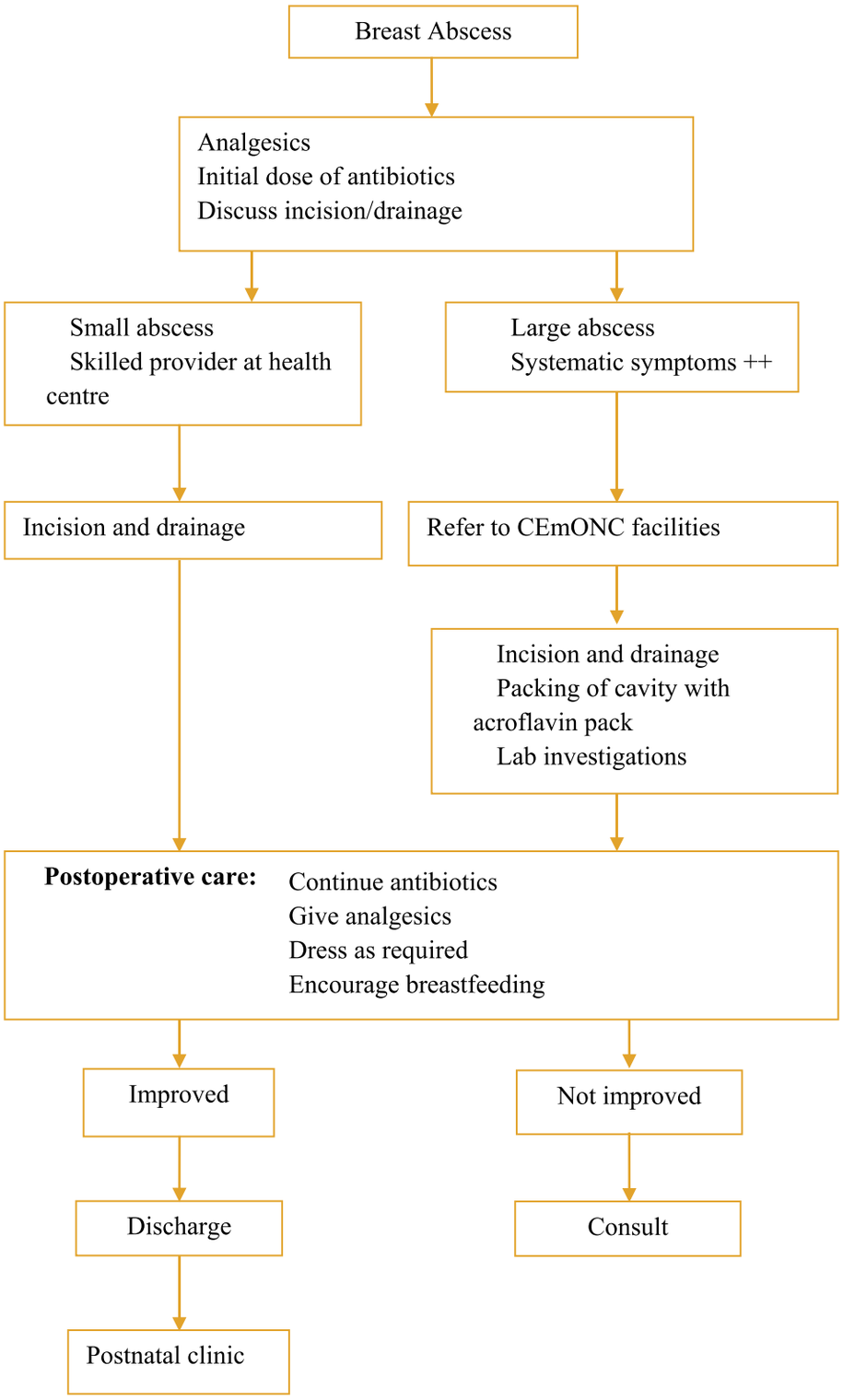
Management

- Incision and drainage by a trained person under general anaesthesia.
- Give initial dose of oral antibiotics and continue the full course after I&D (flucloxacillin 500mg 8 hourly for 5 days or ampiclox 500mg 6 hourly for 5 days)
- Give analgesics, oral ibuprofen 400mg 8 hourly for 3 days
- Continue or change antibiotics according to culture and sensitivity Results.
- Advise to continue frequent breastfeeding from unaffected breast and express milk from the affected breast (manually or with breast pump).
- Dress the wound as required.
- Provide psychological support.
- Ensure a proper diet and plenty of fluids.
- Give advice on supportive binder/bra.
- Educate mother on proper care of the baby (e.g., nutrition and hygiene).
- Educate mother on causes and treatment of breast abscess.
- Do not allow stoppage of breastfeeding, even in cases of bilateral abscesses (express breasts to maintain lactation)
- If the woman is not breastfeeding, assist with suppression of lactation (use of breast-binder, avoid nipple stimulation, reduce fluid intake and prescribe bromocriptine 2.5 mg 12hrly for 14 days).
- If the abscess is large, and there are systemic symptoms, refer to the next level

Follow-up

- Review after 1 week and thereafter at 6 weeks postnatally.
- Assess general condition, including incision site.
- Monitor flow of milk in the affected breast

Protocol 42: Management of breast abscess



HIV/AIDS IN PREGNANCY

What is HIV (human immunodeficiency virus) and how is HIV transmitted?

HIV is a virus that destroys parts of the body's immune system. A person infected with HIV may not feel sick at first, but slowly the body's immune system is destroyed. The person becomes ill and unable to fight infection. Once a person is infected with HIV, she or he can give the virus to others.

Note: HIV cannot be transmitted through hugging or mosquito bites.

HIV can be transmitted through:

- Exchange of HIV-infected body fluids such as semen, vaginal fluid or blood during unprotected sexual intercourse.
- HIV-infected blood transfusions or contaminated needles.
- From an infected mother to her child (MTCT) during:
  - pregnancy
  - labour and delivery
  - postpartum through breastfeeding.
- Almost 4 out of 20 babies born to HIV infected women may be infected without any intervention

Advantage of knowing the HIV status in pregnancy

Knowing the HIV status during pregnancy is important so that:

- the woman knows her HIV status
- can protect her baby
- can share information with her partner
- encourage her partner to be tested

If the woman is HIV-infected she can:

- get appropriate medical care to treat her HIV infection and/or prevent HIV-associated illnesses.
- reduce the risk of transmission of infection to the baby:
  - by taking antiretroviral drugs in pregnancy, during labour and after delivery and during breastfeeding
  - by practicing safer infant feeding options
  - Can breastfeed her baby if taking antiretroviral medicines regularly
- protect herself, her sexual partner(s) and her infant from infection or reinfection.
- make a choice about future pregnancies.

If the woman is HIV- negative she can:

- learn how to remain negative.
- Counsel on safer sex including use of condoms

Safer sex is any sexual practice that reduces the risk of transmitting HIV and sexually transmitted infections (STIs) from one person to another

The best protection is obtained by:

- Correct and consistent use of condoms during every sexual act.
- Reducing the number of partners.
  - If the woman is HIV-negative explain to her that she is at risk of HIV

infection and that it is important to remain negative during pregnancy, breastfeeding and later. The risk of infecting the baby is higher if the mother is newly infected while pregnant.
- If the woman is HIV-infected explain to her that condom use during every sexual act during pregnancy and breast feeding will protect her and her baby from sexually transmitted infections, or reinfection with another HIV strain and will prevent the transmission of HIV infection to her partner.
- Make sure the woman knows how to use condoms and where to get them.

Using ART regimens to prevent mother to child transmission

- Women with HIV/AIDS must be managed within normal maternal and child health care settings
- Women who are asymptomic need routine care, however symptomatic women require frequent visits including unscheduled visits for problems as they arise
- Infection prevention (IP) practices must be applied
- ART is given to every HIV positive mother as soon as she tests HIV positive and she takes it for life.

After delivery a baby is given the Nevirapine syrup daily until 6 weeks old as in the table below:

	Woman			Newborn infant
	Pregnancy	Labour, delivery	Postpartum	
ART initiated before pregnancy	Continue ART for life			Once daily NVP for 6 weeks Baby weight: - 2.0–2.5kg 1ml once daily - >2.5kg 1.5ml once daily
Tested HIV-infected in pregnancy (Option B+)	Triple ARV (TDF+3TC or EFV) starting as soon as diagnosed, continued for life			

Additional care for the HIV-infected woman

- Determine how much the woman has told her partner, labour companion and family, then respect this confidentiality.
- Be sensitive to her special concerns and fears. Give her additional support
- Advise on the importance of good nutrition
- Use standard precautions as for all women
- Advise her that she is more prone to infections and should seek medical help as soon as possible if she has:
  - fever
  - persistent diarrhoea
  - cold and cough — respiratory infections
  - burning urination
  - vaginal itching/foul-smelling discharge
  - no weight gain
  - skin infections
  - foul-smelling lochia.

During pregnancy:

- Revise the birth plan
  - Strongly advise her to deliver in a healthy facility.
  - Advise her to go to a facility as soon as her membranes rupture or labour starts.
- Discuss the infant feeding options
- Modify preventive treatment for malaria, according to national strategy

During childbirth:

- Give ART as prescribed in her treatment plan
- Adhere to standard practice for labour and delivery.
- Respect confidentiality when giving ART to the mother and baby.
- Record all ART given on labour record,

postpartum record and on referral record, if woman is referred.

During the postpartum period:

- Tell her that lochia can cause infection in other people and therefore she should dispose of blood stained sanitary pads safely (list local options).
- Counsel her on family planning
- If not breastfeeding, advise her on breast care
- Tell her to visit HIV services with her baby 2 weeks after delivery for further assessment.

Other Measures to Reduce Mother to Child Transmission/Maternal and Infant Morbidity:

- Provide Vitamin A (200,000 units) to all pregnant mothers during antenatal period
- Provide Vitamin A (dose) to all newborns especially if pre-term
- Correct anaemia with iron and folic acid supplementation during pregnancy and puerperium
- Limit episiotomies to few indications (e.g. delivery of some preterm baby, breech delivery, assisted vaginal delivery where perineum is tight, and face to pubis delivery). Avoid instrumental deliveries wherever possible.
- Delay rupturing membranes till the patient is close to delivery
- Avoid use of suction catheter during newborn resuscitation as this may traumatize the nasal mucosa exposing the baby to maternal fluids. Instead, use a suction bulb to clear mucus from the baby's airway at delivery.
- Clamp the cord immediately and remove maternal body fluids from the skin of the baby
- Avoid milking the baby's cord
- Ensure strict infection prevention practices in the clinic's delivery rooms and wards
- Counsel all mothers or couples during antenatal period on risk of HIV transmission through breast milk and means of reducing this risk. Encourage couple to make informed choice on method of infant feeding.
  - Exclusive breastfeeding for 6 months and then completely switch
  - Exclusive substitute feeding from birth
  - Mixed feeding is not recommended and get PCR testing
- Ensure child received all immunizations
- Monitor infant growth
- Encourage couple to join post-test club for people living with HIV/AIDS or other social support groups
- All others known to be HIV-positive must be provided comprehensive obstetrical care

Family Planning and HIV

HIV positive woman or couple should be provided with the following advice on family planning:

- Explain that future pregnancies can have significant health risks for mother and her baby. These include: transmission of HIV to the baby (during pregnancy, delivery or breastfeeding), miscarriage, preterm labour, stillbirth, low birth weight, ectopic pregnancy and other complications.
- If they want more children, advise that waiting at least 2 years before trying to become pregnant again is good for the mother and for the baby's health.
- Discuss options for preventing both pregnancy and infection with other sexually transmitted infections or HIV reinfection.
- Condoms may be the best option for the couple with HIV. Counsel the woman on safer sex including the use of condoms
- If the woman think that her partner will not use condoms, she may wish to use an additional method for pregnancy protection. However, not all methods are appropriate for the HIV-infected woman:
  - Given the woman's HIV status, she may not choose to breastfeed and lactational amenorrhoea method (LAM) may not be a suitable method.
  - Spermicides are not recommended for HIV-infected women.

- Intrauterine device (IUD) use is not recommended for women with AIDS (stage 3 + 4) who are not on ART but can be used freely in stage 1 + 2.
- Due to changes in the menstrual cycle and elevated temperatures fertility awareness methods may be difficult if the woman has AIDS or is on treatment for HIV infections.
- If the woman is taking pills for tuberculosis (rifampin) and certain ARVs contraceptive pills, monthly injectables or implants may not be very effective.

Comprehensive care for HIV-exposed and infected children

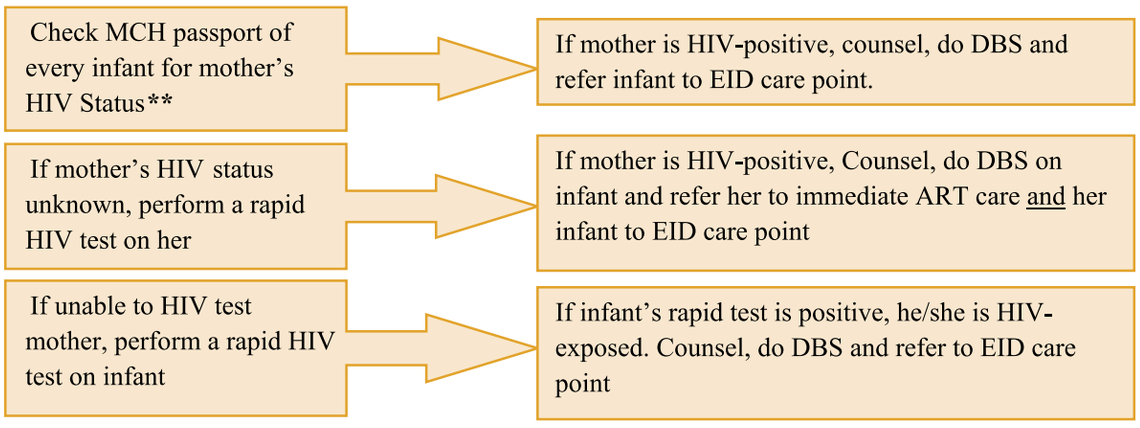
Introduction to the Ten Point Package for care of HIV exposed and infected infant

- "Ten Point Package of Comprehensive Care for HIV Exposed and Infected Children" will provide the correct care and treatment for children exposed and infected with HIV.

TEN POINT PACKAGE OF COMPREHENSIVE CARE FOR HIV EXPOSED AND INFECTED CHILDREN	
1	Determine HIV status at first contact
2	Counsel and support the mother and family on optimal infant feeding and monitor growth and development of the child.
3	Provide prophylaxis (ARV, Cotrimoxazole and INH) according to national guidelines as appropriate after 6 weeks.
4	Ensure that immunizations are started and completed according to national guidelines.
5	Actively look for and treat infections early.
6	Provide ART for all HIV infected children < 15 years of age
7	Provide regular monitoring of clinical and laboratory parameters and adherence; refer to higher levels of specialized care as necessary.
8	Educate the caregiver and family on all aspects of care for the child.
9	Provide on-going psychological and social support for the family and child and refer to community-based support programs as appropriate.
10	Ensure that the mother and family members are receiving appropriate care, support and treatment

How do you determine the exposure of a child?

To determine whether a child is HIV-exposed:



Note: Make sure you are interpreting mother's HIV test result for the last 3 months if not re-test the mother.

- It's important to identify all exposed infants, especially those whose mothers did not receive PMTCT services or have become newly infected since pregnancy. It is important that counselling and testing for HIV be strengthened at all points of contact for exposed breast-feeding infants.
- If an infant is HIV-exposed, he needs medicines immediately. It is important to identify HIV-exposed infants because HIV-exposed infants can receive ARV prophylaxis during breast feeding as well as other care services. This can decrease the possibility of the child becoming HIV-positive!
- HIV rapid tests are useful for establishing HIV exposure status of children < 18 months and a definitive diagnosis in the older children. DNA PCR test is recommended for definitive diagnosis for children ≤ 18 months.

Key Message

Reason for not using HIV rapid test for definitive diagnosis in children < 18 months of age:

Mother's HIV antibodies are transferred to the baby during pregnancy

Mother's HIV antibodies stay in the child's blood till about 18 months

When rapid HIV test is used, it will always be positive even when the child is negative because the mother's antibodies (inside the child's body) will make a rapid test positive

DNA PCR which identifies HIV particles is therefore preferred for use in this age group

- HIV testing should be prioritised for the following categories of children. After the child is tested, you must be able to interpret the test results. The two charts below show how to interpret results for the age specific test.
  - Children born to HIV-infected women
  - Children with symptoms suggestive of AIDS
  - Children with TB
  - Hospitalized children
  - Children in therapeutic feeding centres
  - Children with family members with HIV and/ or TB
  - Children who have been orphaned by AIDS

Interpreting DNA PCR test in Child under 18 months		
	Positive	**Negative**
Not Breastfeeding	Child is infected	Child is not infected
Breastfeeding	Child is infected	Child is not infected but could become infected. Repeat PCR test once breastfeeding has been discontinued for more than 6 weeks.

Interpreting HIV rapid test in Child 18 months and above		
	Positive	**Negative**
Not Breastfeeding	Child is infected	Child is not infected
Breastfeeding	Child is infected	Child is not infected but can still be infected by breastfeeding. Repeat test once breastfeeding has been discontinued for more than 6 weeks.

Counsel mother and family on optimal feeding and monitor growth

- Another crucial element of care for the HIV-exposed or infected infant is encouraging the mother and family to adopt optimal feeding practice for the child. Provide comprehensive and repeated counselling on the importance of exclusive breastfeeding to all HIV-infected pregnant and postpartum women.
- Breast milk is the ideal food for all infants from birth to six months of age and remains a major source of energy and nutrients beyond the first six months. Breastfeeding HIV-exposed infants are still at risk of acquiring HIV from breast milk.
- Breastfeeding in HIV infected women can be safe if the mother has good drug adherence and follow specific medical protocol.
  - Provision of ARVs for all HIV infected breastfeeding mothers for life
  - Provision of NVP syrup for baby for the first 6 weeks of life
  - Exclusively breastfeeding for 6 months – no mixed feeding
  - Good breastfeeding techniques
  - Complementary feeding after 6 months while still on ART

Key Message

Chances of MTCT through breastfeeding and your child being malnourished can be reduced if:

At 0-6 months, you exclusively breastfeed baby
At 6-12 months, you introduce complementary feeding and continue breastfeeding baby
At 12 months, you stop breastfeeding baby
You receive and take you ARVs for life
You give ARVs (NVP syrup) to your baby from birth until child is 6 weeks of age

Monitoring growth in children

- Growth and development monitoring and promotion are critical child survival strategies in resource-poor settings. Health workers can provide support for families through careful growth monitoring and regular nutritional assessments.
- Poor growth has been shown to precede CD4 decline and the development of OIs. Additionally, poor growth is an indicator of HIV disease and disease progression in children.
- Parameters used to monitor growth include weight, height, head circumference, and MUAC. In order for health care workers to monitor child growth, facilities must have an infant scale, height / length board, MUAC tapes, and head circumference tapes.
- Carefully plot measurements on the child health card. Specifically, plot growth rate on the "growth curve" in the MCH passport and record weight in the EID Clinical Chart for exposed infants or ART card for infected infants.
- Discuss the child's weight and height measurements with the child's caregiver. Caregivers should be congratulated and encouraged when children are growing well and appropriately counselled if the growth is not normal.

Monitoring development in children

- Development monitoring is not the same as growth monitoring. "Development" is a term used to describe the maturation of the brain and central nervous system.
- Delayed development or loss of milestones may be the first sign of HIV infection in an infant. While other causes are possible, abnormal development should raise concerns of HIV infection.
- Assess development in a child by a snapshot in time. This is unlike growth, which is monitored over time. Each time a child visits a clinic ≤ 18 months of age, you should assess the child's age specific developmental milestones.

- Early identification of developmental delay is crucial. Infants are at high risk for HIV encephalopathy and severe neurologic disease. However, early identification of developmental delay and neurologic abnormalities can facilitate intervention and these children can improve with treatment.
- Developmental delays in HIV-infected children can be markers of HIV encephalopathy.
  - Child may develop some milestones and after never progress to develop others
  - Child may develop milestones and loss them after some time
  - Child may fail to develop milestones at all
- For each age range in a child, there are different warning signs that development is not progressing correctly.

