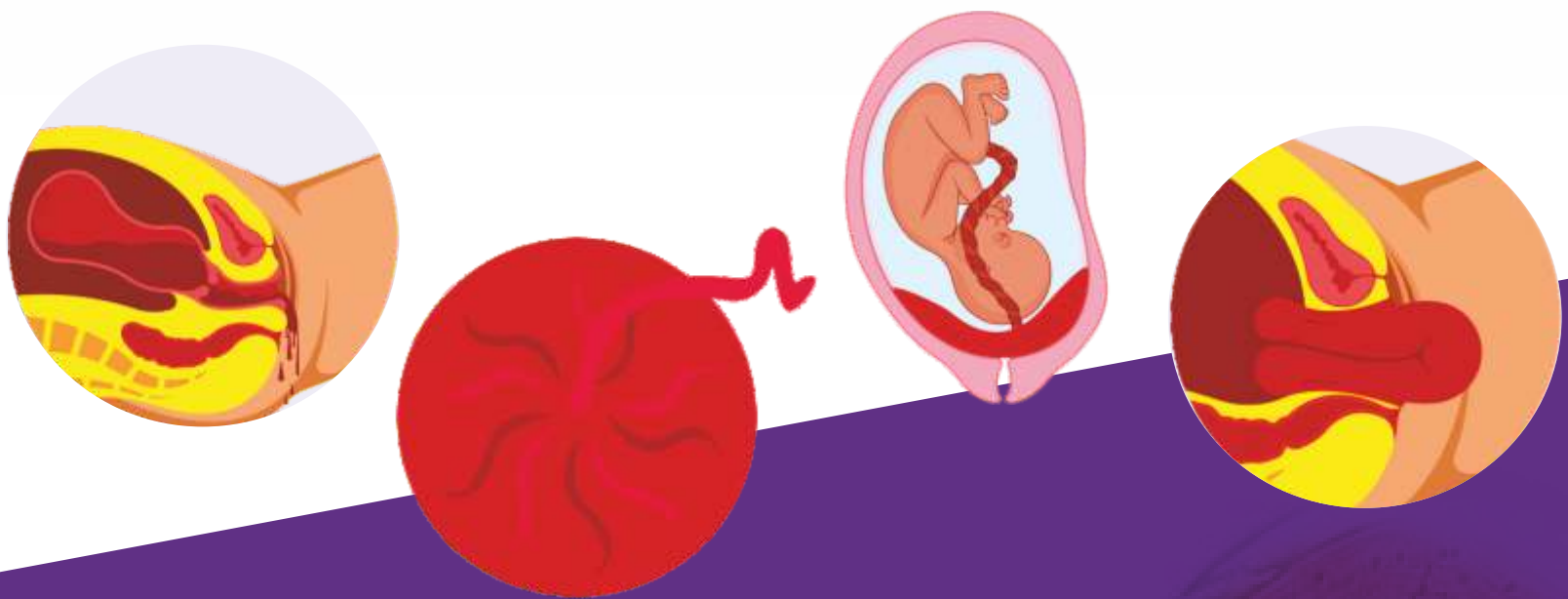




LDI:REACH
Right care, every birth



POST PARTUM HAEMORRHAGE MANAGEMENT PROTOCOL



For the use by healthcare providers

**Prepared for the Leadership
Development Initiative - REACH and AMPLI PPHI projects
- a FOGSI FIGO Initiative -**

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Disclaimer: While the expert group has made every effort to ensure the most recent articles, publications, guidelines, approaches, plans, protocols are referred to and used to prepare the protocols above at its time of publication (April 2025), users of the protocols are advised to refer any further updates to ensure the most up to date, relevant, evidence-based services are provided. The above protocols have been published in the interest of sharing information for the public good and bear no commercial interests.

Postpartum Hemorrhage (PPH)

Definition and Blood Loss Estimation

PPH is defined as:

- ✓ **≥ 500 mL of blood loss** after a normal vaginal delivery.
- ✓ **>1000 mL of blood loss** after a caesarean section.
- ✓ **Hemodynamic- For clinical purposes any blood loss that has the potential to produce hemodynamic instability should be considered PPH.**

Objective Quantified Blood Loss measurement is critical to identifying a PPH case.

