University Hospitals Plymouth NHS Trust

MATERNITY GUIDELINES

Management of Obstetric Haemorrhage (amalgamated with PPH)

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1. Antenatal Haemorrhage

Antepartum Haemorrhage (APH) is defined as bleeding from the genital tract, occurring from 24 weeks of pregnancy and prior to the birth of the baby. Any bleeding prior to this gestation is classed as a threatened miscarriage.

Common causes of APH include placenta praevia, placental abruption and local causes (e.g. bleeding from the vulva, vagina or cervix). In some clinical cases a cause may not be identified and may be described as an unexplained APH. Management will depend on the severity of the bleed and the patient's condition. A full antenatal check should be performed and a doctor review undertaken by the appropriate seniority (dependant on clinical picture/severity). A Kleihauer test should be performed in rhesus D (RhD) negative women to quantify fetal maternal haemorrhage and determine the dose of anti-D immunoglobulin required. Women with on-going bleeding, or loss greater than spotting, should remain in hospital for observation.

All women with a single heavy APH (similar to a period) or lighter recurrent APHs should be referred for serial growth scans and review in a consultant antenatal clinic.

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N.B. Postpartum Haemorrhage (PPH) should be anticipated for women who have experienced an APH in labour and an appropriate management plan put in place.

2. Postnatal Haemorrhage

Primary Postpartum Haemorrhage (PPH)

PPH is the loss of 500ml or more of blood from the genital tract within 24 hours of delivery. However, clinically significant PPH occurs with blood loss of 1000-1500mls.

Secondary PPH

Haemorrhage from the genital tract more than 24 hours after delivering and up to 6 weeks post delivery

Major Obstetric Haemorrhage

- 1500ml blood loss or greater
- Acute drop in Hb > 4g/dl
- Acute need for > 4 unit blood transfusion
- Clinical shock- refer to Appendix 3

3. Risk Factors

- Past history of post-partum haemorrhage or a retained placenta
- Over distended uterus e.g. Multiple pregnancy, polyhydramnios

- Previous ante-partum haemorrhage including: placenta praevia, placental abruption
- Large intramural fibroids
- Anaemia
- Grand Multiparity
- Raised BMI
- Prolonged and obstructed labour (atony)
- Intrauterine fetal death (coagulation defect)
- Other causes of coagulation defect:
  - Severe pre-eclampsia
  - Amniotic fluid embolism
  - Sepsis

4. Clinical Assessment

It is essential that an accurate estimation of blood loss be attempted. Visual estimation of blood loss is inaccurate and therefore clinical signs and symptoms should be included in the assessment as well as weighing all swabs and pads.

If the bleeding is excessive the woman may experience:

- Rising respiratory rate >20bpm
- Rising pulse rate>100bpm
- Falling blood pressure (Systolic BP below pulse rate). This is a late clinical sign.
- Altered level of consciousness. Another late clinical sign.
  Please refer to Appendix 3

5. Management

The aim of management is to replace the circulatory volume with appropriate resuscitation and arrest bleeding.

CALL FOR HELP-Pull the emergency buzzer and ask the first attendant to call 2222 and state:

'Obstetric Emergency, Level X, on CDS/Ward'

This will assemble-

- Obstetric Consultant 0401, Registrar 0311 & SHO 0464
- Obstetric Anaesthetist 0399
- Maternity Band 7 Co-ordinator 1042
- Maternity Theatre Team- ODP 1904, Scrub Nurse 0215

Consider calling the Porter to transport blood samples/obtain emergency bloods.
32300 (out-of-hours) Bleep **0462** (Office Hours)

6. Resuscitation

A- Assess the airway, consider 15 litres high flow oxygen via a non-rebreathe mask and perform oxygen saturations.
B- Assess the respiratory rate.
C- Position the patient flat.
Perform a manual blood pressure and maternal pulse.
Insert two large bore cannulas and obtain:
-Full blood count
-Group and save (Cross match 4 units minimum)
-Coagulation screen, including fibrinogen (Blue top)
-Rotem (Another Blue top (for the anaesthetist to run a ROTEM test)
-Renal and Liver function for baseline
Keep the women warm using appropriate available measures.
Insert a Foley catheter with urometer to monitor urine output.
Infuse 2 litres of warmed isotonic crystalloid (Hartmann's solution). Further fluid resuscitation can continue as required.