AGE	WARNING SIGNS
6 weeks	No eye contact, no smile, poor suck, floppy / excessive head lag
6 months	Cannot reach for objects with both hands, floppy, no response to sound, poor social response to people
9 months	Unable to sit unsupported, hand preference, fisting, persistence of primitive reflexes
1 year	Unable to bear weight on legs
18 months	Not walking, no pincer grip, no single words with meaning

Provide prophylaxis according to national guidelines

- All HIV-exposed and infected children should be provided the appropriate prophylaxis in correct doses. The most important prophylaxis used in children, include ARVs, Cotrimoxazole, substitutes for Cotrimoxazole, and Isoniazid Prevention Therapy (IPT).
- ARV prophylaxis for HIV-exposed infants: All HIV-exposed Infants should receive Nevirapine (NVP) prophylaxis from birth to six weeks of age. Maternal PMTC codes should guide the midwives in maternity which babies will need NVP prophylaxis.
- Exposed infants identified in young child clinics or under-five clinics after birth but before 6 weeks of age should be initiated on NVP prophylaxis.
- Cotrimoxazole guidelines in children. Cotrimoxazole (CTX) prophylaxis significantly reduces the incidence and severity of PCP/PJP. Additional benefits of Cotrimoxazole include protection against common bacterial infections, toxoplasmosis, and malaria.

		<5 kg	5-14.9 kg	15-29.9 kg	>30 kg
Cotrimoxazole	200+40mg/5ml (Oral solution)	2.5ml daily	5ml daily	10ml daily	nr
	100+20mg (Tablet)	1 daily	2 daily	4 daily	nr
	400+80mg (Tablet)	0.25 daily	0.5 daily	1 daily	2 daily
	800+160mg (Tablet)	nr	nr	0.5 daily	1 daily

- An HIV exposed infants should receive CTX prophylaxis starting at 6 weeks of age until they are proven to be uninfected. The HIV infected child should continue to receive Cotrimoxazole prophylaxis for life.
- If Cotrimoxazole is contraindicated, several options of drug substitutes can be given as shown below.

Substitutes for CTX Prophylaxis in Paediatrics				
Drug substitute	**Dose**	**Administration**	**Age group**	**Frequency**
Preferred Substitute				

Dapsone	2mg/kg/24hours (up to 100mg	Orally	>1 month old	Once daily
1st Alternate Substitute				
Pentamidine	4mg/kg/dose	IM/IV	>5 years old	Every 2-4 weeks
	300mg in 6ml water	Inhalation	>5 years old	Once monthly
	45mg/kg/day	Orally	3-24 months old	Daily
2nd Alternate Substitute				
Atovaquone	30mg/kg/day	Orally	All	Daily
	45mg/kg/day	Orally	3-24 months	Daily

- If alternative drugs are not available, weigh the risks versus the benefits of giving CTX. In some children with allergy to CTX, desensitisation to the drug can be carried out successfully and should be tried.
- Please note that desensitization should not be carried out in individuals with a history of grade 4 adverse reactions to Cotrimoxazole or other sulphur-containing drugs. Desensitisation should be done following the protocol in the below table.

Step	Dose
DAY 1	80mg sulfamethoxazole + 16mg trimethoprim (2ml of oral suspension[a])
DAY 2	160mg sulfamethoxazole + 32mg trimethoprim (4ml of oral suspension[a])
DAY 3	240mg sulfamethoxazole + 48mg trimethoprim (6ml of oral suspension[a])
DAY 4	320mg sulfamethoxazole + 64mg trimethoprim (8ml of oral suspension[a])
DAY 5	One single-strength sulfamethoxazole-trimethoprim tablet (400mg sulfamethoxazole + 80mg trimethoprim)
DAY 6 ONWARDS	Two single-strength sulfamethoxazole-trimethoprim tablets or one double strength tablet (800mg sulfamethoxazole + 160mg trimethoprim)

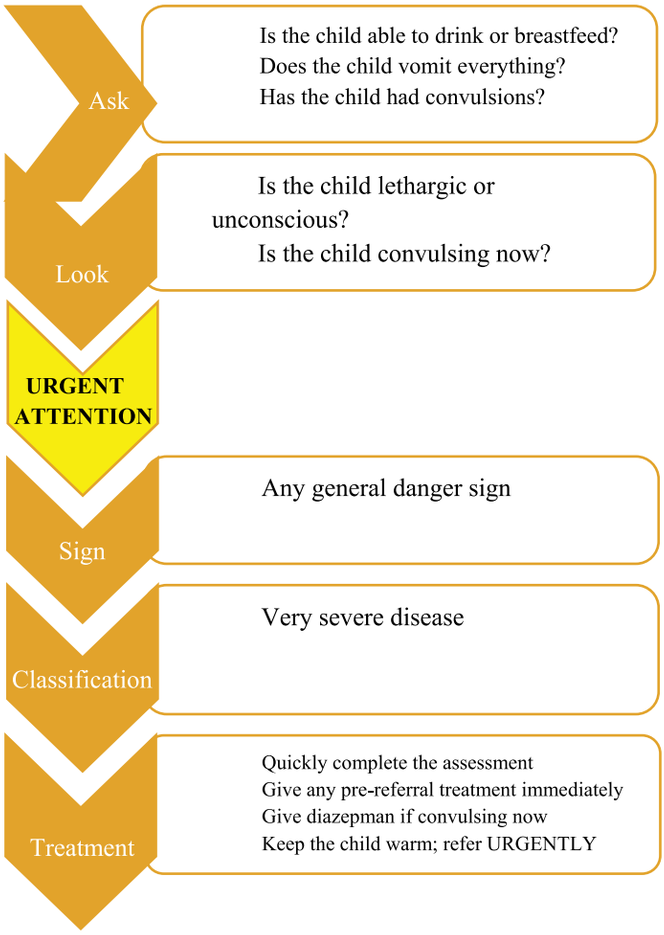
- Isoniazid Preventive Therapy (IPT). IPT is used to prevent against TB in children. Before IPT is given, active TB must be ruled out. All children, irrespective of age, need to be screened for TB disease after exposure to an infectious case of TB.
- If TB disease is excluded, the following categories of children should receive IPT for 6 months with regular follow up. The recommended dose of INH for preventive therapy in HIV co-infection in children is 10 mg/kg/daily (maximum 300 mg/daily).

	CHILDREN		ADULTS
	<12 months	>12 months	
TB exposed	Yes-for 6 months		Yes-for 12 months
Not TB exposed	No	Yes-for 6 months	No

- For a new born child, if mother has TB disease and has been on anti-TB drugs for at least two weeks before labour and delivery, IPT prophylaxis should not be given.
- It is therefore recommended that in malaria endemic areas the combined use of ITNs and Cotrimoxazole should be offered to all HIV infected children.

Actively look for and treat infections early

- HIV-exposed and infected children are susceptible to common infections and OIs. Careful counselling of caregivers to seek care early is essential so that the infant can receive the appropriate care and treatment.
- Actively look for and aggressively treat common childhood illnesses. In HIV-infected children, common childhood afflictions such as fever or diarrhoea can quickly become severe and life-threatening infections.
- When conducting a clinical assessment of a child, you should always check for danger signs. The below flow chart guides you through the process of screening for danger signs.



- Infants who are not known to be HIV-exposed or infected and who present with frequent and/or severe infections should be screened for HIV infection.
- Each time you see an HIV-exposed or infected child, assess for main symptoms of common childhood diseases and use IMCI guidelines to complete the assessment and provide treatment

Ask	**Possible classification**
Does the child have cough or DIB	Severe pneumonia
	Pneumonia
	No pneumonia
Does the child have diarrhoea	Acute watery diarrhoea with • Severe dehydration • Some dehydration • No dehydration
	Severe persistent Diarrhoea Persistent diarrhoea
	Dysentery
Does the child have fever	Very severe febrile disease
	Malaria
	No Malaria
Look for measles Rash/fever/red eyes	Severe complicated measles
	measles with eye& mouth complications
	Measles

Does the child have an ear problem	Acute ear infection
	Chronic ear infection
	No ear infection

Ensure immunizations are started and completed

- HIV-infected children are more susceptible to diseases preventable by immunisation than their HIV uninfected counterparts.
- Ensure that all children, but especially those who are HIV-exposed or infected, receive the full course of the Uganda National Expanded Program on Immunisation (UNEPI) recommended vaccines.
- HIV-exposed and infected children may have an impaired response following immunisation with a variety of antigens. In spite of this, these children should receive the full course of immunisations but with some special considerations/ modifications
  - BCG: when considering BCG vaccination at a later age (re-vaccination for no scar or missed earlier vaccination), exclude symptomatic HIV infection.
  - Measles: Give the measles vaccine to children, even when symptoms are present, at 6 and 9 months. Studies from Uganda indicate that children experience more severe disease with the wild measles virus which outweighs the risk of a milder illness from the vaccine.
  - Pneumonia: Pneumococcal vaccine should be given if available.
  - Yellow Fever: Do not give yellow fever vaccine to symptomatic HIV-infected children; asymptomatic children in endemic areas should receive the vaccine at 9 months of age.

Provide ART for HIV-infected children < 15years

- ART for HIV-infected children < 15 years and older children are mandated by national guidelines to start ART as soon as diagnosed HIV positive

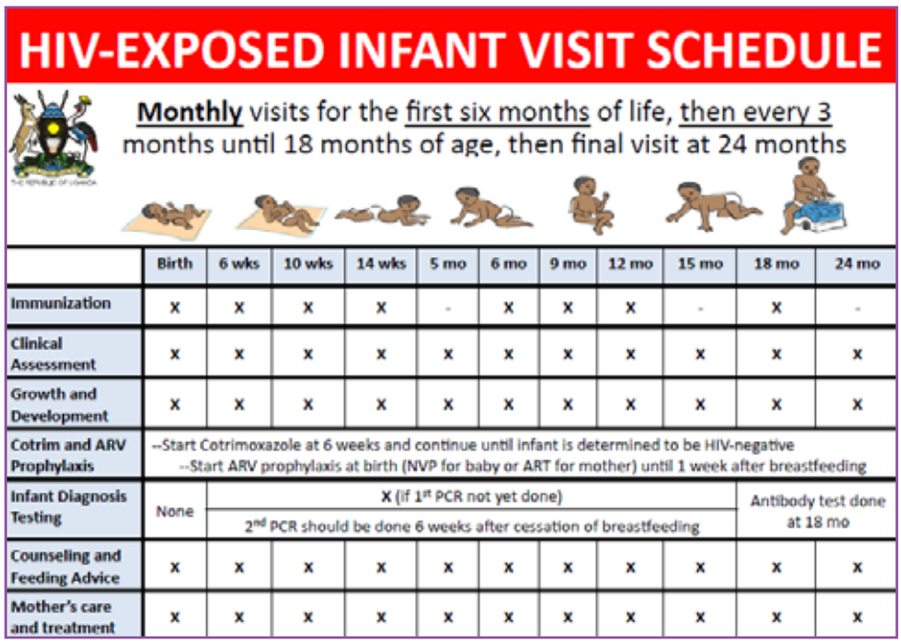
	Preferred First Line Regimen	Alternative First Line Regimen	2 Line	3 Line
Children 3- <10 years	ABC + 3TC + EFV	ABC + 3TC + NVP	AZT + 3TC + EFV (or NVP)	TDF + 3TC (or FTC) + EFV (or NVP)
Children under 3 years	ABC (or AZT) + 3TC + LPV/r	ABC (or AZT) + 3TC + NVP		

Educate the caregiver and family on all aspects of care

- It's important to develop a strong relationship with the caregiver. Health care workers must communicate effectively with the family on what to expect and how to care for the child.
- Parents and/or caregivers need to participate in making decisions and planning appropriate care for the child, including decisions about therapy and where the child should receive care.
- You must empower caregivers to be partners with the health facility and provide key aspects of home-based care for the child, including:
  - How to dispense prophylaxis and treatment
  - How to maintain adherence
  - How to comply with the follow up schedule
  - Good personal and food hygiene to prevent common infections
  - Seeking prompt treatment for any infections or other health-related problem

Provide regular client monitoring, and utilize referrals

- Regular follow-up is the backbone to caring for HIV-exposed and infected children and ensures optimal healthcare and psychosocial support to the family. Always manage children in same clinic/facility as the caretaker and synchronise appointments.



	Birth	6 wks	10 wks	14 wks	5 mo	6 mo	9 mo	12 mo	15 mo	18 mo	24 mo
Immunization	x	x	x	x	-	x	x	x	-	x	-
Clinical Assessment	x	x	x	x	x	x	x	x	x	x	x
Growth and Development	x	x	x	x	x	x	x	x	x	x	x
Cotrim and ARV Prophylaxis	--Start Cotrimoxazole at 6 weeks and continue until infant is determined to be HIV-negative --Start ARV prophylaxis at birth (NVP for baby or ART for mother) until 1 week after breastfeeding										
Infant Diagnosis Testing	None	X (if 1st PCR not yet done) 2nd PCR should be done 6 weeks after cessation of breastfeeding								Antibody test done at 18 mo	
Counseling and Feeding Advice	x	x	x	x	x	x	x	x	x	x	x
Mother's care and treatment	x	x	x	x	x	x	x	x	x	x	x

Provide on-going psychosocial support

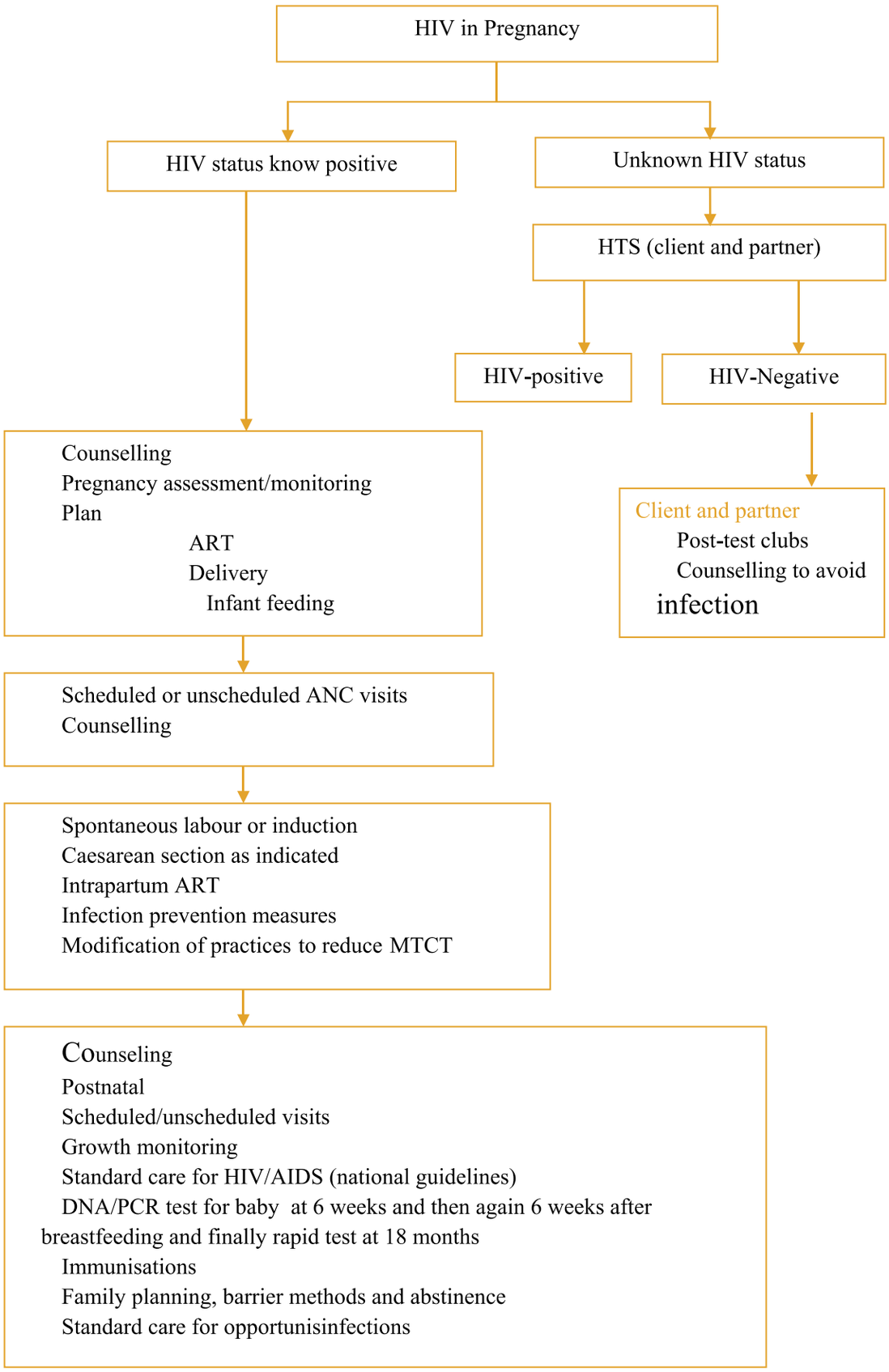
- Psychosocial support is an integral part of care for the HIV-infected child and his/her family. This is because HIV/AIDS-related illness or death in the family can lead to several mental, financial, and social problems for the child and the family.
- Psychosocial support can be provided in several different ways.
  - Counselling and support for the child and family
  - Assisting the family in readying the child for disclosure
  - Use of peer support groups
  - Spiritually-based support activities
  - Community-based support activities

Ensure appropriate care is being offered

- An HIV diagnosis in a child has many direct implications for the other family members. Likewise, maternal HIV infection has direct implications for a child, even if that child is not HIV-infected.
- The most important thing for a child's health is to have a healthy mother. In many settings, women will bring their children to the clinic regularly, yet they often do not seek care for themselves. You should ensure that the family, especially the mother, are provided with or referred for appropriate diagnosis, care, and treatment.
  - A family tree analysis/ family matrix can be put in each child's file
  - A simple inquiry about mother's health is sometimes the catalyst for enrolment in care
  - When members of the same family are in care (such as mother and baby), their clinic appointments should be made on the same day.

Family contact details should be captured on the child's health card. Attempts should be made to establish the HIV diagnosis and care status of each of the child's caregivers, and appropriate action taken. Family counselling and support should be encouraged.

Protocol 43: Management of HIV in pregnancy



VIRAL HEAMORRHAGIC FEVER (EBOLA MARBURG, LASSA, YELLOW)

Suspected case: Illness with onset of fever and no response to usual causes of fever in the area, and at least one of the following signs: bloody diarrhoea, bleeding from gums, bleeding into skin (purpura), bleeding into eyes and urine.

Confirmed case: A suspected case with laboratory confirmation (positive IgM antibody, positive PCR or viral isolation), or epidemiologic link to confirmed cases or outbreak.

Note:
In the situation of an outbreak, these case definitions may be changed to correspond to the local event.

Pregnant patients with VHF often miscarry. However, vaginal bleeding and miscarriage can occur in any pregnancy. During an Ebola/Marburg or CCHF outbreak, fever with miscarriage or abnormal vaginal bleeding (other than normal menstruation) should prompt a PCR test to rule out VHF

Clinical features of Ebola/Marburg infection

Early:

- Intense tiredness, weakness, malaise
- Sudden onset of fever (defined as 38.0˚C axillary)
- Headache
- Abdominal pain
- Myalgia (muscle pain)
- Diarrhoea (can be bloody
- Arthralgia (joint pain) or non-bloody)
- Hiccups
- Nausea and loss of appetite
- Conjunctivitis
- Throat pain and difficulty swallowing

Late clinical Features

- Confusion and irritability
- Seizures
- Chest pain
- Diarrhoea (watery or bloody)
- Vomiting (sometimes bloody)
- Skin rash
- Shock
- Internal and/or external bleeding including:
- oozing from puncture sites
- Epistaxis (bleeding from the nose)
- Rashes suggestive of easy bleeding
- Haematemesis (blood in vomitus)
- Ecchymosed, petechiae,
- haemoptysis (blood in sputum) purpura)
- Dark blood in stool (melena, hematochezia)
- bleeding from the gums
- Unexplained vaginal bleeding in women
- Conjunctival haemorrhage (bleeding from the eyes)
- Haematuria (blood in urine)
- Miscarriage in pregnant woman
- Shock (see definition
- Respiratory distress

Note: *There is often an overlap of early and late symptoms. Patients often do not develop all the signs and symptoms. Fever may be absent in the late stages*

Initial Response for a confirmed or suspected case of VHF.

