EMERGENCY OBSTETRIC CARE (EMOC)

Student Handout 2025

Professional Skill Development Centre
University of Health Sciences Lahore

EMERGENCY OBSTETRIC CARE (EMOC)
STUDENT HANDOUT
2025

UNIVERSITY OF HEALTH SCIENCES LAHORE

Contents

Rapid Assessment and Triag

Learning Objectives: Recognise life-threatening obstetric conditions on presentation. Perform focused ABCDE assessment (Airway, Breathing, Circulation, Disability, and Exposure) with obstetric modifications. Prioritize maternal stabilization and fetal assessment.

Upon any obstetric emergency, **initial assessment** follows the trauma ABCs: ensure airway patency, give high-flow oxygen, and assess breathing and circulation. Always tilt the patient ~25–30° to the **left side** to relieve aortocaval compression. Quickly check maternal pulse, blood pressure, respiration, and mental status. If cardiac arrest occurs, immediate **perimortem C-section** (by 4 minutes) may be lifesaving. Classify acuity using obstetric triage tools (e.g. MEOWS or obstetric Early Warning Scores) to decide who needs urgent care. Key steps include:

Airway/Breathing: Ensure clear airway; give O_2; assess fetal heart rate. If needed, support breathing or intubate early (pregnant physiology causes rapid desaturation).

Circulation: Establish two large-bore IV lines. Check for bleeding (vaginal, uterine). Begin rapid IV fluids (crystalloid) for hypotension, and cross-match blood if hemorrhage is suspected. Monitor **shock index** (heart rate/SBP) – values >0.9 suggest significant hypovolemia.

Disability/Exposure: Quickly assess consciousness and neurologic status. Look for **urgent triage signs**: chest pain, severe bleeding, seizures, high fever, or non-reassuring fetal signs. Expose only as needed to find bleeding or injuries, while keeping patient warm and covered.

Activate Help: Call for senior OB/GYN support and anesthesia early (e.g. “Obstetric emergency!”). Prepare for possible emergency delivery or surgery.

These rapid steps stabilize the mother. Meanwhile, continuous fetal monitoring (CTG) or ultrasound can assess fetal status. Effective triage ensures the sickest mothers are seen first and receive life-saving interventions.

Normal Labour

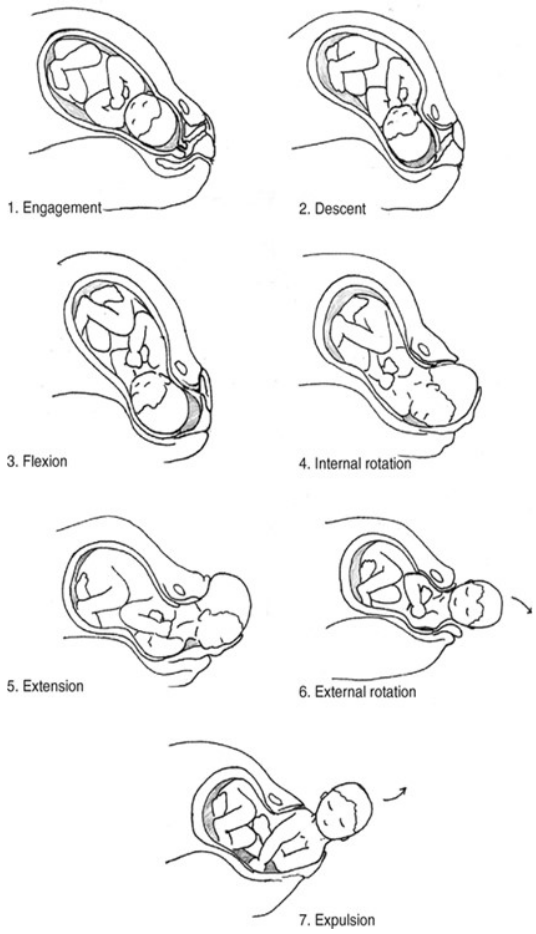
Learning Objectives: Define normal labour and its stages. Describe normal delivery steps and **Active Management of Third Stage of Labour (AMTSL)**. Use the partograph to monitor labour.

Normal labour begins with the **spontaneous onset of regular contractions** leading to progressive cervical dilation and effacement. It typically occurs between 37–42 weeks in a low-risk pregnancy. Labour has three stages:

First stage: Onset of labour until full cervical dilation (10 cm). This may be subdivided into latent (cervix <4 cm) and active phases (>4 cm). Progress is usually ≥1 cm/hr after active phase onset.

Second stage: Full dilation to birth of the baby. The mother bears down with contractions to expel the fetus.