Monitor pulse, blood pressure, respiratory rate and temperature every 15 minutes recording of parameters on a modified early obstetric warning score (MEOWS) chart and **COMMENCE OBSTETRIC HAEMORRHAGE PROFORMA** (Appendix 2).

If blood products are required, obtain and commence as soon as possible.

Access to blood
2 units of emergency O Rh negative blood are available in the CDS blood fridge. If used blood bank must be informed so that it can be replaced.

Further blood must be obtained via blood bank. When available it will be placed in the blood fridge outside blood bank on level 6 (Appendix 1). Porters should be requested to transport blood to appropriate area. If there is likely to be a delay in the availability of porters other staff members may be utilised as appropriate, i.e. HCAs, MCAs, theatre staff. In this instance, the **access code** for all the blood fridges is **1111**.

Portering arrangements:

Office hour's	Maternity porter, bleep 0462
Out-of-hour's	via hospital portering services, ext. 52000

7. Massive Obstetric Haemorrhage

Call Emergency blood bank **52828** or Bleep **0871**.

In the event of a massive haemorrhage, state this clearly to Blood Bank:

*'I have a **potential** or **actual** Massive Obstetric Haemorrhage,*
Also-
*'I want to trigger the **Massive Transfusion Protocol** for Obstetrics'*

Provide the patient details and they will start preparing MOH Pack 1 (2 unit's red cells and 4 units FFP). Call on-call obstetric and anaesthetic consultants if MOH ongoing.

8. Rotem

Give the second blue top blood sample to the anaesthetist. They will run a ROTEM test. This will provide important information regarding clotting and will help guide management. They will inform the on call haematology consultant of the result.

9. Arrest Bleeding

Antepartum Haemorrhage

Prepare for delivery. Be aware of the high risk of postpartum haemorrhage.

Postpartum Haemorrhage

Always consider the 4 T's:

- Tone
- Tissue
- Tears
- Thrombus

When uterine tone is perceived to be a cause of the bleeding, then a sequence of mechanical and pharmacological measures should be instituted in turn until the bleeding stops. These include:

- **Bimanual compression** / **rubbing up a contraction** as a holding measure before pharmacological agents are given.
- **Syntocinon 10 IU Intramuscular**. (At Caesarean section- 5iu slow Intravenous)
- **Ergometrine-oxytocin** maybe used in the absence of hypertension in women at increased risk of haemorrhage as it reduces the risk of minor PPH (500-1000mls)
- **Syntocinon infusio**n (40 units in 500ml 0.9% Sodium Chloride at 125ml/hour via a Baxter pump). Do not delay if pumps are not available: Consider Dosiflow.
- **Ergometrine 500mcg IM**. Consider a second dose.
- **Misoprostol 1 mg PR**.
- **Carboprost 250 mcg** deep IM every 15 minutes up to a maximum of 8 doses (can be fatal if given IV)
- **Tranexamic Acid 1g IV** bolus

10. Examination under anaesthetic in Theatre

If pharmacological measures fail to control the haemorrhage, surgical interventions and the exclusion of retained products should be initiated sooner rather than later. This will require a regional or general anaesthetic.

Intrauterine balloon tamponade (Bakri balloon) is an appropriate first line surgical intervention for most women where uterine atony is the main cause of haemorrhage. A broad spectrum intravenous antibiotic, such as co-amoxiclav 1.2g, should be given in theatre and continue for the time the balloon is in place (usually 24 hours). Antibiotics can stop once the balloon has been removed. However they may be continued at the discretion of the clinician responsible for insertion and this should be documented in the notes.

- Laparotomy to allow B-Lynch or modified B-Lynch (does not require the uterus to be opened) suture insertion. There is a laminated card in theatre demonstrating the technique.
- Intraoperative cell salvage
- Compression of the aorta
- Arterial embolisation or insertion of internal iliac balloon catheters by an interventional radiologist. Contact the on-call consultant radiologist via switchboard. The consultant obstetrician, consultant anaesthetist and consultant radiologist will make a decision about where treatment will take place.
- Arterial ligation. Consider bilateral uterine artery ligation. Ureters should be identified prior to ligation. Bilateral internal iliac artery ligation is best done by a vascular surgeon.
- Hysterectomy. Resort to hysterectomy sooner rather than later especially in cases of accrete or rupture. Ideally a second consultant should be involved in the decision.