Screening:
Do a quick check, take a history of contact in the previous 3 weeks with a someone with a fever +/- bleeding and unexplained death.
If you suspect a case of VHF: Consult the clinician to evaluate the patient, inform the district surveillance focal person/DHO. Meanwhile keep the patient in the holding room

Educate the patient if conscious and cooperative: Inform the patient on what is next, reasons for isolation, how to prevent transmission for example respiratory hygiene. Provide a mask and ensure that the patient knows how to use it.

Isolate the patient: Rapidly triage, separate to a holding room that should be away from the crowded area, well ventilated with a good light source and known to everyone in the Facility

Notify/Refer the Patient: This should be done immediately, reduce waiting time as much as possible to minimize the exposure of other patients

SUMMARY

Use standard precautions and use available personal protective equipment before examining the patient(s)
Isolate the patient
Notify the district health officer (DHO) immediately using the most urgent available means (telephone, message, etc).
The DHO will send the rapid response team to investigate the event further. (Refer to IDSR Guidelines22 for details)
Where possible, take off blood samples to diagnose VHF (see Section 2.1.4) and send them to the appropriate laboratory

Laboratory Diagnosis

- To confirm a VHF case, three laboratory tests can be run on blood samples (blood, serum or plasma) collected in patients suspected of having VHF, depending on the time of sample collection relative to the date of disease onset.
- Polymerase chain reaction (PCR) provides evidence of the virus in the blood or tissues during the acute phase of the clinical disease. In certain circumstances, this test can be replaced by an antigen detection ELISA (it is less sensitive and more broadly cross-reactive);
- IgM (antibody showing recent infection) during the early convalescence phase of disease (until approximately 8-12 weeks post onset of disease)
- IgG (antibody showing past infection) persists for several months/ years after the acute phase of the clinical disease. This alone is not suggestive of recent or ongoing infection but can be utilized to confirm acute infection with paired samples showing IgG seroconversion.

Note: Also test for malaria with a rapid diagnostic test (RDT) at the bed side taking necessary precautions. If a RDT or malaria smear is negative, the patient does not have malaria.

Special considerations in pregnancy

- Full term deliveries are rare in Ebola/ Marburg. Fetal death occurs in 80% of pregnant VHF patients.
- Basic facilities for deliveries and a private area to manage miscarriage and vaginal bleeding should be installed. Extreme caution must be used during management of bleeding to avoid health worker infection.
- There are reports of clinical improvement in pregnant women with VHF after the uterus is evacuated.
- Since uterine evacuation in pregnant patients appears to lower maternal mortality, it should be considered in confirmed cases especially given the extremely high maternal and fetal mortality that is associated with VHFs.
- But it should be noted that doing an evacuation in a VHF patient is high-risk procedure and therefore it must be performed with extreme caution. This is because of the potential for nosocomial transmission and the risk for inducing maternal haemorrhage
- Follow clinical guidelines on the use of ergometrine in early pregnancy and oxytocin and other postpartum interventions for stop bleeding.

INTRAPARTUM CARE FOR COVID-19 IN PREGNANCY

- A multidisciplinary team that includes Obstetric, Maternal fetal Medicine, Infectious diseases, pulmonary and critical care, and Pediatric specialists.
- All Covid-19 pregnant women should be delivered under a skilled birth attendant

COVID-19 Severity score

Asymptomatic | Presymptomatic | Presumptive Infection

- Positive COVID-19 test result with no symptoms

Mild Disease

- Patient presents with flu-like symptoms (Fever | Cough | Myalgias | Anosmia)
- The following features are not present (Dyspnea | Shortness of breath | Abnormal chest imaging)

Moderate Disease

- Lower respiratory tract disease
  - Dyspnea
  - Chest imaging: Compatible with pneumonia
  - Abnormal blood gases | Oxygen saturation ≥94% on room air at sea level
  - Fever: ≥39.0 °C /102.2 °F (unresponsive to 2 doses of acetaminophen)

Severe Disease

- Respiratory rate: >30 breaths/minute
- Hypoxia (Oxygen saturation: <94%, PaO2/FiO2: <300 mm Hg, Chest imaging: >50% lung involvement)

Note: Early warning signs of severe disease include

- Increasing sense of dyspnea
- Cannot maintain adequate oxygen saturation
- Persistent or more frequent fevers
- Worsening of myalgias

Critical Disease

- Multi-organ failure or dysfunction
- Shock
- Respiratory failure requiring (Mechanical ventilation or high-flow nasal cannula)

Refractory Hypoxemia

- Persistent, inadequate oxygenation and/or ventilation (not responsive to substantial and appropriate optimization measures)
- Indicates further escalation of severity
- Extracorporeal Membrane Oxygenation (ECMO) (May be used in the setting of refractory hypoxemia, Not contraindicated in pregnancy but “should occur in a center with with significant experience in its use”)

Who should be admitted?

Those with moderate to critical disease should be admitted for inpatient care
Moderate cases should be managed in facilities with oxygen delivery capacity, severe and critical cases should be managed in facilities with ICU services.

Inpatient monitoring and care is appropriate for pregnant COVID-19 patients with:

- A comorbid condition warranting admission (e.g., poorly controlled hypertension or diabetes, preeclampsia, prelabor rupture of membranes, uterine bleeding).
- Fever >39°C despite use of acetaminophen (which raises concern for cytokine storm syndrome), except when fever is an isolated symptom; however, such patients require close monitoring.
- Moderate or severe signs and symptoms (e.g., oxygen saturation <95 percent [when pulse oximetry is available] on room air and while walking, respiratory frequency >30 breaths per minute, rapidly escalating supplemental oxygen requirement).
- Critical disease – Respiratory failure, hypotension despite appropriate hydration, and/or new end-organ dysfunction (e.g., mental status changes, hepatic or renal insufficiency, cardiac dysfunction).
- **Mothers at 39 weeks of gestation(for initiation of delivery process) or in labour.**

Mode of delivery

- Decisions regarding the mode of delivery should be individualized based on obstetric indications and the woman's preferences. WHO recommends that cesarean section should ideally be undertaken only when medically justified.
- Threshold for cesarean delivery lowered in patients who can't tolerate prolonged stage 1 or stage 2, however, Vaginal delivery is recommended for majority of cases as has been shown to be safer for both mother and neonate than cesarean section.

Timing for delivery

- It should be individualized, based on one's obstetric and medical history.
- There is no rationale for elective delivery either surgically or otherwise because of the covid-19 disease.
- If a woman has COVID-19 infection, or has had significant exposure, unless there are immediate risks to her health, or other obstetric indications, elective caesarean section or induction of labour should be delayed, if possible
- If there are obstetric indications for early delivery, do not delay delivery (e.g., previa, severe preeclampsia)
- If infection of COVID-19 is categorised as severe and not improved by 'treatment' and other supportive measures, early delivery should be considered even in the absence of obstetric indications
- If mother with COVID-19 is categorized as critical, and Gestational age more than 28 weeks, early delivery should be considered to ensure maternal safety . Emerging evidence shows that maternal oxygenation can be restored by delivery under these circumstances
- For asymptomatic or mild cases of covid-19
    - For patients at ≥39 weeks of gestation, delivery is considered to decrease the risk of worsening maternal status.
    - For patients <39 weeks and non-severe illness who have no medical/obstetric indications for prompt delivery, halt delivery.
    - For patients <39 weeks who also have obstetric complications, the timing of delivery is determined by usual protocols for the specific obstetric disorder.

- For severe cases, delivery after 34 weeks may be beneficial to the subsequent treatment and safety of these patients depending on clinical status.

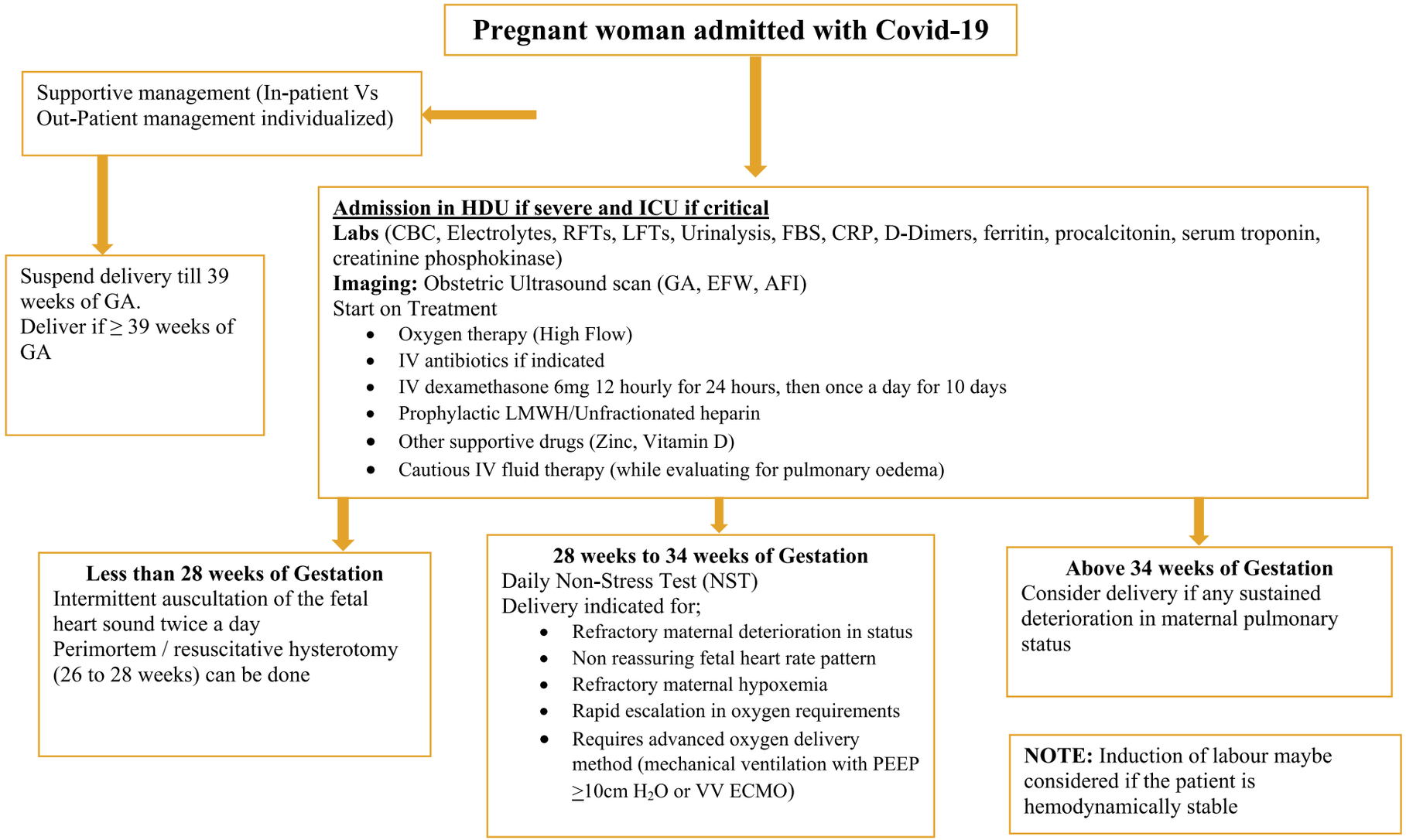
Place of delivery

- The safest place to deliver is in a health facility, where there is access to skilled birth attendant and emergency facilities, when needed.
- For severe and critical cases of COVID-19 disease, they should be delivered in a tertiary facility with resuscitation equipment and other supportive measures and centres with appropriate neonatal intensive care facilities for delivery as COVID-19 is associated with preterm delivery.
- First stage of labour
- Patient should be made as comfortable as possible,
- The patient and the attendant should wear masks all the time,
- Each patient should have no more than one family member present – preferably a spouse with whom they share a room at home
- There should be as few patients as possible in the labour room.
- Limit the number of staff attending to the patient
    - They must put on appropriate PPE at all times.
- Should get adequate hydration and feeding;
- Foetal monitoring with feto-scope, hand-held Doppler or a CTG if available as much as possible.
- Routine examinations and other tests should be carried out as necessary.

Second stage of labour

- The health workers should put on an appropriate PPE.
- It is recommended to expedite delivery of the baby in the second stage especially for the very sick to reduce burden on the cardiorespiratory systems.
- Delayed cord clamping should be performed
- Skin to skin contact between the mother and the baby should be practiced.
- Third stage of labour is as routinely practiced in non-covid19 patients.

Protocol 44: Intrapartum care for covid 19 in Pregnancy



POST PARTUM CARE IN COVID-19 MOTHERS

- Ensure SOPs are practiced
- Isolate covid positive mothers and categories as par the severity score

For **Asymptomatic/mild disease continue** postpartum maternal monitoring as routine, Check vital signs and monitor intake and output every 4 hours for 24 hours after vaginal delivery and 48 hours after cesarean delivery.

For Patients with moderate illness, Perform continuous pulse oximetry for the first 24 hours or Until improvement in signs and symptoms. Type and frequency of follow-up laboratory studies and chest imaging are guided by the patient's clinical course and as par the case management guidelines on covid-19

For Severe/critical disease, maternal monitoring and care should be offered in the intensive care unit as par the case management protocol.

Venous Thromboembolism prophylaxis

I. Recommended in severe/critical COVID-19

a. Generally, continue 10-14 days once stable

b. But if has other risks such as obesity: continue up to 6 months

II. Asymptomatic or mildly symptomatic - only if thrombotic risk factors like prior venous thromboembolism (VTE), and cesarean delivery. Consult physician if confirmed VTE

III. Drugs: LMWH or UFH are both compatible with breastfeeding

a. Dosage of LMWH

i. If weight of woman is less than 80kg give 40mg sub cut of enoxaparin daily

ii. If weight is more than 80kg give 60mg sub cut of enoxaparin daily

Postpartum analgesia

Pain management is routine and Acetaminophen is the preferred analgesic agent Nonsteroidal anti-inflammatory drugs (NSAIDs) when clinically indicated can be used.

Postpartum fever can be due to:

- Infection itself
- Postpartum endometritis,
- Surgical site infection,
- Breast inflammation or infection
- Influenza, pyelonephritis,
- Other viral or bacterial respiratory infections, and,
- Pseudomembranous colitis due to Clostridioides (formerly Clostridium) difficile

Acetaminophen is the preferred antipyretic agent.

Postpartum patients with new onset of symptoms of COVID-19

If previously tested negative for SARS-CoV-2, retesting is appropriate as part of the evaluation of fever or other potential manifestations of COVID-19

Discharge from hospital

For Patients without COVID-19, early discharge postpartum, such as one day after vaginal delivery and two days after cesarean delivery, limits their personal risk of acquiring infection in the hospital environment

Patients with known or suspected COVID-19

The decision to discharge is generally the same as that for other conditions and depends on the need for hospital-level care and monitoring.
Counsel all patients on the warning symptoms that should prompt reevaluation, like new onset of dyspnea, worsening dyspnea, dizziness, and mental status changes, such as confusion. Patients are also counseled about what to expect after recovery

Postpartum office visit

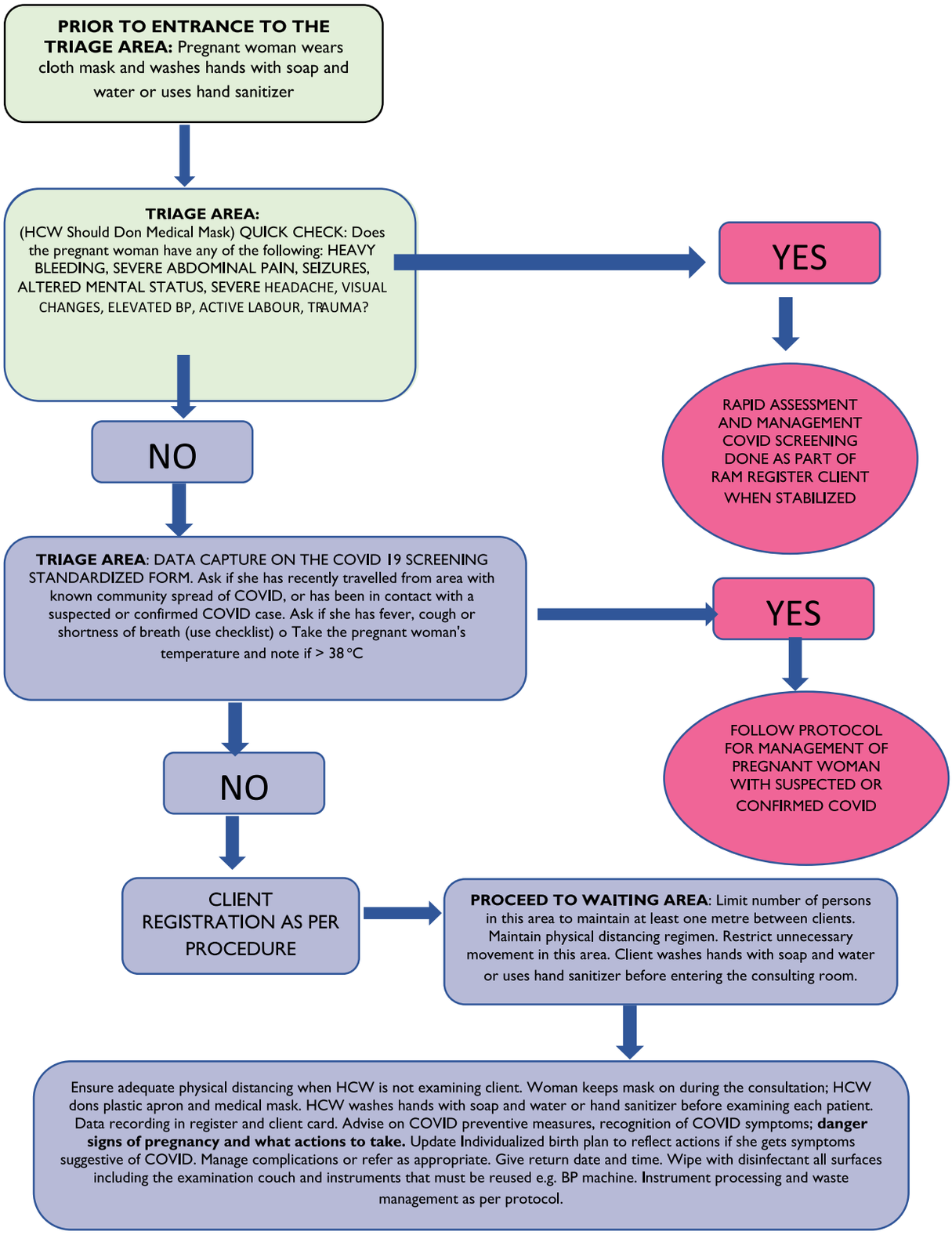
Modifying or reducing in-person postpartum outpatient care in the midst of the pandemic is appropriate to reduce the risk of inadvertent exposure.
Perform early postpartum assessments, including wound healing and blood pressure checks, with home based care, phone or telehealth.
A comprehensive postpartum visit by 12 weeks, especially in patients with comorbidities or those who lose insurance coverage at that time
Screen for postpartum depression four to eight weeks after delivery. Psychological impact of COVID-19, may include moderate to severe anxiety and we need to recognize and offer support to these women.

