









CLINICAL PROTOCOLS AND GUIDELINES

EMERGENCY OBSTETRIC AND NEWBORN CARE

Government of Pakistan
Ministry of National Health Services,
Regulation &Coordination

UNFPA











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CLINICAL PROTOCOLS AND GUIDELINES FOR EMERGENCY OBSTETRIC AND NEWBORN CARE

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Supported by:
United Nations Population Fund

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Website: http://www.nhsrc.gov.pk/

MESSAGE

As we unveil the Clinical Protocols on Emergency Obstetric and Newborn Care (EmONC), it's not just a document but a profound statement of our unwavering commitment to maternal and newborn health. Maternal and newborn well-being transcends mere policy; it embodies a moral duty deeply interwoven with our nation's progress and prosperity. We gather here today to acknowledge not only the significance of these protocols but also their integral role within the broader context of Universal Health Coverage (UHC) and International Health Regulations (IHR).

I wish to extend my heartfelt appreciation to the dedicated team of experts and professionals whose relentless dedication and tireless efforts have given life to these crucial clinical protocols. These protocols aren't just guidelines; they are lifelines for healthcare providers, equipping them to deliver life-saving care to mothers and newborns.

But as we celebrate today, let's not forget that the true beneficiaries of our efforts are the mothers and newborns who will directly benefit from the improved healthcare services outlined in these protocols. Each protocol is a lifeline, a beacon of hope, and a testament to our dedication to saving lives.

In the broader context of healthcare reform, Pakistan has taken pioneering steps toward Universal Health Coverage (UHC) and Primary Health Care (PHC) reforms. We take pride in being the world's first country to develop a UHC benefit package, aligned seamlessly with the guidance provided by Disease Control Priorities 3rd edition. This package has been localized by all provinces and federating areas, and at its core lie EmONC interventions, which are high-impact and key to improving maternal and child health.

These EmONC interventions, now integrated into the UHC benefit package, hold the potential to bring about a remarkable impact on maternal and child health outcomes. As we move forward with the package's implementation, we recognize that it represents a transformative shift in our healthcare landscape, ensuring that essential services, such as EmONC, are accessible to all.

In conclusion, I call upon all healthcare providers, policymakers, and stakeholders to embrace and implement these protocols with unwavering dedication. Together, within the framework of Universal Health Coverage, we can ensure that every mother receives the care she deserves, and every newborn commences life with the best possible chance for a healthy and prosperous future.

Here, I must appreciate the joint efforts of all Provincial and Federating Area Departments of Health for their technical inputs and ensuring that these protocols seamlessly align with our broader health and population strategic priorities. I must also acknowledge the leadership of the Health and Population wings of the Ministry of National Health Services, Regulations & Coordination for playing a pivotal role in bringing us to this significant juncture. Let us continue our journey toward a brighter, healthier future for all.

Dr. Nadeem Jan
Federal Minister of Health Pakistan



Dr. Nadeem Jan
Federal Minister of Health
Pakistan

FOREWARD



Iftikhar Ali Shallwani

Secretary (NHSR&C)

It is indeed a matter of pride and profound gratitude that we are marking a significant milestone in our commitment to enhancing maternal and newborn health services for our nation. The development of updated clinical protocols on Emergency Obstetric and Newborn Care (EmONC) represents a pivotal moment in our relentless pursuit of ensuring the well-being of mothers and newborns across our country.

Maternal and newborn health is not just only a matter of policy but it is a moral imperative. The health of our mothers and the future of our newborns are inextricably linked to the prosperity and progress of our nation. The ability to provide timely and high-quality EmONC services is a testament to our dedication to safeguarding the lives and mental growth who hold the promise of tomorrow in their tiny hands.

I extend my heartfelt gratitude to the dedicated and tireless team of experts and professionals who have contributed to the development of these clinical protocols. Their unwavering commitment, expertise, and countless hours of hard work have shaped this invaluable resource that will guide our healthcare providers in delivering life-saving care to mothers and newborns.

I would also like to express my sincere appreciation to the Dr. Shabana Saleem, Director General (Population) and the Population Wing for their unwavering support and collaboration throughout this endeavor. Your commitment to the cause of maternal and newborn health is truly commendable, and I am confident that these clinical protocols will serve as a cornerstone for our collective efforts in this critical area.

Furthermore, I must acknowledge the indispensable support of the United Nations Population Fund (UNFPA) in this journey. Their partnership and assistance have been instrumental in bringing this project to fruition, reaffirming our shared commitment to improving maternal and newborn health outcomes.

As we unveil these clinical protocols on EmONC, let us remember that the real beneficiaries of our efforts are the mothers and newborns who will benefit from improved healthcare services. Each protocol within this compendium is a lifeline, a beacon of hope, and a testament to our dedication to saving lives.

In closing, I urge all healthcare providers, policymakers, and stakeholders to embrace and implement these protocols diligently. Together, we can ensure that every mother receives the care she deserves, and every newborn begins life with the best possible chance for a healthy future.

Thank you to all those who have made this achievement possible. Let us continue our journey towards a healthier, happier, and more prosperous nation.

Iftikhar Ali Shallwani
Secretary Mo NHSRC



Dr. Shabana Saleem

Director General (Population)

ACKNOWLEDGEMENT

I am delighted to introduce this achievement in our ongoing strive to improve the health and well-being of mothers and newborns across our nation. The development of updated clinical protocols on Emergency Obstetric and Newborn Care (EmONC) represents a significant milestone in our collective commitment to safeguarding the lives of our citizens.

Maternal and newborn health stands at the heart of our national development agenda. It is a measure of our society's compassion and dedication to ensuring that every mother receives the care she needs and that every newborn is granted the best possible start in life. The EmONC protocols presented here today epitomize this commitment and offer a vital roadmap to guide healthcare providers in their noble mission to save lives.

I extend my sincere appreciation to the Mr. Iftikhar Shallwani (Secretary Health) for his exemplary leadership and unwavering support in advancing maternal and newborn health initiatives. His vision and dedication has been instrumental in bringing us to this momentous juncture. His commitment to this cause is a beacon of hope for us all, and I am confident that these protocols will shape our collective efforts for years to come.

I must also extend my heartfelt gratitude to the remarkable technical team that dedicated their expertise, time, and energy to crafting these protocols. Their diligence and proficiency have given us a valuable tool that will empower healthcare providers to deliver life-saving care efficiently and effectively.

The Population Wing, under the astute guidance of our Secretary of Health, has played a pivotal role in ensuring that these protocols are aligned with our broader population and health strategies. Their collaboration has been instrumental in bridging the gap between policy and practice, making these protocols relevant and actionable.

Furthermore, I would like to express our deepest appreciation to the United Nations Population Fund (UNFPA) for their unwavering support and partnership. Their commitment to improving maternal and newborn health has been an invaluable asset on this journey, and their contributions have greatly enriched the development of these protocols.

As we present these clinical protocols on EmONC, let us keep in mind the lives that will be touched and the futures that will be safeguarded through our collective efforts. These protocols are not just documents; they are lifelines for mothers and newborns in need. They embody our shared responsibility to ensure that every mother receives the care she deserves and that every newborn is granted the best possible chance for a healthy and prosperous life.

In conclusion, I call upon all healthcare providers, policymakers, and stakeholders to embrace and implement these protocols with diligence and dedication. Together, we can make a difference and work towards a healthier, happier, and more prosperous nation.

Thank you, once again, to all who have contributed to this remarkable achievement. Let us continue our journey towards a brighter and healthier future for all.

Dr. Shabana Saleem
Director General (Population) Mo NHSRC

MESSAGE



Dr. Luay Shabaneh

Country Representative (UNFPA)

Pakistan, as the world's fifth most populous nation, faces significant challenges in maternal and child healthcare. Despite a contraceptive prevalence rate of 35 percent and a fertility rate of 3.6 children per woman, the country grapples with a high maternal mortality ratio of 186 per 100,000 live births and a neonatal mortality rate of 42 per 1,000 live births. Notably, the nation has made substantial advancements, achieving a skilled birth attendance rate of 69 percent and an institutional delivery rate of 66 percent. Antenatal care coverage has also reached 86 percent, showcasing Pakistan's commitment to enhancing maternal and child healthcare.

However, there remain critical gaps, particularly in rural areas, where the quality and accessibility of emergency obstetric care and family planning services fall short of demand. Maternal deaths resulting from various complications, including obstetric hemorrhage, pre-eclampsia, prolonged labor, and complications related to abortion, continue to rise.

The Government of Pakistan has expressed its dedication to the Sustainable Development Goals (SDGs) and has set ambitious targets, aiming to reduce maternal mortality to below 70 per 100,000 live births and neonatal mortality to fewer than 13 per 1,000 live births. Moreover, Pakistan has committed to achieving Universal Health Coverage (UHC) for all citizens by 2030, ensuring affordable and quality essential health services nationwide.

To support these UHC reforms, the Ministry of National Health Services, Regulations & Coordination (MoNHSR&C) collaborated with UNFPA Pakistan to update clinical protocols for Emergency Obstetric and Newborn Care (EmONC). This collaborative effort ensures that these protocols are evidence-based, aligned with best practices, and reflect current standards of care. Family planning plays a crucial role in preventing unwanted pregnancies and unsafe abortions, consequently reducing maternal deaths. These protocols aim to improve the skills and competencies of service providers, thereby enhancing the quality of EMONC services in Pakistan.

UNFPA remains committed to enhancing the competencies of healthcare providers, including obstetricians, doctors, and midwives, at all levels of the healthcare system. This dedication aims to improve the quality of integrated EmONC and family planning services, thereby reducing maternal morbidities and mortality in Pakistan. These efforts further strengthen Pakistan's progress toward achieving Universal Health Coverage and fulfilling the SDGs.

Dr. Luay Shabaneh
Country Representative (UNFPA)

ACRONYMS

IUFD	Intrauterine Fetal Death
ETAT	Emergency Triage Assessment and Treatment
EmONC	Emergency Obstetric and Newborn Care
PPTCT	Prevention of Parent to Child Transmission of HIV
APH	Antepartum Hemorrhage
PPH	Post-Partum Hemorrhage
SDGs	Sustainable Development Goals
PMMS	Pakistan Maternal Mortality Survey
NMR	Neonatal Mortality Rate
PDHS	Pakistan Demographic and Health Survey
LHWs	Lady Health Workers
ANC	Antenatal Care
CEmONC	Comprehensive Emergency Obstetric and Newborn Care
BEmONC	Basic Emergency Obstetric and Newborn Care
MVA	Manual Vaccum Aspiration
POC	Products of Conception
FIGO	The International Federation of Gynecology and Obstetrics
C/S	Caesarean Section
PTL	Pre-Term Labour
PTB	Pre-Term Birth
UBT	Uterine Balloon Tamponade
UTI	Urinary Tract Infections
MEOWs	Modified Early Obstetrics Warning Score
LCG	Labour Care Guide

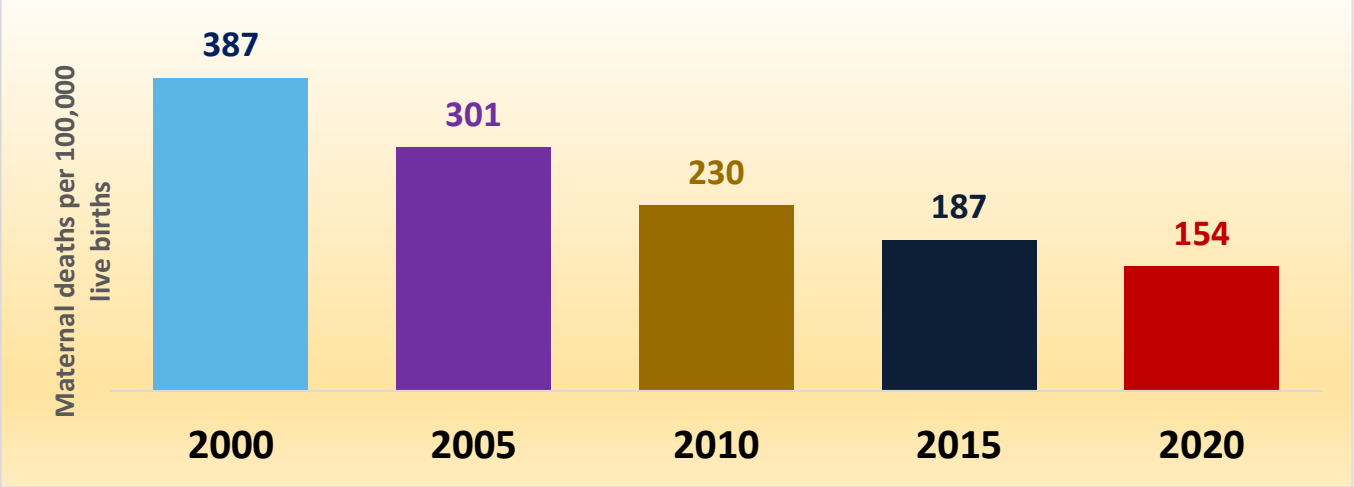
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Background

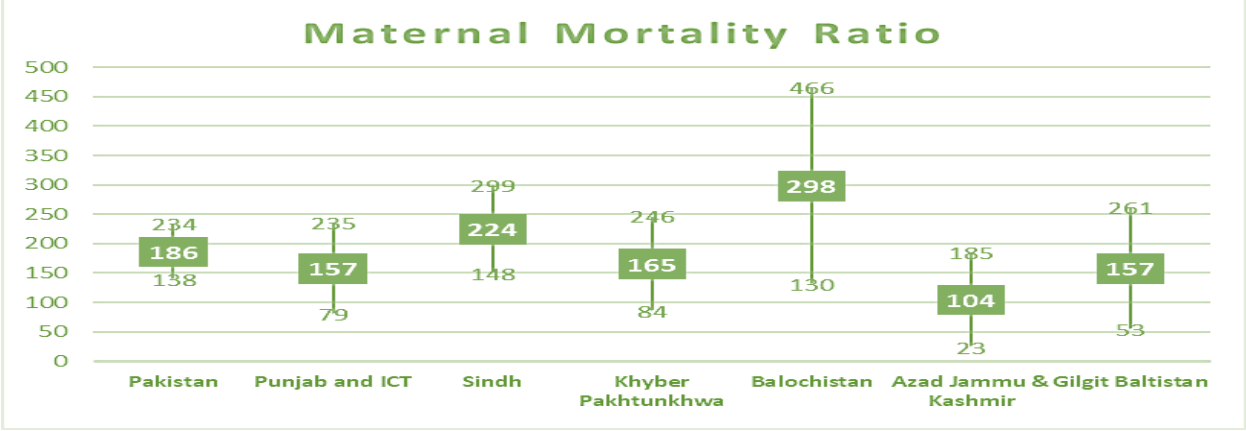
Pakistan is committed to achieving the Sustainable Development Goals (SDGs) by 2030, which includes important targets such as reducing preventable maternal, neonatal, and child mortality, as well as achieving universal health coverage. Central to these efforts is the focus on ensuring the provision of maternal and child health services in addition to the high-quality family planning services. Pakistan Maternal Mortality Survey (PMMS) 2019 reflected a maternal mortality ratio of 186/100,000 live births (199 in rural areas and 158 in urban areas)[1] during three years preceding the survey. Though the UN inter-agency estimates for maternal mortality reflect a declining trend of maternal mortality in Pakistan, the probability to reach the target of reducing the maternal mortality by less than 70/ 100,000 live births till 2030 can only be accomplished if the maternal and child health services specially the Emergency Obstetrics and Neonaltal Care (EmONC) are strengthened in hard-to-reach areas.

FIGURE 1: TRENDS IN MATERNAL MORTALITY[2]



The maternal mortality ratio reflect wide variations across provinces, MMR being highest in Balochistan (298 deaths/100,000 live births) followed by Sindh (224/100,000 live births), Khyber Pakhtunkhwa (165/100,000 live births), Punjab and ICT (157/100,000 live births), and GB (157/100,000 live births) while lowest in the Azad Jammu and Kashmir (104/100,000 live births).

FIGURE 2: MATERNAL MORTALITY RATIO ACROSS PROVINCES / REGIONS



[1] Pakistan Maternal Mortality Survey (PMMS) 2019.
[2] UN Inter-agency estimates for Maternal Mortality

Obstetric complications – major cause of maternal deaths

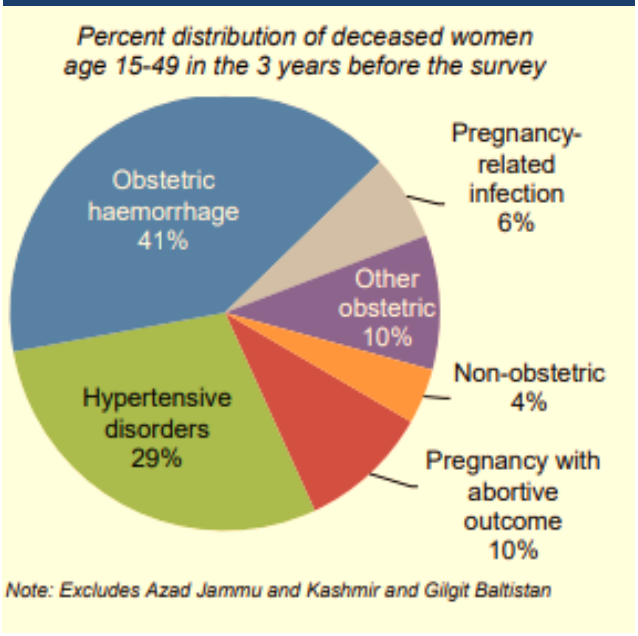
The findings of the Pakistan Maternal Mortality Survey (PMMS) 2019 reflected that the major complications reported during delivery included prolonged labour pains, laceration in the vagina, and the baby not breathing and breech presentation of the baby. However, ninety six percent of maternal deaths were due to direct obstetric causes and four percent were due to non-obstetric (indirect) causes. Around two fifth of the maternal deaths (41%) were due to obstetric hemorrhage, 29% due to hypertensive disorders, one tenth (10%) due to abortion, while 6% of the maternal deaths were due to pregnancy related infections.