Estimating Blood Loss After Birth (Quantified Blood Loss - QBL):

1. Calibrated Drapes, trays with trigger points marked at 300 ml and 500 ml.
2. Methods other than drapes, trays.
 - A Weigh Blood-Soaked Items:
Measure the weight of all blood-soaked materials.
 - B Subtract Dry Weight: Deduct the original dry weight of the items.
 - C Calculate Blood Loss:
 - Blood loss (ml) = Difference in weight (grams).
 - Example: A weight difference of 300 grams equals 300 ml of blood loss.
 - D. Include Additional Blood Volume: Add any blood collected in containers.

Formula for Total Blood Loss (QBL):

QBL = (Weight of soaked items – Weight of dry items) +
Blood collected in containers

Bedside test of Coagulation

Is a conventional, very simple and No Cost test which can be carried out at the point of care itself (point-of-care clotting time (POCCT) test of whole blood) and has been suggested to indicate coagulation failure if it fails to clot within 5–10 min.¹⁻⁴

POCCT: In a case of major PPH (blood loss more than 1000mL or Obstetric Shock Index >1 i.e. pulse rate more than systolic Blood Pressure) while drawing blood for basic lab investigations, take a blood sample of 2-5 mL of whole blood in a plain glass test tube (or a clean glass vial) and note down the exact time. Do not add any additive.

The tube/ Vial is held in a closed fist to keep it warm and after 4 min, the tube/vial is tilted every 30 seconds to observe whether a clot has been forming until the blood clotted. The time is noted again and the total time elapsed is calculated.



Inference: A POCCT value of >10 minutes indicates hypofibrinogenemia and need of supplementation of the same

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Degree of shock, Blood volume loss and clinical Signs (Classification of Haemorrhage)

Degree of Shock	Volume Loss (mL)	Level of Consciousness	Pulse (bpm)	Blood Pressure (mmHg)	Perfusion	Transfusion
Compensated (Green zone)	500-1000 mL	Normal	60-90	>90	Normal	Usually not needed Get 2 units PRBC typed & cross matched
Mild (Yellow zone)	1000-1500 mL	Normal or Anxious	91-100	80-90	Pallor, Cold Extremities	Possibly needed Transfuse 2 units PRBC
Moderate (Red zone)	1500-2000 mL	Agitated	101-120	70-79	Pallor, Cold Extremities, Delayed Capillary Refill	Likely needed Transfuse PRBC, FFP, Platelets
Severe (Deep Red Zone)	>2000 mL	Lethargic or Unconscious	>120	<70	Pallor, Cold Extremities, Delayed Capillary Refill >3s	Transfusion Necessary Massive transfusion protocol

Assess Obstetric Shock Index (OSI)

OSI = heart rate (bpm) / systolic blood pressure (mmHg)

Normal Range for pregnancy of OSI: 0.7-0.9

OSI Value	Interpretation
≥ 0.9	Risk of Transfusion
≥ 1.4	Need for urgent aggressive therapy
≥ 1.7	High risk of adverse maternal outcome



Risk Factors Associated with Postpartum Haemorrhage: Detect and respond

Risk factors associated with postpartum haemorrhage by the stages of labour (Antepartum, Intrapartum, Postpartum) and the "Four Ts" causes (Tone, Trauma, Tissue, Thrombin). Most cases of PPH occur in women with no identifiable risk factors.