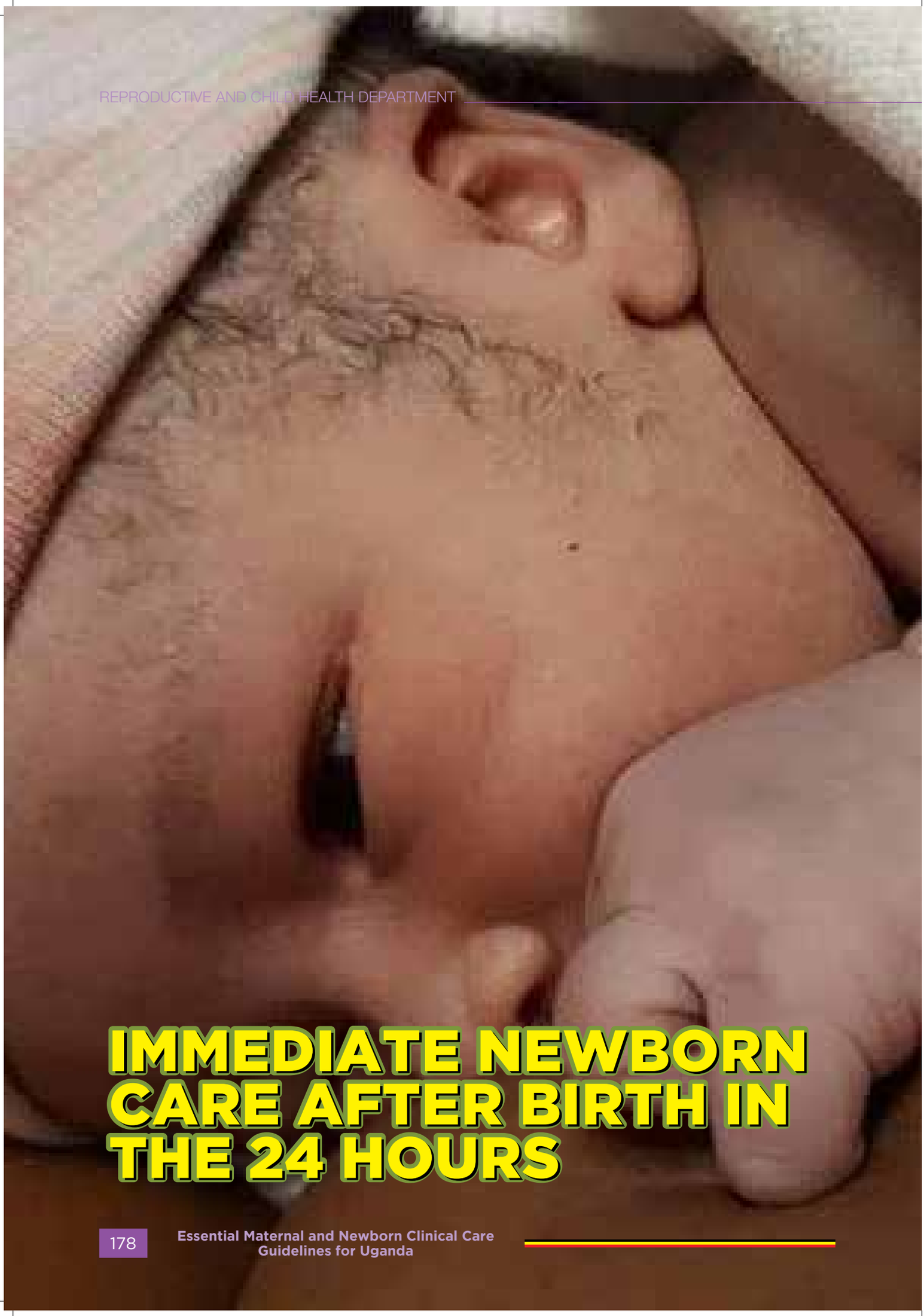
SARS-CoV-2 vaccines

Postpartum non breastfeeding mothers should be vaccinated, as in other adults.
For breastfeeding mothers, antibodies induced by maternal vaccination can pass into breast milk and may have protective effects to the baby.

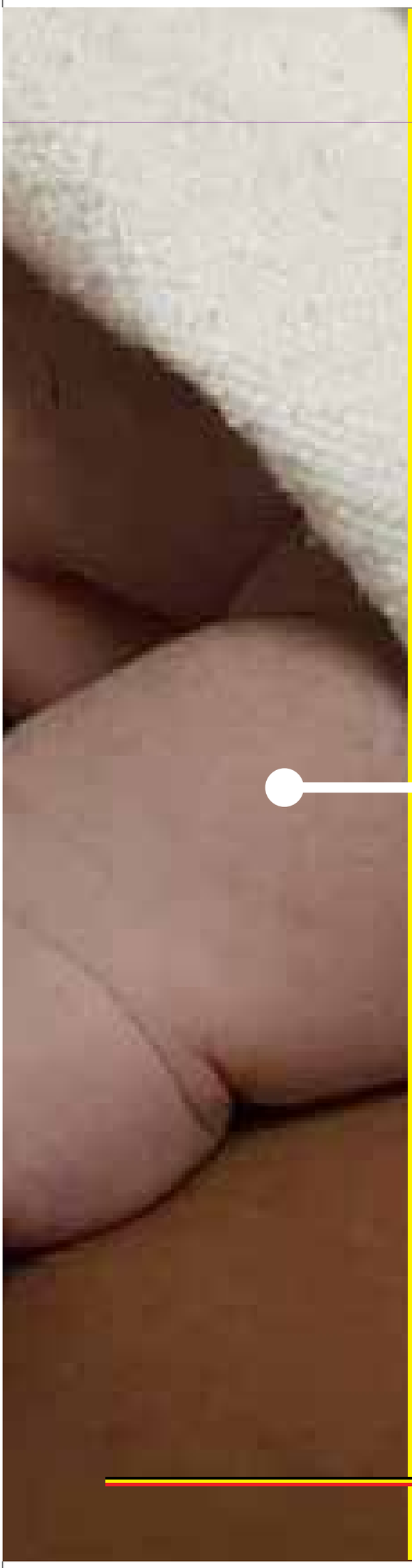
Available vaccines are unlikely to pose a risk to the breastfeeding child because the vaccines do not contain infectious virus and any vaccine that crosses into breast milk and is then ingested by the infant is likely to be inactivated by the infant's digestive system.

ANNEX II: Antenatal care for asymptomatic pregnant women or those with unknown COVID-19 status





IMMEDIATE NEWBORN CARE AFTER BIRTH IN THE 24 HOURS



NEWBORN CARE

CARE OF THE NEWBORN

A new-born is a child between the ages of 0 to 28 days, early neonatal period refers to the first week of life while the late neonatal period lasts up to the 28th day of life. Half of all new born deaths occur within the first 24 hours after birth largely due to asphyxia and respiratory distress.

Low Birthweight (LBW); baby born with birthweight <2500g

Very Low Birthweight (VLBW); baby born with birthweight <1500g

Extremely Low Birthweight (ELBW); baby born with birthweight <1000g

Pre-term (PT); baby born before 37 weeks of gestation

Full Term (FT); baby born after 37 weeks of gestation

Post-date (PD); baby born after 42 weeks of gestation

IMMEDIATE CARE AT THE TIME OF BIRTH

- **Before birth make sure you are prepared for Neonatal Resuscitation**
- **Prepare the delivery area**
- **Close the Windows**
- **Switch the Radiant warmer if available**
- **At birth immediately start the neonatal Resuscitation**

Which baby needs resuscitation?

At the time of birth ask the questions below. The baby requires resuscitation if the answer is no for breathing or crying, absent or slow heartbeat, cyanosis and tone. A baby with an Apgar score less than 7 needs to be resuscitated

- Breathing or crying (Is it absent or abnormal?)
- Muscle tone and posture?
- Is amniotic fluid clear?
- Gestation (term or preterm?)
- Absent, weak or slow heart beat?
- Abnormal skin colour other than pink?

The baby's Apgar score is assessed at 1 minute and at 5 minutes. The normal baby will have a score of seven or more

You LOOK, LISTEN and FEEL for:

A - Appearance or colour
P - Pulse or heart beat
G– Grimace of face or response to touch
A- Activity or muscle tone of the arms and lower limbs
R -Respiration

Table 12:Assess and score at 1 minute and five minutes after birth as follows:

Sign	SCORE		
	0	1	2
Appearance/colour	Blue, Pale	Body pink, extremities blue	Completely pink
Pulse/heart rate	Absent	Less than 100 beats per minute	More than 100 beats per minute
Grimace/response to Stimulus	Absent	Minimal grimace on Poking	Coughs, sneezes or cries on poking
Activity/muscle tone or movement of limbs	Limp/ Flaccid	Some flexion of limbs	Active
Respiration	Absent	Gasping, Slow irregular, Grunting	Good and regular or crying

APGAR Score interpretation: 7-10 Normal baby-no need for resuscitation; 4-6 moderate birth asphyxia; 0-3 severe birth asphyxia. All new-borns with Apgar scores < 7 at 1 minute require urgent resuscitation.

Steps of Neonatal Resuscitation

The Golden Minute

- The first one minute after birth of a baby is referred to as the golden minute.
- The golden minute can be used to clear the airway and for stimulation to help many babies breathe well. Ventilation is the most effective way to help the baby who has not responded to clearing the airway and stimulation.
- Ventilation with bag and mask carries air into the lungs. It starts the changes in the body that are necessary so that the baby can begin to breathe.
- **Within The Golden Minute the baby should be breathing well or receiving effective ventilation.** Delay in starting ventilation will mean that a baby needs ventilation longer before beginning to breathe. Delay in ventilation may cause serious injury to the brain.
- **It is important to be prepared and anticipate for resuscitation at every delivery**

What is needed for successful resuscitation?

- Prepare beforehand: Anticipation, adequate preparation, accurate evaluation and prompt initiation of support are the critical steps to successful neonatal resuscitation.
- Communication: For every delivery, there should be communication between the persons caring for the mother (may be the husband, mother, mother in-law, sister or any relative who is attending to the birth) and those responsible for resuscitation of the newly born.
- Team work: Every delivery should be attended to by a health worker who is skilled in neonatal resuscitation. Whenever possible, att least two personnel well trained in newborn resuscitation should attend to every delivery. Sometimes it may not be possible to predict which baby will need resuscitation. Personnel should inform and direct the birth attendant beforehand where he/she will go to get more assistance in case they need to call for extra help. In complicated cases extra hands are needed.

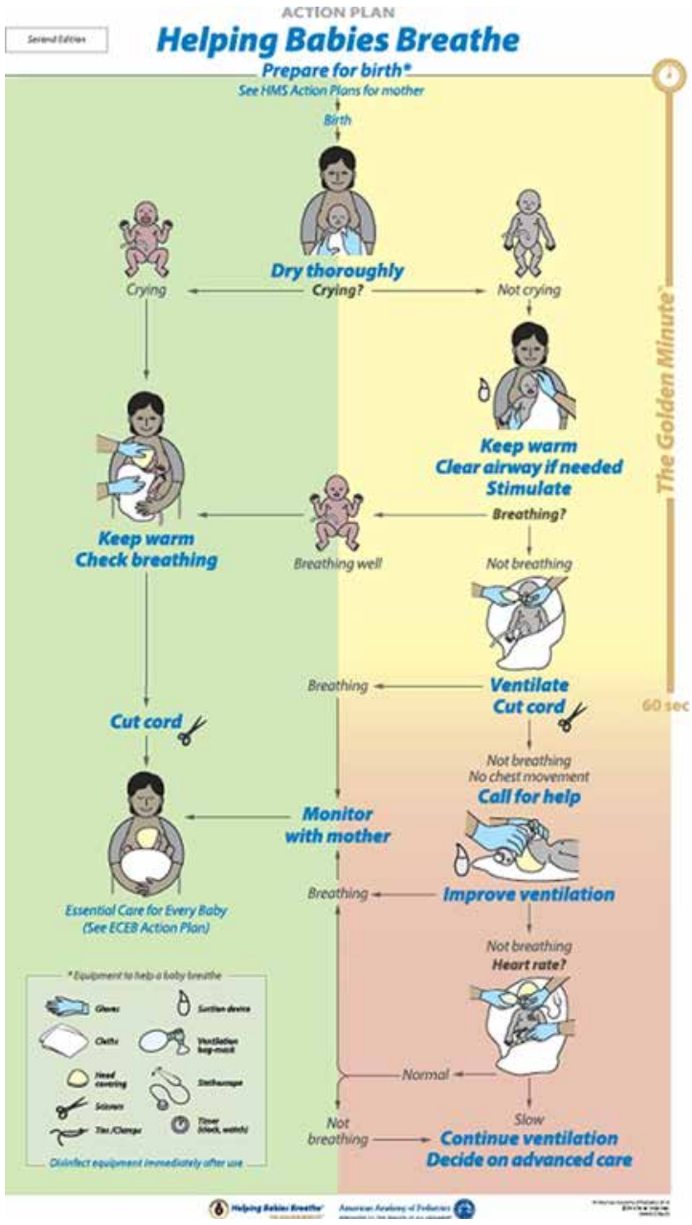
What should you have on the resuscitation table?

- Suction equipment (bulb syringe, Penguin sucker)
- Ambu bag
- Face masks (Term and Preterm sizes)
- Oxygen source (if available)
- Warm linen
- Thermometer
- Radiant warmer (if available)
- Sterile gloves
- Alcohol swabs
- Stethoscope (infant-sized head)
- Adhesive tape
- Cannula (G-24)
- Syringes (1, 2, 5, 10 and 20ml)
- Needles (G-18, 21 and 25)
- Nasogastric tubes (sizes 4,5,6)
- Volume Expanders: Normal Saline (0.9%) and Ringer's Lactate solution
- Adrenaline
- Pulse oximeter
- Clock

How to provide resuscitation:

In the health centre setting (Health Centre III – IV):

HBB algorithm



Basic steps in resuscitation:

Step 1: Keep baby warm:

- Provide warmth: Keep the delivery room warm (25 - 28 C or 77-82.4 F)
- No fans or draughts
- Dry baby immediately, head first then remove wet towel or cloth, replace with a clean dry towel or cloth
- Warm linen including two towels, cloths, blankets, sheets, hat and clothing for baby should be available

Step 2: Stimulation:

- If baby not breathing gently rub back after drying
- Stroke the baby's feet
- Baby still doesn't cry or not breathing

Step 3: Open the airway:

- Place the baby on her back.
- Position the baby's head in slightly extended position to open the airway, the neck should not be as extended as for adults.
- A rolled up piece of cloth under the baby's shoulder may be used to sustain the extension of the head

Step 4: Suction:

- Routine suction should be avoided
- Deep suctioning may cause bradycardia
- Suction the mouth and nostrils only if the baby is having difficulty breathing. Suction the mouth before the nose
- If you have no bulb syringe wipe the baby's mouth gently with a cloth and place the baby on its side

Step 5: Ventilation:

- Done using bag and mask
- Indication for ventilation:
  - Baby not breathing
  - HR less than 100beats per minute

Ventilation technique:

- Position baby's head with open airway (slight extension)
- Cover mouth and nostrils with mask
- With one hand squeeze bag 40 – 60 times per minute while holding mask with the other hand.

Watch for chest movements if no movements:

- Check the mask seal and ensure it is covering mouth and nose
- Reposition the head
- Reapply the mask
- Check for blocked airway and suction if necessary
- Continue bag and mask ventilation
- Technique for assisted ventilation:
- Assisted ventilation should be performed for one minute then stopped. Quickly assess if newborn is breathing spontaneously.
- If breathing is normal (30-60 breaths per minute) and there is no in drawing of the chest or grunting for 1 minute no further resuscitation is needed. Proceed with initial care of the new born.
- If newborn is not breathing or the breathing isn't normal continue ventilation until baby breathes. If the baby cries, stop ventilation and observe breathing for 5 minutes after baby cries. If breathing is normal (30-60 breaths per minute) and there is no grunting or chest in drawing, continue with routine care of the newborn.
- If breathing is less than 30 breaths per minute, continue ventilating. If there is severe chest in drawing ventilate with oxygen if available. Arrange to transfer baby to the most appropriate facility for care of the sick newborn.

Use of oxygen:

- Use if baby is having difficulty breathing or if cyanosis (blue baby). If baby is having severe in drawing, is gasping for breath, persistently cyanotic, increase the concentration of oxygen using a nasal catheter, nasal prongs or oxygen hood.
- **NOTE: Assisted ventilation can save the life of many newborns if performed adequately and without delay**

In the Hospital setting

Basic steps in resuscitation

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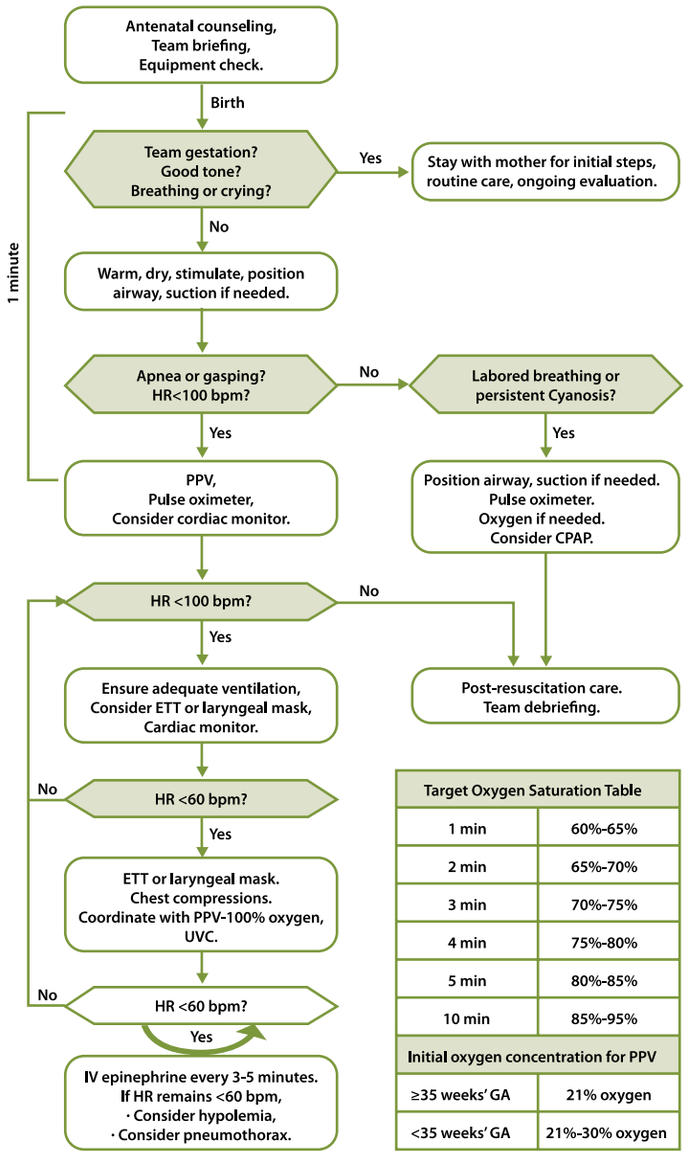


Step 6: When to proceed to chest compressions:

- Most babies needing help will respond to assisted ventilation with an increase in heart rate followed quickly by increase in RR. In some cases chest compressions may be necessary to push blood that has been oxygenated by the bag and mask into the aorta to perfuse the coronary arteries of the heart. Once blood reaches the coronaries the heart will push the oxygenated blood out into the baby's body.
- After having provided assisted ventilation for more than 1 minute, stop to assess baby's HR. The best way to do this is to either palpate the base of the umbilicus where it joins the baby's abdomen or to auscultate the baby's chest. If baby's chest HR < 60 b/min begin chest compressions.
- Ideally two health care providers work together to provide assisted ventilation and chest compressions. One provides assisted ventilation while the other does the chest compressions.
- The best method for chest compressions is to grip the chest with both hands in such a way that the two thumbs can press on the sternum just below an imaginary line joining the

baby's nipples with the fingers over the spine and back.
- Compress the chest quickly and firmly reducing the ante posterior diameter of the chest by about one third
- After each third chest compression one care provider pauses so that the other can provide ventilation. The ratio of compression to ventilations is 3:1. You say one, two and three then breathe out loud, and this gives the approximate timing...Each cycle of 3 compressions to one ventilation should last about two seconds.
- Pause after 30 seconds and assess changes in the baby HR and RR. If the HR is more than 60 /minute stop chest compressions and continue ventilation until the RR .30/min
- Observe the condition of the newborn, HR, RR, colour and tone
- If HR > 60 /min and RR >30 per minute, stop both assisted ventilation and chest compressions and observe baby's condition. Transfer baby to the most appropriate facility for care of the sick newborn.