Improvements in various aspects of maternal health, such as antenatal care, postnatal care, and skilled birth attendance, are crucial in determining positive maternal health outcomes. Additionally, factors like poverty, illiteracy (especially among women), and nutrition also play significant roles.

Newborns are directly influenced by the state of maternal health. In Pakistan, there has been a gradual decrease in the neonatal mortality rate (NMR) from 52 deaths per 1000 live births in 2006-07 to 42 deaths per 1000 live births as reported in the Pakistan Demographic and Health Survey (PDHS) of 2017-18. However, the current rate of progress suggests that Pakistan's projected NMR by the year 2030 would still be 32 deaths per 1000 live births, which is considerably higher than the Sustainable Development Goals (SDG) target of less than 12 deaths per 1000 live births.

According to the PDHS 2017-18, the under-five mortality rate in Pakistan has shown improvement, declining to 74 deaths per 1000 live births from 89 deaths per 1000 live births in the PDHS of 2006-07, both for the three-year period preceding the survey. However, the infant mortality rate remains high at 62 deaths per 1000 live births, according to the PDHS 2017-18 findings.

Figure 3: Causes of maternal deaths



Note: Excludes Azad Jammu and Kashmir and Gilgit Baltistan

To address these challenges, federal and provincial/federating area health departments have implemented programmatic initiatives. These include expanding the capabilities of basic health units to provide 24/7 basic emergency obstetric and newborn care (EmONC) services. Ambulance services have been established to facilitate the transfer of patients during labor, from households to basic EmONC facilities, and further to comprehensive EmONC hospitals if needed. Moreover, efforts have been made to enhance the knowledge of lady health workers (LHWs) regarding appropriate referrals through various training opportunities.

It is imperative to have standard clinical protocols and guidelines for EmONC which would help to improve the quality of services as well as facilitate the capacity building of the related health professionals on evidence based clinical practices.

Approach to updation of the clinical protocols for Emergency Obstetric and Newborn Care (EmoONC) - Pakistan

Updating clinical protocols for Emergency Obstetric and Newborn Care (EmONC) involved a systematic process to ensure that the protocols are evidence-based, aligned with best practices, and reflect the current standards of care. Following process was adopted for updating clinical protocols for EmONC:

A. Establish a multidisciplinary working group:

A team of experts and stakeholders involved in EmONC, including obstetricians, Pediatricians, and public health professionals were consulted. These consultations took place involving all the provinces. This group collaborated throughout the process of updating the protocols.

B. Conduct a comprehensive literature review

The current scientific literature and evidence-based guidelines related to EmONC were reviewed. Relevant studies, systematic reviews, clinical trials, and guidelines published by reputable organizations and institutions were identified.

C. Identify gaps and areas for improvement

Analysis of the existing EmONC protocols was done to identify gaps, inconsistencies, or outdated practices. Comparison was done with the protocols with the latest evidence and guidelines to identify areas that require updating or revision.

D. Review local context and resources

The specific context in which EmONC is being provided was considered, including available resources, infrastructure, and the local burden of maternal and neonatal complications. Any contextual factors that may influence the applicability and feasibility of implementing certain practices or interventions were taken into account.

E. Engage stakeholders and seek expert input

Inputs were sought from a wider range of stakeholders, including clinicians, policymakers, professional associations, and representatives from relevant organizations or institutions. Consultative workshop was conducted to gather input on the proposed updates to the EmONC protocols.

F. Draft protocols

Draft version of the EmONC protocols was developed based on the evidence, guidelines, stakeholder input, and local context. It was ensured that the updated protocols are clear, concise, and practical for implementation. A standardized template was used for consistency.

G. Review and validate the draft protocols

The draft protocols were circulated among the multidisciplinary working group and other relevant stakeholders for review and feedback. Suggestions, recommendations, or concerns raised during the review process were considered and revisions made as needed.

Clinical Protocol for Management of Anemia in Pregnancy

- Anemia is usually caused by nutritional deficiency and worsened by the demands of pregnancy
- Mild anemia : Hemoglobin 10 - 10.9 g/dl
- Moderate anemia: Hemoglobin 7 - 9.9 g/dl
- Severe anemia: Hemoglobin < 7 g/dl
- Test all pregnant women for anemia with a Hb level at the first antenatal visit (all pregnant women should get point of care test for Hb, HCV, HBsAg HIV & Syphilis at first ANC visit)
- Thalassemia / Suspect sickle cell anemia in women with severe anemia and refer for sickle cell testing (patient should be referred to CEmONC facility)
- Screen all women for anemia by checking for pallor at every antenatal visit
- If anaemic, repeat Hb level after 4 weeks
- Blood loss during and after labor can be fatal for the anemic woman
- Labor and first 2 weeks of puerperium are periods of greatest risk in severely anemic women

SIGNS AND SYMPTOMS OF ANEMIA	EFFECTS OF ANEMIA
Pale conjunctiva and mucous membranes	Low birth weight
Bodyaches, Fatigue, Dizziness	Preterm labor
Breathlessness at rest or on exertion	Stillbirth
Generalized edema	Congestive heart failure

MANAGEMENT

DURING PREGNANCY

- All pregnant women: Elemental Iron / Ferrous Sulphate 200mg +
  Folic Acid 0.4mg daily
- Mild anemia: Ferrous Sulphate twice a day / parenteral iron
- Moderate anemia: Oral route: Ferrous Sulphate three times a day / Parenteral route: Ferric Carboxy Maltose / Iron Carboxy Sucrose (if not tolerated orally)
- Maintenance dose should be continued (ferrous sulphate) for at least three months
- Counseling on diet, nutrition supplements and complication / danger signs

SEVERE ANEMIA IN LABOR

- Deliver in CEmONC facility
- Transfuse as needed if severe anemia or if symptomatic
- Give oxygen by mask / restrict IV fluids
- Consider shortening the second stage with forceps or vacuum delivery
- Minimize blood loss by active management of third stage of labor
- Vigilance for PPH
- If in heart failure, transfuse slowly and give

POSTPARTUM

- Prescribe Ferrous Sulphate daily for 3 months postpartum for all women

DURING PREGNANCY	SEVERE ANEMIA IN LABOR	POSTPARTUM
▪ Severe anemia: Refer to CEmONC for possible transfusion, then maintain on oral Ferrous Sulphate + folic acid ▪ Pregnant women with Thalassemia minor oral Ferrous Sulphate + folic acid ▪ Pregnant women with sickle cell anemia give Folic Acid 5 mg daily only (Iron should not be given as women with sickle cell are at risk for iron overload) ▪ Provide nutrition counseling for women with anemia + PICA counselling ▪ Refer for Hb testing if develops signs or symptoms of anemia ▪ If in heart failure, transfuse slowly and give Furosemide 40mg IV with each unit of blood ▪ Deworm with Albendazole 400mg once or ▪ Mebendazole 500mg once during pregnancy / preferably not given in the first trimester ▪ Give Intermittent Preventive Treatment for Malaria monthly in the high risk areas	Furosemide 40mg IV with each unit of blood	

Clinical Protocol for Diagnosis and Management of Abortion (Miscarriage)

SIGNS AND SYMPTOMS

- Secondary Amenorrhea or positive pregnancy test with bleeding or cramping upto or less than 24 weeks gestation
- Suspect septic abortion if fever, uterine tenderness, or foul discharge
- Suspect bowel or other injuries if fever, tenderness, or vomiting after surgical treatment

DIAGNOSIS

THREATENED ABORTION	INEVITABLE & INCOMPLETE ABORTION	COMPLETE ABORTION	MISSED ABORTION
Perform pregnancy test & ultrasound if available	Perform pregnancy test & ultrasound if available	Perform pregnancy test & ultrasound if available	Perform pregnancy test & ultrasound if available
Light bleeding / mild cramping	Heavy bleeding / pain (lower abdomin and back)	Light bleeding	Light bleeding
Closed cervix	Dilated cervix	H/o expulsion of POC	No H/o expulsion of POC
	Inevitable – no expulsion of products of conception (POC)	Closed cervix	Closed cervix
	Incomplete – partial expulsion of POC		

MANAGEMENT

THREATENED ABORTION	INEVITABLE AND INCOMPLETE ABORTION	COMPLETE ABORTION	MISSED ABORTION
▪ Medical treatment usually not necessary ▪ Monitor vitals & bleeding ▪ Confirm pregnancy viability by ultrasound and refer to ANC if viable ▪ Rule out ectopic pregnancy ▪ Give analgesic if needed	▪ **Perform Manual Vacuum Aspiration (MVA) if the trained staff is available** ▪ **If bleeding heavily or anemic – transfer to hospital with transfusion availability** ▪ IV access & IV fluids before transfer	▪ **Perform Manual Vacuum Aspiration (MVA) if trained provider is available** ▪ IV access & IV fluids before transfer ▪ Analgesic if needed for pain	▪ **Refer to hospital where MVA & trained staff available** ▪ Analgesic if needed for pain (more than and less than 14 weeks then dose should be accordingly ▪ According to gestation in weeks, the FIGO dosage chart for

THREATENED ABORTION	INEVITABLE AND INCOMPLETE ABORTION	COMPLETE ABORTION	MISSED ABORTION
▪ Avoid strenuous activity ▪ Avoid sexual intercourse ▪ Bed rest is NOT necessary ▪ Do not give tranexamic acid or tocolytics as they will not prevent abortion ▪ Counsel & give support to woman & husband/family	▪ Analgesics if needed for pain ▪ Examine if products of conception are visible in cervical os and remove with sponge/ring forceps ▪ If POC not visible, repeat the ultrasound accordingly **Pregnancy <14 weeks:** ▪ If hemodynamically unstable: perform MVA. If stable and ectopic not suspected: perform MVA or use Misoprostol 600 mcg orally single dose 400mcg buccal /sublingual 400-800 mcg vaginal single dose **Pregnancy ≥14 weeks:** ▪ Use misoprostol 200mcg buccal sublingual or vaginal every 6hours until expulsion ▪ Monitor vitals & transfuse if needed ▪ Offer FP & post-abortion counseling	▪ Evacuation of uterus usually not necessary ▪ Observe for heavy bleeding – if heavy: MVA to ensure no remaining products of conception and give 800mcg Misoprostol by rectum or sublingual or oral for post-abortal hemorrhage ▪ Offer FP & post-abortal counseling; Provide IUCD /implant for family planning as per condition of the patient	Misoprostol should be followed ▪ Evacuation of uterus usually not necessary ▪ Observe for heavy bleeding – if heavy: MVA to ensure no remaining products of conception and give 800mcg ▪ Misoprostol by vagina 800mcg every 3 hours, 2 doses only ▪ or sublingual 600mcg every three hours 2 doses only ▪ Offer FP & post-abortal counseling ▪ FIGO chart for doses attached on page 20.

Clinical Protocol for Diagnosis and Management of Ectopic Pregnancy

Ectopic pregnancy is a condition where a pregnancy implants in the fallopian tube or anywhere outside of the uterus. The pregnancy can rupture, causing life-threatening internal bleeding and risk of death.

SUSPECT ECTOPIC PREGNANCY IN ANY WOMAN WITH

- Bleeding + Pain + positive urine pregnancy test (or + HCG)
- Bleeding + Pain + History of Amenorrhea
- Pain without bleeding + positive urine pregnancy test (or + HCG)
- Positive urine pregnancy test (or + HCG) + Unexplained Severe Anemia
- Place IV Line + start IV fluids management, ideally crystalloids but any fluid available and **TRANSFER to CEmONC facility Immediately**

SIGNS AND SYMPTOMS	INVESTIGATIONS
History of amenorrhea	Pregnancy test
Abdominal pain (severe)	Blood: Hemoglobin,Blood group, Cross-matching
Abdominal tenderness	Abdominal and Pelvic Ultrasound
Irregular spotting or bleeding after a normal menstruation	
Pallor, dizziness and/or feeling like fainting / shoulder tip pain	
Signs of shock: low BP, rapid pulse, rapid respiration, cold and clammy skin	

MANAGEMENT

- IV fluids management, crystalloids ideally (rapid infusion)
- Prepare for emergency surgery
- Blood transfusion if indicated
- Antibiotics (Ampicillin + Gentamicin IV) broad sprectrum antibiotics
- Analgesics as needed for pain
- Indwelling urinary catheter

Provide Treatment

- Emergency Exploratory Laparotomy – inspect ovary and tubes,
- For fertility conservation perform salpingostomy if patient in stable / salpingectomy
- Auto transfusion if indicated

Ruptured Ectopic Pregnancy is a Surgical Emergency

- Time from diagnosis to surgical treatment should be less than 30 minutes
- Perform laparotomy immediately without waiting for results or blood arrangement, if vitally unstable or deteriorating

Clinical Protocol for Management of Preterm Labor

- Preterm labor (PTL) - contractions leading to cervical change before 37 weeks gestation
- Preterm birth (PTB) - birth before 37 weeks gestation, is a major cause of neonatal mortality

MANAGEMENT OF LABOR

▪ Transfer any woman with PTL to the nearest CEmONC facility if delivery not imminent	▪ Monitor labour with labour care guide and notify pediatrics to prepare for resuscitation
▪ Routine C/S not recommended unless there is an obstetric indication	▪ Avoid vacuum-assisted birth as risk of intra-cranial bleeding is high

DURING PREGNANCY

- Antenatal corticosteroid therapy can improve fetal lung maturity and chances of neonatal survival when given to women in PTL from 24 weeks to 34 weeks gestation
- Confirm diagnosis of PTL by documenting cervical dilation or effacement over 2 hours
- Confirm gestational age (LMP, exam in early pregnancy, ultrasound, fundal height) because risk of harm from corticosteroids might outweigh benefits in preterm births
- Take high vaginal swab, CBC , urine DR
- Do not administer corticosteroids:
  - if there is clinical evidence of maternal infection (fever, uterine tenderness, foul-smelling amniotic fluid) as it can make infection worse
  - If >34 weeks gestation
- Confirm that preterm newborn is in facility able to provide adequate resuscitation and care (preferably facility with neonatal intensive care unit)
- Administer **Dexamethasone**, 6 mg IM, every 12 hours X 4 doses
- Dexamethasone can be repeated once after 1 week if PTB has not happened but PTB is imminent
- Give tocolytic up to 48 hours only to allow corticosteroids to take effect or to allow transfer to CEmONC (**Nifedipine** 20mg orally, then 10mg 6 hourly, max dose = 40mg/day - monitor fetal condition and maternal vitals as Nifedipine can cause drop in BP)
- Do not use tocolytics if there is Preterm Rupture of Membranes (PROM), chorioamnionitis, placental abruption, or maternal cardiac disease
- Corticosteroids can increase blood sugars in diabetic women – monitor and treat blood sugars
- For women with imminent PTL, antenatal magnesium sulphate for fetal neuroprotection should be administered as a 4 g I/V loading dose, over 30 minutes, with or without a 1g per hour maintenance infusion until birth

ANTIBIOTICS

- Antibiotics can improve outcomes in women with Premature Rupture of Membranes (PROM) and/or clinical signs of infection – give antibiotics only if membranes are ruptured or signs of infection
- **Erythromycin** 250mg 6 hourly X 10 days or until birth, OR **oral Ampicillin** 500mg – 1g 6 hourly X 10 days or birth
- **Do not give co-amoxiclav**

Clinical Protocol for use of Misoprostol

- **Misoprostol** is a uterotonic medication used for many obstetric and gynecological conditions including induction of labor, prevention and treatment of postpartum hemorrhage, and management of abortion complications
- Routes of administration include oral (swallow), sublingual (place under tongue for 30 minutes), vaginal (place in posterior vagina), and rectal (place inside rectum)
- If 25mcg tablets not available: dissolve 200mcg Misoprostol in 200ml of water – 25mls of this solution = 25mcg make fresh solution every time
- Maximum 3 doses in 24 hours for induction of labour
- Misoprostol 100mcg tablets should not be cut up as the dose will be inaccurate
- Misoprostol for induction of labor should only be used in a **CEmONC** facility where urgent C/S for fetal distress or uterine rupture is available
- Misoprostol should not be used for induction of labor in a **BEmONC** facility - patients requiring induction of labor should be transferred to a **CEmONC** facility
- Obtain oral informed consent from every woman before administering Misoprostol

