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Royal Cornwall Hospitals NHS Trust

OBSTETRIC HAEMORRHAGE

V2.1 2018

1. Aim/Purpose of this Guideline

1.1 This document guides obstetricians, obstetric anaesthetists, midwives, nurses and maternity support workers (MSW) on the recognition and management of:

- Antepartum Haemorrhage
- Postpartum Haemorrhage
- Massive Obstetric Haemorrhage (MOH) at any time relating to pregnancy

1.2 This guideline should be used in conjunction with related guidelines. These include: **(NEW 2018)**

- Severely ill obstetric woman – obstetric High Dependency and the management and early recognition of
- Anaemia in pregnancy and post delivery
- Anti-D
- Interventional radiology role in obstetric major haemorrhage
- Intraoperative blood cell salvage for obstetrics
- MEOWS in detecting seriously ill and deteriorating woman (full title needed)
- Maternal collapse in pregnancy and the puerperium
- Retained placenta
- Women declining blood products
- Maternal transfer by ambulance

2. The Guidance: Introduction

2.1. Predisposing risk factors for Obstetric haemorrhage

- Multiple pregnancy
- Previous PPH
- Pre-eclampsia
- Fetal macrosomia
- Failure to progress in Second stage
- Prolonged third stage
- Retained placenta
- Placenta accreta
- Episiotomy
- Perineal tear
- General anaesthesia

2.2 Definitions of Obstetric Haemorrhage (New 2018)

2.2.1 Minor Antepartum Haemorrhage

Episode of bleeding of less than 500mls from the genital tract during pregnancy (after 24 weeks gestation) and prior to birth of the baby.

2.2.2 Major Antepartum Haemorrhage

Episode of bleeding of more than 500mls from the genital tract during pregnancy (after 24 weeks gestation) and prior to birth of the baby or when clinical signs are suggestive of significant concealed bleeding.

2.2.3 Minor Primary Postpartum Haemorrhage

The loss of 500-1000mls of blood from the genital tract within 24 hours of the birth of a baby.

2.2.4 Major Primary Postpartum Haemorrhage

The loss of over 1000mls of blood from the genital tract within 24 hours of the birth of a baby.

2.2.5 Massive Primary Postpartum Haemorrhage

Blood loss >2000ml or rate of blood loss of 150ml/min, or 50% blood volume loss within 3hrs. It may result in a decrease in haemoglobin (Hb) >40g/l, or an acute transfusion requirement of >4 units. An MOH that triggers the 'Massive Obstetric Haemorrhage' protocol is defined as blood loss that is 'uncontrolled' and 'on-going' with a rate of blood loss of 150mls or more per minute or >2L .

2.2.6 Secondary Postpartum Haemorrhage

Abnormal or excessive bleeding from the birth canal between 24 hours and up to 12 weeks post-delivery.

2.3 Maternal weight and blood volume (New 2018)

Maternal weight must be considered in estimating the size of the blood loss and its consequences:

Maternal weight	Estimated total blood volume (ml)	15% blood loss (ml)	30% blood loss (ml)	40% blood loss (ml)
50kg	5000	750	1500	2000
60kg	6000	900	1800	2400
70kg	7000	1050	2100	2800
80kg	8000	1200	2400	3200

2.4 Blood loss estimation and recording (New 2018)

Blood loss estimation can be difficult and the gold standard is to measure blood loss in receivers and to weigh soiled swabs and sheets. All staff have training in blood estimation and weighing on PROMPT training days (**New 2018).** All loss should be documented and a fluid balance chart used for Major APH and PPH.

2.5 The Guidance: Antepartum Haemorrhage

2.5.1 **Causes**

Severe antepartum haemorrhage (APH) occurs in 3-5% of pregnancies. The main differential diagnoses to consider in all APHs are:

- Placenta praevia
- Placental abruption
- Vasa praevia
- Local conditions of cervix, vagina and vulva including malignancies and benign lesions such as polyps and cervical ectropion
- Mild trauma caused by e.g. sexual intercourse and cervical sweeps

2.5.2 **Risk factors for APH include:**

General: Increased maternal age and parity, multiple pregnancy, smoking and cocaine abuse
Placenta Praevia: previous caesarean section (10-15%), TOP & D&C, MROP and myomectomy/TCRE
Placental Abruption: pregnancy Induced Hypertension/PET, FGR, preterm rupture of membranes, fibroids, previous abruption, external trauma, substance abuse, polyhydramnios, low BMI, assisted reproductive techniques and maternal thrombophilia

2.5.3 **Minor APH (New 2018)**

2.5.3.1 A minor APH will usually present as mild bleeding from the genital tract with no other clinical symptoms. Management will be dependent upon the size and cause of the APH.