The second method of chest compression may be used if you are alone:

- Stand to one side of the baby
- Using two fingers press down firmly on the lower third of the sternum just below an imaginary line joining the baby nipples
- Depress the chest quickly and firmly reducing the ante posterior diameter of the chest by about one third
- After each third compression, pause and provide the baby with one ventilation.
- Proceed as described above to reassess changes in the baby's well being

If a baby not breathing well after 20 minutes of resuscitation:

- Transfer baby to nearest higher level facility. During transfer keep baby warm and continue ventilation if necessary. If there is no gasping or breathing at all after 20 minutes of **EFFECTIVE** resuscitation, Stop ventilating. The baby is still born. Inform the woman and the family. Offer counselling and appropriate emotional support to family. Refer mother to appropriate follow on care. Initiate the death audit process
- Document all that was done in the babies' chart to guide the audit process

When does the baby require continuing observation and additional attention?
- A baby with any of the following danger signs will still require additional attention
- Continued observation may result into transfer of care to a higher level facility inside the same facility e.g. special care unit or a health facility with specialized service for care of the newborn.
- Continued follow up of the newborn after resuscitation is required to prevent potential deterioration of the patient's condition

Danger signs:

- Ineffective or labored breathing RR>60 breaths per minute
- HR< 100 bpm
- Cyanosis
- Pale, mottled or gray skin
- Abnormal tone
- Seizures
- Cool or warm baby
- Not feeding
- At risk of infection i.e. open wounds, premature

After neonatal Resuscitation the Following should be done in the First 60 Minutes.

1. Essential care to be provided to every newborn baby within 60 minutes after birth

- Continuing skin-skin care and monitoring breathing
- Imitating breastfeeding; Eye care, Cord care , Giving vitamin K
- Prevention of disease
- Assessment; Examination of newborn baby, Taking temperature , Weighing the baby

2. Care of a normal newborn baby

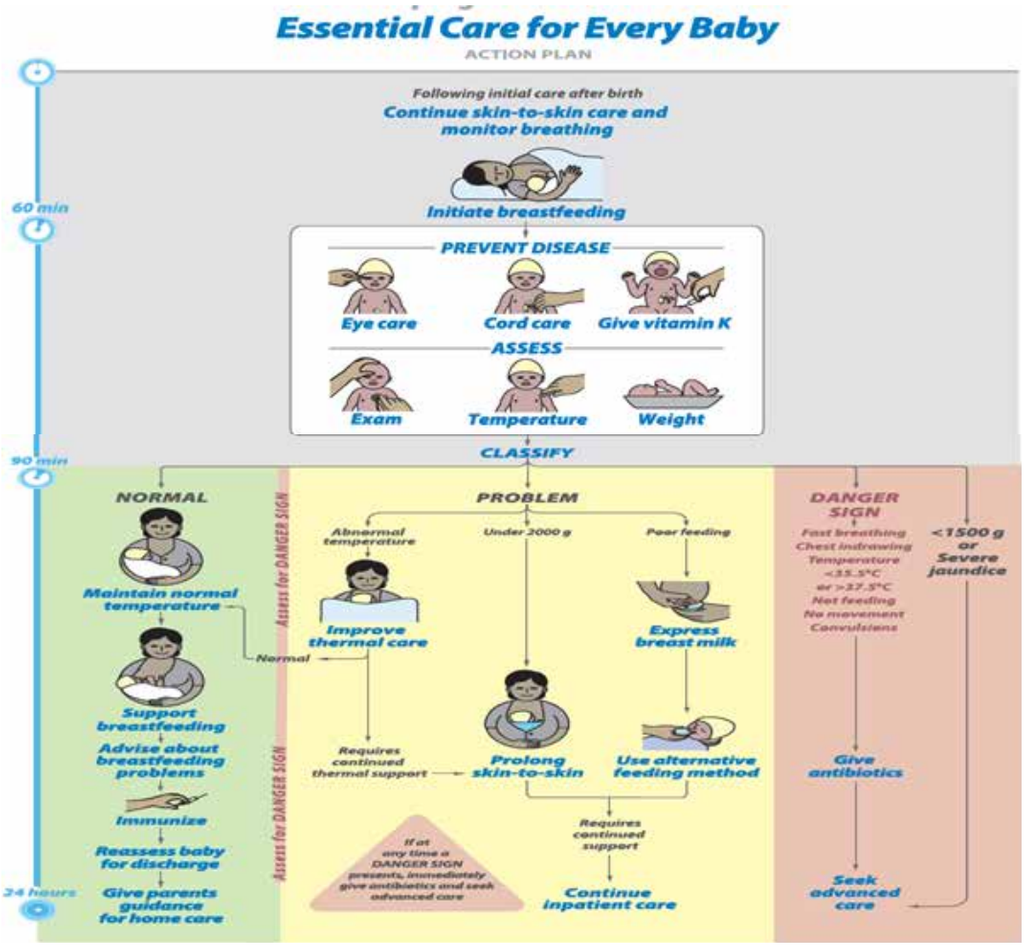
- Maintaining normal temperature
- Supporting breastfeeding - including provision about breastfeeding problems
- Immunise the baby
- Reassessment of baby for discharge
- Giving parents guidance for home care

3. Care of newborn born with problems

- Abnormal temperatures
- Provision of prolonged skin-to-skin for children under 2000g
- Provision of breast milk including use of alternative feeding methods for poor feeding

4. Care of sick newborn

- Giving antibiotics
- Referral



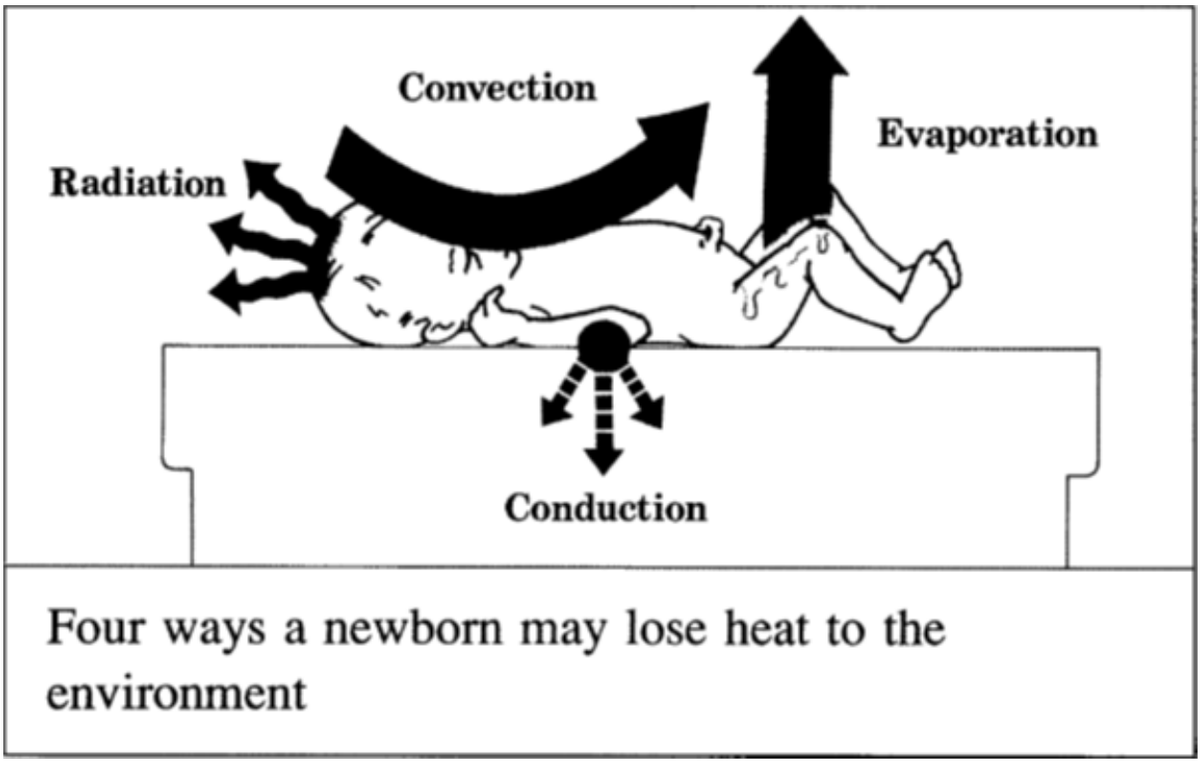
Immediate care in the first 60 Minutes

1. Thermal care in a new born

Temperature regulation immediately after birth and throughout the neonatal period is very critical for the survival of the new-born. The normal temperature range for neonates is 36.5 -37.5ºC. The highest risk of neonatal hypothermia is within the first minutes to hours after birth as there is wide difference between in utero and environmental temperature.

How do babies lose Heat immediately after Birth?

Heat loss in the first half hour is largely due to evaporation of amniotic fluid from the infant's body and the other ways are shown below:



Four ways a newborn may lose heat to the environment

Evaporation: Heat loss by evaporation occurs when fluid (amniotic fluid, water) evaporates from the wet skin to the air. This happens if the infant is not dried immediately after birth.
Conduction: Loss of body heat by conduction occurs when there is direct contact of the skin with a cooler object or surface. For example, if the infant is placed in direct contact with a cold surface - a table, weighing scale, or rubber sheet
Radiation: Heat loss occurs by radiation from the infant to cooler objects in the vicinity, even though they are not in contact with the infant, for example if an infant in a cot is placed close to a cold wall, a window or other cold object.
Convection: Heat loss occurs when the infant loses heat to the cooler surrounding air. This happens when a naked infant is exposed to a room temperature of 25°C (77°F), even though this is comfortable, and still more heat will be lost if the temperature is below 25°C (77°F).

Prevention of Heat Loss Immediately after Birth

Step 1. Ensure that, the delivery room is warm, clean and free from draughts from open windows and doors or from air conditioning systems. A room temperature of 25-28°C(77-82°F) is ideal for delivery, helps in reducing heat loss in the infant, and is comfortable for the mother.

Step 2. Immediately dry the infant thoroughly with a clean, soft towel. If the first towel is wet and the infant is not yet dry use a second towel. Then place the baby skin-to-skin contact on the mother's chest, and covering both with a Blanket and a hat.
Skin to skin will warm the infant quite readily and promotes the neutral thermal environment and also promotes bonding and early feeding. Skin to skin should at least last for One hour whenever possible.

If resuscitation is required, it is important to ensure that the initial steps of drying the infant and providing adequate warmth are carried out.

However, for babies born less than 1.5 KG, should be wrapped with a plastic polyethene bag immediately after birth, this improves the temperature and reduces Hypothermia on Admission to the NICU

After skin-to-skin care, wrap the baby in a clean, dry blanket or cloth and a Hat. Wrap securely, but not so tightly that breathing is difficult. The amount of clothing should be appropriate for the temperature around the baby. This usually means 1-2 more layers of clothes than are required for adults to be comfortable.

- **Postpone bathin**g until after the first 24hours.
- **Weigh the baby while wrapped** then check weight of wrapper and subtract from total weight.
- **Keep Mother and Baby together in the same Room**
- **Initiate Breast feeding in the First one Hour**

Step 3: Kangaroo Mother Care for all the Low birth weight babies
Encourage all mothers with Low birth weight babies to do Kangaroo mother care
Kangaroo mother care transfers Heat from mother to the Newborn baby
It prevents hypothermia and encourages breast feeding and earlier Discharge

Step 4 : However if all that is done and the baby still remains manage Hypothermia as follows: If the Radiant warmer is available Otherwise you can maintain the baby in KMC Position

a) Mild hypothermia (36-36.4oC)

- Ensure room is warm (by closing windows, doors and putting off fan, etc.)
- Ensure baby has been fed
- Rewarm by skin to skin contact or place in incubator with temperature of 32-35oC

b) Moderate hypothermia (32-35.9oC)

- Place in incubator with temperature of 35-36oC OR Rewarm the baby using skin to skin contact
- If there is evidence of severe disease, then treat for severe hypothermia
- Measure the blood glucose & feed the Baby
- Measure the temperature every hour. The temperature should increase by 0.5ºC every hour
- If baby is stable, introduce Kangaroo Mother Care (KMC)

c) Severe hypothermia (<32oC)

- Place the baby on a Radiant warmer or incubator at 38°C
- If using a servo-controlled incubator, set skin temperature at 36.5°C and ensure skin probe is fixed securely to skin and properly plugged in the incubator.
- Measure temperature after 30 minutes and then hourly until normal
- The temperature should increase by more than 0.5°C every hour
- Treat for sepsis
- Give IV fluids and monitor blood glucose, keep on nil by mouth until re-warmed
- Give oxygen by nasal prongs until the baby's temperature is normal
- Continually reassess for emergency signs. The baby is at risk for cardio-respiratory failure
- Once the baby is warmed & stable, consider KMC

Step 5: Maintain Warmth During Transport
The period when a newborn is transported is a potential weak link in the "warm chain". In general, a hypothermic infant should not be moved until warmed unless there is a high risk of death?
If possible, place the infant in skin-to-skin contact with the mother between her breasts, or with any other person. This is the best way to provide extra warmth when there are no facilities.
Where possible get an Incubator, an exothermic matress to transport a baby grom the Delivery ROOM to the postnatal ward or NICU

2. Initiate Breast feeding

Breast milk and Colostrum provide nutrition that is easy to digest and contain antibodies that protect against infection. Babies should be Initaited on breast milk in the First One Hour. Advise women about breastfeeding during antenatal visits and discuss it again before birth occurs. Starting breastfeeding soon after birth helps;

- Mothers provide enough milk later.
- The uterus contract and reduces maternal bleeding.

Some babies may not breastfeed well soon after birth, but it is important to encourage breastfeeding during this time. To encourage early breastfeeding, keep mother and baby together unless a problem separates them. Babies are often alert immediately after birth and will move toward the mother's breast but may not suck. **The health worker should teach mothers how to recognize the signs of readiness to feed that include;**

1) Eyes open
2) The baby's head slightly back
3) Tongue down and forward
4) Mouth open
5) Licking movements

3. Provide eye care - within 90 minutes after birth

Infections can pass from the mother to the newborn during birth. Infections of the eye can result in blindness.
Applying medicine to the inside of the lower lid of both eyes soon after birth can prevent these infections. The recommended eye treatment in Uganda is tetracycline eye ointment
Eye treatment can be delayed until the baby has breastfed, but provide eye care within the first 90 minutes after birth. Only medicine to prevent eye infection should be placed in the eye.

4. Provide cord care within 90 minutes to help prevent infections

Proper hygiene helps prevent infections in babies. Hygiene includes frequent hand washing, bathing the baby periodically, and proper care of the cord.

a) Cleansing after birth:

Soon after birth, remove blood or meconium (not vernix) by wiping. Do not bathe the baby until at least 6 hours after birth, and then only if the baby's temperature is normal and the baby has no serious problems. Small babies should be bathed later because they often become cold during bathing. Babies of mothers with HIV should be bathed as early as possible after birth.

b) Cord care:

Proper care of the cord may prevent infection. Keep the cord exposed and dry. DO NOT apply anything to the cord, including herbs, animal dung or other substances, unless a treatment is recommended by your health authority. Do not bandage or cover the cord. If soiled, wash the cord with clean water. If there is blood coming from the cord, place a new tie tightly around the cord.

5. Give Vitamin K,

Provision of should be within the 90 minutes but may be deferred but in the same day. The major reason for giving vitamin K is to prevent bleeding that can cause death.

Vitamin K protects babies from serious bleeding that may result in death or brain damage. Every newborn should be given vitamin K. Because this treatment is painful, it should not be given during the first hour after birth, a time when the mother and baby should not be disturbed.

Give vitamin K;

- **Around 90 minutes of age after the first complete exam.**
- **The dose of vitamin K is 1 mg (0.5 mg for babies <1500 grams),**
- **It is given intramuscularly (IM) in the front, outside of the mid-thigh.**
- **Check the volume of this dose carefully as more than one concentration may be available.**
- **Providers must wash their hands, but are not routinely required to wear gloves, during injections.**
- **Wipe the baby's skin with alcohol and use sterile technique.**
- **Do not re-use needles.**
- **Place used needles in a solid container with a lid to avoid injury and infection.**

6. Examine the baby – within 90 minutes after birth

Purpose; To tell if a baby is well or has a problem

A complete exam should be performed within 90 minutes of birth or whenever a baby appears unwell. During the exam, evaluate a baby by looking, listening and feeling. **Focus on the following features:**

- **Breathing:** A baby should breathe easily between 40-60 times a minute. Count a baby's breathing rate for one minute.
- **Movement and tone:** When active, well babies have spontaneous movements of arms and legs that are equal on both sides. Limbs are flexed at rest. The tone should be neither floppy nor rigid.
- **Skin colour:** The normal skin color of a newborn is pink, but hands and feet may still look pale or blue soon after delivery. Pink color may be difficult to detect in dark-skinned babies. The inside of the mouth should be pink in all babies. Babies with jaundice may have yellow skin. Recognizing jaundice is important because severe jaundice may require advanced care.
- **Cord appearance:** On the initial exam, there should be no drainage or bleeding from the cord.

7. Measure temperature within 90 minutes after birth

Purpose; To identify babies who require special care

Keeping body temperature normal helps a baby stay healthy. Low temperature can cause death. It is better to prevent low temperature than to warm a baby who is cold. Monitor temperature in the first hours after birth. Low temperature is common among premature and low-weight babies. Prevent or correct low temperature with changes in care.

- **The normal temperature range is 36.5-37.5 °C.**
- **A temperature 35.5 °C-36.4 °C requires improved thermal care.**
- **A temperature below 35.5 °C is a Danger Sign.**
- **A temperature above 37.5 °C not due to over-warming (for example being placed in direct sunlight) is a Danger Sign.**
- **Feeling the skin of the face, abdomen, or foot can estimate the temperature, but measuring the temperature is more exact.**
- **Measuring temperature in the armpit (axilla) is safer than measuring a rectal temperature.**
- **The health provider should measure temperature in all babies within 90 minutes, after birth.**

A thermometer used with babies must measure temperatures below 35.5 °C

8. Weigh the baby within 90 minutes after birth

Purpose; To help identify babies at higher risk

Birth weight;

- Identifies babies who may need special Care and may be necessary for calculating drug doses. Use scales designed for weighing babies.
- All babies should be weighed within 90 minutes of birth.
- The baby should not be weighed during the initial period of skin-to-skin care (for at least the first hour after birth).
- Use scales designed for weighing babies. Take the scale to the mother and baby. Zero the scale before each use. Clean the scales with diluted bleach solution or other safe cleaning product before each use to prevent infection.
- Always document birth weight on the form used in your facility for this purpose, for example the baby's medical record or the immunization record.
- **Babies with birth weights under 2500 grams may require special care to prevent low body temperature.**
- **Babies with birth weight under 2000 grams should**
  - **receive prolonged skin-to-skin care (see Prolong skin-to-skin care,)**.
  - These babies may need alternative feeding methods and more frequent assessment to identify problems and Danger Signs.
- **Babies with birth weights less than 1500 grams should be referred for advanced care when possible.**

9. How babies are classified within 60 minutes after birth

Purpose; To determine the need for further care

At about 90 minutes following birth, babies should be classified as **normal and well, having a problem or needing advanced care.**

Classification is based on the baby's weight, temperature and exam.

- Well babies breathe at a normal rate (40-60 per minute) without effort, have a temperature of 36.5-37.5 °C, and weigh >2500 grams.
- Babies who have a problem may have a temperature of 35.5-36.5 °C, birth weight of 1500-

2500 grams, or may feed poorly.

- Babies needing advanced care may have a Danger Sign, severe jaundice or a birth

Some babies do not attach to the breast during the first 90 minutes after birth and therefore do not feed. If these babies are normal in all other ways, feeding should be attempted again. Babies who do not feed after several attempts should be classified as having a Danger Sign. **All babies should be classified by 4 hours of age.**

CARE PROVIDED FOR NEWBORN IDENTIFIED WITH DANGER SIGN

1. ASSESS FOR DANGER SIGNS;

Every newborn baby should be assessed for danger signs within the first 90 minutes, periodically during the first day and at any time if you suspect a problem.

Danger Signs

Danger signs are caused by infection or other serious conditions and indicate that a baby may die. All babies should be assessed for Danger Signs in the first 90 minutes after birth and frequently during the hospitalization. A baby with a Danger Sign needs urgent antibiotic treatment and advanced care.

