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Foreword for Guideline



The FIGO LDI REACH Project Pakistan, funded by Bill & Melinda Gates Foundation, was launched in April 2023. The project operates from its head office in Islamabad with a dedicated team of managers overseeing its execution, under the supervision of a six-member core committee.

Post Partum Hemorrhage remains a leading cause of maternal deaths in Pakistan. There was an urgent need to develop comprehensive guidelines to standardize the use of EMOTIVE – PPH- Bundle for treatment of PPH.

I am particularly grateful to the FIGO UK team—Rachel Gooden, Mathew Pretty, Barina Gale, Esther Adoh, Jane Seok and Anyia Metzer for their continuous guidance and support.

Special thanks to the Pakistan Core Committee members—Fareed Zafar, Rubina Hussain, Tazeen Abbas, Sonia Naqvi, and Saima Zubair—for their invaluable guidance and assistance in disseminating the project across Pakistan.

I also extend my gratitude to the office bearers—Hamza Zubair, Aftab, Abdullah, and Mobeen Sajid—for their logistical support, as well as for handling data and finances.

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I am deeply grateful to Rizwana Chaudhri, Chief Editor of SOGP journal, and Syed Aftab for issuing a special supplement to publish the guideline.

I am hopeful that this guideline will contribute to the use of EMOTIVE-PPH Bundle for treatment of Primary Post Partum (PPH), ultimately helping to reduce maternal mortality caused by PPH.

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the Name of Allāh, the Most Gracious, the Most Merciful

This Guideline Is Prepared

by

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&

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By Reviewing Literature, FIGO, WHO, and RCOG guidelines, along with local availability and feasibility for the use of MgSO₄ in Pakistan.

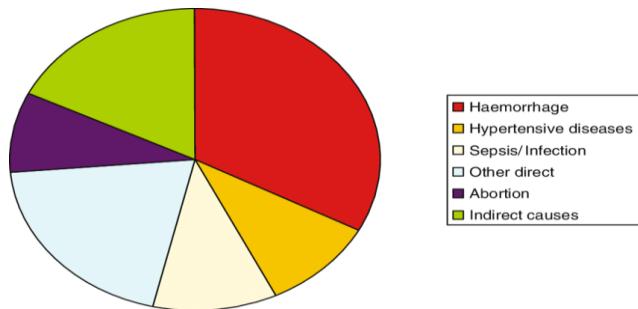


SOGP





Commonest cause of maternal mortality in Pakistan is Post Partum Hemorrhage (PPH).



Primary postpartum hemorrhage is excessive bleeding after child birth. It is usually defined as bleeding more than 500ml after vaginal birth or more than 1000ml after cesarean section from delivery of the baby up to 24 hours.

Massive PPH /life threatening PPH is blood loss of more than 1500ml. Incidence of massive PPH is 1%.

Major causes of PPH are;

1) Uterine atony;

Uterine atony accounts for 80% of PPH.

Risks factors for uterine atony; prolong labor, multiple pregnancy, polyhydramnios, uterine overdistention.

2) Trauma (injury to the birth canal);

Tears of the cervix, vagina, perineum, uterine rupture.

3) Retained placenta, placental and membranes fragments.

4) Coagulation disorders;

5) DIC, HELLP syndrome.

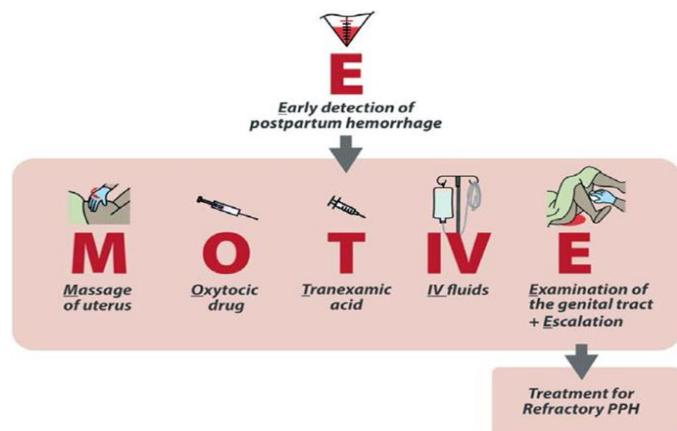
EMOTIVE PPH Bundle: Introduction

The EMOTIVE PPH Bundle is a structured approach aimed at reducing maternal deaths and morbidities caused by primary postpartum hemorrhage (PPH). It is designed to ensure early identification, prompt management, and systematic interventions to improve maternal health outcomes.

