Postpartum Haemorrhage Policy

1. Purpose

Postpartum haemorrhage (PPH) is potentially a life-threatening complication of vaginal and caesarean births. It can result in significant maternal morbidity and remains one of the leading causes of maternal mortality in Australia and internationally [12,13].

Critical in minimising the risk of harm to women experiencing PPH are the key principles and strategies of prevention, early identification, prompt escalation and appropriate management. Conservative approaches should be tried first, rapidly moving to more invasive procedures if these do not work [9,10].

The purpose of this policy is to provide consistent and effective management to optimise care and outcomes for women who experience PPH in WACHS health care services. It aims to reduce unwarranted variation in clinical practice whilst continuing to provide high standards of care that is women centred.

This policy endorses the Women and Newborn Health Service (WNHS) Postpartum complications clinical practice guideline for use by WACHS clinicians for the management of primary and secondary PPH unless otherwise stated. Only WACHS specific differences or additions to the WNHS clinical guidelines are included in this policy.

2. Policy

WACHS clinicians are to refer to the Appendices and MR72A WACHS Postpartum Haemorrhage Record and medication regimes for clinical practice in relation to PPH management.

2.1 Classification of Postpartum Haemorrhage [13]

Consider the patient's prior haemoglobin and total blood volume when assessing the severity of the PPH. Total blood volume at term is approximately 100 mL/kg (i.e. 7000 mL for a 70 kg woman). PPH can be classified as:

- **minor:** Estimated blood loss (EBL) of 500 – 1000 mL (in the absence of clinical signs of haemodynamic instability)
- **major:** EBL of greater than 1000 mL or continued bleeding and/or evidence of haemodynamic instability and:
  - if ≥ 1000 mL call Senior Obstetric Doctor and Anaesthetist
  - if ≥ 1500 mL or ≥ 3 units given, bleeding continues and/or signs of coagulopathy – **activate WACHS site specific major haemorrhage protocol (MHP)**
  - these site specific documents and processes for MTP should be readily available for reference in all birth suites, operation theatres and emergency departments. As per WACHS Blood Management Policy.

2.2 Active Management of the Third Stage of Labour

Active management of third stage of labour is recommended for all women as:

- it reduces the chance of both PPH and transfusion [13]

- it does not preclude optimal timing of cord clamping for neonatal placental transfusion benefits.

Table 1: Active management of the third stage of labour

	Without risk factors for PPH	**With** risk factors for PPH [4]
Prophylactic Uterotonic agent for active management of third stage [15, 16]	**Oxytocin** 10 units IM **(if no contraindications)**	**Syntometrine®** (oxytocin 5 units + ergometrine 500 micrograms in 1mL) one (1) ampoule IM and **no contraindication** to ergometrine • Consider IV cannulation and collection of full blood count (FBC) and group & hold (G&H) when more than one risk identified or for those with an **asterisk** above

2.3 Postpartum Haemorrhage Risk Assessment

A risk assessment (RA) is completed on the rear of the MR72 Partogram on all women in labour, and for elective lower uterine segment caesarean section (ELUSCS).
If women are identified with:

- **increased risk factors** – documentation of a plan for 3rd stage management required
- **high risk factors** – referral, consultation and documentation of a plan for third stage management required.