The following are the Danger Signs:

- **Fast breathing and chest in-drawing** can be caused by pneumonia or sepsis. Chest in-drawing means the spaces between, above or below the ribs indent with each breath. Fast breathing is a breathing rate more than 60 breaths per minute. Babies with breathing problems may also have a blue color of the skin and inside the mouth.
  Give Oxygen or CPAP if at health center 111 or IV before refferal
- **Temperature that is too low (<35.5°C) or high (>37.5°C)** is a sign of infection. A temperature that is 35.5-36.4°C and does not rise with re-warming is also a Danger Sign.
  This baby may need a radiant warmer and you have continue KMC
- **Not feeding** may be a sign of infection, prematurity, or other serious problems.
  If possible Pass NGT, Express breast milk and start feeding
- No movement, or very little movement, even when stimulated, may be a sign of infection or other serious problems
  Needs urgent referral to the Higher Unit
- Convulsions are repeated back-and-forth movements of the arms and legs that cannot be stopped by holding the arm or leg. Jitteriness of the arms and legs may look like convulsions but is a less serious problem. Unlike convulsions, jitteriness can be caused by a stimulus such as a loud noise or sudden movement. Jitteriness can be stopped by holding the arms and legs.

A baby with a Danger Sign needs urgent antibiotic treatment and give phernobarbitone Pass NGT tube and feed the baby

2. PROLONG SKIN-TO-SKIN CARE WHEN A BABY CANNOT MAINTAIN NORMAL TEMEPRATURE WHEN WRAPPED OR WEIGHS LESS THAN 2000 GRAMS

To keep the baby warm

Babies with birth weights <2000 grams and babies who have low temperatures while in dry clothing and wrapped properly may need prolonged skin-to-skin care to maintain normal body temperature. Prolonged skin-to-skin care also allows frequent

Breast feeding and may increase bonding between the mother and baby.

Prolonged skin-to-skin care should be provided as much as possible throughout the day and night. During prolonged skin-to-skin care, the mother can stand, walk and move about freely. Other family members can also provide prolonged skin-to-skin care.

Small or premature babies may have other needs in addition to prolonged skin-to-skin care, including the need for special feeding techniques. Together this care is often called Kangaroo Mother Care (KMC). KMC should be provided in an organized program where care is supervised by a provider.

Kangaroo Mother Care

Kangaroo mother care (KMC) is a method of caring for newborn infants. In this method the infant in placed between mother's breasts in direct skin-to-skin contact. It is particularly useful in caring for low birth weight infants below 2000 grams.

The main components of kangaroo mother care are:

- Skin to skin contact: This component involves direct skin-to-skin contact of the newborn with the mother. It should be started early and continued for prolonged periods of time.
- Exclusive breastfeeding: Most of the babies below 2000 grams should gain weight adequately on exclusive breast milk feeding.
- Physical, emotional and educational support: This should be provided by the nursing and medical staff to the mother and the family.
- Early discharge and follow up: KMC should be initiated in the hospital under supervision. KMC facilitates early discharge from the hospital and this practice should be continued at home. These babies should be followed up regularly to ensure a normal outcome.

Benefits of KMC

KMC has been shown to have benefits on

- **Breastfeeding:** KMC results in increased breastfeeding rate as well as increased duration of breastfeeding. Even where skin-to-skin contact is initiated late and for a limited amount of period per day, it has been shown to be a beneficial on breastfeeding.
- **Thermal control and metabolism:** Prolonged skin-to-skin contacts between the mother and her preterm/ LBW infant provides effective thermal control and are associated with a reduced risk of hypothermia. KMC can results in normal temperature during the procedure without any risk of hypothermia during the KMC.

KMC satisfies all five senses of the baby. The baby feels warmth of mother through skin-to-skin contact (touch), she listens to mother's voice & heart beat (hearing), sucks on breast (taste) has eye contact with mother (vision) and smells mother's odour (olfaction).

- Growth: Infants cared for by KMC have a slightly better daily weight gain during hospital stay.
- **Other effects:** KMC helps both infants and parents. These include;
  - Mothers report being significantly less stressed during kangaroo care than when the baby is receiving incubator care.
  - Mothers prefer skin-to-skin contact to conventional care and report increased confidence, self-esteem, and feeling of fulfilment, a sense of empowerment,

confidence and a satisfaction that they can do something positive for their preterm infants.
- Fathers felt more relaxed, comfortable and better bonded while providing kangaroo care.

KMC does not require additional staff compared to incubator care. KMC is acceptable to the mothers and the health-care staff working in the hospital.

Eligibility criteria for KMC

Baby

All babies are eligible for KMC. However very sick babies needing special care may preferably be cared under radiant warmer and KMC can be started after the baby has become stable. Some guidelines for practicing KMC include

1. Birth weight ≥1500gm: If stable, can be started on KMC soon after birth.
2. Birth weight < 1500gm: In such case the delivery should take place in a equipped facility, which can provide neonatal care. Should delivery occur elsewhere, the baby should be transferred to such facility soon after birth, preferably with the mother. One of the best ways of transporting small babies is keeping them in continuous skin-to-skin contact with the mother. It may take a couple of days for a sick baby to become stable before KMC can be initiated.

Mother;

All mothers can provide KMC, irrespective of age, parity, education, culture and religion. The following aspects must be taken into consideration when counseling for KMC:

- **Willingness:** The mother must be willing to provide KMC. Healthcare professionals should counsel her adequately regarding different aspects of KMC. Once mother knows about KMC, she will be willing to provide KMC to her baby.
- **General health:** If the mother has suffered from complications during pregnancy or delivery or is otherwise ill, she should recover reasonably well before she can initiate KMC.
- **Supportive family:** She needs support to deal with other responsibilities at home. The other family members e.g. father or grandmother should also be encouraged to provide kangaroo care to the LBW baby.
- **Supportive community:** This is particularly important when there are social, economic or family constraints.

KMC can be provided using any front open garment.

Initiation of KMC

- **Counselling:** When baby is ready for KMC, arrange a time with the mother that is convenient for her and her baby. The first session is important and requires time and undivided attention. Ask her to wear light, loose clothing. Provide a warm place for her. Respect her requirement of privacy while providing KMC. Encourage her to bring her other relatives or her husband if she wishes, as it helps to lend support and reassurance. Unless they are convinced, it will not be possible for the mother to do KMC at home.
- **Baby clothing:** Baby should be naked except cap, socks and nappy.
- **Kangaroo positioning:**
  - The baby should be placed between the mother's breasts in an upright position.
  - The head should be turned to one side and in slightly extended position. This slightly extended head position keeps the airway open and allows eye-to-eye contact between the mother and the baby.
  - Avoid both forward flexion and hyperextension of the head.

- The hips should be flexed and abducted in a "frog" position; the elbows should also be flexed.
- Baby's abdomen should be somewhere at the level of the mother's epigastrium, this way baby has enough room for abdominal breathing.
- Mother's breathing stimulates the baby, thus reducing the occurrence of apnoea.
- Mother can provide KMC sitting or reclining in a bed or a chair. She can keep herself in slightly backward reclining position and support baby's body and neck using her own hand.

- **Feeding:** The mother should be explained that she should breastfeed in the kangaroo position and that KMC actually makes breastfeeding easier. Furthermore, holding the baby near the breast stimulates milk production.
- **Psychological support:** The mother should be encouraged to ask for help if she is worried. The health personnel should be prepared to respond to her questions and anxieties.

When mother is not available, other family member such as grandmother, father or other relative can provide KMC.

Time of initiation

KMC can be started;

- As soon as the baby is stable.
- Babies with severe illness or requiring special treatment should wait until they are reasonably stable before KMC can be initiated.
- During this period babies are treated according to neonatal unit clinical guidelines.
- Short KMC sessions can be initiated during recovery with ongoing medical treatment (IV fluids, low concentration of oxygen).
- KMC can be provided while the baby is being fed via nasogastric tube (NGT).
- Once the baby begins to recover, family members should be motivated to practice KMC.

Duration of KMC

Skin-to-skin contact should;

- Start gradually, with a smooth transition from conventional care to continuous KMC.
- Sessions that last less than one hour should, however, be avoided because frequent handling may be too stressful for the baby.
- The length of skin-to-skin contacts should gradually be increased to become as prolonged as possible, interrupted only for changing diapers, especially where no other means of thermal control are available.
- When the mother needs to be away from her baby, other family members (father, grandmother etc.) can also help by caring for the baby in skin-to-skin kangaroo position.

It may not be possible for mother to provide KMC for prolonged period in the beginning. Encourage her to increase the duration each time. The aim should be to provide KMC as long as possible.

The mother can sleep with the baby in kangaroo position in a reclined or semi-recumbent position, about 15 degree from horizontal. This can be achieved with an adjustable bed, if available, or with several pillows on an ordinary bed. It has been observed that this position may decrease the risk of apnoea for the

baby. If the mother finds the semi-recumbent uncomfortable, allow her to sleep as she prefers and she can continue KMC as much as possible. A comfortable chair with adjustable back may be useful for resting during the day.

Discharge criteria for baby mother practicing KMC

Usually, a KMC baby can be discharged from the hospital when the following criteria are met:

- The baby's general health is good and there is no concurrent disease such as apnoea or infection.
- Baby is feeding well, and is receiving exclusively or predominantly breast milk.
- Baby is gaining weight (at least 15g/kg/day for at least three consecutive days) and has regained birth weight.
- Baby's temperature is stable in the KMC position (within the normal range for at least three consecutive days).
- The mother is confident of taking care of her baby at home and would be able to come regularly for follow-up visits.

These criteria are usually met by the time baby weighs around 1500gm. The home environment is also very important for the successful outcome of KMC. The mother should go back to a warm, smoke-free home. She should have support for everyday household tasks.

How long to continue KMC?

Babies love to be cared skin-to-skin with mothers after going home. This should be continued for some time at home and other family members can also participate in providing KMC. It can be weaned off, once the baby starts becoming intolerant to the procedure or at 40 weeks of post conceptional age.

Follow up plan

The smaller the baby at discharge, the earlier and more frequent follow-up visits would be needed. If the baby is discharged in accordance with the above criteria, the following suggestions would be valid in most circumstances. More frequent visits should be made if baby is not growing well or if his condition demands.

- One follow-up visit every 2 weeks period till weight of the baby is 3 kg.
- Thereafter one follow-up per month till 6 months of age.
- One follow-up every three months till one year of age.

3. EXPRESS BREAST MILK

Purpose; To provide breast milk for an alternative method or to relieve engorgement

- Expressed breast milk is indicated when a baby cannot feed directly from the breast or the breasts are engorged.
- Mothers may express milk from their breasts to feed babies who are unable to feed from the breast.
- Some mothers may express milk to relieve engorgement.
- Milk should be expressed at approximately the same frequency as breastfeeding.
- Breast milk may be produced in small amounts initially, but production typically increases after 2-3 days.
- Before expressing milk, mothers should clean their hands with soap and water, and clean their breasts with water but not soap. Collect breast milk in a clean container with a lid if it is to be stored.
- Keep in a cool place for up to 6 hours, or up to 24 hours if refrigerated. Use freshly expressed milk whenever possible.

4. USE AN ALTERNATIVE METHOD TO FEED BREAST MILK

Purpose; to provide breast milk until breastfeeding can be established

This imitative is indicated when the baby cannot feed directly from the breast. Some small babies, sick babies, or those with an abnormality such as cleft lip and palate, may have difficulty feeding. They may be able to swallow but cannot suck effectively, or they may suck effectively for a brief period but tire after taking a small amount of milk. These babies may benefit from being fed expressed milk using an alternate method. Milk can be fed with a cup, or spoon. The baby is ready to feed when;

- **Awake, looking around, with mouth**

open and licking.

- **Allow the baby to lick the milk from the cup or other device rather than pouring milk into the mouth.**
- **Start with 2-5 mL/kg per feeding and gradually increase the amount.**
- **The total intake on the day of birth should be 40-60 mL/kg.**
- **The intake should increase at least 20-30 mL/kg/day until 150 mL/kg/day is reached.**
- **Consider referral for advanced care if a baby is unable to swallow or cannot take these amounts.**

5. GIVE ANTIBIOTICS

Purpose; to reduce the risk of death

Antibiotics are required if a baby has a danger sign.

- Infection in a baby can cause death. A baby with a Danger Sign is at high risk for having an infection and needs urgent antibiotic treatment and advanced care.
- **Ampicillin and Gentamicin are often used to treat infection in babies.**
- Give the first doses of antibiotics as soon as possible after the identification of a Danger Sign because early treatment may prevent death.
- The doses will depend on the weight of the baby and the antibiotics used.
- If possible, a blood culture should be obtained before antibiotics are given.
- Typically, antibiotic treatment is given for at least 5 days.

6. RECOGNISE SEVERE JAUNDICE

Purpose; To begin treatment and arrange advanced care

- Jaundice is often recognised when the face is yellow on the first day, or the palms and soles at any time
- Jaundice is a yellow color of the skin caused by high blood levels of bilirubin. Bilirubin comes from breakdown of red blood cells. High levels of bilirubin can cause brain damage or death.
- All babies have some jaundice and commonly occurs among babies, who are premature, have infections or certain blood disorders, or who feed poorly.
- Jaundice first appears on the head. As bilirubin levels rise, jaundice moves down the body. When bilirubin levels are very high, the palms and soles are yellow.
- Jaundice is severe if it appears on the face during the first day of life or is seen on the palms and soles at any time.
- Jaundice can be difficult to detect in dark-skinned babies. Pressing the skin with a finger and then releasing the pressure may help detect jaundice in those babies.
- Severe jaundice can cause death or permanent injury and requires urgent advanced care.
- In all babies with jaundice, encourage breastfeeding every 2-3 hours. When breastfeeding is not possible, feed by cup or spoon.

REFERRAL OF A SICK NEWBORN

Purpose; It is to Seek advanced care to provide adequate monitoring and treatment

Who Should Be Referred?

- A baby with a Danger sign - Seizures, Respiratory distress,
- Babies whose weight is < 1500g,
- has severe jaundice
- Needs extra support for another problem. \
- Apnoea
- Persistent Vomiting / Bile stained Vomitus
- Surgical Problems

Why is Referral needed

- Treatment with antibiotics will need to complete a full course of antibiotics (usually at least 5 days).
- Poor feeding, where intravenous fluids may be needed.
- Breathing problem, where oxygen or CPAP may be needed.
- Convulsions, may need Phernobarbitone or Phenytoin
- Birth weight <1500g where advanced care is required that may include intravenous fluids or tube feedings, Use of CPAP, Incubators
- Severe jaundice where special treatment with phototherapy or an exchange transfusion is required.

Why is Referral needed

- Treatment with antibiotics will need to complete a full course of antibiotics (usually at least 5 days).
- Poor feeding, where intravenous fluids may be needed.
- Breathing problem, where oxygen or CPAP may be needed.
- Convulsions, may need Phernobarbitone or Phenytoin
- Birth weight <1500g where advanced care is required that may include intravenous fluids or tube feedings, Use of CPAP, Incubators
- Severe jaundice where special treatment with phototherapy or an exchange transfusion is required.

What to do before Referral

- Prevent Hypothermia
- Prevent Hypoglycemia
- Treat, and Give antibiotics
- Communicate to the unit above and order for transport
- Maintain air way and oxygenation

Prevent Hypothermia

- By putting a baby on radiant warmer or Incubator for the small baby
- If these not Available, the Baby can be initiated on KMC
- Ensure that the baby is dressed appropriate

Prevent Hypoglycaemia

- NGT tube for feeding
- Express breast milk and start feeding
- - According to the Guidelines
- IV dextrose 10% According to the guidelines (Small and sick newborn)

Maintain Airway and provide oxygen

- For all with difficulty in breathing
- You may clear air way with suction
- Provide Oxygen

Treat Infection

- For all with danger signs
- Ensure you have started Ampicillin and Gentamycin

Apnea

- For all Babies less than 1.5kg
- Give a loading dose of Aminopylline 6mg IV Or Caffeine Citrate 20mg/kg

Seizures

- You may give a loading dose of Phernobarbitone 20mg/Kg/day

Communication

- Explain condition and reasons for transport to family.
- Communication with referral unit regarding condition of baby, approximate time of arrival, working diagnosis, what has already been done
- Arrange for referral note mentioning reasons for transfer, medications given along with dose and timings

OTHERS

INFECTION PREVENTION

These are precautions taken to protect the woman, her baby, health providers, the community and environment from contamination by infectious agents.
They are practical, evidence-based procedures carried out with the intent of preventing patients and health workers from infections.

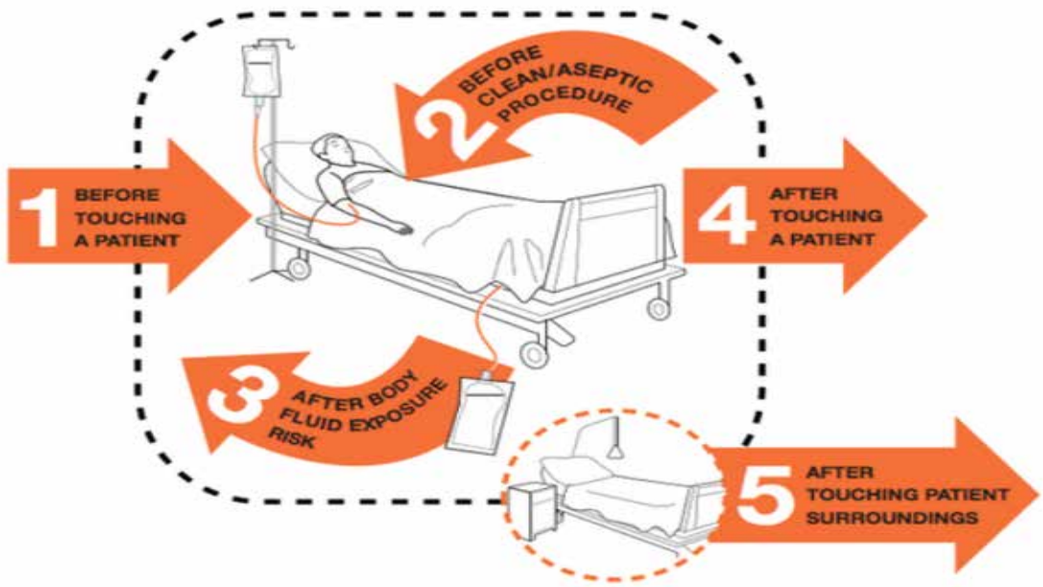
Essential elements of infection prevention

1. Hand washing / hygiene
2. Personal protective equipment or barriers
3. Proper handling of sharps
4. Proper processing of instruments and materials
5. Environmental cleanliness
6. Proper infectious waste disposal
7. Aseptic technique

1. Hand hygiene

- Hand washing is the single most important measure for the prevention of infection.
- Hand washing removes contamination and decreases the natural bacterial load
- Keep nails short.

Your 5 moments for Hand hygiene



Adapted from WHO

How Should We Wash Our Hands?

- Use clean running water and liquid soap for each person
- Use flowing water, not standing pools of water
- Use transparent plastic water containers and change the water every 24 hours
- Encourage hand air drying or use sterile paper towels. Blow drying is not encouraged.

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

Duration of the entire procedure: 40-60 seconds

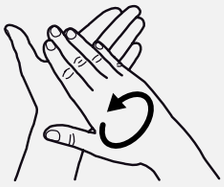
0

Wet hands with water;

1

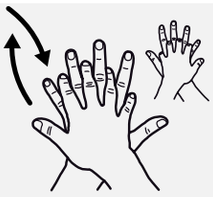
Apply enough soap to cover all hand surfaces;

2



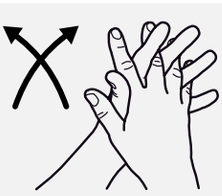
Rub hands palm to palm;

3



Right palm over left dorsum with interlaced fingers and vice versa;

4

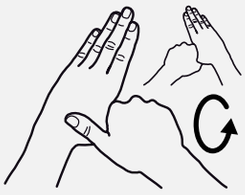


Palm to palm with fingers interlaced;

5

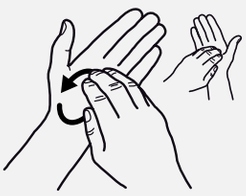
Backs of fingers to opposing palms with fingers interlocked;

6



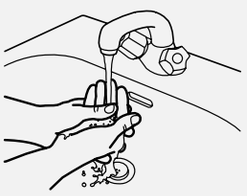
Rotational rubbing of left thumb clasped in right palm and vice versa;

7



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

8

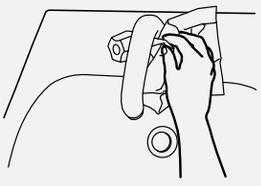


Rinse hands with water;

9

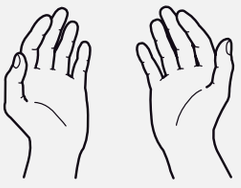
Dry hands thoroughly with a single use towel;

10



Use towel to turn off faucet;

11



Your hands are now safe.