Goals of the EMOTIVE PPH Bundle:

- Reduce maternal morbidity and mortality due to PPH
- Standardize the management of PPH across healthcare settings
- Enhance rapid response capabilities of healthcare providers.

Key Components of the EMOTIVE PPH Bundle



E;1) Early Identification of PPH.

2) Assessment of blood loss.

Monitor blood loss through quantitative blood loss (QBL) assessment

Use clinical signs (tachycardia, hypotension, pallor, altered consciousness) to detect early signs of PPH

M; 1) Multi-Professional Coordination

2) Massage of the uterus.

3) Misoprostol.

- Implement clear communication and teamwork protocols among healthcare providers
- Utilize standardized checklists and algorithms for PPH management.
- Assign roles within the team to ensure efficient response (e.g., medication administration, fluid resuscitation, uterine massage)
- Massage the uterus to make it contract.
- Use misoprostol for both prevention and treatment of PPH.

O; Oxytocic Drugs and Uterotonic Agents

- Give 800 microgram(4tablets) misoprostol sublingual.
- Administer oxytocin (10 IU I/V stat and IV infusion of 40IU in 500ml N/S).
- Carboprost (250 mcg IM every 15 minutes, up to 8 doses)

T ;Tranexamic Acid (TXA) Administration

- Give tranexamic acid (1 g IV over 10 minutes)
- If bleeding persists, after 30 minutes, a second dose of 1 g IV can be given.

IV; 1) IV Fluids and Blood Products

- Start crystalloid fluids (Ringer's lactate or normal saline) to maintain perfusion
- If bleeding continues, initiate blood transfusion.
- Use ratio-based transfusion protocols (e.g., 1:1:1 ratio of packed red blood cells, fresh frozen plasma, and platelets)

2) Vital Signs Monitoring and Decision Support

- Continuously monitor heart rate, blood pressure, oxygen saturation, urine output.
- Use early warning scores (EWS) to guide decision-making.

If unresponsive to initial treatment, escalate to surgical interventions (e.g., balloon tamponade, B-Lynch sutures, hysterectomy if needed)

E; 1) Engagement with the Patient and Family

- Provide psychosocial support to the patient and family
- Offer clear explanations of interventions and prognosis
- Ensure shared decision-making where possible

- 2) Examination under anesthesia
- 3) Escalation

Blood loss estimation & early detection

Blood loss estimation and early detection of PPH is the main component of EMOTIVE -PPH bundle. Calibrated drapes, swabs weighing, under the buttock's drapes can be used. Calibrated drapes are not widely available, for single use and are expensive.

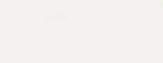


Under the buttocks drapes (plastic sheath) and collection of blood in calibrated bucket is only feasible and cost-effective method for blood loss assessment in low resource countries. After delivery of the baby and clamping the cord all previous sheaths and blood collecting bucket is removed, new plastic/MacIntosh sheath is put under buttocks and blood is collected in calibrated bucket with yellow line at 300ml (alert line) and red line at 500ml.

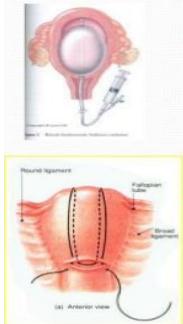
Video of this simple and cost-effective method of under buttock,s plastic sheath and calibrated buckets will be made available on U-Tube

MEASURING BLOOD LOSS – A KEY STEP TOWARDS EFFECTIVE TREATMENT

- Underestimation leads to delayed intervention
- Visual estimates of blood loss are far from accurate by as much as 30%-50%, especially for very large amounts
- Old methods for estimating blood loss tend to be complex