Table 2: Postpartum haemorrhage risk factors

Increased risk factors [3,4]	
• Emergency Caesarean section • Induction of labour or Augmentation with oxytocin • Multiple pregnancy • Maternal anaemia (Hb < 90 g/L) • Previous history of PPH • History of retained placenta • Prior caesarean birth/uterine incision • 5 previous vaginal births • Unstable GDM on medication or preexisting Diabetes • BMI ≥ 35 • Chorioamnionitis/pyrexia in labour > 38 °C • APH (this pregnancy) • Use of recent anticoagulation therapy • Malpresentation • Previous and current fetal macrosomia ≥ 4500 g	• Prolonged latent phase of labour > 12 hrs • Prolonged active first stage > 12 hrs • Prolonged second stage > 2 hrs • Prolonged third stage > 30 mins • Precipitate or incoordinate labour • Operative vaginal birth • Pre-Eclampsia/Eclampsia/HELLP/Hypertensive disorders • Use of tocolytics • Shoulder dystocia • Episiotomy • Bladder distention • Epidural/Spinal Analgesia • Fetal demise • Polyhydramnios
High risk factors [3,4]	
• More than one increased risk factor • Low lying placenta or abnormal placentation • Known or suspected bleeding disorder • Placental abruption • Active intrapartum bleeding • Thrombocytopaenia – platelets < 100,000 /mm3	• Uterine inversion • Cervical, uterine, or perineal trauma and active bleeding • Amniotic Fluid Embolism (AFE) • Disseminated Intravascular Coagulation (DIC) • Incomplete 3rd stage and active bleeding • Use of magnesium sulfate

2.4 Postpartum Haemorrhage Management

PPH is an obstetric emergency, requiring prompt recognition of the situation. Maternal morbidity and mortality related to PPH has been attributed to lack of ongoing assessment, and observation of the woman and delays in prompt and appropriate escalation.

Initial and ongoing concurrent management of PPH cause/s **[Tone, Tissue, Trauma and Thrombin (4 Ts)]** is as per Appendices [2,5,6,7,8,11]. Uterine atony is responsible for the majority of PPH, therefore in the absence of an obvious cause, treatment for atony will commence immediately.

Important considerations for PPH management must include:

- early escalation of care to the senior clinical team when a woman has a PPH
- ongoing cumulative assessment of blood loss and weighing all blood loss (1 mL of blood equals 1 gram), avoiding the inclusion of liquor.
- assessment of clinical signs and symptoms of any haemodynamic instability and the speed of blood loss. Respond with timely fluid resuscitation (warm if available).
- review and assessment of the woman's prior/current haemoglobin
- commencement of MR140B WACHS Maternal Observation and Response Chart (M-OR) and record vital signs (as per stability of woman's condition) until blood loss is under control and/or transfer to theatre occurs. These include:
  - 5 minutely respiratory rate, conscious state, SaO2, heart rate, blood pressure, blood loss and fundus
  - 15 minutely temperature until blood loss is controlled
- early indwelling catheter (IDC) insertion and appropriate ongoing bladder management
- assigning a scribe to contemporaneously record events, document assessments, observations, medications given and response to management.
- early collaboration with pathology
- timely use of blood products and O negative blood if required
- timely transfer to theatre
- activation of **WACHS site specific major haemorrhage protocol (MHP)** when estimated blood loss ≥ 1500 mL or ≥ 3 units given, bleeding continues and/or signs of coagulopathy
- regular team time outs – review of PPH cause/s (4 T's), ongoing concurrent management and need for further escalation
- consider early initiation of transfer to regional or tertiary centres during PPH for sites with limited or no access to an operating theatre or blood products.

Postpartum Haemorrhage Medication Management

After the initial third stage medication administration, further initiation and administration of medications occurs concurrently with all other management of the PPH until blood loss is controlled.
Midwives are able to administer emergency medicines for the prevention and management of PPH under the WACHS Medication Prescribing and Administration Policy in line with the midwife initiated structured administration and supply agreements (SASAs). Ensure obstetric doctor/s are on site for PPH or in transit as per each medication SASA.

Medication contraindications include allergy or hypersensitivity to medication or any of the excipients. Consult product information for further information on additional contraindications for each medication [15, 16].