CONTRAINDICATIONS	SIDE EFFECTS
DON'T use Misoprostol for labor induction in women who have had a CS or other uterine surgery (like myomectomy) as it can cause uterine rupture DON'T use Misoprostol for augmentation of labor	▪ Fever, shivering and chills are most common side effect – give Panadol, cover with blanket ▪ Vomiting – give antiemetics; usually resolves within 2-6 hours ▪ Diarrhea – rehydrate; usually resolves within 24 hours

INDICATION	DOSAGE	ROUTE OF ADMINISTRATION
PPH Prophylaxis – Active Management of 3rd Stage	600mcg	Oral or sublingual – single dose
PPH Management or Post-abortal Hemorrhage	800mcg	Sublingual or Rectal – single dose
Incomplete	600mcg	Single dose
Missed Abortion (<14weeks)	800mcg	Sublingual/oral or Vaginal – every 3hrs until expulsion, max 3 doses

Misoprostol ONLY Dosing Chart

(For use ONLY when mifepristone is not available)

Recommended Regimens 2023

FIGO International Federation of Gynecology and Obstetrics
the Global Voice for Women's Health

≤12 weeks	13-17 weeks	18-24 weeks	25-27 weeks	≥28 weeks	Postpartum Use
Induced Abortion Misoprostol 800µg BU/SL/PV every 3 hours until expulsion[1]	**Induced Abortion** Misoprostol 400µg every 3 hours until expulsion BU/SL/PV[4]	**Induced Abortion** Misoprostol 400µg every 3 hours BU/SL/PV until expulsion[4]	**Induced Abortion** Misoprostol 200µg every 4 hours BU/SL/PV until expulsion[4,8]	**Induced Abortion** Misoprostol 25-50µg every 4 hours PV[8] OR Misoprostol 50-100µg every 2 hours PO[5,8]	**Prophylaxis of Postpartum hemorrhage (PPH)** Misoprostol 600µg SL x 1
Missed Abortion/ Anembryonic Pregnancy Misoprostol 800µg BU/SL/PV every 3 hours until expulsion[1]	**Missed Abortion** Misoprostol 400µg every 3 hours BU/SL/PV until expulsion[4]	**Fetal Demise** Misoprostol 400µg every 3 hours BU/SL/PV until expulsion[4]	**Fetal Demise** Misoprostol 200µg every 4 hours BU/SL/PV until expulsion[4]	**Fetal Demise** Misoprostol 25-50µg every 4 hours PV[9] OR Misoprostol 50-100µg every 2 hours PO[5]	**Treatment of Postpartum hemorrhage (PPH)** Misoprostol 800µg SL x 1
Incomplete Abortion 400µg misoprostol SL x 1 600µg misoprostol PO x 1 800µg misoprostol BU x 1 dose[4]	**Incomplete Abortion** Misoprostol 400µg every 3 hours BU/SL	**Incomplete Abortion** Misoprostol 400µg every 3 hours BU/SL	**Induction of Labor** Misoprostol 25-50µg every 4 hours PV [6,7] OR Misoprostol 50-100µg every 2 hours PO [5,6,7]	**Induction of Labor** Misoprostol 25-50µg every 4 hours PV[6,7] OR Misoprostol 50-100µg every 2 hours PO[5,6,7]	
Cervical Preparation Before Aspiration Not required[2]	**Cervical Preparation Before Aspiration** Misoprostol 400µg 1-2 hours BU/SL/PVbefore the procedure[3]	**Cervical Preparation Before D&E (*Use of multiple modalities is recommended)*** Osmotic Dilators 1-2 days before and Misoprostol 400µg BU/SL/PV 1-2 hours before the procedure	**LEGEND: Buccal(BU) Sublingual (SL) Per Vagina (PV) Per Oral (PO)**		

1. <12 weeks induced & missed abortion can be self-managed at home.
2. Consider using 400mcg misoprostol 1-2 hours before procedure in patients ≤ 17 years of age.
3. Consider using Osmotic Dilators in patients ≤17 years old or in patients with a stenotic cervix.
4. Dosing based on Society of Family Planning Guidelines (20111, 20133) A comprehensive systematic review and Meta -Analysis published 2020
5. Dosing based on Cochrane Database Syst Rev. (CD014484) published 2021
6. Buccal and Sublingual Misoprostol is not recommended for induction of labor with viable pregnancies, it is associated with more tachysystole and fetal distress.
7. There is a lack of strong evidence for misoprostol dosing for this indication at this gestational age.
8. Induced fetal cardioplegia should be considered for induced abortion after fetal viability

NOTES:

- SL/PO route is associated with more side effects.
- Avoid vaginal route if there is vaginal bleeding.
- Misoprostol is SAFE below 28 weeks EVEN with history of Cesarean Delivery.
- Misoprostol is not recommended in women ≥28 weeks gestational age with a prior Cesarean Delivery.
- There is NO Maximum dose of misoprostol. If an abortion is not complete after 5 doses, you may continue additional doses or rest for 12 hours and start again
- Misoprostol is not contraindicated in grand multipara.
- Routine aspiration after medication abortion is not required or recommended.

Clinical Protocol for Normal Vaginal Delivery

After abdominal examination, a vaginal examination is done to determine position and station of the fetal head; the head is usually the presenting part (see figure Sequence of events in delivery for vertex presentations).

When effacement is complete, the cervix is fully dilated and the head has descended, the woman is told to bear down and strain with each contraction to move the head through the pelvis and progressively dilate the vaginal introitus so that more and more of the head appears.

When about 3 or 4 cm of the head is visible during a contraction in nulliparas (somewhat less in multiparas), the following maneuvers can facilitate delivery and reduce risk of perineal laceration:

- The clinician, if right-handed, places the left palm over the infant's head during a contraction to control and, if necessary, slightly slow progress.
- Simultaneously, the clinician places the curved fingers of the right hand against the dilating perineum, through which the infant's brow or chin is felt.
- To advance the head, the clinician can wrap a hand in a towel and, with curved fingers, apply pressure against the underside of the brow or chin (modified Ritgen maneuver).
- Thus, the clinician controls the progress of the head to effect a slow, safe delivery.

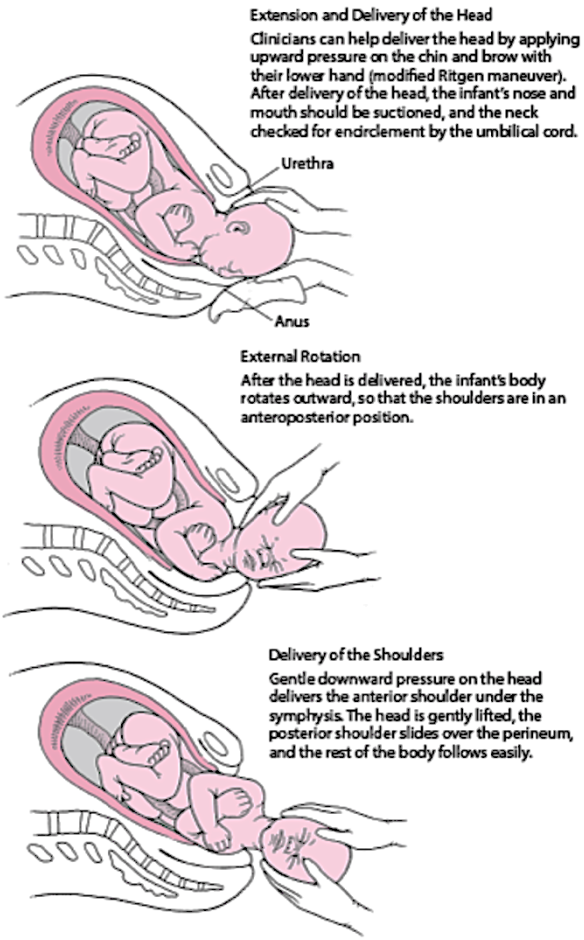
When the head is delivered, the clinician determines whether the umbilical cord is wrapped around the neck. If it is, the clinician should try to unwrap the cord; if the cord cannot be rapidly removed this way, the cord may be clamped and cut.

After delivery of the head, the infant's body rotates so that the shoulders are in an anteroposterior position; gentle downward pressure on the head delivers the anterior shoulder under the symphysis. The head is gently lifted, the posterior shoulder slides over the perineum, and the rest of the body follows without difficulty. The nose, mouth, and pharynx are aspirated with a bulb syringe to remove mucus and fluids and help start respirations. Delay cord clamping for 2-3 minutes or when the pulsation stops.

The cord should be double-clamped and cut between the clamps, and the plastic cord clip should be applied about 2 to 3 cm distal from the cord insertion on the infant.

The infant is thoroughly dried, then placed on the mother's abdomen and breastfeeding initiated or, if resuscitation is needed, in a warmed resuscitation trolley or bassinet.

Deliver placenta with controlled cord traction (if skilled) and perform AMTSL (active management of third stage of labour) Give Oxytocin 10 units IM or IV or Misprostol 600 mcg sublingual within 1 min of birth of baby.



Clinical Guideline for use of Oxytocin in Labor

- Oxytocin is a uterotonic used in induction & augmentation of labor, active management of the 3rd stage of labor, & prevention / treatment of PPH
- Oxytocin should only be used for augmentation of labor in a CEmONC facility where urgent C/S for fetal distress or uterine rupture is available
- Oxytocin should not be used for augmentation of labor in a BEmONC facility or other PHU - patients requiring augmentation of labor should be transferred to a CEmONC facility
- Oxytocin (for augmentation of labor), can only be used by a physician or by a midwife under supervision of a physician - Misoprostol SHOULD NEVER be used for augmentation of labor

USE OXYTOCIN CAREFULLY

- Use Oxytocin carefully to prevent hyperstimulation, fetal distress and uterine rupture
- Obtain oral informed consent from every woman before administering Oxytocin
- Women receiving Oxytocin should be monitored closely and never left alone
- Oxytocin should only be used mixed with IV fluids as a dilute infusion during labor
- Oxytocin should be cautiously used under the supervision of skilled birth attendant with foetal monitoring
- Oxytocin should not be used if there is fetal distress: HR < 110 or > 160
- Oxytocin should not be used if maternal condition is poor: abnormal respiratory rate or pulse, low urine output, low BP, heavy vaginal bleeding or other severe maternal condition

NEVER INJECT IM OXYTOCIN IN A PREGNANT WOMAN AS IT CAN CAUSE UTERINE RUPTURE AND FETAL DEATH (PEPPER INJECTION)

INDICATIONS FOR AUGMENTATION WITH OXYTOCIN

- If labour care guide shows unsatisfactory progress of labor (do not administer oxytocin without use of labour care guide)
- If there are no signs of cephalopelvic disproportion or obstruction
- If inadequate contractions are the cause of unsatisfactory progress of labour
- Note: Use with caution in women with previous uterine scar

MONITORING OXYTOCIN

- **You MUST monitor progress of labor with a labour care guide**
- Perform and document vaginal exam every 4 hours
- Monitor and record infusion rate and maternal and fetal status Q 30 minutes on labour care guide
- Fetal HR: stop infusion for fetal distress (HR < 110 or > 160 - if no recovery of fetal HR after 10 minutes, give Salbutamol inhaler 4-5 puffs or IV infusion and repeat in case of prolonged bradycardia/ oxygen / lateral position / hydration
- Tab Salbutamol 2mg po x 1 or Nifedipine 20mg po x 1 to relax uterus or Apply GTN patch (nitroglycerine) on abdomen to relax uterus)

- Duration and frequency of contractions: stop infusion for hyperstimulation (> 5 contractions in 10 minutes, or any contraction lasting > 60 seconds)
- Oxytocin can be restarted after 30 minutes of normal fetal HR and normal uterine contractions

PREPARING OXYTOCIN

Mixture: 2.5 units + 500cc NS or Dextrose R/L			
Dose: mIU per minute	**Number of drops per minute**	**Dose: mIU per minute**	**Number of drops per minute**
2.5	10	10	40
5	20	13	50
8	30	15	60
Mixture: 5 units + 500cc NS or Dextrose R/L			
15	30	25	50
20	40	30	60

OXYTOCIN INFUSION

- Start with Oxytocin concentration of 2.5 units in 500ml IVFs at dose of 2.5 mIU/min
- ↑ dose by 2.5 mIU/minute every 30 minutes until good contraction pattern established (3 contractions in 10 minutes)
- Increase dose only until good contraction pattern achieved, then maintain that dose
- If good pattern not achieved with dose of 15 mIU/min, increase concentration of Oxytocin to 5 units in 500ml IVFs – and start at 15 mIU/min and increase every 30 minutes until you get a good contraction pattern with maximum dose of 30 mIU/min
- If unable to achieve good contraction pattern at 30 mIU/min, then augmentation has failed – proceed to C/S

Clinical Protocol for Induction of Labor

- Induction of labor –artificially stimulating the uterus to start labor
- Induction of labor should only be carried out in **CEmONC** facilities where C/S can be performed
- **DO NOT** perform induction of labor in a **BEmONC facility**
- Induction can be performed with **Oxytocin** or **Prostaglandin E2 / PGE1 (Misoprostol)**

USE OXYTOCIN OR MISOPROSTOL CAREFULLY

CONTRAINDICATIONS

- NEVER use Oxytocin or Misoprostol / PGE2 in woman with a previous C/S or other uterus surgery
- NEVER inject IM Oxytocin in a pregnant woman as it can cause uterine rupture and fetal death

INDICATIONS	CAUTION
> 41 weeks gestation	▪ Obtain oral informed consent from every woman before administering Oxytocin or Misoprostol ▪ Women receiving Oxytocin or Misoprostol should be monitored closely (fetal heart rate and uterine contractions) and never left alone ▪ BE AWARE of hyperstimulation, fetal distress and uterine rupture
Pre-labor rupture of membranes at term	
Pre-eclampsia or gestational hypertension > 37 weeks	
Severe pre-eclampsia	
Mild Vaginal bleeding (Exclude Placenta Previa)	
Fetal growth restriction	
Chorioamnionitis	
IUFD or other fetal / maternal condition	

PREPARING OXYTOCIN

Mixture: 2.5 units + 500cc NS or Dextrose R/L			
Dose: mIU per minute	**Number of drops per minute**	**Dose: mIU per minute**	**Number of drops per minute**
2.5	10	10	40
5	20	13	50
8	30	15	60
Mixture: 5 units + 500cc NS or Dextrose R/L			
15	30	25	50
20	40	30	60

- **Increase oxytocin only to a point where 3 contractions each lasting for 35-40 sec in 10 min are obtained and maintain at the same dose**

- Induction success based on favorable cervix as assessed by Bishop Score
- If cervix is favorable (score of 6 or more), labor usually successfully induced / augmented with Oxytocin
- If cervix unfavorable (score < 6), ripen the cervix using oral or vaginal Misoprostol first
- Misoprostol oral: 25mcg every 4 hrs, maximum 3 doses
- Mispoprostol vaginal: 25mcg every 4 hours, maximum 3 doses
- Discontinue Misoprostol and use Oxytocin once cervix is ripened or after 12 hours

Calculating Bishop Score

Score	0	1	2	3
Dilatation (cm)	closed	1-2	3-4	more than 5
Length of cervix (cm)	more than 4	3-4	1-2	less than 1
Consistency	firm	average	soft	N/A
Position	posterior	mid	anterior	N/A

MONITORING

- **You MUST monitor progress of labor with a labor care guide**
- Perform and document vaginal exam every 4 hours
- Record medication dose or infusion rate & maternal/fetal status Q 30 minutes on labour care guide
- **Fetal HR:** stop medications for fetal distress (HR <110 or >160 - if no recovery of fetal HR after 20 minutes, give Salbutamol 2mg po x 1 or salbutamol inhaler 3-4 puffs every 1-2 min to relax uterus)
- Duration and frequency of contractions: stop oxytocin if there is hyperstimulation (> 5 contractions in 10 minutes, or any contraction lasting > 60 seconds) and give salbutamol inhaler 3-4 puffs every 1-2 min to relax uterus
- If unable to achieve adequate contraction pattern with Oxytocin at 30 mIU/min, then induction has failed – proceed to C/S

Clinical Protocol for Management of Unsatisfactory Progress of Labor

DIAGNOSIS	FINDINGS	TREATMENT
False Labor	▪ Cervix not dilated, infrequent or no contractions	▪ Examine for ruptured membranes, UTI or other infection ▪ Discharge and encourage return when in labor
Prolonged Latent Phase	▪ No dilation beyond 5 cm after 8 hours of regular contractions	▪ If no cervix change or fetal distress, re-evaluate diagnosis ▪ If cervix change, augment with Oxytocin & reassess in 4hrs ▪ If no progression to active phase after 8 hrs Oxytocin, do C/S ▪ If infection, augment & give antibiotics (Ampicillin)
Prolonged Active Phase	▪ Cervical dilatation less than the range in alert column on LCG (labour care guide)	▪ If contractions adequate, suspect CPD, obstruction, or malpresentation. ▪ If contractions inadequate, augment with Oxytocin
Cephalopelvic Disproportion (CPD)	▪ Arrest of dilatation & descent in presence of good contractions	▪ Fetus large or pelvis small; trial of labor is best test ▪ Clinical assessment is indicated ▪ Proceed for emergency cesarean section
Obstructed Labor	▪ Arrest of dilatation & descent with moulding, caput, edema Ballooning of lower segment, maternal/fetal distress	▪ Perform emergency cesarean section
Inadequate Uterine Activity	▪ < 3 contractions in 10 minutes, each lasting < 40 seconds (Alert column on LCG)	▪ If contractions inadequate, augment with Oxytocin with caution and continuous fetal heart rate monitoring
Prolonged Expulsive Phase	▪ Cervix fully dilated with urge to push, but no descent	▪ Rule out malpresentation/malposition and obstruction ▪ Augment with Oxytocin, if no contraction: assist with vacuum or forceps if head is 1/5 or +1 station (CEmONC) and at +2 station or below in BEmONC facility ▪ Proceed to Cesarean section