Estimating Blood Loss	
 Saturated sanitary towel 30ml	 Saturated small swab (30x30mm) 60 ml
 Saturated large swab (40x45mm) 350 ml	 Saturated kidney cloth 500 ml
 Blood stain (100cm diameter) 500 ml	 Blood stain (100cm diameter) 1000 ml
 Blood stain (100cm diameter) 2000 ml	

stages in management



4. Medical management of atony with oxytocic medicines

- a) Syntocinon
- b) Ergometrine
- c) Carboprost
- d) Misoprostol

5. Surgical management

- a) Intra uterine balloon device
- b) B lynch suture if at Caesarean section
- c) Uterine artery embolisation/ligation
- d) Hysterectomy

- Maintain I/V line pass 2 wide bore canulae size 16/18.
- Call for help and inform seniors.
- Take blood for investigations and cross match 4-6 units of blood for massive hemorrhage.
- Inform hematology team, arrange FFP, s
- Arrange OT /inform senior anesthetist

Medication

- Misoprostol 800 microgram (4 tablets) sublingual
- 10 IU Oxytocin I/V stat & 40 IU in 500ml normal saline
- Tranexamic acid (TXA) 2gm I/V stat, if bleeding persists or restart repeat 1gm I/V
- Start I/V fluids infusion Ringers lactate or hemaccel.

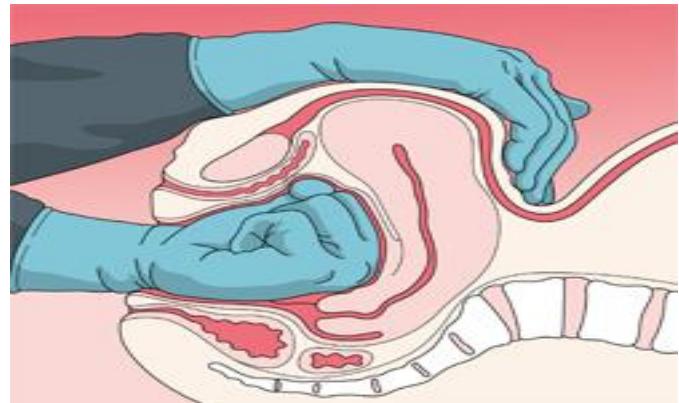
Uterine Message

Manual Message to rub up uterine contraction. Vigorous message by stabilizing the uterus with one hand and giving firm message with the other hand, very effectively contracts the uterus.



Bimanual uterine compression

With left hand in the vagina and right hand on the abdomen compress the uterus between two hands while preparations are made for transfer to theater.

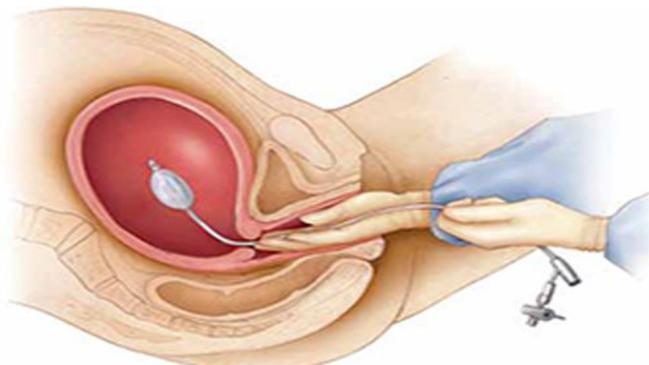


Balloon tamponade

If bleeding continue take the patient to theater, examine under anesthesia rule out trauma to the genital tract, do exploration & suction of the uterus to remove any clots and retained products.

Large size Folley catheter

In case of premature delivery with small size of the uterus Folley catheter with 200ml fluid capacity should be passed for uterine tamponade and keep it for 24 hours, it gives a very effective tamponade and arrests bleeding.