Table 3: Postpartum haemorrhage medications

<table>
<tr><th>Medication</th><th colspan="2">Dosage and Administration Route/s</th></tr>
<tr><td>Syntometrine®
(if not given already and no contraindication to ergometrine)</td><td colspan="2">• One (1) ampoule (oxytocin 5 units + ergometrine 500 microg in 1 mL) IM
• Consider administering an antiemetic</td></tr>
<tr><td>Oxytocin
(repeat if ergometrine is contraindicated)</td><td colspan="2">• 10 units IM
(if no contraindications)</td></tr>
<tr><td rowspan="2">Oxytocin Infusion
Due to identified risk of PPH or treatment of actual uterine atony
(if no contraindications)</td><td>Prophylactic</td><td>Therapeutic</td></tr>
<tr><td>Following active management of third stage uterotonic (with any PPH risk factors):
• Start rate of oxytocin IV 40 units in 500 mL sodium chloride 0.9% <u>or</u> Hartmann’s (CSL) at 125 mL/hr via infusion pump
• Increase infusion to 250 mL/hr if PPH occurs - see Appendix A
• If at 125 mL/hr then cease the infusion after 2 hours if:
○ Fundus firm and central
○ PV loss minimal</td><td>Following PPH blood loss > 500 mL due to uterine atony
• Start rate of oxytocin IV 40 units in 500 mL sodium chloride 0.9% <u>or</u> Hartmann’s (CSL) at 250 mL/hr via infusion pump (max rate) and titrate
• If fundus remains firm and central and PV loss minimal, titrate as:
○ 250 mL for 1 hour
○ 125 mL for 30 minutes
○ 60 mL for 30 minutes and then cease.
• For fluid restricted regimens see WNHS Postpartum complications clinical practice guideline</td></tr>
<tr><td>Ergometrine
(no contraindication to ergometrine and total dose includes Syntometrine® given)</td><td colspan="2">• Ergometrine 250 microg IV (slow bolus) <u>or</u>
• Ergometrine 250 microg IM
(maximum total dose for ergometrine is 750 microg)
• Consider administering an antiemetic.</td></tr>
<tr><td>Tranexamic acid
(if no contraindications)</td><td colspan="2">• Fixed dose of 1 gram (100 mg/mL) IV at 1 mL per minute (i.e. slow bolus over 10 mins)
• A second dose if bleeding continues after 30 minutes or if bleeding re-starts within 24 hours of first dose
• Is considered standard treatment in all cases of PPH and is of most benefit when given early and within three hours of the birth [1,11].</td></tr>
<tr><td>Carboprost
(if no contraindications)</td><td colspan="2">• 250 microg (1 mL) IM
• Must inform doctor & have an order prior to use
• Acute respiratory distress can occur when carboprost is administered. Doctor on site or in transit if phone order.
• Transfer to theatre after one dose if bleeding continues
• Repeat dose/s after 15 minutes if uterus atonic and bleeding continues (as ordered)
• Use with caution in women with a history of asthma, some cardiac conditions, pulmonary disease, hepatic or renal insufficiency or allergy to prostaglandins.
• Consider administering loperamide 4 mg orally or equivalent to minimise side effect of diarrhoea.</td></tr>
<tr><td>Misoprostol
(if no contraindications)</td><td colspan="2">• 1000 microg per rectum or
• 400 microg sublingual</td></tr>
</table>

Postpartum Haemorrhage Documentation

When a PPH occurs and management is initiated, documentation will include the following as well as the digital medical record (DMR)/medical record notes:

- MR72A WACHS Postpartum Haemorrhage Record – to record management of the PPH including cumulative assessment of blood loss
- MR140B WACHS Maternal Observation and Response Chart (M-ORC)
- MR170A WA Hospital Medication Chart and MR176 WACHS Intravenous Fluid Treatment Chart – ensuring doctor's and midwife initiated orders are prescribed and signed.
- MR144 WACHS Fluid Balance Chart – all input and output recorded
- MR80A.2 Postnatal Risk Assessment for VTE Prophylaxis - complete VTE risk assessment post PPH

Bladder Management

See Table 4 as per WNHS Bladder management clinical practice guideline.