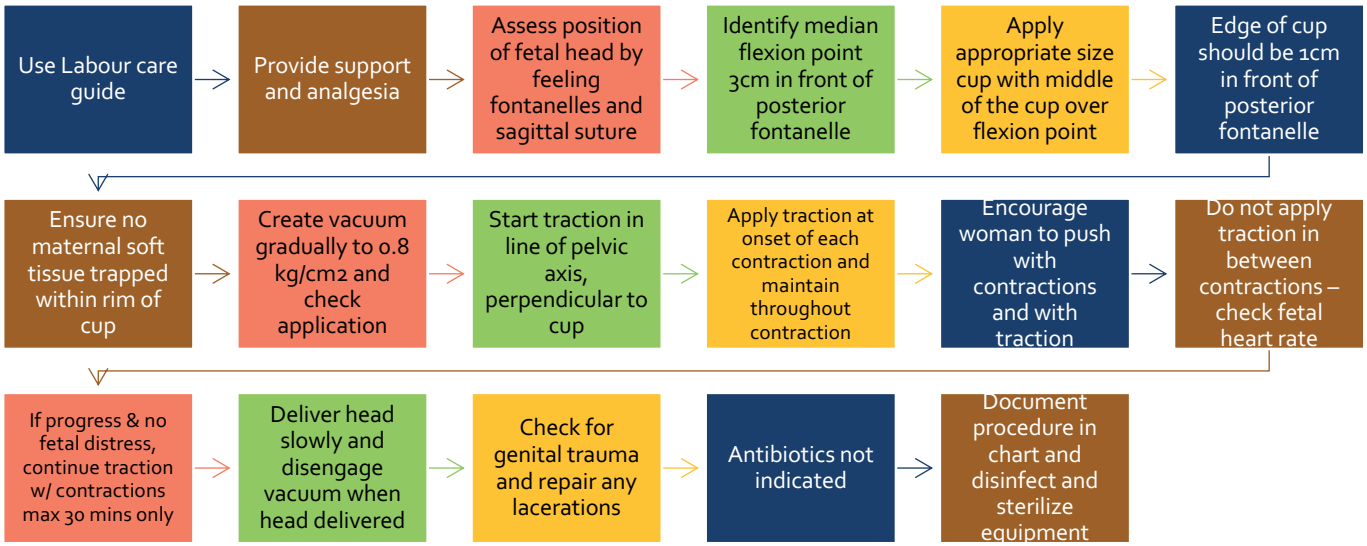
CAUTION	
	▪ Transfer to CEmONC facility if augmentation with Oxytocin needed ▪ Don't use Misoprostol for labor augmentation ▪ Never leave woman on Oxytocin alone ▪ Never give pregnant woman IM Oxytocin

Clinical Guideline for Vacuum-Assisted Birth

- Vacuum assistance is indicated in cases of fetal distress, prolonged expulsive phase or for other conditions were assisted delivery is needed
- Initiate referral and procedure should only be done if a Cesarean Section can be performed within half an hour, in case an emergency happens as a result of vacuum extraction (Which essentially means that there is linkage with the CEmONC facility for ready transfer)
- Should be performed only by clinicians who are trained & competent in its use

CONDITIONS BEFORE USE	
▪ Vertex presentation ▪ Cervix fully dilated ▪ Term fetus	▪ Fetal head at minimum of 0 station in CEmONC and foetal head at minimum of +2 at BEmONC ▪ Adequately skilled clinician ▪ Adequate progress on labour care guide ▪ Bladder should be empty

PROCEDURE



COMPLICATIONS	STOP PROCEDURE!
Scalp edema (caput) – counsel and reassure mother that it resolves in hours, no intervention needed	If fetal head does not advance or no descent with 3 pulls
Scalp abrasions or lacerations – pediatrician to evaluate	If the cup slips off the head twice
Cephalohaematoma – pediatrician to evaluate, requires observation & resolves in 3-4 weeks	
Intracranial bleeding – rare and requires transfer for immediate pediatric intensive care	

Clinical Protocol for Active Management of Third Stage of Labor & Immediate Care of the Newborn

Active management of the third stage of labor reduces the incidence of postpartum hemorrhage and should be used routinely for ALL deliveries

ACTIVE MANAGEMENT OF THIRD STAGE

Within 1 minute of delivery of the baby:

- Palpate to exclude a second baby
- Administer 10 IU Oxytocin IM (preferred) or 600mcg Misoprostol orally/sublingually
- Place on mother's belly, dry baby
- Initiate breastfeeding within the first hour if mother and baby stable
- Clamp and cut cord immediately if resuscitation needed
- Delay cutting cord 1-3 minutes if resuscitation not needed
- Deliver placenta by controlled cord traction (stabilize uterus by applying counter-traction with other hand) and check to ensure placenta complete
- Check to ensure that uterus is contracted
- Make sure bladder is empty
- Monitor uterine tone every 15 minutes for the first 1 hour and massage to expel clots only if necessary
- Estimate and record blood loss
- If PPH – refer to PPH protocol
- Keep woman and newborn in birthing room for at least one hour after birth
- Do postnatal check at 1 and 6 hours after delivery and before discharge: BP, pulse, respiration, uterine tone, blood loss, state of mother and baby
- Keep mothers and newborn in the facility for at least 24 hours after birth
- Schedule additional postnatal checks at 3-7 days and 6 weeks after delivery
- Before discharge, counsel on birth spacing, exclusive breastfeeding, diet, contraception, resumption of sexual relations, follow-up care, and warning signs for mother and newborn

IMMEDIATE CARE OF THE NEWBORN

Immediately after delivery	▪ Wipe the baby with dry cloth and keep baby w arm ▪ Assess if resuscitation required

BREATHING	NOT BREATHING
Put baby skin to skin with mother and encourage breastfeeding immediately and within 1 hour of birth	Call for help (refer to neonatal resuscitation protocol)
Suction not needed if baby vigorous and crying Do not bathe baby for at least 24 hours	Suction mouth and nose only if meconium present, suction not needed if baby vigorous and crying

Clean cord with chlorhexidine 7.1% solution and expose cord above the diaper	Resuscitate baby using the Ambu Bag and mask
Give Vitamin K (dose 1mg/1ml) - 1mg IM (term babies) or 0.5mg IM (preterm babies)	After resuscitation, if the baby improves treat as a breathing child
Apply 1% tetracycline eye ointment to the inside of the lower eyelids of both eyes	Meanwhile, arrange immediate referral to nearest Neonatal Intensive Care Unit, if baby is not breathing.

Clinical Protocol for Management of Antepartum Hemorrhage (APH)

- Vaginal bleeding after 24 weeks of pregnancy
- Vaginal bleeding in labour before giving birth
- **Transport to CEmONC facility immediately with IV line in place**

DIAGNOSIS	SIGNS & SYMPTOMS
Abruptio Placentae: Placenta detachment	▪ Painful bleeding (abdominal pain); tense/tender uterus ▪ Decreased/absent fetal movement, fetal heart rate abnormalities / absent fetal HR
Placenta Previa: Placenta implanted at or near cervix	▪ Painless bleeding; relaxed uterus ▪ Normal fetal condition
Ruptured Uterus	▪ Bleeding sometimes absent/light as it might be internal ▪ Usually a complication of obstructed labor ▪ Severe abdominal/labor pain which suddenly stops; distension; abnormal uterine shape ▪ Fetal heart rate abnormalities / absent fetal HR, easily palpable fetal parts

INVESTIGATIONS & ACTIONS

- **Call for help**
- Rapid evaluation: vital signs, consciousness, volume of blood loss, pain
- If shock suspected, immediately begin treatment
- Check fetal heart rate and ask about fetal movements
- Insert large bore (14-16 g) IV cannula and start IV fluids & check Hb, blood type, cross-matching, bedside clotting test
- Perform ultrasound if available

ABRUPTIO PLACENTAE

- Transfuse whole blood / packed cells as necessary

If heavy bleeding:

- Deliver as soon as possible
- If cervix fully dilated consider vacuum / forceps delivery
- If birth not imminent à C/S

If spotting & fetal HR abnormal (<110 or >160):

- Perform rapid vaginal birth or immediate C/S

If spotting & fetal HR normal or absent:

- If in labor with poor contractions augment with **Oxytocin**
- If cervix unfavorable, perform C/S (be prepared to do uterine compression suture or hysterectomy as high risk of PPH)

PLACENTA PREVIA

If heavy or continuous bleeding:

- Perform immediate C/S
- irrespective of fetal maturity

If bleeding has stopped & fetus alive but premature:

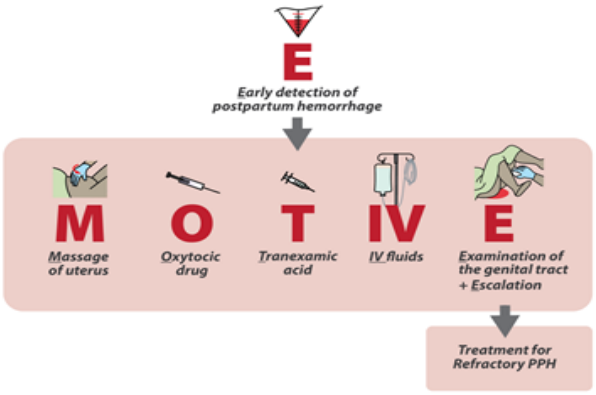
- Expectant management until heavy bleeding or delivery
- Keep in hospital until delivery
- Give antenatal corticosteroids
- Ensure blood available for transfusion
- Delivery by C/S at 37 weeks
- Vaginal delivery might be possible if placenta is low-lying and not completely obstructing cervix

RUPTURED UTERUS

- Transfuse as necessary
- Vaginal bleeding may be absent or spotting despite significant intra-peritoneal hemorrhage
- Immediately perform laparotomy when stable
- Repair uterus if possible
- If uterus cannot be repaired, perform sub-total hysterectomy
- Total hysterectomy if tear extends through cervix

Clinical Protocol for Management of Postpartum Hemorrhage (PPH)

- Blood loss > 500ml after vaginal birth or > 1000ml after cesarean birth
- Primary PPH: occurs within 24 hours of delivery; Secondary PPH: occurs after 24 hours of delivery
- Any blood loss which causes cardiovascular compromise / deterioration of vital signs of patient
- Patient with PPH can **die in < 1 hour of bleeding** if no action taken
- Early detection by calculated estimation of blood loss preferably using a calibrated Drape
- Initiation and administration of first response PPH bundle management (**massage + uterotonic +Tranexamic Acid + IV Fluids + Establish cause**) **if blood loss is > 500ml or > 300ml in anemic patient,** prior to transfer to CEmONC



SIGNS AND SYMPTOMS	INVESTIGATIONS & ACTIONS
Bleeding	**Call for help**
Rapid pulse, ↓BP, rapid respiration	Do quick check to determine cause: Tone, Tears, Tissue, Thrombin
Pale conjunctiva or pallor	Insert large IV line & start IV Fluids & check Hb, blood type, cross-matching, bedside clotting time
Restlessness or confusion	

MANAGEMENT

PPH Prevention
ANC , Rx Anaemia, AMTSL

Trigger Treatment of PPH Early detection
blood loss of 500mls, or 300 mls + any abnormal sign

HELP !

1st Bundle

Uterine Massage * IVL & Fluids RL/ NS * Establish Cause * More Oxytocics * Tranexamic Acid

Supportive measures

Tears Rx * Catheterize Bladder * Empty Uterus

2nd Bundle Refractory PPH

Bimanual Compression * Aortic Compression * Uterine Balloon Tamponade * NASG Antishock

Supportive measures

Blood Transfusion * Surgery * Referral

Surgery

Uterine Artery Embolization * B -Lynch/ Buttress * Ligation of uterine & Ovarian Arteries * Hysterectomy

UTERINE ATONY (TONE)

- Initiate first response PPH bundle (**massage + uterotonic +Tranexamic Acid + IV FLUIDS + Establish cause**)
- Catheterize
- Examine cervix, vagina, perineum
- **Oxytocin** 20 nunits in 1L IV fast fast (or 10 units IM), then continue at 40 drops/min for 6hrs (not more than 3 litres of fluids containing oxytocin)
- **Misoprostol** 800mcg sublingually/oral or rectally (1600mcg max in 24 hours)
- Bimanual compression or aortic compression
- Uterine Balloon Tamponade
- **Tranexamic Acid*** 1g IV (10ml of 100mg/ml) given over 10 mins. Give 2nd dose if bleeding continues after 30 mins or if restarts within 24 hrs of completing 1st dose.
- Laparotomy for compression sutrues / ligation of uterine and ovarian artery/ hysterectomy

RETAINED PLACENTA (TISSUE)

- Initiate first response PPH bundle (**massage + uterotonic +Tranexamic Acid + IV FLUIDS + Establish cause**
- Catheterize
- **Retained placenta with NO BLEEDING is high risk for accreta – TRANSFER to CEMONC and do not attempt removal!**
- if placenta is retained for 30 min (make her squat) and perform / transfer for manual removal of placenta under anesthesia
- Give Ampicillin 2 g IV
- Evacuate uterus in theatre for retained products and prepare for further surgical intervention

LACERATION (TEARS)

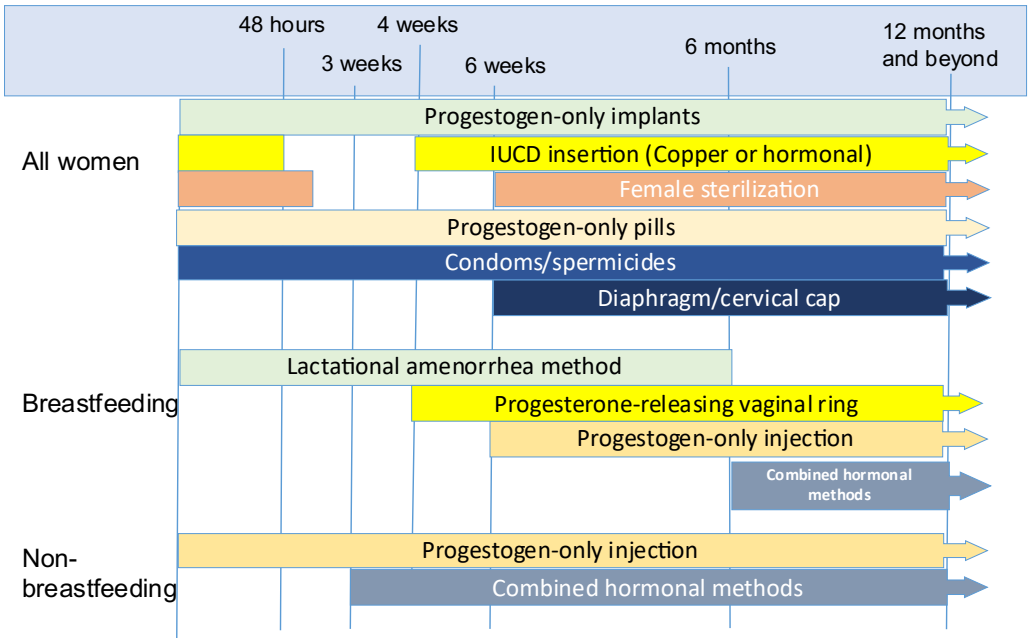
- Initiate first response PPH bundle (**massage + uterotonic +Tranexamic Acid + IV FLUIDS + Establish cause**)
- Confirm uterus is firm
- Catheterize
- Examine cervix, vagina, perineum
- Repair laceration under anesthesia
- If uterine rupture – laparotomy

COAGULOPATHY (THROMBIN)

- Initiate first response PPH bundle (**massage + uterotonic +Tranexamic Acid + IV FLUIDS + Establish cause**)
- Catheterize
- Examine cervix, vagina, perineum
- Balloon tamponade
- **Refer to CEmNOC**
- **Transfuse blood and blood products (platelets, FFPs,)**

*Give Tranexamic acid ASAP, and give 1st dose only within 1-3 hours after delivery; do not give to women with a known thromboembolic event like a DVT during pregnancy