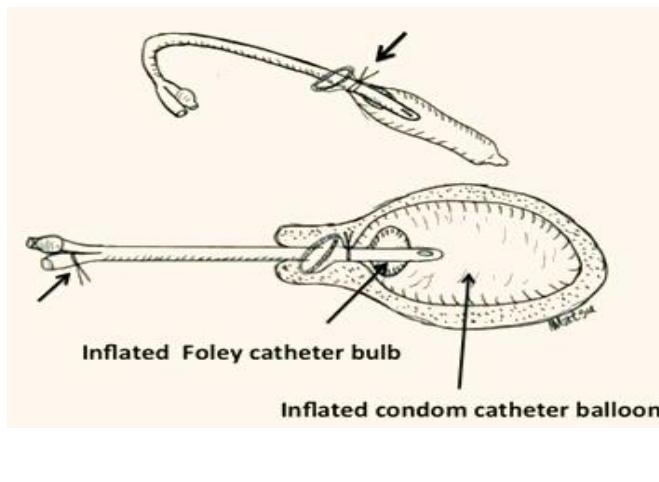
Bakri Balloon

Bakri Balloon is so far not available in Pakistan, it is expensive .



Condom Catheter /Balloon

Condom balloon catheter is homemade remedy, very easy to assemble, readily available and cost effective. Assembled catheter should be available in emergency trolley of every labor ward, just before use dip it in CIDEX /iodine solution and use it. Hold it with sponge forceps, insert it in the uterus and instill/push 450/500ml normal saline with 50ml syringe. Keep it in for 24 hours.



Surgical Management of PPH

For refractory PPH not responding to medical treatment, uterine message, balloon tamponade early decision to proceed for surgical intervention is advisable.

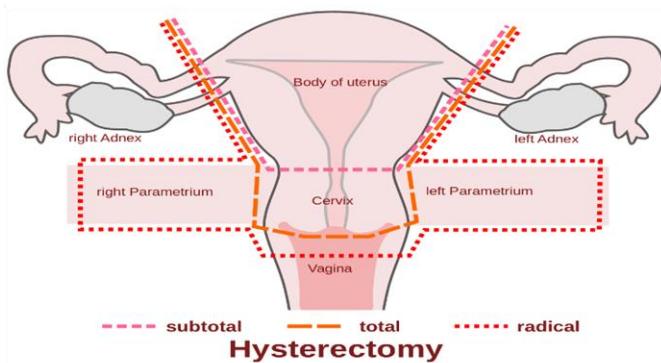
Laparotomy

- General anesthesia is preferable as patient is already hemodynamically unstable.
- Midline incision is better but not mandatory.
- Senior /experienced/consultant level surgeon should be available.
- Experienced anesthetist should be available if possible.

Hysterectomy/Subtotal hysterectomy

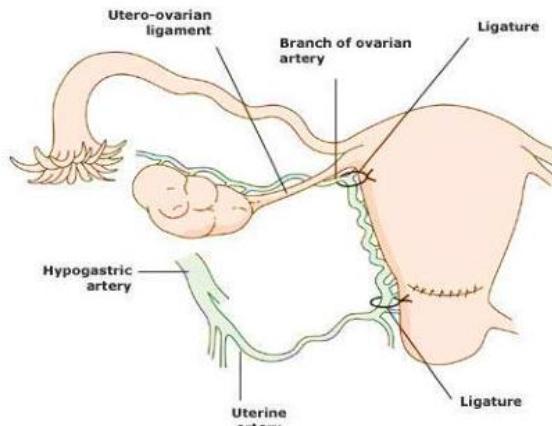
For women of older age group /multiparous/grand multiparous /reasonable family size, subtotal hysterectomy should be the first line surgical intervention. For hemorrhage due to placenta increta total hysterectomy should be performed. For mild to moderate bleeding from the placental bed especially in mild degree placenta accreta mattress suture can be applied at the placental bed.

For placenta increta and per-creta total hysterectomy is lifesaving.



Uterine and Ovarian artery ligation

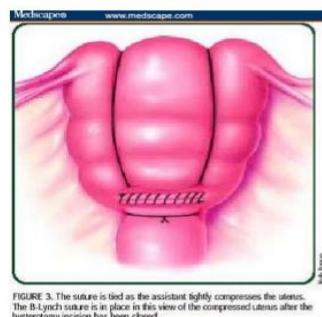
These are uterus saving procedures, by tying off the uterine and ovarian arteries, blood flow to the uterus is reduced helping to control excessive bleeding while preserving uterus and fertility. It is relatively simple and effective method with fewer complications compared to more radical interventions like hysterectomy.