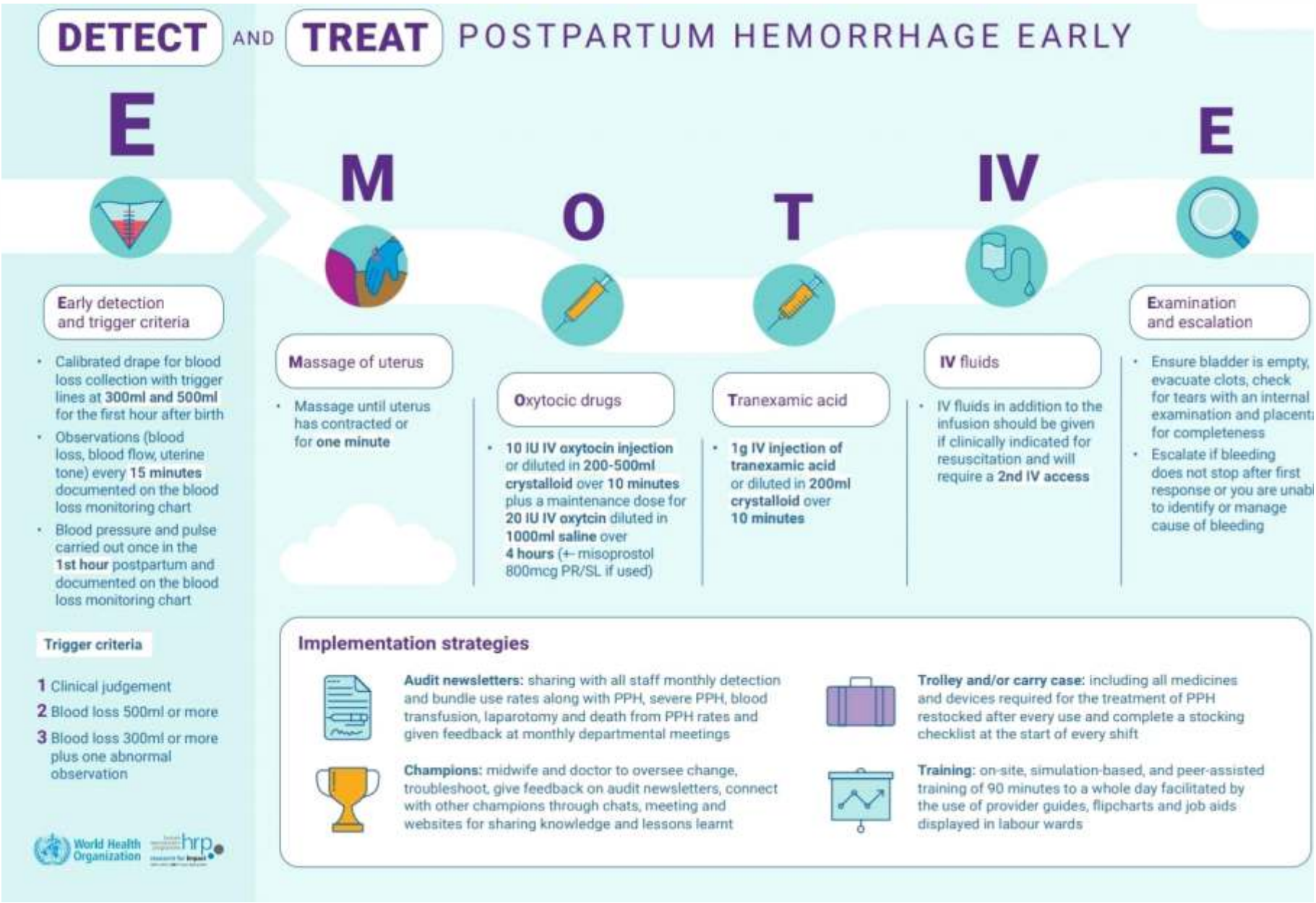
Stage	Tone (70%)	Trauma (20%)	Tissue (10%)	Thrombin (1%)
Antepartum	Age: 35+ years Uterine overdistension: Multiple pregnancy, polyhydramnios, fetal macrosomia (> 4 kg) Grand multiparity Uterine abnormalities Previous PPH: Primary or secondary APH: Bleeding during pregnancy Obesity: BMI ≥ 35		Placental Issues: Abnormal placentation (e.g., placenta previa, accreta, percreta, or increta)	Intrauterine fetal death Therapeutic anticoagulation Bleeding disorders: • Von Willebrand Disease • Idiopathic Thrombocytopenia Purpura • Thrombocytopenia (from hypertensive disorders of pregnancy) • Disseminating Intravascular Coagulation (DIC)
Intrapartum	Labour Complications: Precipitate labour (rapid delivery) Prolonged labour (first, second, or third stage) Arrest of descent Uterine infection: Fever of 38C or higher during labour Oxytocin use: to induce or augment labour Intrapartum haemorrhage	Birth related Complications: Caesarean section Lacerations: Perineal, cervical, or uterine Instrumental delivery: Forceps or vacuum	Retained placental fragments (e.g., cotyledon, membranes, blood clots) requiring manual removal Uterine inversion (turning of the uterus inside out)	Amniotic Fluid Embolism (AFE) DIC
Postpartum	Drug-induced hypotension: magnesium sulfate or anaesthetic agent Distension bladder		Retained placenta	

The most important single warning of diminishing blood volume and mild shock is tachycardia. This often precedes a fall in blood pressure.