Consider transfer to ITU once the bleeding is controlled or the Enhanced Observation Room on CDS.

12. The management and treatment of women refusing blood and blood products

There must be a clearly documented plan of management for women who refuse blood and blood products in the patient records. Jehovah's Witness Trust paperwork and consent should be used and treatments that are accepted should be clearly documented.

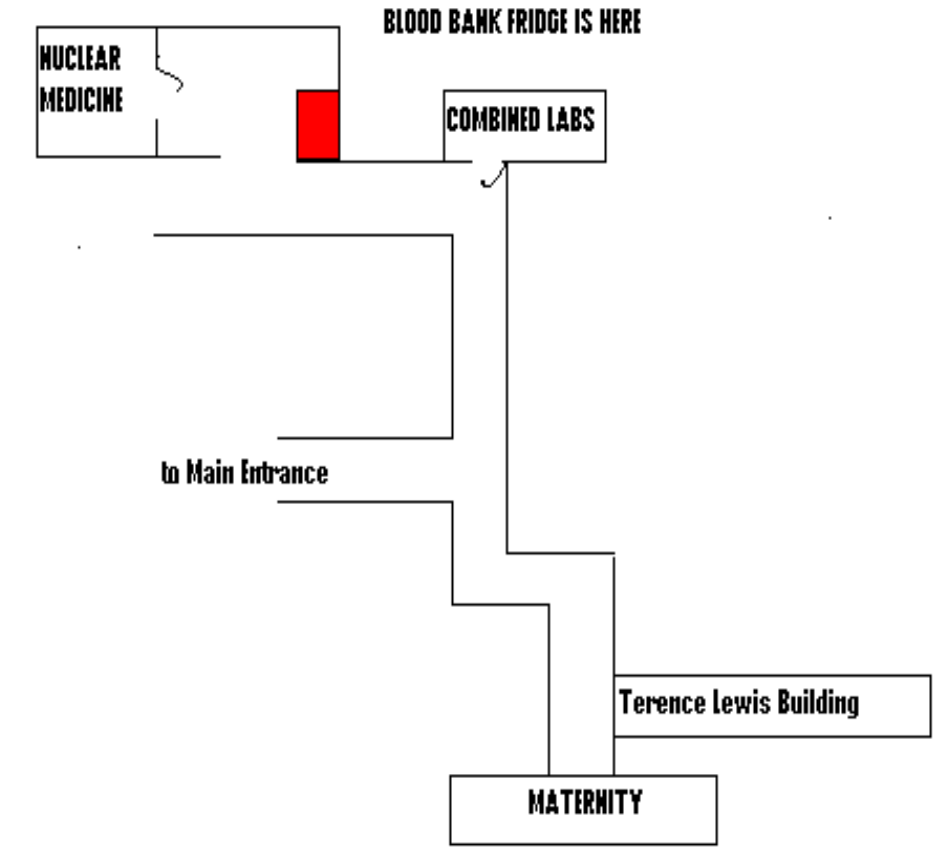
13. Record keeping

It is expected that every episode of care be recorded clearly, in chronological order and as contemporaneously as possible by all healthcare professionals as per Hospital Trust Policy. This is in keeping with standards set by professional colleges, i.e. NMC and RCOG.
All entries must have the **date and time** together with **signature and printed name.**
Record Keeping must include use of the Obstetric Haemorrhage Proforma (Appendix 2)

Appendix 1

Directions to Level 6 Blood Bank Fridge

- From maternity (Zone D –orange sign), take stairs to level 6.
- Follow corridor (passing Terence Lewis building on your right) and keep following until you enter Zone B – pink sign which is straight ahead of you
  (You will pass through Zone C – green sign and Zone A – blue sign)
- Follow this corridor to the end (where Combined Laboratory situated and turn left.
- Tall, white blood bank fridge is situated on the next right, opposite Nuclear Medicine.