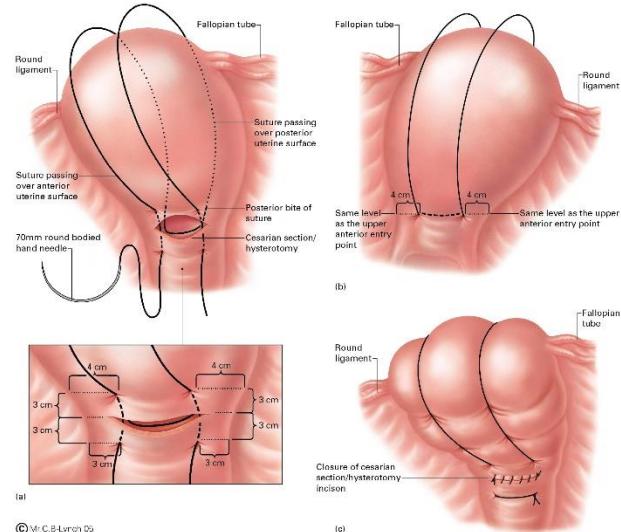
B-Lynch Suture

Atonic uterus - laparotomy

- B-Lynch suture or multiple square sutures
- ✓ Work by compression/tamponade
- ✓ Avert hysterectomy in 80% of cases



B-Lynch suture is a uterus saving surgical technique, is used to control PPH caused by uterine atony. It is uterine compression suture which impede blood supply to the uterus, helping to stop excessive bleeding while preserving fertility.



Modified B-Lynch suture

Modified B-Lynch suture is more effective and easier to apply than original B-Lynch. Steps :

- Bladder is displaced inferiorly
- Uterus is delivered outside the abdomen
- First stitch is placed 3cm below the incision line
- Uterus is pushed anteriorly.
- Needle is pulled out from the posterior surface of the uterus.
- Needle is then passed from the posterior surface to the anterior 2cm above the incision line and tied.
- Next suture is placed 2cm above the incision line, needle is pulled out from the posterior surface of the uterus
- Needle is then passed from posterior surface to the anterior just below the insertion of the fallopian tubes and tightly tied.

Video of this procedure will be made available on U-Tube.

Uterine Muscles compression sutures

Uterine muscle compression sutures are 100% uterus saving where every other method fails. Mattress sutures are applied separately on anterior, posterior wall and fundus of the uterus. Compression sutures are very easy to apply in atonic uterus.

Care should be taken to avoid applying sutures near to the insertion of the fallopian tubes



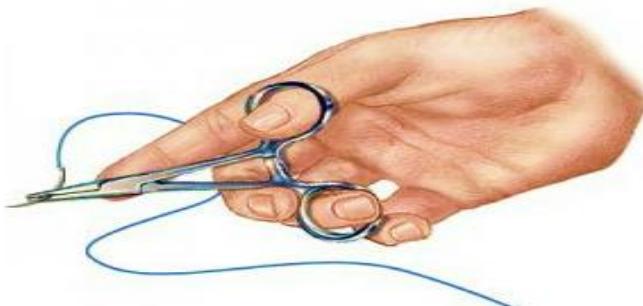
Picture of compression sutures during surgery



Picture of the same patient at next caesarean

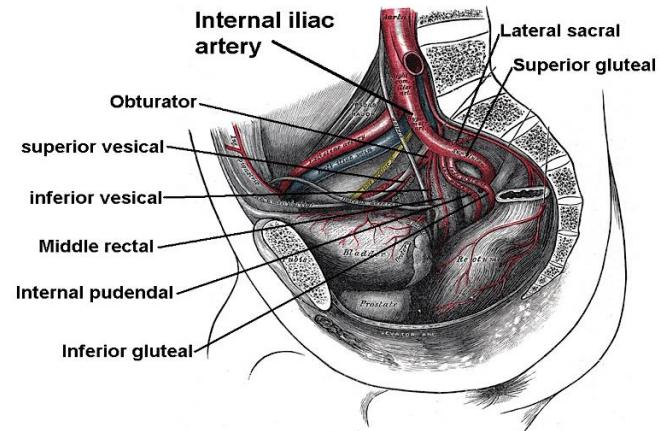
Suture material

Suture material used for all these techniques should be Vicryl NO 1/2 on large curved round body needle.