Calculate blood volume loss and shock index (SI) and record observations on the MEOWS chart (Modified Early Obstetric Warning Score): Actions by Zone

Deep Red Zone (Severe Shock)	Red Zone (Moderate Shock)	Yellow Zone (Mild Shock)	Green Zone (Compensated Shock)
Blood loss > 2000 mL Critical clinical signs	Blood loss 1500-2000 mL Additional concerning criteria	Blood loss 1000-1500 mL Additional criteria or clinician concern	Blood loss 500-1000 mL AND NO additional criteria or clinician concerns
Treat as life-threatening emergency Shift to OT, Call Rapid Response team, measure blood loss, Aggressive PPH management protocol, monitor closely. Do transfusion	Immediate escalation needed as she is at risk of further deterioration Shift to OT, Notify medical officer, measure blood loss, Start PPH management protocol, monitor for deterioration. Prepare for transfusion	Prevent further deterioration Call for assistance, increase monitoring, Begin basic PPH management, escalate if needed.	Close observation and standard postpartum care Escalate if clinical condition changes

EMOTIVE





Postpartum Hemorrhage After Vaginal Delivery

- Management protocol

Obstetric Team	
Initial Assessment: • Tone (uterotonic agents) • Trauma (inspect birth canal/ explore vagina & Cervix, exclude uterine rupture) • Tissue Retained placenta (Check placenta for completeness, USG) • Thrombin related (do bedside whole blood clotting test in glass vial) • Monitor vitals (TPR, BP, O2 saturation, Urine output) • Emergency Call for Anesthesia Team Take Baseline Labs: • Order Hb, PLTs, Blood group Rh type (if not sure), basic serology, • In major PPH : PT/INR, aPTT, Fibrinogen, ROTEM (if available), BGA, Ca/serum electrolytes Call & Order In major PPH: 2 units PRBC, in severe PPH: 4 RBCs, 4 FFP, 1 PLT, SDP/4RDPs, cryoprecipitate, Fibrinogen, rFVIIa if available	Stabilize Hemodynamics Patient lies flat Oxygen 10-15 l/min Establish IV lines Rapid fluid replacement (2 l of crystalloids) / 500 mL bolus in 30 min followed by 500 mL in an hour (along with hemostatic resuscitation) TXA 1g iv (10 min) if not given 2 units RBC (O neg as required) I/o chart – urinary catheter Prepare for surgery Monitor vital signs and laboratory values Administer fluids and blood products
Medical management • Uterine massage if atonic • Tranexamic Acid (TXA) 1g in 100 ml normal saline (over 10 min) • Oxytocin 15 IU iv, then 10-20 IU/hr infusion and/or • Misoprostol 800µg rectally/Sublingually • Methyl ergometrine 0.2 mg im or iv • Carboprost 250 mcg IM every 15 min upto 8 dosages	
Decision to transfer to OT Heart rate > 100/min (consider relative bradycardia in certain conditions) Anaesthesia Team	
Surgical Interventions: Curettage MRP (manual removal of placenta) Surgical repair of genital tract trauma. Uterine tamponade (suction cannula or by balloon catheter).	Preparation: RSI-intubation. Set up arterial line Oxytocin 15 IU iv, then 10-20 IU/h infusion
Persistent Bleeding:- Manual aortic compression, bimanual uterine compression (in atonic uterus) NASG (temporizing measures while definitive interventions are underway) After 4 RBCs, 4 FFP, 1 PLT, SDP/4RDPs, cryoprecipitate consider 1g Ca gluconate Fibrinogen 2g iv if Fbg< 1g/L rFVIIa if available	

Persistent Bleeding with tamponade and hemodynamically stable Consider uterine artery embolization if hemodynamically stable. Persistent Bleeding despite above intervention Laparotomy Compression sutures Ligation of uterine arteries and stepwise devascularization Ligation of internal iliac artery Consider Second round: 4 RBCs, 4 FFP, 1 PLT, Cryoprecipitate Fibrinogen 2g iv if Fbg < 1g/L Repeat Labs: Hb, PLTs, PT/INR, aPTT, Fibrinogen, ROTEM, BGA, Ca	Intraoperative care: Anaesthesia administration Patient positioning and preparation Monitoring vital signs Postoperative care: Pain management Recovery monitoring Complication assessment
Persistent Bleeding despite above intervention Emergency Hysterectomy	