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Appendix 2

Obstetric Haemorrhage Proforma

Date:	**Assistance called at:** *(Patient buzzer/ Emergency buzzer)*		
Name	Role	Time Called	Time Arrived

Initial Management	**Time**	
Head bed down	:	
Oxygen commenced	:	
Cannula	1.	2.
Bloods- FBC, G+ S, U + E, LFT, 2xCLOTTING (1xrotem)	:	
Fluids Commenced	:	
Catheter *Consider Urometer*	:	
Vaginal examination	**Clots**	Yes / No
	Tears	Yes / No
Placenta Delivered	:	
Bimanual Compression	:	

Drugs	**Dose**	**Time**	
Syntocinon	10IU IM (5IU Slow IV at Caesarean Section)	:	
Ergometrine	500mcg IM	:	
	500mcg IM	:	
Syntocinon infusion	40IU oxytocin in 500mls 0.9% Sodium Chloride	:	
Misoprostol	1 mg PR	:	
Carboprost	250mcg every 15 minutes	1.	5.
		2.	6.
		3.	7.
		4.	8.
Tranexamic Acid	1g IV	:	

Massive Transfusion Protocol Initiated: Yes/No

Time :

Transfer to Theatre: Yes/ No			**:**
Management			**Time**
Bakri Balloon	Y	N	:
B-Lynch Suture	Y	N	:
Uterine Artery Embolisation	Y	N	:
Uterine Artery Ligation	Y	N	:
Hysterectomy	Y	N	:
Vaginal Pack	Y	N	:

Blood Transfusion Co-ordinator 08:00-16:00 Bleep 0909 Blood Bank telephone 08:00-17:30 52828 Out of hours Bleep 0871

Fluids								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Packed Red Cells								
Fresh Frozen Plasma								
Platelets								
Cell Salvage	Volume		Time		Volume		Time	
Fibrinogen Concentrate (if indicated)	Dose		Time		2nd Dose		Time	
Other-								
Type								
Type								
Type								

Post Delivery Care			
Transfer to	**Argyll / TCW**	**HDU**	**ITU**
Final EBL		**Form Completed by:**	
DATIX Number		**Designation:**	

Appendix 3

Clinical features of shock related to blood loss

Blood loss (mls)	Clinical features of shock		Level of shock
500-1000	Normal blood pressure. Tachycardia.	Palpitations, dizziness.	Compensated
1000-1500	Hypotension systolic 90-80 mmHg. Tachycardia. Tachpnoea. Pallor, sweating.	Weakness, faintness, thirsts.	Mild
1500-2000	Hypotension 80-60 mmHg. Rapid, weak pulse > 110 bpm. Tachypnoea. Pallor, cold clammy skin. Scant urinary output < 30 ml/hr.	Restlessness, anxiety, confusion.	Moderate
2000-3000	Severe hypotension < 50 mmHg. Pallor, cold clammy skin, peripheral cyanosis. Air hunger. Anuria.	Confusion or unconsciousness, collapse.	Severe

Training requirements

Audit of training needs compliance – please refer to TNA policy
Training needs analysis:
Please refer to 'Training Needs Analysis' guideline together with training attendance database for all staff

Cross references

Guidelines can now be found on the network share (drive) 'G:\DocumentLibrary\UHPT Clinical Guidelines\Maternity'.

Maternity Hand Held Notes, Hospital Records and Record Keeping

Standard Operating Procedure: Guideline development within Maternity Services

References

RCOG Green-top Guideline No.52. Prevention and Management of postpartum Haemorrhage. December 2016.

NICE Intrapartum care for healthy women and babies. Clinical guideline (CG190). December 2014. Last update: February 2017.

NICE Intraoperative cell salvage in obstetrics. Interventional procedures guideline (IPG 144) November 2005.

WOMAN Trial Collaborators. Effect of early tranexamic acid administration on mortality, hysterectomy, and other morbidities in women with post-partum haemorrhage (WOMAN): an international, randomised, double-blind, placebo-controlled trial. Lancet 2017;**389**:2105-2116

Author	Guideline Committee		
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