Internal iliac artery ligation

It requires expertise and associated with serious complications like, injury to the ureter, inadvertent ligation of common iliac /external iliac artery leading to gangrene of the leg. As better and safe alternative procedures are available internal iliac artery ligation should be avoided.



Non pneumatic anti shock garment(NASG)

Anti-shock garment is a non-pneumatic, reusable medical device used to stabilize women with severe PPH and shock. It helps improve blood circulation to the vital organs while awaiting definitive treatment or transfer to tertiary care hospital. Anti shock garments are not readily available and expensive, so far, its use in Pakistan is limited.



Uterine artery embolization (UAE)

A catheter is inserted in femoral artery. Using fluoroscopy, the catheter is advanced to the uterine arteries. Small particles ie galectin are injected to block blood flow. UAE is usually performed before laparotomy for placenta increta surgery. UAE use for treatment of PPH when patient is in shock is limited as procedure is not widely available.

Prevention of PPH

- Identification of risk factors.
- Treatment of anemia, iron supplementation, liberal use of I/V iron infusion.
- HB estimation at booking, mid-trimester and again at 36 weeks, recent research shows that PPH is more common in anemic patients, it's the anemic women who cannot tolerate even mild to moderate PPH.
- Liberal blood transfusion if woman is anemic after 36 weeks of pregnancy as it is late to build the HB with iron.
- Active management of third stage of labor (AMTSL). Use oxytocin 10 IU I/V stat or Misoprostol 600mcg 3 tablets sublingual after delivery of the baby.
- Awareness about danger signs /consequences of PPH among health workers dealing with pregnancy and delivery.

Documentation and Quality Improvement

- Maintain accurate and real-time documentation of interventions and patient responses
- Conduct case reviews and debriefings for continuous learning and system improvements

- Implement audits and feedback mechanisms to refine PPH management practices

Implementation Strategies

- Training and Capacity Building: Regular simulation-based training for healthcare workers
- Standardized Protocols: Integrate PPH bundle into routine maternity care practices
- Monitoring and Evaluation: Use data-driven approaches to track effectiveness and improve responses
- Community Engagement: Educate pregnant women and families about PPH warning signs and the importance of timely care-seeking

PPH Drills

PPH drills are simulated training exercises designed to prepare health care teams for managing PPH effectively. These drills help improve team coordination, quick decision making, and patient safety in obstetric emergencies.

PPH Drill

- Clear and logical sequence of steps essential in the management of PPH.

Conclusion

The EMOTIVE PPH Bundle serves as a crucial framework in mitigating postpartum hemorrhage-related complications. Its structured approach emphasizes early detection, rapid response, and evidence-based interventions, ultimately improving maternal health outcomes. Successful implementation requires teamwork, continuous training, and adherence to standardized protocols to ensure every woman receives optimal care.



Postpartum Hemorrhage (PPH) and the E-MOTIVE Solution

Postpartum Hemorrhage (PPH) is excessive bleeding after childbirth and is one of the leading causes of maternal mortality worldwide.



Global Impact of PPH:

Every year, 14 million women experience PPH, leading to 70,000 deaths. PPH accounts for nearly 27% of all maternal deaths globally.

The E-MOTIVE Solution

Early Detection	<ul style="list-style-type: none"> • Using calibrated drapes to measure blood loss
Team-Based Care	<ul style="list-style-type: none"> • Multi-disciplinary teams responding to PPH
Standardized Treatment	<ul style="list-style-type: none"> • Protocol-based administration of uterotonic
Continuous Monitoring	<ul style="list-style-type: none"> • Monitoring vital signs and bleeding
Emotional Support	<ul style="list-style-type: none"> • Providing psychological support to the mother

Conclusion:
The E-MOTIVE solution offers a comprehensive approach to managing PPH and can significantly reduce maternal mortality.