* Target: PLTs > 50 G/L; Fbg > 1g/L; MAP ≥ 50 mmHg, pH > 7.2, Hb > 85g/L

Activated Partial Thromboplastin Time (aPTT), Blood Gas Analysis (BGA), Calcium (Ca), Fibrinogen (Fbg), Fresh Frozen Plasma (FFP), Hemoglobin (Hb), International Normalized Ratio (INR), International Units (IU), Intravenous (IV), Mean Arterial Pressure (MAP), Milliliters (mL), Non-pneumatic antishock garments (NASG), O-negative blood type (O neg), Packed red blood cells (PRBCs), Platelets (PLTs), Prothrombin Time (PT), Random Donor platelets (RDP), Red Blood Cells (RBC), Rotational Thromboelastometry (ROTEM), Rapid Sequence Induction (RSI), Single Donor platelets (SDP), Tranexamic Acid (TXA), Ultrasound (USG), and Recombinant Factor VIIa (rFVIIa)



Postpartum Hemorrhage during C-section - Management protocol

Obstetric Team	Anaesthesia Team
Initial Assessment: - Monitor vitals (TPR BP, O2 saturation, Urine output) Take Baseline Labs: - Order Hb, PLTs, PT/INR, aPTT, Fibrinogen, ROTEM, BGA, Ca/ serum electrolytes Call & Order 4 RBCs, 4 FFP, 1 PLT, SDP/4RDPs, cryoprecipitate, Fibrinogen, rFVIIa if available (to be kept ready, blood bank to be informed in case of severe/major PPH) Medical management - Uterine massage if atonic - TXA 1g in 100 ml normal saline(over 10 min) - Oxytocin 15 IU iv, then 10-20 IU/hr infusion and/or - Misoprostol 800µg rectally sublingually - Methyl ergometrine 0.2 mg im or iv - Carboprost 250 mcg IM every 15 min upto 8 dosages	Stabilize Hemodynamics Oxygen 10-15 l/min Set up arterial line Rapid fluid replacement (2 l of crystalloids) / permissive hypotension & haemostatic resuscitation TXA 1g iv (10 min) if not given 2 units RBC (O neg as required) I/o chart – urinary catheter Monitor vital signs and laboratory values Administer fluids and blood products RSI-intubation.
Persistent Bleeding: After 4 RBCs, 4 FFP, 1 PLT, consider 1g Ca gluconate Fibrinogen 2g iv if Fbg < 1g/L rFVIIa if available	
Persistent Bleeding despite above intervention Compression sutures Ligation of uterine arteries and stepwise devascularization. Ligation of internal iliac artery Consider Second round: 4 RBCs, 4 FFP, 1 PLT, SDP/4RDPs, Cryoprecipitate, Fibrinogen, rFVIIa if available Fibrinogen 2g iv if Fbg < 1g/L	Intraoperative care: Anaesthesia administration Patient positioning and preparation Monitoring vital signs



Repeat Labs: Hb, PLTs, PT/INR, aPTT, Fibrinogen, ROTEM, BGA, Ca	Postoperative care: Pain management Recovery monitoring Complication assessment
Persistent Bleeding despite above intervention Emergency Hysterectomy	

* Target: PLTs > 50 G/L; Fbg > 1g/L; MAP ≥ 50 mmHg, pH > 7.2, Hb > 85g/L
Repeat tests every 1-2hr after each hemostatic intervention

Activated Partial Thromboplastin Time (aPTT), Blood Gas Analysis (BGA), Calcium (Ca), Fibrinogen (Fbg), Fresh Frozen Plasma (FFP), Hemoglobin (Hb), International Normalized Ratio (INR), International Units (IU), Intravenous (IV), Mean Arterial Pressure (MAP), Milliliters (mL), Non-pneumatic antishock garments (NASG), O-negative blood type (O neg), Packed red blood cells (PRBCs), Platelets (PLTs), Prothrombin Time (PT), Random Donor platelets (RDP), Red Blood Cells (RBC), Rotational Thromboelastometry (ROTEM), Rapid Sequence Induction (RSI), Single Donor platelets (SDP), Tranexamic Acid (TXA), Ultrasound (USG), and Recombinant Factor VIIa (rFVIIa)

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