Postpartum Contraceptive Options

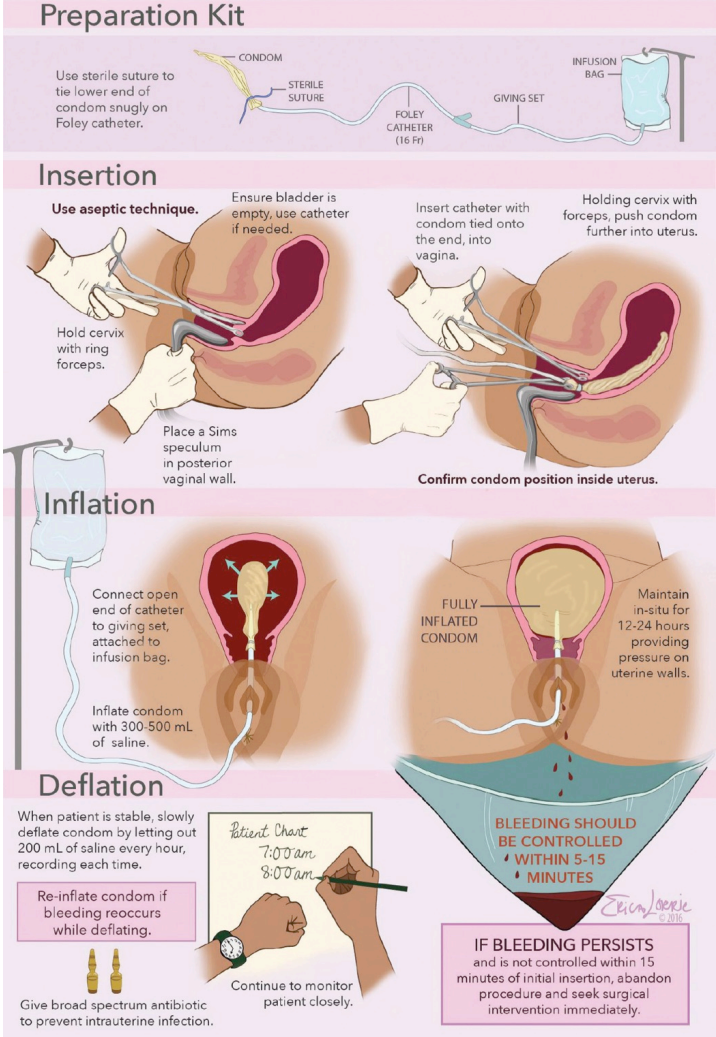


Clinical Protocol for Intrauterine Balloon Tamponade Method 1

- This is second bundle of management for refractory PPH if first response bundle have failed to control postpartum hemorrhage

EQUIPMENT NEEDED

- Condom + IV giving set + Speculum+ Clamp + Ring Forceps + Saline / any IV drip or mineral Water bottle+ String or 2 rubber bands + Povidone iodine + Gauze



Source: Jhpiego

INSERTION PROCEDURE

- Give **Ampicillin** 2g IV x 1
- Apply antiseptic solution to perineal area and vagina
- Place urinary catheter to drain bladder
- Secure condoms on IV giving set with a string or rubber bands at the hub
- Insert sterile speculum in vagina
- Grasp anterior lip of cervix with sterile ring forcep
- Grasp IV giving set with attached condom with forcep & thread through cervix making sure inflatable bulb is past internal cervical os (this can be done blindly if speculum/forceps not available) and into the midcavity of uterus
- Once in uterus, inflate condom with 300-500ml saline/water using syringe or giving set
- You may pack upper vagina with roller gauze to prevent balloon expulsion
- Palpate fundus abdominally & mark with pen as a reference for monitoring

MONITORING AND REMOVAL OF BALLOON

- Give Oxytocin 20 units in 1L IVFs at 60 drops per minute; give Tranexamic Acid 1g IV if indicated
- Monitor vital signs, urine output, uterine fundal height, and vaginal bleeding
- After 24 hours if uterine fundus remains same level & no bleeding, start deflation
- Deflate balloon 100-200ml every hour as long as no bleeding (re-inflate for bleeding)
- If no bleeding 30 minutes after balloon deflated, remove balloon and stop Oxytocin
- If bleeding starts after balloon deflated or Oxytocin stops, re-inflate, restart Oxytocin and prepare for surgical treatment
- Remove urinary catheter
- Monitor woman for 24 hours after balloon removal before discharge home

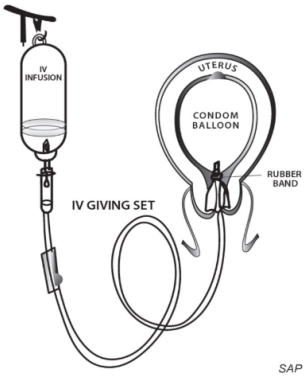
Clinical Protocol for Intrauterine Balloon Tamponade Method 2

Uterine Balloon Tamponade (UBT) Kit

- Condoms x 2
- Rubber bans x 2 or sterile suture
- IV giving set x 1
- Mineral water bottle or normal saline solution – 500ml x 1
- Sim's speculum x 1
- Sponge holders x 2
- Iodine disinfectant
- Adhesive tape

Instructions

Assembling the UBT (wear sterile gloves to assemble on a sterile tray/ sheet/ paper)



- Assistant removes the IV giving set, condom out of the packaging & deposits on a sterile surface.
- Roll out the condom completely
- Remove the needle & it's cap from the IV giving set (not required)
- Assistant will attach the 500ml Mineral water bottle or normal saline IV infusion with the other end of the IV giving set, run the water/ saline in the tubing till end then close the valve on the IV giving set
- Insert the end of giving set from where the needle has been removed into the condom
- Secure the condom on the rigid portion of the IV giving set (Avoid the soft flexible tubing of the IV giving set)
- Twist one rubber band 4 times (or place a sterile suture tied with surgeon's knot) around the condom on the rigid hub of IV giving set

Placement of UBT

- Ensure urinary bladder is catheterized with Foley's catheter & retained for monitoring urine output
- Press the uterine fundus downwards slightly to align it with the cervix & vagina, making the procedure easier
- After all aseptic measures insert a Sim's speculum and retract the posterior vaginal wall
- Use iodine disinfectant cotton swab, or povidone iodine solution to gently wipe the entire surface of the condom & rubber band
- Visualize the cervix and hold the anterior lip of the cervix with a sponge forceps
- Hold the condom of the assembled UBT with another Sponge forceps or between index & middle finger & insert the condom into the middle of the uterine cavity
- Hold up the Normal saline infusion bag or Mineral water bottle and open the valve of the IV giving set on full flow
- Fill the condom with 300- 500ml of mineral water or normal saline until the inflated balloon becomes visible in the cervical canal, & bleeding stops (when balloon pressure exceeds patient's BP)
- Once the bleeding stops close the valve of the IV giving set, so no more fluid enters the condom
- Fix the tubing of the IV giving set to the patient's thigh with an adhesive tape
- Uterine fundus is palpated & a mark is made on the abdomen to monitor for any further uterine distention indicating ongoing bleeding
- Keep uterus contracted with IV infusion of 40 units oxytocin in 500 mls of normal saline given over 8 hours

If considerable resistance is felt while inflating the balloon and bleeding persists, pause fluid instillation and re-examine balloon placement to ensure that it is correctly placed inside the uterus and that there are no other sources of bleeding.

Monitoring

- When the bleeding stops, the patient is ready for careful observation or transfer to a referral facility. The UBT device should stay in place for at least 6-24 hours and should always be kept in place during transfer.
- Monitor the patient continuously for signs of increased vaginal bleeding, pulse, Blood Pressure, fundal height, temperature and urine output
- A prophylactic dose of antibiotic is recommended.
- Give appropriate IV fluids or blood replacement products until she is stable & not bleeding heavily
- Worsening clinical signs & symptoms should lead to more aggressive treatment and management

UBT Removal

The timing of balloon removal should be decided by senior clinicians once the patient is stabilized.

- Keep the patient fasting, when removal is planned, in case the patient starts to bleed and anaesthesia is required
- Put the IV infusion bottle on a lower level than the patient & open the valve of the IV giving set & remove 50-100 ml of fluid from the condom balloon, then close it again
- Observe for 30 –60 minutes for return of bleeding. Re-inflate if bleeding resumes. If bleeding remains arrested, fully deflate the condom by removing all the fluid from it
- Remove the adhesive tape on thigh & UBT device from the patient's uterus and vagina by pulling it out
- Continue oxytocin infusion for another 12 hrs to keep uterus well contracted

Warnings

- UBT is a single use device. Do not use it multiple times.
- Avoid excessive force when inserting the balloon into the uterus
- Use of this device should not delay appropriate application of other critical interventions such as uterotonics, blood products, angiography and/or surgery.
- Avoid leaving the UBT indwelling for more than 24 hours (Senior clinicians to decide)
- The balloon should never be inflated with air, carbon dioxide, or any other gas.
- Use 500 mls maximum inflation of the condom balloon



Emergency arrangement in case of non-availability of Ellavi Uterine Baloon Temponade



Ellavi Uterine Baloon Temponade

Clinical Protocol for Obstetric Blood Transfusions

- Used correctly, blood transfusions can save lives
- **Transfusions can cause severe complications & transmission of infections so use appropriately**

INDICATIONS FOR TRANSFUSION	RISKS OF TRANSFUSION
Hypovolemic shock from conditions including PPH, APH, and surgery	Incompatible blood transfusion can cause severe hemolytic reactions and death
Severe anemia (Hb <7 g/dl) especially late in pregnancy or with cardiac failure	Transmission of infections like HIV, Hep B, Hep C, Syphilis, Malaria
Most obstetric patients require transfusion at a Hb level < 7 g/dl but other factors should also be weighed before making a decision to transfuse	Blood can become contaminated with bacteria and cause life-threatening infections

PROCEDURE FOR TRANSFUSION

1. Screen all blood for infectious agents – HIV, Hep B, Syphilis, Hep C
2. Perform compatibility tests (blood typing & cross-matching) in all non-emergent cases
3. Use emergency release form for release of uncross-matched group specific units (O+ive for RH+ive) only during emergencies
4. Transfuse unit of blood as fast as possible in cases of acute obstetric blood loss
5. Monitor the patient and respond immediately if any adverse reactions occur
6. Don't give any other medications during transfusion
7. Closely monitor temperature, blood pressure, pulse, respiration, fluid balance, and adverse reactions:
   - Before starting the transfusion
   - 15 minutes after starting the transfusion
   - 30 minutes after starting the transfusion
   - Every hour during the transfusion
   - Every 4 hours after stopping the transfusion for 24 hours

MANAGING ADVERSE TRANSFUSION REACTIONS

1. Adverse reactions range from minor skin rash to anaphylactic shock
2. If reaction noticed, stop transfusion immediately, call physician, and give IV fluids
3. If reaction is minor, give Promethazine 25mg orally and observe
4. For anaphylactic shock, give:
   - Adrenaline/Epinephrine 0.1ml in 10ml NS or RL IV slowly once
   - Promethazine 50 mg IV once
   - Hydrocortisone 100-200 mg IV every 2 hours as needed
   - Monitor closely and if needed, transfer to referral center when stable
5. Immediately after reaction, draw fresh sample of woman's blood & send with blood unit, transfusion record, and compatibility form, to blood bank
6. Report all transfusion reactions to physician and blood bank and complete transfusion reaction report
7. Record type of reaction, length of time after start to reaction, volume, & number of units transfused

Clinical Protocol for Cesarean Section

Indications for Cesarean section

Maternal Indications for Cesarean	Uterine/Anatomic Indications for Cesarean	Fetal Indications for Cesarean
▪ Prior cesarean delivery ▪ Pelvic deformity or cephalopelvic disproportion ▪ Previous perineal trauma ▪ Prior pelvic or anal/rectal reconstructive surgery ▪ Herpes simplex or HIV infection ▪ Cardiac or pulmonary disease ▪ Cerebral aneurysm or arteriovenous malformation ▪ Pathology requiring concurrent intraabdominal surgery ▪ Perimortem cesarean	▪ Abnormal placentation (such as placenta previa, placenta accreta) ▪ Placental abruption ▪ Prior classical hysterotomy ▪ Prior full-thickness myomectomy ▪ History of uterine incision dehiscence ▪ Invasive cervical cancer ▪ Prior trachelectomy ▪ Genital tract obstructive mass ▪ Permanent cerclage	▪ Compromised fetal status (absent or reverse end diastolic flow on umbilical artery doppler) or abnormal fetal heart tracing ▪ Umbilical cord prolapse ▪ Failed operative vaginal delivery ▪ Malpresentation ▪ Macrosomia ▪ Prior neonatal birth trauma

Equipment

- Surgical table - which can move up and down based on the surgeon's needs. Associated with the surgical table are the rests for the patient's arms, a safety strap or belt to ensure the patient does not fall off the table, and some ramp (or even a rolled blanket) to achieve left lateral tilt of the patient. Surgical step stools should be available for the surgeon.
- A blanket warmer - provides warming for both the patient and the neonate.
- An indwelling catheter is usually placed in the patient's bladder before the surgery
- Overhead lighting to provide adequate illumination of the surgical field
- A surgical drape
- Anesthesia equipment
- "Surgical tray" - This tray may include several kinds of scissors (bandage, Metzenbaum, straight and curved Mayo), several kinds of clamps (Kelly, Kocher, Allis, Babcock), sponge forceps, several kinds of tissue forceps (Adson, Russian, Ferris Smith, smooth), retractors (bladder blade, Army Navy, Richardson), knife handles, needle drivers, suction (Yankauer or Poole)

Personnel

The primary personnel for a cesarean section consists of:

- Obstetrician/gynecologist
- The surgeon's assistant
- The anesthesiologist or anesthetist
- A scrub nurse or technician
- A circulating nurse
- Trained staff for the neonate

Preparation

- Preoperative antacids (sodium citrate) and a histamine H2 antagonist can be administered to prevent low gastric pH
- NPO after midnight." In a stable patient with an unscheduled cesarean, it is common to ask the patient to fast for 6 hours. In the case of emergencies, NPO status may be superseded by urgent fetal or maternal indications.
- Prophylactic antibiotics should be given preoperatively. A single intravenous dose of 1 g of cephazolin (15-60 min prior to skin incision, ideally within 30 minutes of skin incision and preferably should be given in operating room) is routine for women weighing less than 80 kg, and the dose increases to 2 g for patients weighing 80 kg or more. For patients who have a contraindication / severe allergy to cephazolin, such as a significant allergy, prophylaxis with Ampicilin 2g IV.
- Topical povidone-iodine and chlorhexidine are both effective for abdominal skin preparation.

Technique

Pfannenstiel-Kerr Method	Joel-Cohen Method
▪ Pfannenstiel skin incision - A Pfannenstiel skin incision is slightly curved and is located 2 to 3 centimeters or 2 fingerbreadths above the symphysis pubis. ▪ Sharp dissection of the subcutaneous layer ▪ Sharp extension of the fascial opening ▪ Sharp entry into the peritoneum	▪ Joel-Cohen skin incision - It is straight incision 3 cm below the line connecting the anterior superior iliac spines, making it more cephalad than a Pfannenstiel skin incision ▪ Blunt dissection of the subcutaneous layer ▪ Blunt extension of the fascial opening ▪ Blunt entry into the peritoneum

Procedure

- Open uterovesical fold with scissors , gently push bladder down with one finger
- Lower segment uterine incision in centre with blunt finger extension laterally
- Gently lift the baby head through the incision taking care not to extend the incision down towards cervix, with other hand press the fundus and deliver the baby
- If head is deeply impacted in pelvis then assistant with sterile gloves should push the head upwards from the vagina
- Clamp the cord after one minute if feasible (meanwhile clean and wrap the baby)
- wait for spontaneous expulsion of the placenta and membranes/ controlled cord traction
- Check placenta is complete and uterine cavity is empty
- Consider post-partum family planning option: insert IUCD in the uterine fundus / tubal ligation if women has requested for PPIUCD.
- Double layer closure of the uterus with continuous sutures (No.1 vicryl). If there is bleeding from incision site close with mattress suture or figure of 8.
- Inspect ovaries, ensure homeostasis and remove blood clots
- Confirm swab and instrument count.
- Continuous closure of the rectus sheath with No. 1 vicryl or prolene.
- Interrupted fat layer sutures if subcutaneous fat is more than 2 cms
- Continuous subcutaneous suture of the skin with 2/0 vicryl or catgut.
- Consider DVT prophylaxis if indicated

Clinical Guideline for Postoperative Care After Obstetric Surgery

Close monitoring and intensive care is needed after obstetric surgery to allow prompt identification and treatment of complications and to ensure optimal recovery after surgery

IMMEDIATE CARE AFTER SURGERY	1. Screen all blood for infectious agents – HIV, Hep B, Syphilis, Hep C	2. Provide close anesthesia and nursing supervision in special post-operative care area for 1 hour after surgery	3. Women with complicated surgery might need longer periods of monitoring
4. Ensure continuous monitoring and supervision until woman is conscious	5. Check vital signs (pulse, BP, respiratory rate, temperature) every 15 minutes in first hour	6. Check vital signs every 30 minutes in second hour	7. Check vital signs hourly for 2 more hours, then routine vital signs every 6 hours
8. When checking vital signs, assess consciousness and evaluate for airway obstruction, hypoxia, hemorrhage (internal and external), postoperative pain, and vomiting/aspiration	9. If vital signs become unstable or if bleeding is more than expected, call for help	10. If vital signs unstable or heavy bleeding, blood transfusion or repeat surgery might be needed	11. Promote breastfeeding within the first hour if mother is awake and alert