World Health Organization | Patient Safety — A World Alliance for Safer Health Care | SAVE LIVES — Clean **Your** Hands

2. Personal protective equipment or barriers

Barriers must be worn whenever a particular part of the body is likely to be exposed to blood or body fluids. Personal protective equipment (PPE) include; gloves, face masks, goggles, gowns, plastic or rubber aprons, gumboots and drapes. Highly infectious diseases require specialized PPE in addition to the above mentioned like coveralls (Hazmat suits), body gowns etc.

Note: *The type of PPE to be worn depends on the anticipated risk or exposure*

When Do We Wear Gloves?

- Gloves should be readily available in all types and sizes
- Wear gloves when contact with blood or fluids to your hands is likely
- Change gloves between patients
- Remove gloves before touching other items.

Wear Surgical gloves when;

- performing vaginal examination,
- delivery,
- cord cutting,
- repair of episiotomy or tear
- surgery

Wear gynaecological gloves for;

- Manual removal of placenta.
- Internal podalic version
- Bimanual uterine compression

Wear examination gloves when:

- Handling and cleaning instruments
- Handling contaminated waste
- Cleaning blood and body fluid spills
- Drawing blood.

Wear heavy duty gloves for;

- Instrument processing
- Handling the patients bed, linen and environment
- Mortuary procedures
- Ward and compound cleaning

Protect yourself from blood and other body fluids during deliveries

- Wear gloves; cover any cuts, abrasions or broken skin with a waterproof bandage; take care when handling any sharp instruments (use good light); and practice safe sharps disposal.
- Wear a long apron made from plastic or other fluid resistant material, and closed shoes, clogs and gumboots.

- Protect your eyes from splashes of blood with face shields or goggles.

3. Proper handling of sharps

Practice safe sharps disposal

- Keep a puncture resistant sharps container nearby.
- Use each needle and syringe only once.
- Do not recap, bend or break needles after giving an injection.
- Drop all used (disposable) needles, plastic syringes and blades directly into this container, without recapping, and without passing to another person.
- Empty or send for incineration when the container is three-quarters full.

4. Proper infectious waste disposal

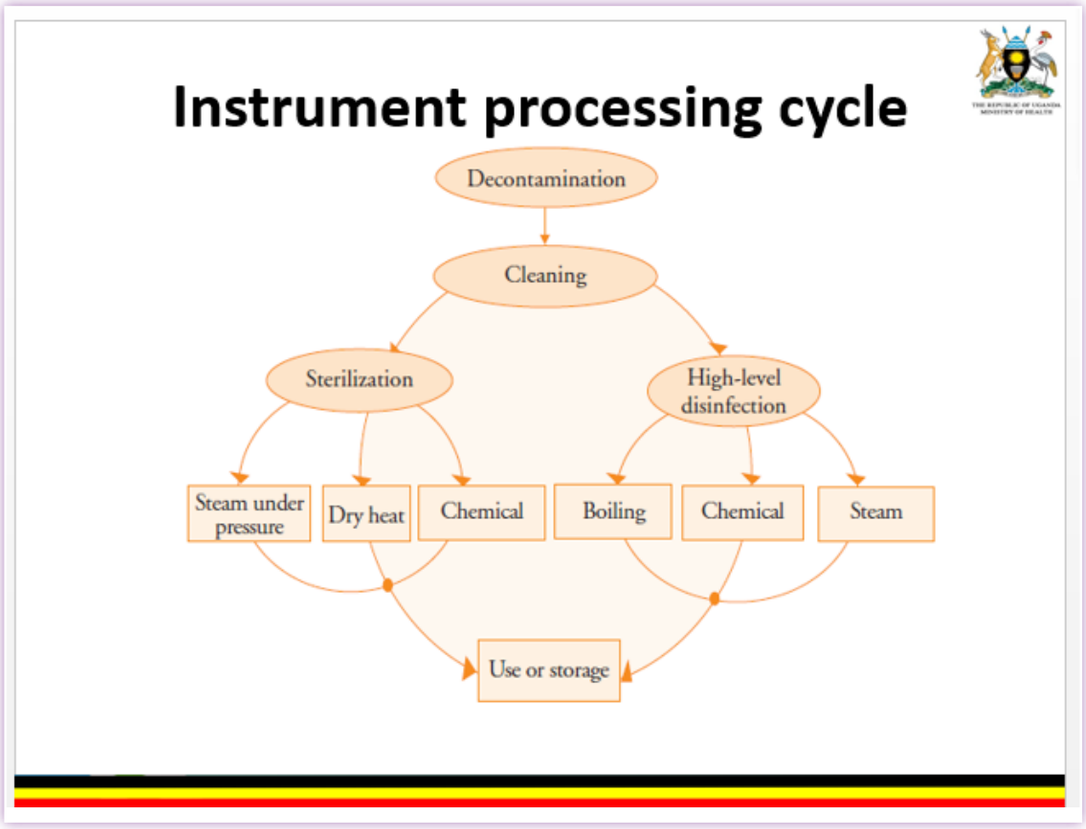
Have colour coded waste bins with matching bin liners at the points of waste generation,

- Red for highly infectious like blood stained items, used blood giving sets, placenta etc.,
- Yellow for infectious waste like used giving sets etc,
- Black for non-infectious waste like papers, food scraps etc,
- Brown for pharmaceutical wastes like empty vials etc

Practice safe waste disposal

- Dispose of placenta or blood, or body fluid contaminated items, in leak-proof containers.
- Burn or bury contaminated solid waste.
- Wash hands, gloves and containers after disposal of infectious waste.
- Pour liquid waste down a drain or flushable toilet.
- Wash hands after disposal of infectious waste.
- Appropriate placenta pits
- Use toxic waste transport companies for safe disposal

5. Proper processing of instruments and materials

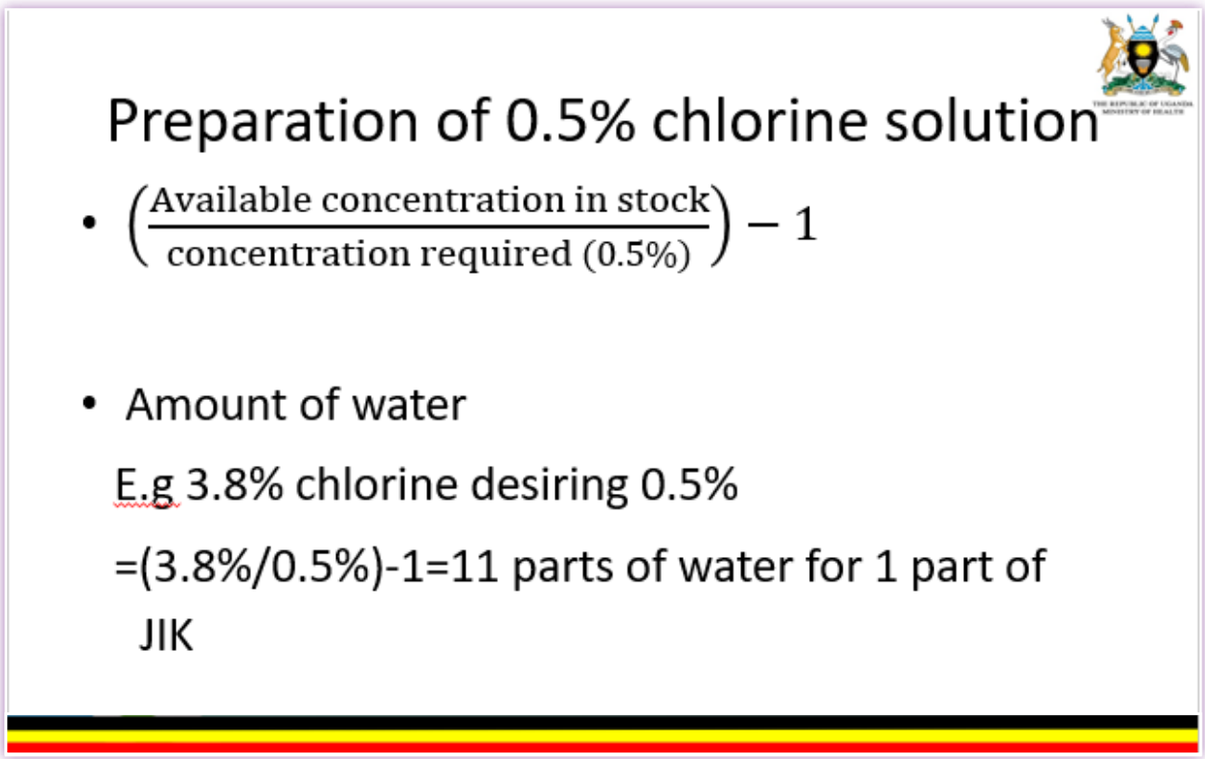


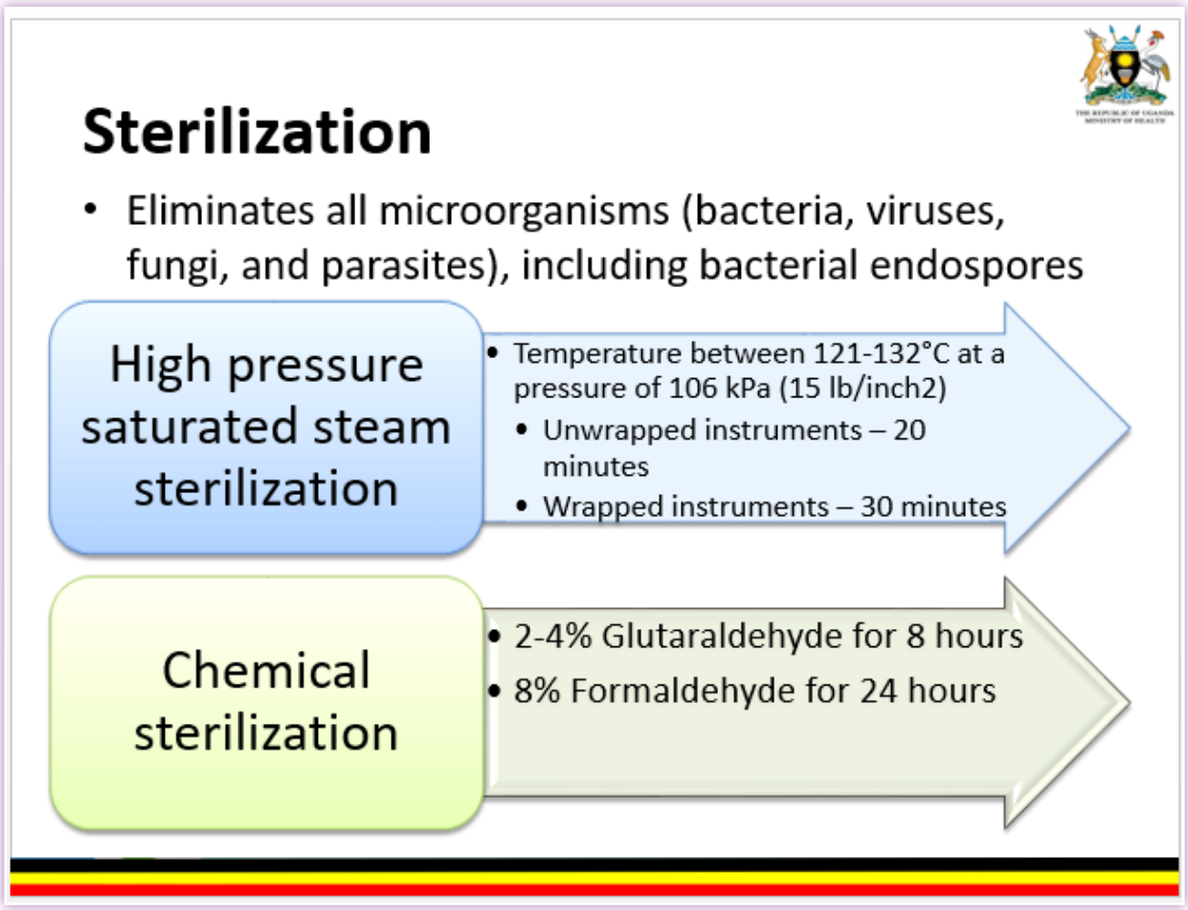
Deal with contaminated laundry with 0.5% chlorine solution for decontamination

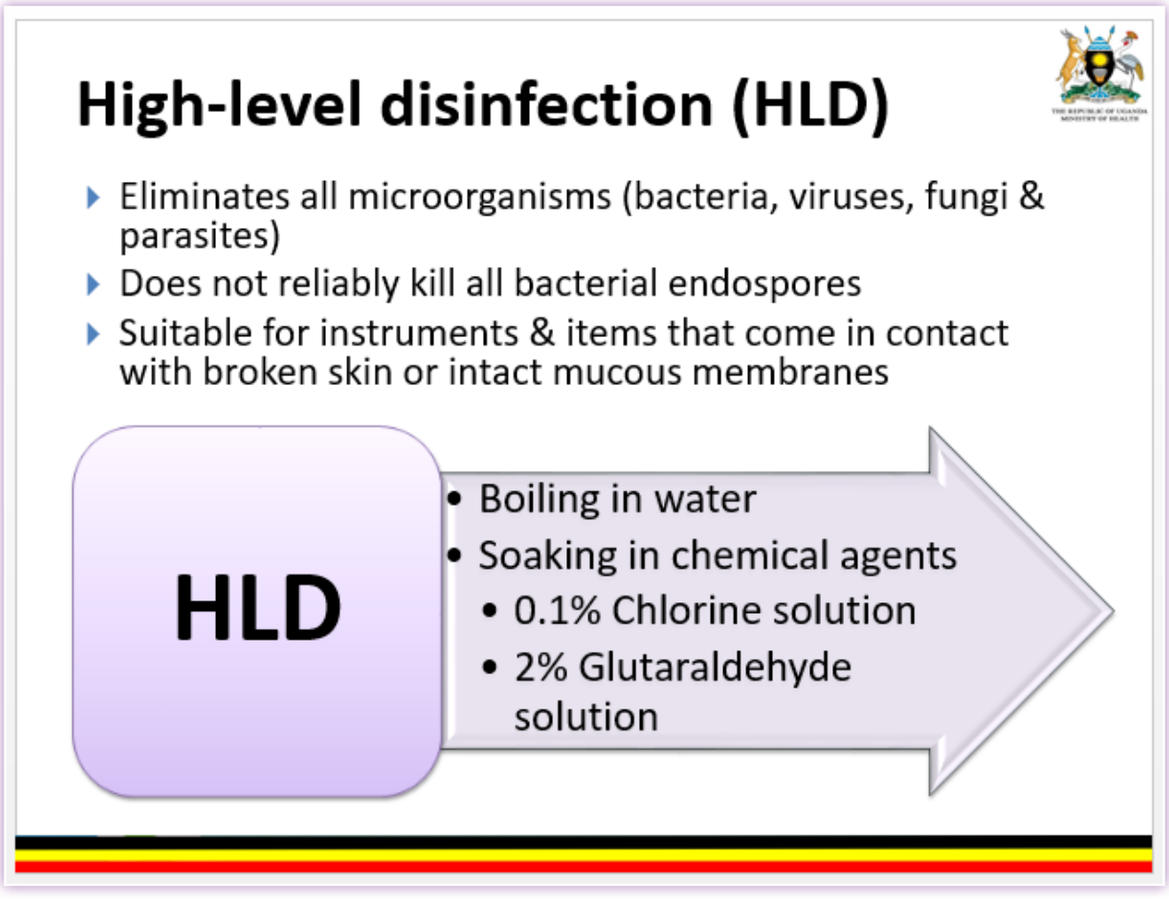
- Collect clothing or sheets stained with blood or body fluids and keep them separately from other laundry, wearing heavy duty gloves or use a plastic bag. DO NOT touch them directly.
- Rinse off blood or other body tissues and fluids before washing with soap.

Clean contaminated equipment and then sterilize

- Make sure that instruments which penetrate the skin (such as needles) are adequately sterilized, or that single-use instruments are disposed of after one use.
- Thoroughly clean or disinfect any equipment which comes into contact with intact skin (according to instructions).
- After use, decontaminate (make safe to handle) the equipment by submerging in a bucket with 0.5% bleach for 10 minutes, then transfer the equipment into soapy water and clean thoroughly with a brush and finally rinse in clean water.
- Dry the instruments on a rack
- Double pack the instruments in preparation for sterilization by autoclaving
- Sterilization can also be done using dry heat.
- High-level disinfection (HLD) by boiling (rolling boil instruments for 20 minutes) or steaming or chemicals like chlorine and glutaraldehyde for instruments that cannot be autoclaved for example Ambu-bags.




Sterilization
• Eliminates all microorganisms (bacteria, viruses, fungi, and parasites), including bacterial endospores
High pressure saturated steam sterilization
• Temperature between 121-132°C at a pressure of 106 kPa (15 lb/inch2)
• Unwrapped instruments – 20 minutes
• Wrapped instruments – 30 minutes
Chemical sterilization
• 2-4% Glutaraldehyde for 8 hours
• 8% Formaldehyde for 24 hours


High-level disinfection (HLD)
Eliminates all microorganisms (bacteria, viruses, fungi & parasites)
Does not reliably kill all bacterial endospores
Suitable for instruments & items that come in contact with broken skin or intact mucous membranes
HLD
• Boiling in water
• Soaking in chemical agents
• 0.1% Chlorine solution
• 2% Glutaraldehyde solution

Steps of HLD by boiling

- Submerge cleaned instruments in water contained in covered pot or boiler
- Boil water for 30 minutes
  - Start timing when water is at a rolling boil
- Do not add or remove any item to container after water begins to boil
- Remove boiled items using high-level disinfected forceps
- Place in a high-level disinfected container
- Allow items to cool and air dry

HLD by boiling

Steps of HLD by chemical agents

- Soak all cleaned instruments for 20 minutes in correct dilution of selected chemical agent:
  - 0.1% Chlorine solution
    - OR
  - 2% Glutaraldehyde solution
- Remove using high-level disinfected forceps or gloves
- Rinse well with boiled water and air dry/dry with sterile cloth
- Use promptly or store for up to 24 hours in high-level disinfected and covered container

6. Environmental cleanliness

- Damp dusting surfaces on a daily basis
- Everything in the clinic should be kept clean and dry
- Use 0.05% chlorine solution, then soapy water and finally clean water for cleaning bowls and buckets, and for blood or body fluid spills.
- When to clean the operating room?
  - •At the beginning of each session
  - •Between patients, where needed
  - •At the end of each day
- Fumigate theater after a septic procedure
- Safe waste disposal

7. Aseptic technique

- This is achieved through use of antiseptic agents for cleansing the skin or mucous membrane prior to surgery, blood sample collection and other invasive procedures, cleaning wounds, or doing hand-rubs or surgical hand-scrubs with an alcohol-based antiseptic product.
- There is also use of disinfectants for cleansing the work environment like operating tables, trolleys etc

COMMUNITY PARTICIPATION IN REPRODUCTIVE HEALTH PROGRAMS

Definition:

Community

- A community consists of people living together in some form of social organization and cohesion. Its members share in varying degrees: political, economic, social and cultural characteristics as well as interests and aspirations, including health.
- Communities vary widely in size and socio-economic profile, ranging from clusters of isolated homesteads to villages, towns, cities and districts/ suburbs, but what all communities have in common are social structure such schools, health facilities, religious institutions, etc.