Table 4: Bladder management

Following insertion for PPH management	• IDC remains in situ for a minimum of 12hrs and as per maternal condition
Neuraxial analgesia and PPH	• IDC remains in situ for a minimum of 12hrs and until full sensation returns • IDC remains in situ for a minimum of 24hrs and until full sensation returns (if caesarean section and neuraxial morphine)
Trauma related PPH (eg: 3rd or 4th degree tear)	• Consider IDC to remain in situ for 24hrs and following medical review
Trial of Void (TOV) following PPH	• Following IDC removal measure x 2 consecutive voids of > 150 mL • Voids to be between 150 – 600 mL post birth • If volumes are < 150 mL or > 600 mL, measure the residual volume by real time scan or intermittent catheterisation ○ If residual volume > 500 mL, insert IDC for 24hrs and review by medical team

Perineal and/or Cervical Trauma Management

All maternity unit birth suites should stock special perineal suture repair kits equipped to facilitate expeditious control of perineal wound haemorrhage. These kits must be easily accessible, not require extensive set up and consider the need to be opened in advance of a procedure with a risk of trauma e.g. forceps assisted birth.

Available instrumentation should include:

- sims speculum
- vaginal wall retractors
- small artery forceps
- sponge holders
- allis forceps

3. Roles and Responsibilities

Regional Medical Directors and **Regional Nursing and Midwifery Directors** are responsible for:

- ensuring that all clinical staff caring for women experiencing PPH have access to and work within this policy.

Maternity clinicians are responsible for:

- performing assessment and procedures in line with their skills, training, competence and scope of practice
- the appropriate clinical handover and the documentation of treatment, monitoring of parameters and care are as per this policy.

All staff are required to comply with the directions in WACHS policies and procedures as per their roles and responsibilities. Guidelines are the recommended course of action for WACHS and staff are expected to use this information to guide practice. If staff are unsure which policies procedures and guidelines apply to their role or scope of practice, and/or are unsure of the application of directions they should consult their manager in the first instance.

4. Monitoring and Evaluation

Monitoring of compliance with this policy is to occur via reviewing and reporting on:

- regular feedback received from women experiencing PPH and health providers involved in their care within the maternity setting
- all consumer feedback received from women, families and health providers regarding this policy
- the occurrence of PPH adverse outcomes/incidents and their identified contributing factors
- all major (≥ 1000 mL) PPH and peripartum blood transfusion events with review by a senior midwife and obstetric clinician. Documentation in Clinical Incident Management System (Datix CIMS) may also be indicated.

The site maternity and obstetric leads are to:

- audit outcomes of compliance, correct use of, and evaluation of the feedback and effectiveness of PPH management in maternity settings
- evaluate, benchmark, investigate and escalate occurrences of PPH management outside policy limitations
- regularly evaluate PPH rates, trends, and outcomes every six months via the perinatal report of clinical outcomes
- maternity managers are to review their Power BI - Audit in Maternity audit results and implement an action plan to address gaps identified.

Monitoring and review/investigation of PPH rates will be performed by the Obstetric Leadership Group (OLG) six monthly via the Obstetric dashboard.

This policy will be evaluated by the OLG and Midwifery Advisory Forum (MAF) to determine the effectiveness, relevance, and currency.

At a minimum it will be reviewed every five years and evaluation of effectiveness of this policy is to include regular clinical audits. The overall compliance will occur through continuous evaluation and review of audit outcomes as per the monitoring activities above.

5. References

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6. Definitions

Term	Definition
Primary Postpartum Haemorrhage	Primary postpartum haemorrhage is blood loss ≥ 500 mL in the first 24 hours following birth.
Secondary Postpartum Haemorrhage	Secondary postpartum haemorrhage refers to abnormal or excessive vaginal bleeding 24 hours to 12 weeks following birth. Usually caused by retained products and/or infection.