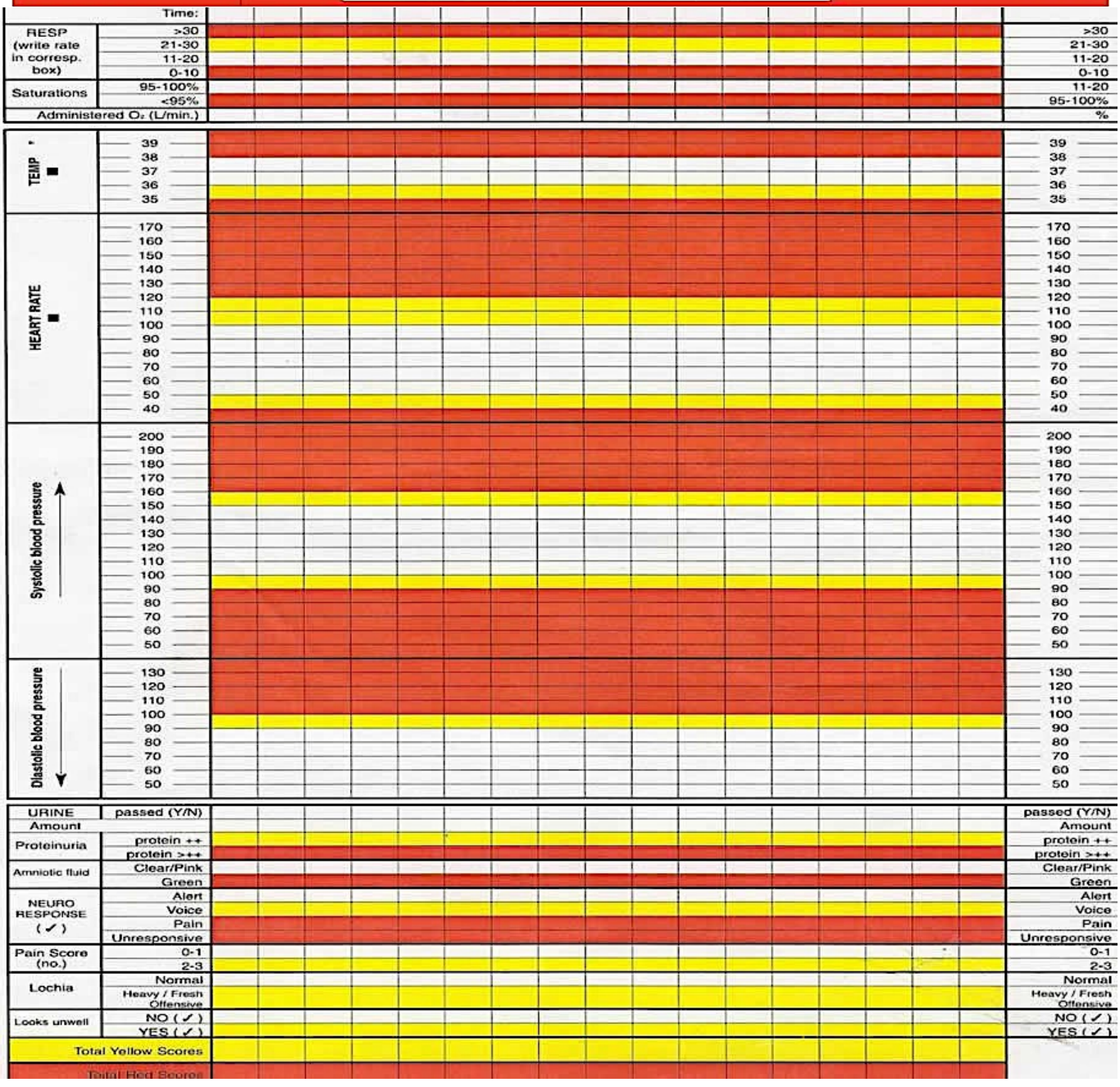
Modified Early Obstetrics Warning Score (MEOWS)

MEOWS is a simple, quick-to-use tool based on routine physiological observations. The scoring of these indicators can provide an indication of the overall status of the patient's condition. Prompt action and urgent medical review when indicated, allow for appropriate management of women at risk of deterioration. There are three components of MEOWS (a) Competency team (b) Urgency of clinical review (c) Frequency of Monitoring.

When to use MEOWS System:

(i) All women in active labour and following pregnancy
(ii) All antenatal admission to the hospital
(iii) All post-natal admission to the hospital
(iv) If any health problem is suspected
(v) If the mother ever reports feeling unwell
(vi) Post-operative patients.


Within In Range
Score 0-2
Continue to monitor and assess patient at ordered intervals
Assess Patient
Score 3-4
Check equipment function and troubleshoot as needed
Perform assessment of the patient, critically thinking about potential etiology of the score
View vital sign trend line
Implement Nursing interventions as appropriate
Notify Charge Nurse of OBVSA score and trend
Document assessment, intervention and outcome
Monitor vital signs at more frequent intervals until they return to baseline or score is less than 3
Take Action
Score 5-8+
Check equipment function and troubleshoot as needed
Perform assessment of the patient, critically thinking potential etiology of the score
View vital sign trend line
Implement Nursing interventions as appropriate
Notify Charge Nurse of OBVSA score and trend
Notify MD/CNM of patient score, condition and assessment
Consider calling Medical Response Team
Document assessment, intervention and outcome
Monitor vital signs at more frequent intervals until they return to baseline or score is less than 3


Time:
RESP (write rate in corresp. box)
>30
21-30
11-20
0-10
Saturations
95-100%
<95%
Administered O₂ (L/min.)
%
TEMP
39
38
37
36
35
HEART RATE
170
160
150
140
130
120
110
100
90
80
70
60
50
40
Systolic blood pressure
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
Diastolic blood pressure
130
120
110
100
90
80
70
60
50
URINE
passed (Y/N)
Amount
Proteinuria
protein ++
protein >++
Amniotic fluid
Clear/Pink
Green
NEURO RESPONSE (✓)
Alert
Voice
Pain
Unresponsive
Pain Score (no.)
0-1
2-3
Lochia
Normal
Heavy / Fresh
Offensive
Looks unwell
NO (✓)
YES (✓)
Total Yellow Scores
Total Red Scores

ROUTINE CARE AFTER SURGERY	1. Give prophylactic IV antibiotics 15-60 minutes before making skin incision and continue x 24 hours only	2. Continue IV antibiotics for 7 days for complicated cases	3. Encourage patient to walk 12 hours after surgery to decrease risk of thrombosis (clots) in legs
4. Transfer to regular post-operative ward 1 hour after surgery if vital signs and bleeding normal	5. For uncomplicated procedures, give liquid diet starting 6-12 hours after surgery	6. If infection or if C/S was for uterine rupture, wait until bowel sounds present before giving liquids	7. Discontinue IV fluids once woman is tolerating liquids well
8. Give regular diet 24 hours after surgery if patient doing well	9. Monitor urine output and urine color	10. Early catheter removal reduces risk of infection - if urine clear and output adequate, remove catheter 8 hours after surgery or after first postoperative night	11. If urine not clear, leave catheter until urine is clear
12. Wait 48 hours after surgery to remove catheter if: uterine rupture, prolonged or obstructed labor, massive perineal edema, or puerperal sepsis with pelvic peritonitis	13. If bladder injured during labor or surgery or if there is suspicion of bladder injury – leave catheter in place for minimum 7 days and until urine clear	14. If woman not on antibiotics – give Nitrofurantoin 100mg po daily until catheter removed	15. If there were signs of infection or if the woman currently has fever – give broad spectrum antibiotics until the woman is fever-free for 48 hours, then oral to complete 7 days
16. Encourage ambulation 12-24 hours after surgery, and ambulate 3 times a day	17. Most women can be discharged 3-4 days after surgery, if there were no complications	18. Women should be voiding and ambulating without difficulty, eating regular diet, have stable vital signs and no fever x 24 hours prior to discharge home	

Emergency readiness with Rapid initial assessment and management

The survival of a woman experiencing an obstetric emergency is determined by the amount of time it takes for care to be delivered and by the level and quality of care provided. When a woman of childbearing age presents with a problem, rapidly assess her condition to determine the extent of her illness.

Rapid initial assessment

Assess	Danger Signs	Consider
Airway and breathing	**LOOK FOR:** ▪ cyanosis (blueness) ▪ respiratory distress **EXAMINE:** ▪ skin: pallor ▪ lungs: wheezing or rales	▪ severe anaemia ▪ heart failure ▪ pneumonia ▪ asthma
Circulation (signs of shock)	**EXAMINE:** ▪ skin: cool and clammy ▪ pulse: fast (110 or more) and weak ▪ blood pressure: low (systolic less than 90 mmHg)	▪ Shock
Vaginal bleeding (early or late pregnancy or after childbirth)	**ASK IF:** ▪ pregnant, length of gestation ▪ recently given birth ▪ placenta delivered EXAMINE: ▪ vulva: amount of bleeding, placenta retained, obvious tears ▪ uterus: atony ▪ bladder: full Do not do a vaginal exam at this stage.	**Vaginal bleeding in early pregnancy** ▪ abortion ▪ ectopic pregnancy ▪ molar pregnancy **Vaginal bleeding in later pregnancy and labour** ▪ abruptio placentae ▪ ruptured uterus ▪ placenta praevia **Vaginal bleeding after childbirth** ▪ atonic uterus ▪ tears of cervix and vagina • retained placenta ▪ inverted uterus

STARTING AN IV INFUSION

- Explain what is involved in giving an IV infusion and its purpose to the woman and any accompanying family members the woman would like to have involved in decision-making. If the woman is unconscious, explain the procedure to her family.
- Obtain informed consent for starting an IV infusion.
- Start an IV infusion (two if the woman is in shock) using a large-bore (16-gauge or largest available) cannula or needle.
- Infuse IV fluids (normal saline or Ringer's lactate) at a rate appropriate for the woman's condition.
- Note: If the woman is in shock, avoid using plasma substitutes (e.g. dextran). There is no evidence that plasma substitutes are superior to normal saline in the resuscitation of a woman in shock, and dextran can be harmful in large doses.
- If a peripheral vein cannot be cannulated, perform a venous cutdown

BASIC PRINCIPLES FOR PROCEDURES

Before any simple (non-operative) procedure, the following steps are necessary:

- Where feasible, ensure that the woman has a companion of her choice during the procedure. • Gather and prepare all supplies. A lack of needed supplies can disrupt a procedure.
- Explain the procedure and the need for it to the woman and any accompanying family members the woman would like to have involved in decision-making. If the woman is unconscious, explain the procedure to her family.
- Obtain informed consent for the procedure.
- Estimate the length of time for the procedure and provide pain medication accordingly

DVT risk assessment, prophylaxis and initial treatment

- Any woman with symptoms and/or signs suggestive of PE & VTE should have objective testing performed expeditiously and treatment with low-molecular-weight heparin (LMWH) given until the diagnosis is excluded by objective testing, unless treatment is strongly contraindicated.
- LMWH should be given in doses titrated against the woman's booking or early pregnancy weight.
- Perform Echo & CXR for suspected PE, CTPA may be needed , For VTE , Duplex doppler needed
- Women should be managed on an individual basis regarding: intravenous unfractionated heparin, thrombolytic therapy or thoracotomy and surgical embolectomy.
- Collapsed, shocked women who are pregnant or in the puerperium should be assessed by a team of experienced clinicians including the on-call consultant obstetrician.

VTE RISK ASSESSMENT & PROPHYLAXIS

STEP 1: Perform Risk Assessment : Complete on Admission to Unit. Choose ALL that apply from each section

RISK FACTORS

Section I: Age related risk factors

- ❑ Age 41-60 years (1pt.)
- ❑ Age 61-74 years (2 pts.)
- ❑ Age: ≥ 75 years (3 pts.)

Section II: Disease related risk factors

- ❑ Sepsis / Pneumonia , <1 month (1 pt.)
- ❑ Chronic Lung Disease, (COPD & other respiratory disease) (1 pt.)
- ❑ Abnormal Pulmonary Function Test , PFTs (1 pt.)
- ❑ Stroke , within past month (5 pts)
- ❑ Swollen legs ,current (1 pt.)
- ❑ Varicose veins (1 pt.)
- ❑ Acute myocardial infarction (1 pt.)
- ❑ Congestive heart failure , < 1 month (1 pt.)
- ❑ Central venous access (2 pts.)
- ❑ History of inflammatory bowel disease (1 pt.)

Section III: Hematology related risk factors

- ❑ History of DVT /PE (3 pts)
- ❑ Family history of VTE (3 pts)
- ❑ Sickle cell anemia (3pts)
- ❑ Elevated serum homocysteine (3 pts)
- ❑ Positive Factor V Leiden (3 pts)
- ❑ Heparin-induced thrombocytopenia - HIT (3 pts)
- ❑ Prothrombin 20210A (3 pts)
- ❑ Lupus anticoagulant, (Systemic Lupus Erythematous- SLE), others CTD (3 pts)
- ❑ Anticardiolipin antibodies (3 pts)
- ❑ Previous Cancer (2pts)
- ❑ Active Cancer (3 pts)
- ❑ Other congenital or acquired thrombophilia (3 pts)

HIT score 3, referred directly for consultation to Hematology upon admission

Section IV: Mobility related risk factors

- ❑ Currently on bed rest or restricted mobility (1pt.)
- ❑ Bed bound for more than > 72 hrs (2 pts.)
- ❑ Immobilizing plaster cast (2 pts.)

Section V: Female Specific risk factors

- ❑ Pregnant or post-partum, <1 month (1pt.)
- ❑ Oral contraceptives or hormone Replacement therapy (1pt.)
- ❑ History of unexplained / recurrent spontaneous abortion ≥2 (1pt.)

Section VI: Surgery related risk factors

- ❑ Minor Surgery (1pt.)
- ❑ Major surgery, in the past month (1pt.)
- ❑ Arthroscopic Surgery (2 pts.)
- ❑ Laparoscopy Surgery, >45 minutes (2 pts.)
- ❑ Major open surgery, >45 minutes (2 pts.)
- ❑ Major surgery lasting 2-3 hours (3 pts)
- ❑ Elective major lower extremity arthroplasty (5pts)
- ❑ Hip OR knee replacement surgery (7pts)
- ❑ Bariatric Surgery:
  - ❑ BMI < 50 kg/m2 ❑ Enoxaparin 40 mg SubCut BID, OR special order
  - ❑ BMI ≥50 kg/m2 ❑ Enoxaparin 60 mg SubCut BID, OR special order

Section VII: Trauma related risk factors

- ❑ Acute spinal cord injury - paralysis , within the past month (5 pts.)
- ❑ Multiple trauma, within past month (5pts)
- ❑ Hip, pelvis or leg fracture, the past month (5pts)

Section VIII: Weight (BMI) related risk factors

- ❑ **Obesity** BMI 24 - 39 Kg/m^2 (1pt.)
- ❑ Obesity BMI ≥ 40 Kg/m^2 (7pts)

Total Risk Factor Score ____

❑ Patient on therapeutic dose / any anti-coagulant
SKIP STEP 2. PROCEED TO THE ADMISSION
(Re assessment can be done once therapeutic management is completed)
Re assessment recommended ❑YES ❑NO

STEP 2: Click below prophylaxis modality based on the risk score

Risk Score: 0 - 2 (Low Risk)	Risk Score: 3 – 6 (Moderate to High risk)	Risk Score = ≥ 7 (Highest risk)
❑ Early Ambulation	CrCl > 30 ml/min ❑ Enoxaparin 40 mg SubCut Daily CrCl < 30 ml/min ❑ Heparin 5000 IU SubCut TID	Pharmacological agent + IPC or AES CrCl > 30 ml/min ❑ Enoxaparin 30 mg SubCut BID CrCl < 30 ml/min ❑ Heparin 5000 IU SubCut TID

PROPHYLAXIS SAFETY CONSIDERATION:

Factors Associated with Increase Bleeding after using prophylactic anti-coagulation	Contraindications of Mechanical prophylaxis **Intermittent Pneumatic Compression (IPC) or Anti-embolism stockings(AES)**
❑ significant active bleeding ❑ Heparin-induced thrombocytopenia - HIT (current / history) ❑ Platelet count < 50,000 /mm3 ❑ Creatinine Clearance CrCl < 30 ml/min	❑ patient have severe peripheral arterial disease ❑ patient have Congenital Heart Failure (CHF) ❑ patient have an acute superficial /deep vein thrombosis

Clinical Protocol for Management of Fever after Childbirth

- Fever (≥38.0°C) more than 24 hours after giving childbirth
- Caused by infection in uterus, breast, bladder, kidney, lungs, or wound, and can lead to sepsis.