Community Participation:

Involvement of people in the community in their own health to solve their own problems. It is a condition of sharing a common understanding with others on an agreed activity. This requires engagement in ways that allow people to have ownership of and involvement in all stages of their lives

Community Diagnosis

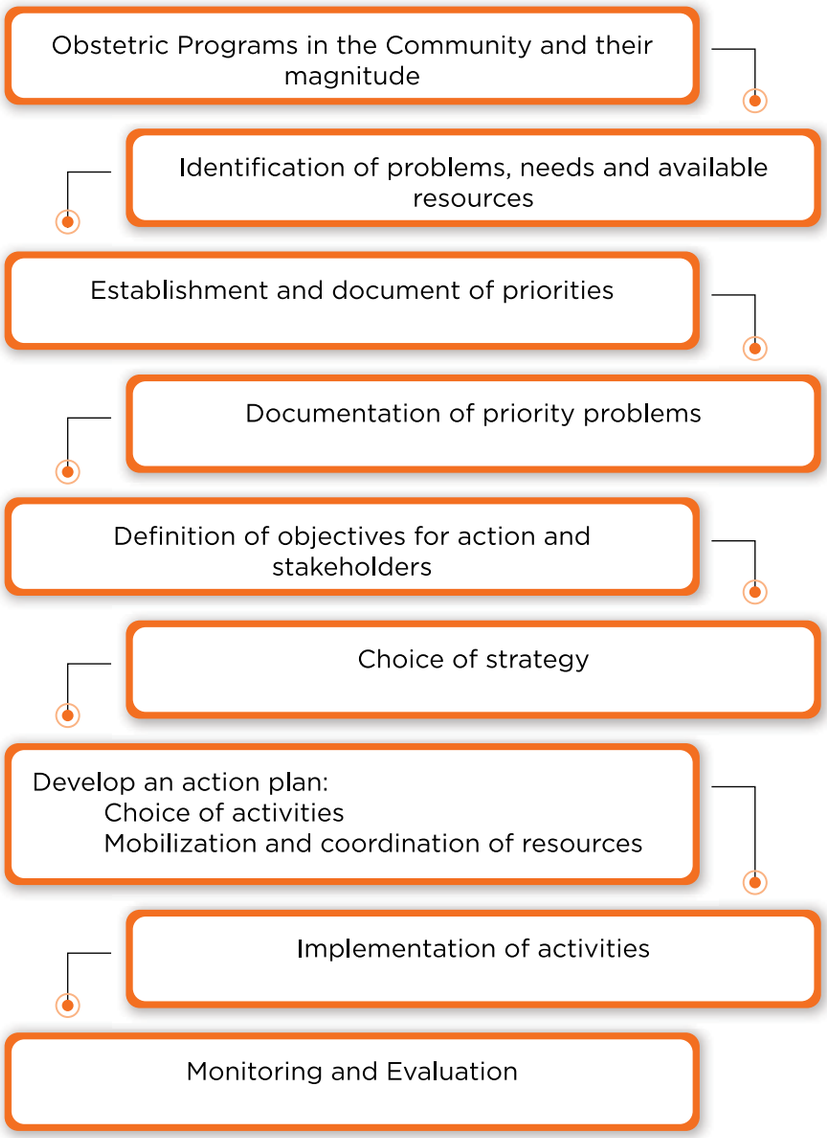
It is quantitative and qualitative description of the health of citizens and the factors which influence their health. It identifies problems, proposes areas for improvement and stimulates action. Before health activities are developed in a particular community, an appreciation is needed of the situation in that community. For example:

- What are the health problems of the community?
- What are the needs and available resources of the community?
- What are the values and cultures of the community?
- What institutions do they have?
- What projects do they have?

Only when this is known, is it possible to take appropriate measures to solve identified problems. As shown in Figure 1 below, problem identification in the community is followed by prioritization because available resources are virtually always inadequate to meet all the challenges of the community. Once prioritized, specific objectives for action and strategic plans for meeting the objectives are set. This is followed by the drawing up of action plans, development and implementation of activities and subsequent monitoring and evaluation.

Findings during monitoring and evaluation may act as feedback to bring about changes in program objectives, choice of strategy, plan of action and development/implementation of subsequent activities.

Protocol 47: Process of community diagnosis



FACTORS AFFECTING HEALTH IN THE COMMUNITY

Factors and resources which may positively influence in the development of community health programmes include:

- Political goodwill and commitment
- Level of household income
- Availability of food
- Dynamic community groups
- Health personnel skilled in primary health care
- Available transport and communication systems
- Readiness of community members to change attitudes and cultural habits that adversely affect health
- Level of education
- Genetics (e.g., sickle cell, hypertension)
- Social support networks
- Gender dynamics and stereotypes
- Physical environment
- safe water, clean air, healthy worker places and roads

Factors which negatively influence the development of community health programmes include:

- Difficulties in accessing, affording and accepting health services
- High fertility
- Unemployment or lack of social protection (socio-economic factor)
- Harmful traditional practices
- Inadequate people's participation and involvement in their own health
- Lack of access to information

These problems may cause delay in seeking care or timely referral.

Interventions:

Any intervention designed to solve a community problem should involve the community at all levels.

- Health workers together with the community members should identify the root causes of reproductive health problems in the community. They should then develop activities to address some of these problems.
- Identify target groups, influential people and appropriate health messages for behavioural change. Target groups may include:

- Individuals: Many problems require individual decisions, e.g., a pregnant woman who bleeds has to decide if she requires institutional treatment
- Family: Some decisions are up to the family, e.g., whether to hire a vehicle to transport a woman in labour or improvising transportation for her.
- Community: Other decisions need to be made by the community, e.g., Building an antenatal waiting house near the hospital.
- Stakeholders who see the need for improved medical care and mobilization of resources.

Aims of the interventions should be to:

- Modify inappropriate behaviour in the community.
- Change community attitudes and harmful cultural habits and customs (e.g. early marriage, FGM, wife inheritance etc)
- Ensure community understanding of health problems and their prevention.
- Help bring about the realization that there is a problem and that it must be solved.
- Participating in advocacy by providing specific information to groups of people with a view of effecting change within the community.

Principles of good care in reproductive health

These principles of good care apply to all contacts between the skilled attendants and all women and their babies. Therefore, they are not repeated in each section. Health workers should familiarize themselves with the following principles before using the Essential Maternal & Neonatal Care Clinical Guidelines.

the principles concern:

- Communication
- Workplace and administrative procedures
- Standard precautions and cleanliness
- Organizing a visit

Definition of quality of care

The WHO defines quality of care as "the extent to which health care services provided to individuals and patient populations improve desired health outcomes. In order to achieve this, health care needs to be safe, effective, timely, efficient, equitable, and people-centred."

Safe – delivering health care which minimises risks and harm to service users, including avoiding preventable injuries and reducing medical errors.

Effective – providing services based on scientific knowledge (WHO guidelines)

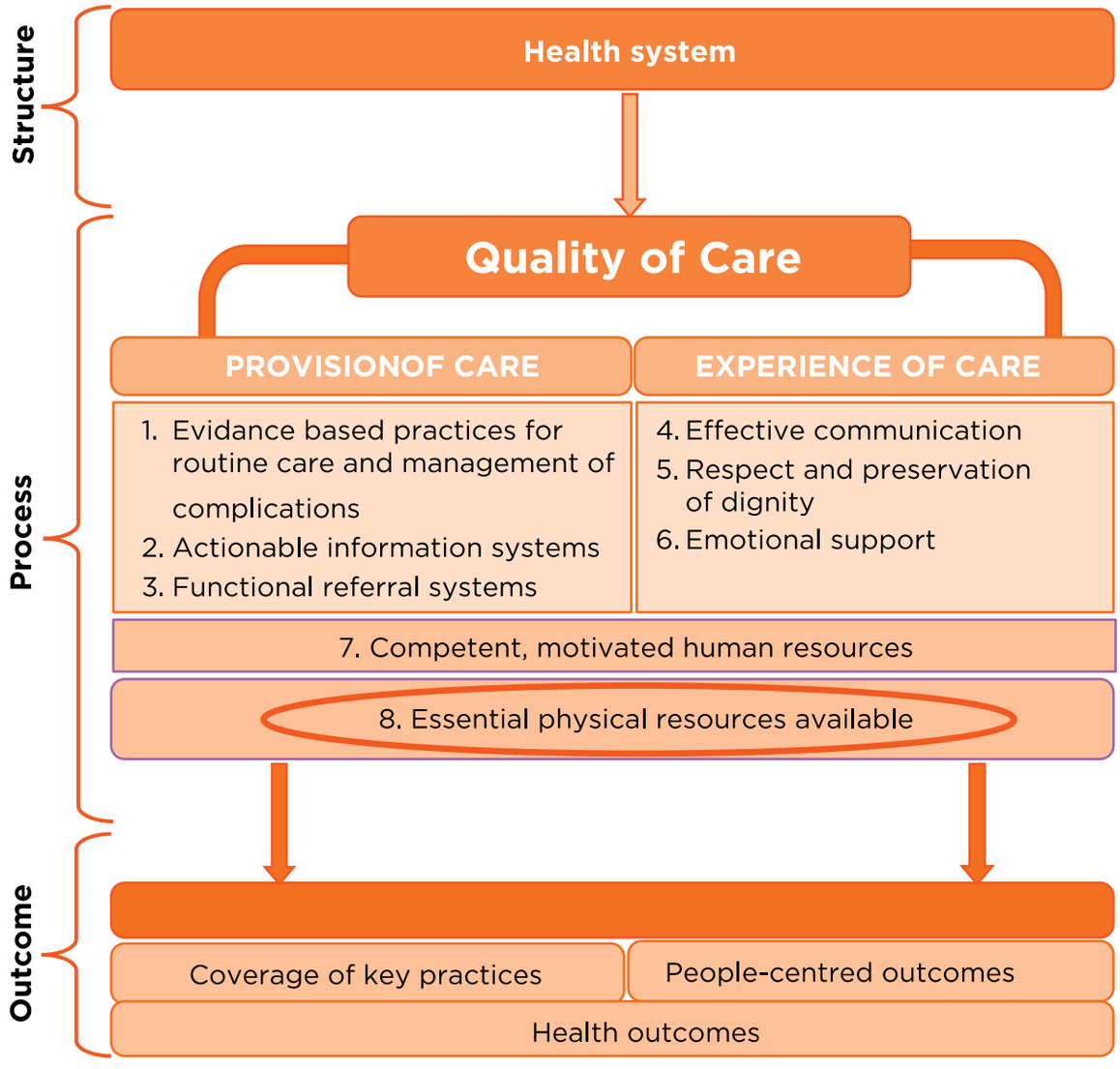
Timely – reducing delays in providing/receiving health care.

Efficient – delivering health care in a manner which maximises resource use and avoids wastage.

Equitable – delivering health care which does not vary in quality because of personal characteristics such as gender, race, ethnicity, geographical location, or socioeconomic status.

People-centred – providing care which takes into account the preferences and aspirations of individual service users and the cultures of their communities.

Protocol 48: WHO Framework for the quality of maternal and newborn care



REFERRAL

Definition

The act of sending someone to another person or place for treatment, help, advice, etc.
In **medicine, referral** is the transfer of care for a patient from one level of care to another or from one clinician to another.

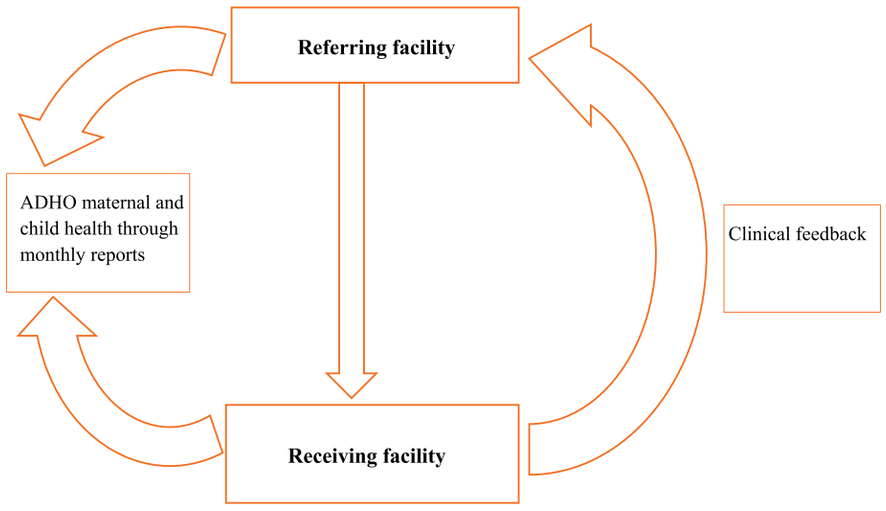
Ensuring efficient emergency referral:

- Contact referral centre as soon as there is an emergency and discuss transfer of the patient. (Ensure availability of functional facility communication equipment and contact details distributed to all health facilities).
- Ensure availability of the service for which you are referring at the receiving facility.
- Referrals should be made by the senior most cadre covering a duty, document the diagnosis, reason for referral and pre referral management.
- Patient should be accompanied by skilled birth attendant or skilled health worker in Emergency care in an ambulance.
- Ensure patient is safe, secure and monitored during transit.
- Carry emergency resuscitation kit and delivery pack during transfer.
- Carry patient referral form with comprehensive referral notes and give an oral report to the receiving health officer responsible during hand over of the patient
- Encourage partner or relative to accompany patient.
- The attending clinician, through the in charge of the Referral health facility, should prepare a feedback report (on the feedback section of the referral form) to be submitted to the ADHO on the weekly basis.
- The clinician will then at the Referral facility will then offer the feedback for the referring health facility by using Health sub district heads, ADHO or the Phone contacts for the referring clinicians.
- The ADHO should prepare and present audited monthly referrals monthly to District MPDSR committee using the feedback components of the feedback form, the reasons for referral at all health system levels in the district
- Seek for informed consent for the mother you are referring to another.

Ensuring efficient non-emergency referral

- Clearly explain to the woman and her partner/ next of kin the need for the referral.
- Secure appointment ahead of time if possible.
- Send detailed Clinical note citing reason for referral and diagnosis.
- Encourage partner/next of kin to accompany patient to referral site.
- Give clear instructions about when and where patient should seek referral site care.

Figure 49: The referral pathway

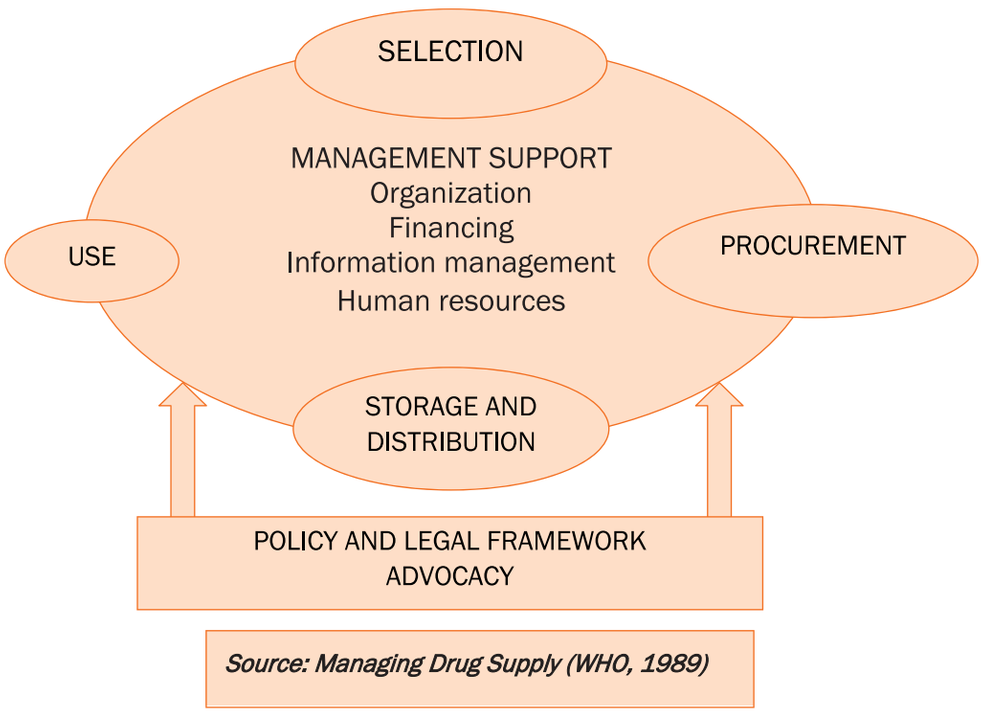


HEALTH SUPPLIES

The quality of patient care is significantly influenced by availability of drugs, medical supplies and equipment. These items contribute a significant proportion of health care costs. Health service providers therefore need to make appropriate and informed choices about what to buy in order to meet health needs and avoid wasting of scarce resources.

The term medical supplies need to be defined as it means different things to different people. The distinction between supplies and equipment is not always clear. For our purpose:
Supplies means items that need to be replaced on a routine basis, including: disposables and single use items, e.g. disposable syringes and needles; expendables (or consumables), items that are used within a short time, e.g. cotton wool, laboratory stains and tape; reusable items, e.g. catheters and other items with a short life span, e.g. digital thermometers, Blood pressure machines.
Equipment means capital equipment, durable items that last for several years, e.g. beds, examination tables, sterilisers, microscopes, weighing scales, monitorors, surgical instruments and bedpans.
Drugs are unequivocal.
The management of medical supplies conforms to the logistics cycle: -

THE LOGISTICS CYCLE:



Source: Managing Drug Supply (WHO, 1989)

SELECTION

Guiding principles for selecting supplies and equipment include the following

1. Quantification of needs
2. Appropriateness
3. Quality
4. Costs
5. Source
6. Use.

When making selection of equipment and supplies, the use and maintenance of the equipment depends on the material, whether disposable or reusable, safety and performance standards and information provided by manufacturers. The SCAPPD and the bio-medical engineering department should provide standard list with specificiation of appropriate medical equipments and supplies. the standard list of medical supplies, drugs and equipment, based on the type of preventive care, diagnostic tests and treatments a health facility is expected to carry out. It assists in making appropriate choices of medical supplies and equipment, which helps to improve patient treatment and care, use of resources and management. It is used to improve patient treatment and care by: identifying those priority supplies and the equipment needed to prevent and treat common health problems, and ensuring that these priority items are available in health facilities. It also ensures a basis for standardised clinical procedures and training for health workers.

ORDERING AND PROCUREMENT

Ordering involves first the determination of which items to order in what quantities (quantification and projection)

This is guided by a number of factors:
Actual or projected consumption. The consumption of consumables (and drugs) is dependent on the volume of work. For instance, the number of delivery kits used depends on the number of deliveries within a given time period. There may be available figures on this actual consumption obtained by using stock cards with information on stock movements and stock levels including stockouts (consumption method) or there could be projections based disease prevalence (morbidity method) or on population figures e.g. number of pregnancies per year is projected based on the number of women of reproductive age x 5%. Use of consumption method can lead to serious understocking unless previous stock-outs are included in the calculation of requirements (adjusted Average Monthly Consumption). The morbidity or projection method is used in the absence of consumption figures or if a new program is being started.

Stock levels: The stock level is the quantity of an item that is available for use in a given period of time. The reserve stock (sometimes also called safety stock or buffer stock) is the lowest level of stock for each item, and quantities should not be allowed to fall below this level. Your reserve stocks are essentially extra supplies, to ensure that there are no stockouts if there is an unexpected increase in demand or a delay in receiving supplies. The stock level takes care of the length of the pipeline: the time taken from ordering to receiving of supplies at the unit and increase in demand or a delay in receiving supplies at the unit.

The ordering, procurement, and financing for supplies and equipment should be based on the output from the facilities.

The VEN system is used to help set priorities in procuring medical supplies and equipment and keeping stock. Items are categorised as:

- **Vital** – items crucial for providing basic health services.
- **Essential** – items that are important but not absolutely crucial for providing basic health services.
- **Necessary**– items that are used for minor or self-limiting problems.

Vital and essential items should be prioritised if funds are limited, and health facilities should always have these items in stock.

Usually, the process of procurement includes offering tenders, processing of tenders, choosing a supplier, and also dealing with donations of supplies and equipment. This also involves acquiring information on insurance, pre-shipment inspection, shipment (freight) and the special needs of vaccines and unstable drugs (e. g. insulin) and receiving of supplies. It is usually carried out by the NMS,

STORAGE DISTRIBUTION and USE.

Storage and distribution takes place both centrally at NMS and at district and health unit level.
Proper use of health supplies includes appropriate storage of drugs and disposables, maintenance and, timely repair of equipment and, infection control measures for reusable equipment. It also involves keeping records, and disposing of waste.
Redistrubition should be encourage and guided by the redistrubition policy
Procedure for handing donation should be follow.

Ministry of Health
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