7. Document Summary

Coverage	WACHS wide
Audience	Clinical Midwives and Obstetric Doctors
Records Management	Health Record Management Policy
Related Legislation	*Health Services Act 2016* (WA)
Related Mandatory Policies/Frameworks	• MP 0175/22 Consent to Treatment Policy • MP 0130/20 High Risk Medication Policy • MP 0171/22 Recognising and Responding to Acute Deterioration Policy • Clinical Governance, Safety and Quality Framework
Related WACHS Policy Documents	• Blood Management Policy • Consent to Treatment Policy • High Risk Medications Procedure • Infection Prevention and Control Policy • Maternity and Newborn Care Guidelines – Endorsed for Use in Clinical Practice Policy • Medication Prescribing and Administration Policy • Recognising and Responding to Acute Deterioration (RRAD) Policy
Other Related Documents	• DoH Guidelines for Managing Specific High Risk Medications Relevant to the Organisation • WNHS Postpartum complications (including postpartum haemorrhage and uterine inversion) clinical practice guideline • WNHS Bladder management clinical practice guideline
Related Forms	• MR30G WACHS Consent to Blood Products • MR30H WACHS Release of Liability - Refusal of Blood Products • MR72 Partogram • MR72A WACHS Postpartum Haemorrhage Record • MR80A.2 Postnatal Risk Assessment for VTE Prophylaxis • MR140A WACHS Adult Observation and Response Chart (A-ORC) • MR140B Maternal Observation and Response Chart (M-ORC) • MR144 Fluid Balance Work Sheet • MR170A WA Hospital Medication Chart – Short Stay • MR175A WACHS Intravenous Blood Transfusion and Blood Product Treatment Order Chart • MR176 Intravenous Fluid Treatment
Related Training	Nil
Aboriginal Health Impact Statement Declaration (ISD)	ISD Record ID: 3889

National Safety and Quality Health Service (NSQHS) Standards	1.27a, 2.04, 4.01, 4.13, 5.01, 5.10, 5.11, 5.12, 6.01a, 6.11, 7.04, 8.01.
Aged Care Quality Standards	Nil
Chief Psychiatrist's Standards for Clinical Care	Nil
Other Standards	Nil

8. Document Control

Version	Published date	Current from	Summary of changes
8.00	9 May 2025	9 May 2025	• transitioned from a guideline to a policy • change of title to Postpartum Haemorrhage Policy. Removed primary and (PPH) from title • amendments made to accommodate updates to WNHS guideline, MR72A WACHS Postpartum Haemorrhage Record and MR72 WACHS Partogram • updated reference list and appendices.
8.01	13 May 2025	9 May 2025	• minor amendment to update form that has had a change of title – MR72 Partogram

9. Approval

Policy Owner	Executive Director Nursing and Midwifery Services
Co-approver	Executive Director Clinical Excellence
Contact	WACHS Coordinator of Midwifery
Business Unit	Nursing and Midwifery
EDRMS #	ED-CO-14-92831

This document can be made available in alternative formats on request.

Appendix A: Postpartum Haemorrhage Flow Chart

TREAT CAUSES (occurs concurrently)
The 4 'Ts'

CALL FOR HELP:
- Press staff assist bell
- Notify duty obstetric doctor

Nominate scribe and:
- Commence PPH Record (MR72A)
- Allocate a staff member to measure blood loss and check third stage
- **Consider contacting MOETS for assistance**

If ≥ 1000 mL:
- Alert Senior on call obstetric doctor and Anaesthetist
- Low threshold for transfer to theatre

If estimated blood loss ≥ 1500 mL or ≥ 3 units given, bleeding continues and/or signs of coagulopathy:
- **Activate major haemorrhage protocol (MHP)**

RESUSCITATE:
- IV cannulation (16G) x 2
- Blood tests (inform lab of PPH):
  - G & H +/- X-Match (units)
  - FBC, U & Es & Coag Profile
- IV Hartmann's (CSL) – as per volume of blood loss
- Keep woman warm
- Maternal observations (5-15 min):
  - Sa02, PR, BP, RR, Temp, blood loss, fundus & conscious state