STABILIZE	INVESTIGATIONS (if available)
ABC & perform rapid evaluation: temperature, pulse, BP, respiration, level of consciousness Complete physical exam including breast and pelvic exam	Complete physical exam including breast and pelvic exam
If shock suspected, immediately begin treatment: IV fluids, antibiotics, transfer to CEmONC	**Blood:** full blood count, culture and sensitivity, malaria, HIV, kidney and liver function tests
	Urine: urinalysis, microscopy, culture & sensitivity
	Vagina: endo-cervical swab for culture Surgical wound swab for culture and sensitivity, if relevant Pelvic Ultrasound

DIAGNOSIS	FINDINGS	TREATMENT
Postpartum Endometritis	▪ Fever/chills, lower abdominal pain, tender uterus, foul lochia	▪ Ampicillin 2g IV 8 hourly + Gentamicin 100mg IV 8 hourly + Metronidazole 500mg IV 8 hourly x 48-72 hrs ▪ Remove any retained placental fragments as soon as possible ▪ If afebrile after 48-72 hrs, change to Amoxicillin 500mg po 8 hourly and Metronidazole 500mg po 8 hourly x 7 more days
Pelvic abscess	▪ Persistent fever, lower abdominal pain, tender uterus, poor response to antibiotics	▪ IV Amp + Gentamicin + Metronidazole X 48-72 hrs ▪ If afebrile, change to Amoxicillin 500mg po 8 hourly and Metronidazole 500mg po 8 hourly x 7 days ▪ Surgical drainage via laparotomy
Breast engorgement	▪ Breast pain and tenderness 3-6 days postpartum, both breasts hard and enlarged ▪ No fever	▪ Breastfeed or express breast milk; analgesics as needed; antibiotics not necessary, hot fomentation
Mastitis	▪ Pain & tenderness in one breast, red area of breast, breast feels hot, fever	▪ Oral antibiotics x 10 days (Co-amoxiclav 1g 12 hourly or Amoxicillin 1g 8 hourly or Cloxacillin 500mg 6 hourly or Amplicox 1 g x 6 hourly Erythromycin 250mg 8 hourly); continue breastfeeding or express breast milk
Breast abscess	▪ Firm fluctuant area in one breast, very tender, redness, draining pus	▪ Drain and pack abscess + oral antibiotics x 10 days (Co-amoxiclav or Amoxicillin or Cloxacillin or Erythromycin); continue breastfeeding or express breast milk
Wound cellulitis	▪ Painful & tender wound, hardened edges, redness & swelling around wound	▪ Oral antibiotics x 10 days (Co-amoxiclav 1g 12 hourly or Amoxicillin 1g 8 hourly or Cloxacillin 500mg 6 hourly or Ampiclox 1g x 6 hourly or Erythromycin 250mg 8 hourly)
Wound abscess or hematoma	▪ Unusually tender wound with bloody or serous discharge	▪ Open and drain wound + Oral antibiotics x 10 days (Co-amoxiclav 1g 12 hourly or Amoxicillin 1g 8 hourly or Cloxacillin 500mg 6 hourly or Ampiclox 1g x 6 hourly or Erythromycin 250mg 8 hourly)
Cystitis	▪ Burning, Painful and frequent urination, lower abdominal pain	▪ Amoxicillin 500mg po 6 hourly x 3 days or Nitrofurantoin 100 mg po twice a day x 3 days and fosfomycin 3g at bed time, after passing urine single dose

Pyelonephritis	▪ Fever/chills, painful and frequent urination, flank pain, CVA costovertebral angle tenderness (back/rib cage)	▪ Ampicillin 2g IV 8 hourly + Gentamicin 100mg IV 8 hourly or Ciprofloxacin 400mg IV 8 hourly x 48 – 72 hours ▪ If afebrile, Amoxicillin 500mg po 6 hourly x 5 days
Pneumonia	▪ Fever, cough, difficult breathing, chest pain, rales, low oxygen saturation	▪ Ceftriaxone 2g IV 24 hourly ▪ If afebrile, Amoxicillin 500mg po 6 hourly x 5 days ▪ Return for further care
Deep vein thrombosis	▪ Swelling in leg, warmth, discoloration, tenderness, fever	Anticoagulation in CEmONC (multi-disciplinary approach)

Clinical Guideline for Management of Intrauterine Fetal Death (IUFD)

- Death of a fetus inside the uterus > 24 weeks of pregnancy
- Possible Causes: Pre-eclampsia/eclampsia; infection; fetal growth restriction; congenital abnormalities; gestational diabetes
- Suspect IUFD if decreased/absent fetal movements & absent heart sounds

MANAGEMENT

- Confirm by ultrasound – absent fetal heart activity, abnormal fetal head shape, reduced or absent amniotic fluid, doubled-up fetus
- Induce or augment labour
- Perform bedside clotting test, if blood fails to clot after 7 minutes, suspect coagulopathy
- Assess cervix for favorability with Bishop Score
- If cervix favorable (Bishop Score 6 or more) – induce with Oxytocin
- If cervix unfavorable (Bishop Score < 6) – use Misoprostol, foley catheter, or oxytocin
- If signs of infection – fever, foul smelling vaginal discharge, tender uterus – give antibiotics 8 hourly (Ampicillin 2g IV + Gentamicin 80 mg IV)

Calculating Bishop Score

Score	0	1	2	3
Dilatation (cm)	closed	1-2	3-4	more than 5
Length of cervix (cm)	more than 4	3-4	1-2	less than 1
Consistency	firm	average	soft	N/A
Position	posterior	mid	anterior	N/A

DELIVERY AND POSTPARTUM CARE

- Perform Cesarean Section only as a last resort
  Counsel for diagnosis, risks and management
- Augment labor with Oxytocin if indicated
- Delay rupturing of membranes to prevent infection
- If obstructed labor, consider cesarian section
- Provide active management of the third stage of labor
  Examine the baby for any congenital anomalies.
  Counsel the mother and family in adverse obstetric outcome
- If stillbirth is macerated, give IV antibiotics for 48 hours and continue with oral antibiotic for 5 days
- Discuss the birth spacing and contraception

Clinical Protocol for Management of Hypertensive Disorders of Pregnancy

MILD PRE-ECLAMPSIA AND MILD GESTATIONAL HYPERTENSION

SIGNS AND SYMPTOMS

BP ≥ 140/90 (at least 2 readings, 4 hours apart)

PLUS, any of these:

- Proteinuria (at least 2+)
- Headache, persistent vomiting, upper abdominal pain
- Visual disturbance
- Generalized edema (hand, face)

Note:

↑BP prior to pregnancy or < 20 weeks gestation is chronic HTN. New onset ↑BP >20 weeks is pre-eclampsia or gestational HTN. ↑ BP without proteinuria or other symptoms of pre-eclampsia is gestational HTN (management is same as pre-eclampsia). W omen with chronic HTN can have super-imposed pre-eclampsia

MANAGEMENT

- Can be managed outpatient by BEmONC or CEmONC clinic (refer from lower level PHU)
- Gestational age < 37 weeks à monitor BP and fetal heart rate twice a week in clinic
- Counsel about danger signs (headache, vomiting, blurry vision, upper abdominal pain)
- **Refer** immediately to CEmONC if Systolic BP ≥ 160 or Diastolic BP ≥ 110 or any danger signs
- **DELIVER** at gestational age > 37 weeks;

assess the cervix and induce or augment labor

Add Anti-hypertensive meds.

Refer to the section severe pre eclampsia and severe gestational hypertension

SEVERE PRE-ECLAMPSIA AND SEVERE GESTATIONAL HYPERTENSION

Inpatient management in CEmONC required

SIGNS AND SYMPTOMS

- **Systolic BP ≥ 160 or Diastolic BP ≥ 110**
- **Severe headache**
- **Visual disturbance, visual disturbance**
- **Epigastric or right upper abdominal pain**
- **Scanty urine - output < 30ml/hr**
- **Hyperreflexia**
- **Pulmonary edema (dyspnea, chest pain, increased respiratory rate, rales on auscultation of lungs)**
- **Generalized edema**
- **HELLP syndrome is a form of severe pre-eclampsia (Haemolysis; Elevated Liver enzymes; Low Platelets)**
- **Proteinuria**

Note:

Diagnosis can be made with ↑BP and any of these signs and symptoms Severe pre-eclampsia or eclampsia can sometimes occur without proteinuria Eclampsia can sometimes occur with a normal BP and without proteinuria

MANAGEMENT

- Manage in hospital
- DELIVER AS SOON AS POSSIBLE
- Place IV cannula and urinary catheter
- Monitor fetal heart rate according to the fetal condition (more frequently in case of feto-maternal compromise)
- Monitor respiratory rate, pulse rate, reflexes, BP & urine output
- Check CBC, liver and kidney function tests
- Give Magnesium Sulphate & continue for 24 hours after delivery
- Monitor for magnesium toxicity* & withhold or delay Magnesium Sulphate for signs of toxicity
- If Respiratory arrest à give Calcium Gluconate 1g IV slowly
- Give antihypertensive drugs if systolic BP ≥ 160 or diastolic BP ≥ 110
- Gestational age < 24 weeks terminate the pregnancy immediately as pre-viable
- Gestational age 24-34 weeks à administer Dexamethasone per protocol and DELIVER after 24 hours if severe range BP or other severe symptoms persist
- Gestational age ≥ 37 weeks à DELIVER within 24 hours
- Determine mode of delivery by Bishop score and patient condition and patient condition (cesarean section on obstetric indication)

Note:

Signs of Magnesium Sulphate toxicity: respiratory rate < 16/minute; absent patellar reflexes, urinary output < 30ml/hour

Clinical Protocol for Management of Eclampsia

ECLAMPSIA

- Serious complication of pre-eclampsia that can cause death
- Characterized by convulsions associated with elevated blood pressure (BP) and proteinuria
- In some cases, eclampsia can occur with normal BP and without proteinuria
- Treat all women with convulsions for eclampsia until another diagnosis confirmed
- Differential diagnosis – Epilepsy, cerebral malaria, meningitis, hypoglycemia
- Treatment is Magnesium Sulphate to prevent more seizures and urgent DELIVERY of the baby
- If in Primary care facility: Place IV line + give loading dose Magnesium Sulphate + **TRANSFER to CEmONC**

MANAGEMENT

NURSING CARE

- **CALL FOR HELP**
- Maintain airway, breathing and circulation (ABCs)
- Prevent aspiration and injuries **(Do not restrain)**
- Place woman in the left lateral position and keep airway clear of secretion
- Maintain airway and give oxygen
- Keep the vein open using a large bore cannula (14-16 gauge) – if possible, place 2 IV lines
- Give **Magnesium Sulphate** per protocol
- Give medications for severe HTN per protocol
- Place urinary catheter and monitor urine output
- Monitor vital signs every 15 minutes – BP, pulse, respirations
- Monitor fetal wellbeing
- Transfer to CEmONC when stable
- Do necessary laboratory investigations – complete blood count and platelets, serum uric acid, creatinine, liver function tests, blood glucose
- Maintain intake and output chart
- Restrict IV fluids to prevent fluid overload, but rehydrate as needed using IV fluids or oral fluids if conscious
- **RECORD ALL OBSERVATIONS AND TREATMENTS ON CHART**

MEDICAL TREATMENT

- Stabilize patient
- Administer Magnesium Sulphate load (4g IV + 10g IM) to prevent other convulsions
- Administer **Hydralazine** 5 mg IV push or IV infusion per protocol (or other antihypertensive) if BP ≥ 160/110
- Keep diastolic BP between 90-100 mm/hg and systolic BP between 140-150 mm/hg
- Expedite **DELIVERY** as soon as possible
- **DELIVER** within **12 hours** of convulsions regardless of gestational age
- If in labor, perform spontaneous vaginal delivery
- Assisted delivery or C/S for fetal distress
- If not in labor, decide best route of delivery – C/S or induced labor
- **Continue** Magnesium Sulphate for 24 hours after delivery or after last convulsion
- Monitor hepatic and renal function
- Restrict IVFs to rate of 80ml/hr if urine output > 30ml/hr, or 100 ml/hr if output < 30ml/hr
- Auscultate lungs for rales & if present, hold IV fluids & give **Furosemide** 40mg IV once
- Monitor for magnesium toxicity & delay or withhold next dose for signs of toxicity
- If respiratory arrest give **Calcium Gluconate** 1g IV slowly

Clinical Guideline for Administration of Magnesium Sulphate for Severe Pre-Eclampsia & Eclampsia

- **Magnesium Sulphate** is drug of choice for prevention and control of eclamptic convulsions (fits)
- Use the same dose to treat severe pre-eclampsia and eclampsia
- If in primary care facility, administer loading dose of Magnesium Sulphate and **TRANSFER** to CEmONC with IV line

LOADING DOSE

ADMINISTER INTRAVENOUS (IV) PLUS INTRAMUSCULAR (IM)

Note: Give same dose regardless of patient weight

If patient is having fits, give IM dose first and then give IV dose when patient is calm

4g Magnesium Sulphate IV	10g Magnesium Sulphate IM
▪ Give 4g of Magnesium Sulphate IV slowly over 20 minutes **How to prepare 4g for IV injection** ▪ Only 20% Magnesium Sulphate solution can be administered IV ▪ If using 50% Magnesium Sulphate solution: dilute by adding 8mls Magnesium solution + 12mls sterile water or NS = inject total 20mls of this dilute 20% solution IV ▪ If using 20% Magnesium Sulphate solution: solution is already dilute = just inject 20mls of this dilute 20% solution IV ▪ Retain IV line in position ▪ Insert and retain urinary catheter	▪ Give 10g total of Magnesium Sulphate – 5g in each buttock as a deep IM injection **How to prepare 5g for IM injection** ▪ Only 50% Magnesium Sulphate solution should be administered IM ▪ Using 50% Magnesium Sulphate solution: Mix 10ml of 50% Magnesium solution + 1ml Lignocaine 2% or 2ml Lignocaine 1% and inject in each buttock directly

MAINTENANCE DOSE

Note: Give same dose regardless of patient weight

- Give 5g Magnesium Sulphate in alternate buttock every four hours
- Monitor and record blood pressure, respiratory rate, and reflexes hourly
- Monitor and record IV input and urinary output hourly to prevent fluid overload
- Restrict IVFs to rate of 80ml/hr if urine output > 30ml/hr, or 100 ml/hr if output < 30ml/hr
- Continue treatment for 24 hours after delivery or after the last convulsion, whichever occurs last
- Ensure there are no signs of Magnesium Sulphate toxicity* before giving repeat dose
- If signs of toxicity present, delay the next IM dose to four hours later

FURTHER FITS

Note: Give in addition to maintenance dose

Patients < 70kg	Patients ≥ 70kg
▪ Give 2g Magnesium Sulphate IV slowly ▪ Mix: 4mls of 50% Magnesium Sulphate solution + 6mls of sterile water or NS	▪ Give 4g Magnesium Sulphate IV slowly ▪ Mix: 8mls of 50% Magnesium Sulphate solution + 12mls of sterile water or NS

***MAGNESIUM SULPHATE TOXICITY**

Monitor closely for signs of toxicity: • Respiratory rate < 16/minute • Absent patellar reflexes • Urinary output < 30 ml/hour - If respiratory arrest – give Calcium Gluconate 1g IV slowly - Antihypertensive medication should be started if systolic BP ≥ 160mm/hg or diastolic BP ≥ 110mm/hg

Clinical Protocol for Administration of Emergency Antihypertensive Medications in Pregnant & Postpartum Patients

- **EMERGENCY** Antihypertensive medication treatment should be started if systolic **BP ≥ 160 mm/hg** or diastolic **BP ≥ 110 mm/hg** to prevent **STROKE**
- Goal for pregnant women with hypertension is to keep BPs slightly above normal (goal: systolic BP 140-150 mm/hg and diastolic BP 90-100 mm/hg) to allow adequate blood flow to the placenta
- Check BP before giving another dose of medication and every 30 minutes
- Once BP stabilized and drops **< 160/100,** treatment should be continued with **oral medications**
- Primary care facilities should administer loading dose of **Magnesium Sulphate** + oral antihypertensive drugs + **REFER** immediately to CEmONC

HYDRALAZINE (Apresoline)

EMERGENCY Intravenous Treatment:

- Give Hydralazine as an IV push or IV infusion
- Maximum IV dose: 20mg in 24 hrs
- STOP HYDRALAZINE WHEN DIASTOLIC BP IS ≤ 90 MM/HG or HEART RATE IS >100/MIN

IV Push

- Give 5mg IV slowly
- Repeat every 5 mins until BP goal achieved
- Repeat hourly as needed

IV Infusion

- Use 500 ml RL or NS and run 300 ml as preload over 15 minutes
- Add 20mg Hydralazine in remaining 200 ml
- Starting Dose is 5mg/hr and increase 1mg/hr titrated according to BP
- Allow 100 mls to run in over 5 minutes at 33 drops per minute (total dose = 10mg)
- Check BP every 15 minutes and reduce the number of drops gradually as the BP decreases and stop when diastolic BP ≤ 90mm/hg

Oral Maintenance Dose when BP < 160/100

- Give 25mg to 50mg orally 4 times a day

LABETALOL

EMERGENCY Intravenous Treatment:

- Give Labetalol 10mg IV push
- If response inadequate after 10 minutes, give 20 mg IV push, then ↑ to 40mg after 10 minutes, then ↑ to 80mg after 10 minutes until BP treatment goal is achieved
- Maximum IV dose: 300mg in 24 hrs
- STOP IV LABETALOL ADMINISTRATION
- WHEN DIASTOLIC BP IS ≤ 90 MM/HG

EMERGENCY Oral treatment:

- Give 200mg orally once
- Repeat dose after 1 hour until BP treatment goal
- is achieved
- Maximum oral dose: 1200mg in 24 hours

Oral Maintenance Dose when BP < 160/100

- Give 200mg every 6-12 hours
- * Do not use labetalol in women with congestive heart failure,hypovolemic shock, or asthma