Third stage: Birth of baby to delivery of the placenta (usually within 30 minutes).

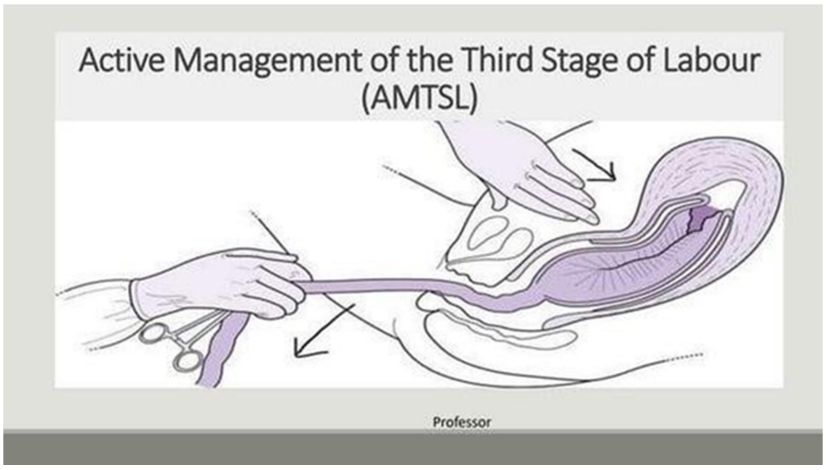


During labour, a **partograph** can monitor progress. Cervical dilation and descent are plotted against time. The WHO partograph has an *alert line* (1 cm/hr dilation) and an *action line* 4 hours to its right. If progress crosses to the right of these lines, it signals **prolonged or obstructed labour**, prompting intervention.

Active Management of Third Stage of Labour (AMTSL): To prevent PPH, all births should include AMTSL. This includes:

1. **Uterotonic drug:** Give 10 IU oxytocin IM (or slow IV) immediately after the baby's birth.
2. **Controlled cord traction:** Apply gentle traction on the umbilical cord while supporting the uterus, to deliver the placenta.
3. **Uterine massage:** Once the placenta is out, massage the fundus firmly to ensure uterine contraction.

WHO strongly recommends AMTSL for all deliveries. Oxytocin is preferred as the first-line uterotonic. Remember to dry and stimulate the newborn, clamp cord appropriately, and keep mother warm.



The partograph helps detect abnormalities: a cervical dilation curve crossing the **alert** or especially **action** line indicates prolonged labour. In such cases, call for assistance early. Interventions may include: augmenting labour (e.g. oxytocin infusion) if safe, or preparing for transfer to surgery. Always inspect for complications like uterine rupture (tearing of uterus, often with abrupt severe pain and fetal distress) or cord prolapse (visible/palpable cord at or outside vagina), which are true emergencies.

Abnormal labour management involves *timely decision-making*: do not wait until fetal compromise. If no progress is made despite augmentation, refer for cesarean delivery according to referral policy of the facility area . Throughout, monitor mother and fetus closely (see Rapid Assessment), and continue AMTSL even if complications occur.

Emergency Delivery Techniques:

Learning Objectives: .Manage shoulder dystocia. Outline the principles of breech delivery.

Shoulder Dystocia:
Definition: Anterior shoulder of fetus is stuck behind mother's pubic bone after head delivery.
Recognition: Turtle sign (head retracts after birth), fetal distress.
Maneuvers

HELPERR- Mnemonic

H= Help (call for help)
E= Evaluate for episiotomy
L= Legs (McRoberts Maneuver)
P= Pressure (suprapubic)
E= Enter the vagina (rotatory maneuvers)
R= Remove the posterior arm
R= Roll the patient (to hands and knees)

Breech Delivery (if unavoidable)

Types: Frank breech (buttocks first with legs extended), complete, or footling. Vaginal breech delivery is an advanced skill and generally reserved for trained providers when immediate cesarean is not possible and criteria met (e.g. frank breech, baby <3.5 kg, fully dilated).

Key Principles:

MASTERLY INACTIVITY-HANDS OFF TECHNIQUE

- Delivery of buttocks occurs naturally with uterine contractions and maternal expulsive efforts
- Legs if flexed , will deliver spontaneously
- Legs extended ...Do pinard's manoeuvre
- Delivery of shoulders ... Loveset's manoeuvre
- Delivery of the head
- Mauriceau Smellie Veit manoeuvre Burns
- Marshall method
- Forceps delivery.

Postpartum Hemorrhage (PPH) and Shock

Learning Objectives: Define PPH. Identify causes and management steps. Explain hemorrhagic shock classes and resuscitation.