TONE (atony):
- Review 3rd stage oxytocic and give (if not given already)
- Vigorous/continuous fundal massage and monitor tone
- Uterotonic drugs **(review medication contraindications):**
  - Syntometrine® x 1 ampoule IM (if not given already) **or** repeat oxytocin 10 units IM (if Syntometrine® contraindicated)
  - Oxytocin IV 40 units in 500 mL sodium chloride 0.9% **or** Hartmann's (CSL) at 250 mL/hr & titrate (infusion pump)
  - Tranexamic acid 1 gram IV (slow bolus) over 10 mins
  - Ergometrine 250 microg IV (slow bolus) **or** IM **(maximum total dose for ergometrine is 750 microg and includes Syntometrine® given)**
  - Carboprost 250 microg IM if no contraindications (must inform doctor & have an order) & repeat dose/s if bleeding continues (as ordered)
  - Misoprostol 1000 microg PR or 400 microg sublingual
- Insert IDC with hourly urine measure bag
- If bleeding continues initiate bimanual compression

PPH continues: Prompt transfer to theatre

If delay in transfer to theatre and bleeding continues:
- Consider uterine balloon tamponade e.g. Bakri or alternate balloon catheter

TISSUE:
Placenta retained or noted incomplete – monitor blood loss and if bleeding continues:
- Adequate regional/general anaesthesia

Prompt transfer to theatre

TRAUMA:
- Carefully examine PV area
- Apply pressure/clamp brisk bleeding vessels
- Repair wound (appropriate to LBS)
- Use surgical assistant
- Use adequate wound repair kit

If extensive bleeding/trauma:
- Pack, apply continuous pressure
- Tranexamic acid 1 gram IV (slow bolus) over 10 mins

Prompt transfer to theatre

THROMBIN (Coagulopathy):
- Alert laboratory
- Tranexamic acid 1 gram IV (slow bolus) over 10 mins
- **Activate major haemorrhage protocol (MHP)**

DURING TRANSFER:
- **Alert** receiving site most senior obstetrician and anaesthetist and laboratory technician
- **Crossmatch**
- **Continue** resuscitation, observations, and fundal massage/bimanual compression/wound pressure as required

Appendix B: In Theatre

In theatre

Further management in theatre occurs concurrently with review of PPH causes (4 T's) and management as per Appendix A as well as:

- Using the most senior available anaesthetist and obstetrician.
- Examination under anaesthetic (EUA) and:
  - Careful examination of genital tract and repair trauma
  - Manual removal of retained products (MROP)
  - Consider antibiotic cover and compression stockings/VTE risk
- **If atony and bleeding continue:**
  - Consider and **activate MTP** (if not already)
  - Maintain fundal massage and/or initiate bimanual compression.
  - Give tranexamic acid 1 gram IV (slow bolus) over 10 mins if not given prior.
  - Repeat ergometrine 250 microg IV (slow bolus) **or** IM if no contraindications **(maximum total dose 750 microg including Syntometrine® given)**
  - Give carboprost 250 microg IM if no contraindications & repeat dose/s as ordered if bleeding continues
  - Insert uterine balloon tamponade (e.g. Bakri)

Uterine Balloon Tamponade (e.g. Bakri)

Can be inserted into the uterine cavity through the cervix (or a uterine incision) to tamponade the placental bed.

- The balloon is usually placed under direct vision; experienced practitioners may be able to effect digital placement.
- The balloon is inflated with sterile saline, using a 50 mL syringe until resistance is encountered, or from a 500 mL bag using gravity feed and a giving set. Consider bedside ultrasound as can be useful to guide/check placement and fluid infusion.
- A vaginal pack may help keep a balloon catheter in the uterine cavity, particularly if a woman has been in labour.
- If used in conjunction with a B Lynch suture, insert & inflate the balloon after placement and tying off the uterine compression suture.

Removal of a balloon catheter should be done at a hospital well-resourced to manage recurrent haemorrhage.

Still bleeding

- Consider an arterial line (if capability available) and repeat FBC, Coag Profile, additional crossmatch.
- Transfuse RBC/Fibrinogen Concentrate/FFP and activate major haemorrhage protocol (MHP)
- Follow algorithm below for fibrinogen concentrate use.
- Follow haematologist advice for administration of Cryoprecipitate and platelets if available.