NIFEDIPINE (immediate release)

EMERGENCY Oral Treatment:

- Give 10mg orally once
- Repeat dose after 20 minutes until BP treatment goal is achieved
- Maximum dose: 30mg in 90 minutes (for acute treatment to lower BP)

Oral Maintenance Dose when BP < 160/100

- Give 10-20mg every 12 hours

METHYLDOPA

EMERGENCY Oral Treatment:

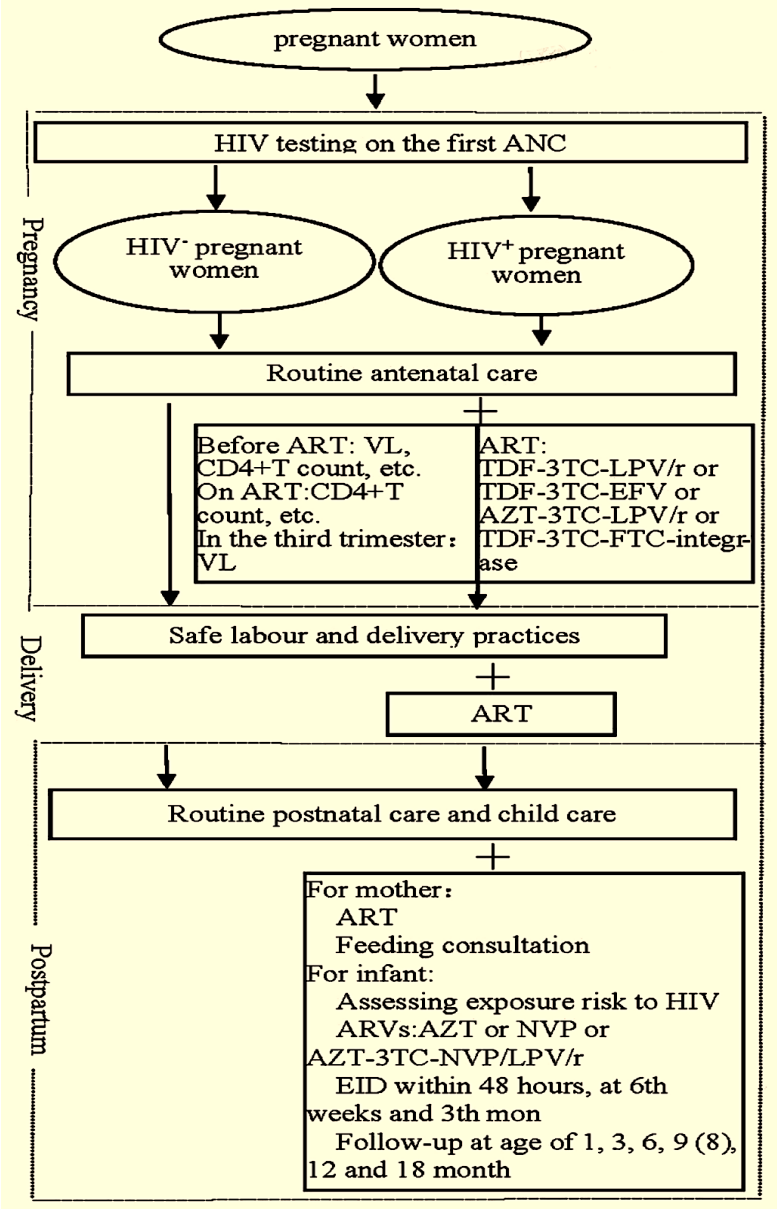
- Give 750mg orally once
- Can repeat dose after 3 hours until treatment goal is achieved
- Maximum dose: 2000mg in 24 hrs

Oral Maintenance Dose when BP < 160/100

- Give 250mg every 6-8 hours
- Maximum oral dose: 2000mg in 24 hours

Prevention of Parent to Child Transmission (PPCT) of HIV

- PPTCT is a lifesaving intervention that prevents HIV transmission from mother to child. Without appropriate interventions, the risk of a child contracting HIV from their mother is significant, and this can lead to serious health complications and even death.
- It is a cornerstone of efforts to prevent pediatric HIV infections. Children who acquire HIV from their mothers have a much higher risk of morbidity and mortality, and PPTCT helps break this transmission cycle.
- PPTCT programs include counseling and testing for pregnant women, which encourages them to be aware of their HIV status. This, in turn, can lead to improved maternal health as HIV-positive mothers can access antiretroviral therapy (ART) to manage their condition.
- PPTCT programs are considered cost-effective in the long run. Preventing HIV infections in infants reduces the need for lifelong treatment and care, which can be expensive.
- It is important to screen the pregnant women for HIV specially in the high-risk districts of Pakistan.
- The prevention cascade for mother to child transmission is reflected in the flow chart.



Flowchart of the prevention of mother-to-child transmission of HIV. 3TC: Zidovudine-lamivudine; ANC: Antenatal care; ART: Antiretroviral therapy; AZT: Zidovudine; EFV: Efavirenz; EID: Early infant diagnosis; FTC: Emtricitabine; LPV/r: Nevirapine/lopinavir/ritonavir; NVP: Nevirapine; TDF: Tenofovir; VL: Viral load.

Clinical Guideline common Neonatal Drug Doses

DRUG	DOSE	ROUTE	FREQUENCY	COMMENT
Ampicillin	**0-7 days:** 50mg/kg per dose **8-28 days:** 50mg/kg per dose	IV/IM IV/IM	BD TDS	First line for serious bacterial infection in combination with gentamicin
Ceftriaxone	100mg/kg per dose	IV	OD	Meningitis
Dextrose 10%	2ml/kg	IV	Once, may be repeated as needed	Hypoglycaemia Blood sugar <2.2
Gentamicin	**0-7 days:** Low birth weight infant (<2.5 kg): 3mg/kg Normal birth weight (2.5 kg): 5mg/kg **8-28 days:** 7.5mg/kg	IV/IM IV/IM IV/IM	OD OD OD	First line for serious bacterial infection in combination with ampicillin
Phenobarbital (200mg/1ml) àDilute by adding 4ml NS à(200mg/5ml)	**Loading dose:** 20mg/kg **Maintenance dose:** 5mg/kg	IV/IM IV/PO	Give loading dose over 15 minutes Calculated Doses: **1-1.5 Kg:** 0.5-0.75 ml **1.51-2 Kg:** 0.75-1 ml **2.1-2.5 Kg:** 1-1.25 ml **2.51-3 Kg:** 1.25-1.5ml **3.1-3.5 Kg:** 1.5-1.75ml OD	First line for convulsions 24 hours after the loading dose is given, the maintenance dose should be continued for 2 Days

Clinical Guideline for Management of Neonatal Sepsis

EARLY DETECTION IN HOSPITAL

All babies in hospital should be observed at least every 4 hours

Review should include: full set of vitals; review of cord; review of activity and breastfeeding

EARLY DETECTION IN HOSPITAL

IF YOU NOTICE ANY OF THE DANGER SIGNS:

- fast breathing (≥60bpm)
- respiratory distress
- grunting
- central cyanosis
- lethargy
- poor feeding
- temperature <35.5 or >38
- pus from cord
- redness spreading from cord
- history of convulsions
- bulging fontanelle

Ampicillin Doses		
Age	**Dose**	**Frequency**
0-7 days	50mg/kg	12 hourly
8-28 days	50mg/kg	8 hourly
29 days +	50mg/kg	6 hourly

Gentamicin Doses			
Age	**Weight**	**Dose**	**Frequency**
<7 days	<2.5kg	3mg/kg	Once a day
	>2.5kg	5mg/kg	Once a day
7 days +		7.5mg/kg	Once a day

When to start Ceftriaxone
If there is no improvement after 48 hours treatment with Amoxicillin + Gentamicin
GIVE CEFTRIAXONE 100MG/KG ONCE A DAY
CONTINUE TREATMENT FOR 21 DAYS

TREAT FOR SEPSIS

Assess breathing and measure SpO2
If there is respiratory distress, or SpO is <90%:
2
Give supplementary oxygen
If severe respiratory distress:
consider CPAP

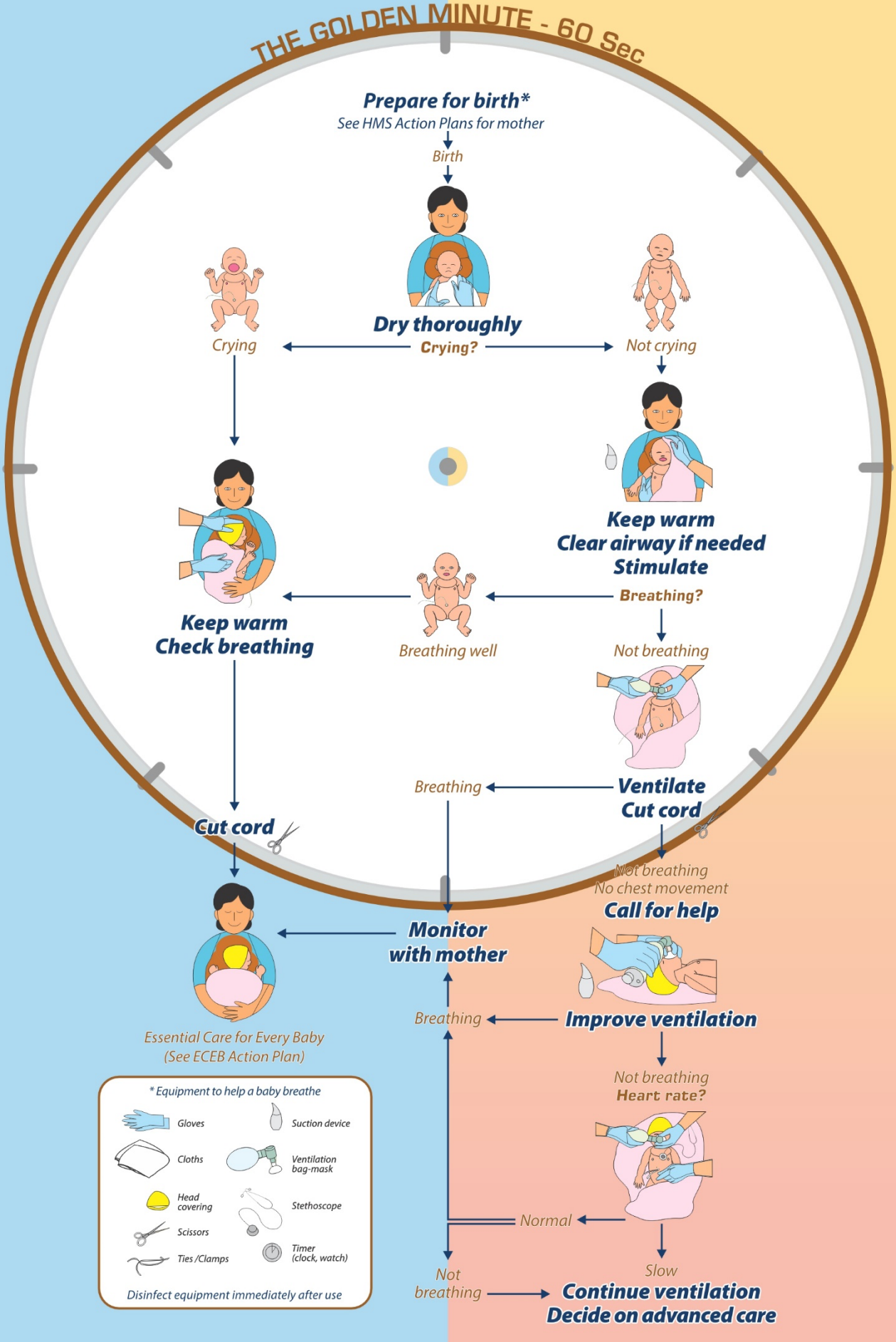
If the baby has severe respiratory distress:
Give maintenance IV fluid appropriate to the age and weight of the baby
If unable to feed and no respiratory distress:
Start NG feeds
If the baby has severe pallor:
consider transfusion
If the baby is jaundiced: **start phototherapy**
If baby born at home, or Vit K not given in maternity: **Give Vitamin K**

Assess for convulsions and signs of hypoglycaemia (lethargy, not feeding, not crying) and measure blood glucose level if possible

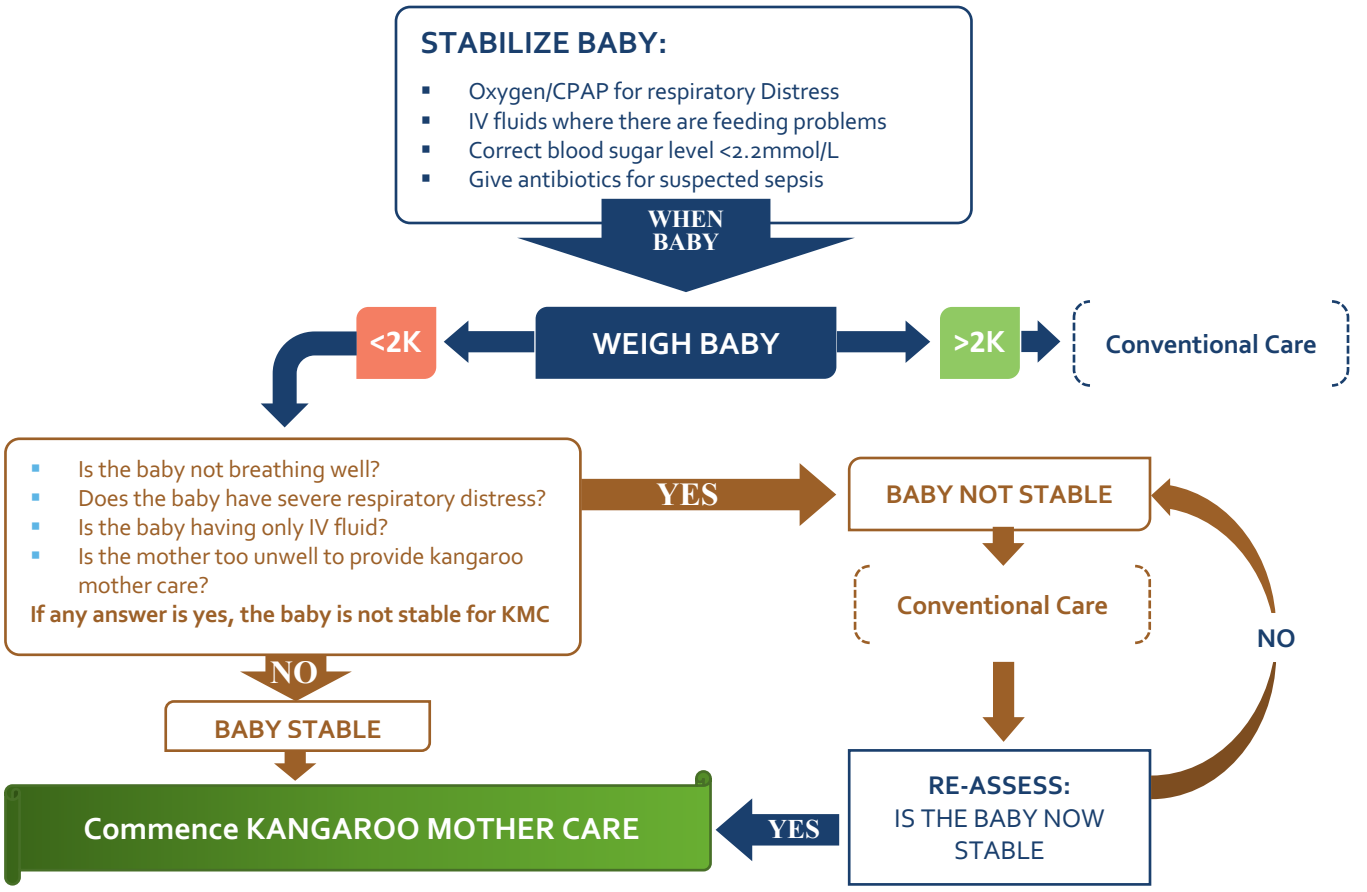
*If hypoglycaemia clinically suspected, or blood sugar level under 2.2 mmol/L: **give dextrose 10% 2ml/kg IV bolus.** If the baby is clinically stable: **consider performing LP***

GIVE AMPICILLIN AND GENTAMICIN
CONTINUE TREATMENT FOR 7-10 DAYS

Helping Babies Breathe



Clinical Emergency Triage Assessment and Treatment (ETAT)+ Kangaroo Mother Care Guideline



1

- Explain the mother what kangaroo care, and the benefits of her baby
- Explain that kangaroo care should be given as near to continuously as possible
- Teach the mother to observe for apnoea and signs of serious illness

2

- Dress the baby in hat, diaper, and socks
- Position the baby between the mother's breasts, using Dupatta around chest of the mother and around the body to keep the baby in position
- Teach the mother how to move the baby in and out of the Dupatta
- Begin with a shorter session of kangaroo care (at least one hour) then increase gradually until it is given as near to continuously as possible

3

- The baby can remain in the kangaroo position whilst the mother is sleeping: the mother should be positioned at around 15 degrees from flat
- Twins CAN be given kangaroo care: they should be placed on either side of the chest
- Weigh baby daily; monitor feeding and weight gain

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