Definition: PPH is blood loss >500 mL after vaginal birth or >1000 mL after cesarean, or any loss causing hemodynamic instability. Common causes (the "4 T's") are Tone (uterine atony, ~70% cases), Trauma (lacerations, uterine rupture, inversion), Tissue (retained placenta, clots), and Thrombin (coagulopathy).

Initial management: Call for help and institute massive hemorrhage protocol early. Begin simultaneous steps:

- **Uterine fundal massage:** Immediately massage the uterine fundus firmly to contract the muscle.
- **Oxytocin:** If not already given in AMTSL, give 10 IU IV/IM oxytocin stat. This is first-line uterotonic. (WHO recommends oxytocin for all women to prevent PPH.)
- **Assess for lacerations:** Inspect cervix/vagina/uterus for tears. Repair vaginal or cervical lacerations promptly. Massage out and remove any large clots.
- **Additional uterotonics:** If bleeding continues, administer second-line drugs (e.g. ergometrine/methylergonovine **if not hypertensive**, carboprost, or misoprostol) per protocols.
- **IV access and fluids:** Ensure two large IV lines. Rapidly infuse warmed crystalloids, and prepare for blood transfusion if needed (crossmatch and give O-negative if unknown). Monitor vital signs (BP, pulse, urine output).
- **Bimanual compression:** If bleeding is severe and uncontrolled, perform bimanual uterine compression (one hand in vagina pushing up on uterus, other compressing fundus downward) to temporarily control bleeding while preparing definitive steps.

If bleeding is heavy. Tranexamic acid (1 g IV) should be given within 3 hours of PPH onset (per WHO guidelines) to reduce mortality. Continue replacing losses and reassess frequently.

Surgical interventions: If medical measures fail, escalate quickly: consider uterine balloon tamponade or surgical options (B-Lynch suture, uterine artery ligation, internal iliac ligation). **Hysterectomy** may be life-saving in refractory cases. Transfer to the OR/ICU as needed.

Shock Recognition: Any severe PPH or other hemorrhage can cause hypovolemic shock. Recognize shock by vital sign changes: tachycardia, hypotension, cool/clammy skin, confusion. **Classification:** Class I (<15% blood loss, vital signs near normal) to Class IV (>40% loss with marked hypotension, mental status change). For example, Class IV (≥40% loss) leads to hypotension and altered consciousness.

Shock Resuscitation:

- **Position:** Maintain left tilt to improve venous return.
- **Airway/O_2:** Secure airway and give high-flow O_2 (anticipate that hypovolemic patients desaturate quickly).
- **IV Fluids/Blood:** Infuse 1–2 L crystalloid rapidly, then transfuse blood (whole or packed cells) to stabilize hemodynamics. Use blood warmers if hypothermic. Maintain urine output >30 mL/hr (insert Foley).
- **Monitoring:** Insert monitors (BP cuff, pulse oximeter, ECG). Reassess every 15 minutes or as condition demands. Use invasive BP monitoring if needed.
- **Treat cause:** Always pair resuscitation with definitive control of bleeding. Every minute counts in hemorrhagic shock.

Eclampsia and Severe Pre-eclampsia

Learning Objectives: Define pre-eclampsia/eclampsia. Recognize signs and initial treatment steps. Describe magnesium sulfate regimen.

Definitions: Pre-eclampsia is new-onset hypertension (BP ≥140/90) after 20 weeks **plus** proteinuria or end-organ dysfunction. Severe features include BP ≥160/110 or symptoms like headache, visual changes, RUQ pain. **Eclampsia** is occurrence of generalized seizures in a woman with pre-eclampsia.

Management: For any seizure in pregnancy, manage as an emergency. First, protect the airway (lateral position, chin lift), check vitals, give O_2. **Magnesium sulfate ($MgSO_4$)** is the anticonvulsant of choice: it reduces the risk of eclampsia by >50%. Recommended regimen:

> **Loading dose:** 4–6 g $MgSO_4$ IV over 15–20 minutes.
>
> **Maintenance:** Infuse 1–2 g/hour IV for at least 24 hours after delivery or after last seizure.

For example, a common regimen is 4–5 g IV then a continuous infusion of 1–2 g/hr. Monitor deep tendon reflexes and respirations; have calcium gluconate at bedside for toxicity. Continue $MgSO_4$ 24 hours postpartum or after the last fit to prevent recurrence.

While awaiting effect, control hypertension (labetalol or hydralazine) to prevent stroke. After stabilizing mother, **deliver the baby** – definitive treatment for pre-eclampsia/eclampsia. Watch for PPH, as $MgSO_4$ can relax the uterus, and manage accordingly. Ensure ICU care if seizures occur or if organ failure develops.