Speedy resort to surgical intervention may be lifesaving:

- Call for urgent general surgical assistance if appropriate and available
- Consider aortic pressure
- Laparotomy and B Lynch or uterine compression suture (leave legs in stirrups)
- Consider surgical devascularisation of the uterus
- Consider hysterectomy
- **Consider contacting MOETS and/or Regional WACHS/Tertiary site for assistance and advice**
- **Arrange post op admission to HDU/ICU if appropriate and available on site**
- **Consider transfer to Regional WACHS or Tertiary site: contact site to accept and APTC for transfer arrangements (MOETS can also assist if required)**

Appendix C: Guideline for the use of Fibrinogen Concentrate during Obstetric Haemorrhage at WACHS sites

GENERAL ADVICE:

- The priority is **always to <u>treat the cause of bleeding</u>** – e.g. oxytocics, surgery, physical measures, balloon tamponade.
- Fibrinogen levels differ in pregnant women and administration should also be guided by blood loss volume.
- Minimise use of colloids (they cause iatrogenic coagulopathy).
  Activate site specific **major haemorrhage protocol (MHHP)** when recommended.
  Warm all fluids and blood products.
- Aim for temp > 36 °C, iCa (ionised calcium) >1, Hb > 70 g/L

NO LABORATORY TEST AVAILABLE

Decision to administer fibrinogen concentrate based on clinical criteria.

The patient must be <u>still actively bleeding AND</u>:

1. Estimated blood loss of > 2 litres **OR**
2. Hb < 70 g/L **OR**
3. High clinical suspicion of coagulopathy e.g. Amniotic fluid embolism, severe abruption, HELLP syndrome

Give tranexamic acid 1 gram IV (slow bolus) over 10 mins (if not already given)

Give fibrinogen concentrate 3 gram

Administration of fibrinogen

- Reconstitute 1 gram in 50 mL warm water for injection (use prepared kit in fluid warmer)
- Swirl gently and do not shake (to avoid foaming)
- Administer each 1 gram:
  - If life threatening: via syringe driver over 3 min (1000 mL/hr)

LABORATORY TEST AVAILABLE

- Ideally the decision to use fibrinogen should be based on the results of laboratory tests (fibrinogen concentration or fibtem A5)
- If **ROTEM** available, use the **KEMH ROTEM** algorithm.

Give tranexamic acid 1 gram IV (slow bolus) over 10 mins (if not already given)

FIBRINOGEN DOSING GUIDE

Target FIBTEM A5 ≥ 12 mm **OR** fibrinogen concentration ≥ 2 g/L

FIBTEM A5	Fibrinogen Concentration	Cryoprecipitate	Dose to give
6 -10 mm	1 - 2 g/L	15 units	3 gram
< 6 mm	< 1 g/L	25 units	5 gram