Maternal Sepsis and Septic Shock

Learning Objectives: Recognize maternal sepsis. List common sources. Apply the "Sepsis Six" bundle.

Definition: Maternal sepsis is life-threatening organ dysfunction due to infection during pregnancy, childbirth, or postpartum. Globally it causes significant mortality. Common obstetric sources are genital tract infections: endometritis (often after prolonged labour or unsafe abortion), chorioamnionitis, urinary tract infections, and surgical site infections (cesarean wound). Non-obstetric infections (e.g. pneumonia, UTI) can also trigger sepsis in pregnant women.

Signs/Symptoms: High risk signs include fever or hypothermia, chills, tachycardia (>110 bpm, or >130 in labour), tachypnea, hypotension (SBP <90 mmHg) and oliguria. Altered mental status, oxygen desaturation, or foul lochia suggest severe sepsis. Because pregnancy raises baseline heart and respiratory rates, apply modified criteria (e.g. HR >120, temp >38°C with other signs).

Initial Management (within 1 hour): Early intervention saves lives. Apply the **"Sepsis Six"** steps:

1. **Oxygen:** Give high-flow O_2 (target $SpO_2 \geq 94\%$).
2. **IV Fluids:** Bolus 30 mL/kg crystalloid (especially if hypotensive or lactate >4 mmol/L).
3. **IV Antibiotics:** Start broad-spectrum antibiotics immediately (cover likely pathogens; for endometritis use IV ampicillin + gentamicin + metronidazole). Draw blood cultures first if possible.
4. **Blood Cultures:** Obtain prior to antibiotics (as long as this does not delay treatment). Also send urine culture, wound swabs etc.
5. **Lactate and Labs:** Measure serum lactate and other labs (CBC, coagulation, organ function tests).
6. **Urine Output:** Insert Foley catheter and monitor urine output hourly.

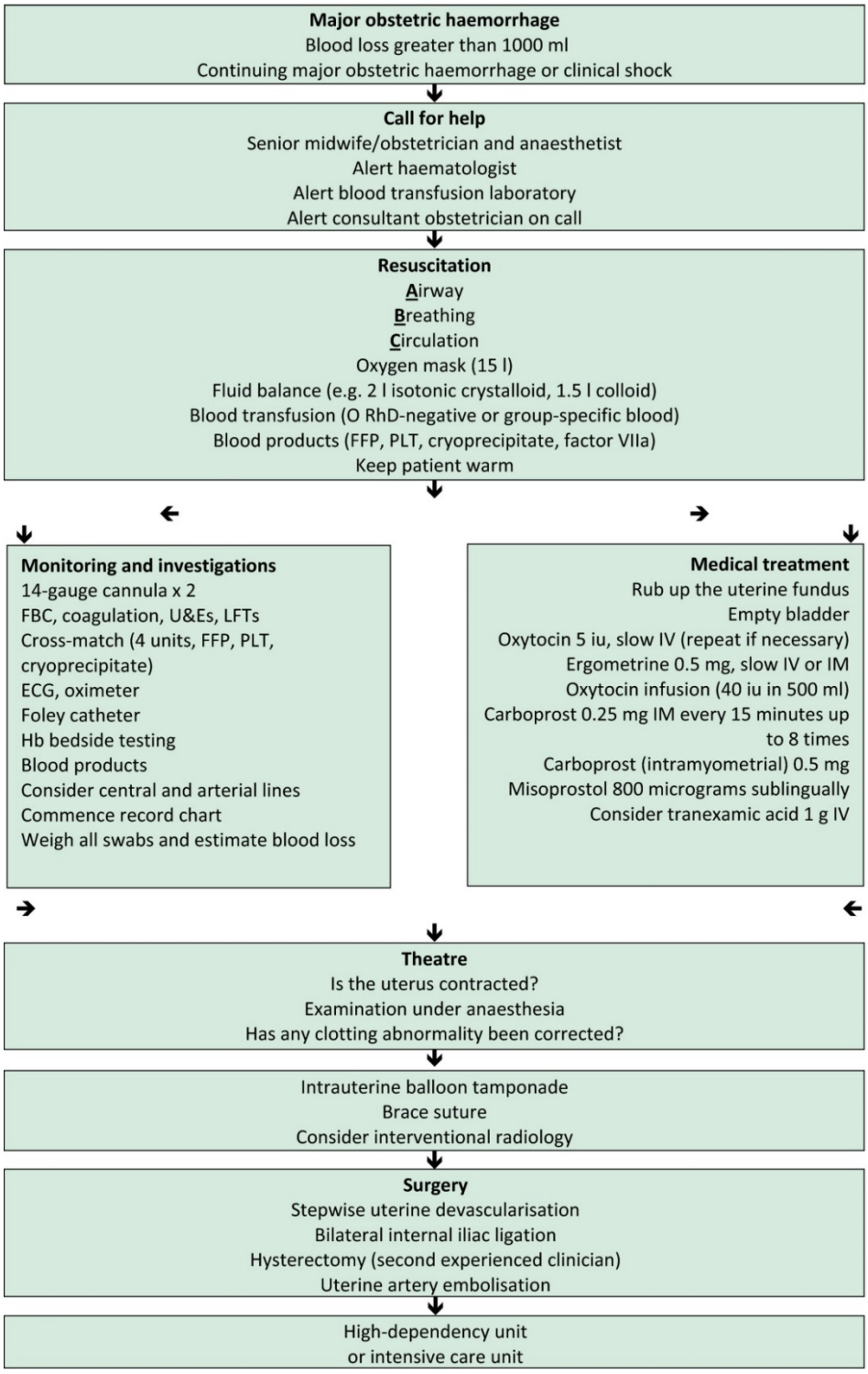
These steps (sometimes remembered as "B-U-F-A-L-O": Blood culture, Urine output, Fluids, Antibiotics, Lactate, Oxygen) should begin within the first hour. Early antibiotics and fluids reduce progression to septic shock.

Continued Care: Admit to ICU if unstable. If hypotension persists after adequate fluids (MAP <65), start vasopressors (norepinephrine) to maintain perfusion. Identify and control the infection source: e.g. evacuate retained products, drain abscess, or revise a contaminated surgical site.

Infection prevention (hand hygiene, sterile technique) is critical. Be vigilant for signs of sepsis in all obstetric patients, especially after PROM, prolonged labour, or surgery. Always treat suspicion of maternal sepsis as an emergency to improve outcomes.

Summary: This handout covers recognition and management of major obstetric emergencies. Students should now be familiar with key objectives and steps for normal/abnormal labour, PPH, shock, eclampsia, sepsis, and emergency delivery techniques

ANNEXURE A Care in hospital For PPH:



References:

I. WHO (2000). "Managing complications in pregnancy and childbirth: a guide for midwives and doctors." (Geneva: WHO) http://www.who.int/reproductive-health/impac/Introduction.ht

II. **Emergency Obstetrical Care – Consolidated Document (2025)** – *[Uploaded course reference]* – A compiled guideline covering normal delivery, shock, PPH, eclampsia, and sepsis (prepared by Department of OBGYN, AIMC Lahore).

III. **Obstetrics by Ten Teachers, 20th Edition** – (Eds. Philip Baker & Louise Kenny). *CRC Press.* – Chapters on normal labour, third stage management, hypertensive disorders, and obstetric hemorrhage provide an excellent foundation with clear explanations for medical students.

IV. **NICE Guideline [NG*235*] – Intrapartum Care (2023)** – *National Institute for Health and Care Excellence (UK).* – Evidence-based guidance on managing labour, including recommendations on labour monitoring, definitions of labour stages, and active management practices.

V. **WHO Labour Care Guide – User's Manual (2020)** – *World Health Organization.* – A practical guide on monitoring labour using the partograph and essential interventions to ensure safe childbirth.

VI. **RCOG Green-top Guideline No. 52: Prevention and Management of Postpartum Haemorrhage (2016)** – *Royal College of Obstetricians & Gynaecologists.* – A comprehensive guideline on PPH, including causes, medical and surgical management, which underpins many of the PPH steps taught.

VII. **ACOG Practice Bulletin No. 222: Gestational Hypertension and Preeclampsia (2020)** – *American College of Obstetricians and Gynecologists.* – Offers detailed diagnostic criteria and management plans for preeclampsia and eclampsia, consistent with what was taught (magnesium sulfate use, blood pressure control, and timing of delivery).

VIII. **Surviving Sepsis Campaign: International Guidelines (2021)** – While not obstetric-specific, the general sepsis management guidelines (from SCCM/ESICM) provide the basis for sepsis bundles and protocols, which are adapted in obstetric care (e.g., Sepsis-3 definitions, early goal-directed therapy).

IX. **WHO Recommendations for Prevention and Treatment of Maternal Peripartum Infections (2015)** – Covers identification and management of maternal sepsis and includes the "Sepsis Six" concept adapted for low-resource settings.

X. **Advanced Life Support in Obstetrics (ALSO) Manual** – A training manual that includes emergency drills for PPH, eclampsia, and maternal resuscitation (including modifed CPR in pregnancy), providing another perspective and practice exercises.

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LAHORE- PAKISTAN