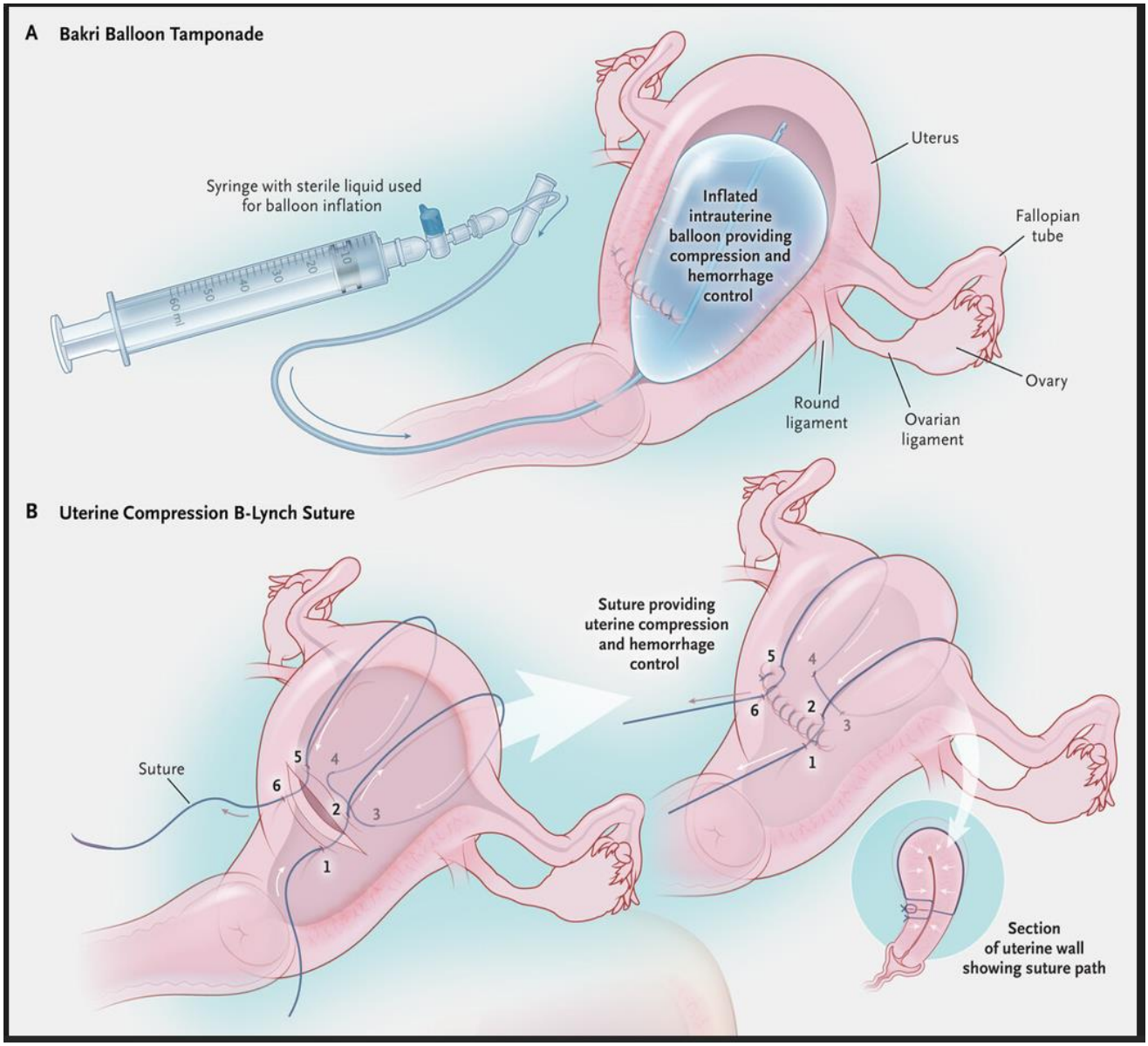
Appendix D: Mechanical Methods for Managing Uterine Atony

Uterine Balloon Tamponade (e.g. Bakri)

- For Uterine Balloon Tamponade details see Appendix B and Figure A image below.

Uterine Compression Sutures (e.g. B Lynch Suture)

- Used to mechanically compress both sides of an atonic uterus to control a severe PPH when other interventions are unsuccessful. See Figure B image below.
- Performed via laparotomy or at caesarean section.
- A long, absorbable suture on a large, curved needle is used. e.g., Kat Eyed Colts Tension 100 MM – Reference TM 1330, 1 POLYSORB L115
- Assistant must simultaneously compress uterus whilst knot is secured.



Reference: Bienstock, J., Ahizechukwu, C. and Hueppchen, N. (2021). Postpartum Haemorrhage. N Eng J Med. Vol 384 (17). 1635-1645. DOI: 10.1056/NEJMra1513247. [Internet]. Accessed 26/08/2024. Available from: https://www.nejm.org/doi/full/10.1056/NEJMra1513247