2.5.3.2 On presentation the midwife should take a full medical, social and obstetric history, documenting risk factors. A MEOWS chart should commenced and fetal movements and CTG performed after 28 weeks (earlier only at Consultant Obstetrician's request)

2.5.3.3 All women should have obstetric review with no decision regarding admission or discharge to home made without the involvement of an experienced obstetrician (middle grade or consultant)

2.5.3.4 Obstetric review should include the following:

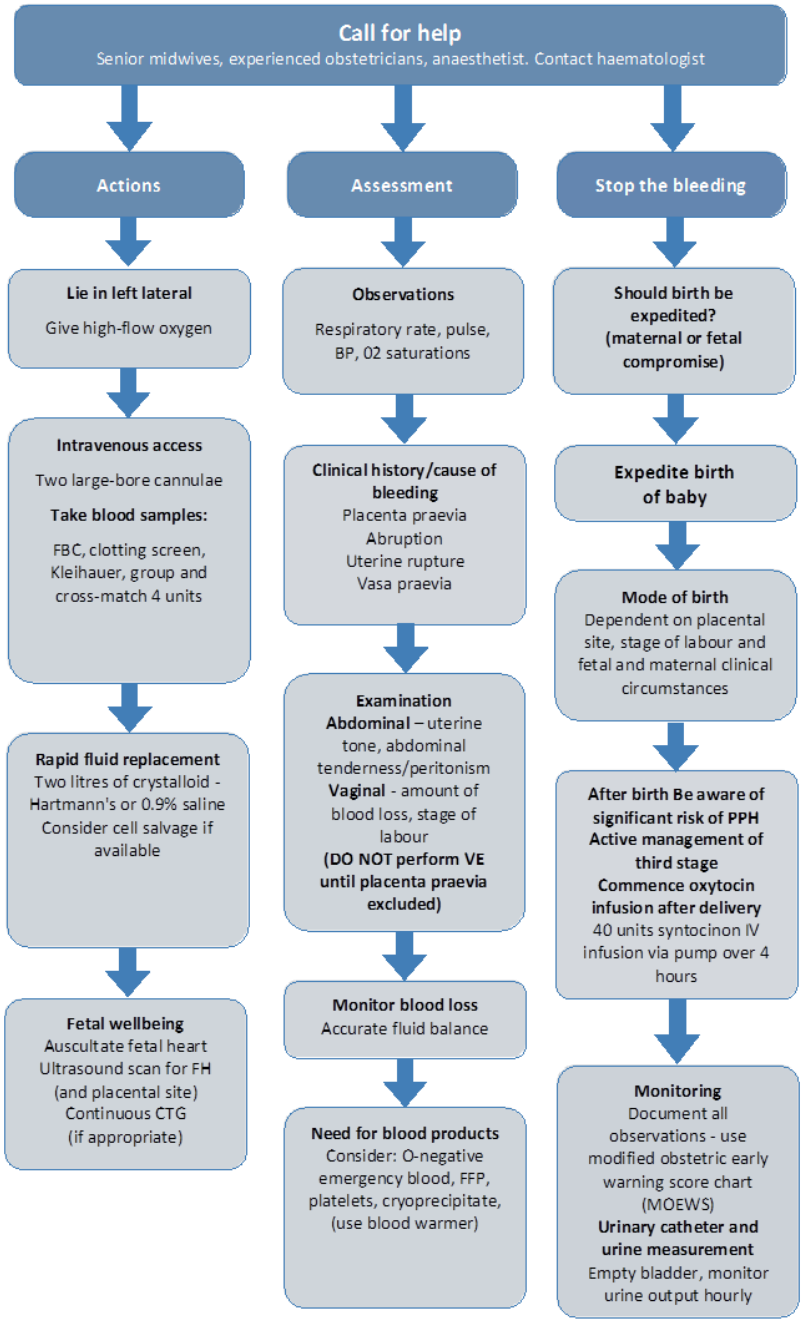
- History and risk assessment
- Review scan for placenta site
- Examination to include speculum for lower genital tract lesion (if not placenta praevia)
- Review observations and CTG
- Secure IV access (unless spotting only) and consider IV fluids
- Take blood for FBC and G&S (and Kleihauer) if rhesus negative)
- Commence / continue CTG

2.5.3.5 Women presenting with spotting who are no longer bleeding and where placenta praevia has been excluded can go home after a reassuring initial clinical assessment. All women with APH heavier than spotting and women with ongoing bleeding should remain in hospital at least until the bleeding has stopped, usually for 24 hours.

2.5.3.6 Anti-D Ig should be given to non-sensitised RhD-negative women. In the event of recurrent vaginal bleeding after 20+0 weeks of gestation refer to the Anti D Clinical Guideline.

2.6 Major APH

2.6.1 **Algorithm for assessment and management of a major APH (New 2018)**



2.6.2 **Additional Management considerations for Major APH**

- Kleihauer test should be performed in rhesus D-negative women
- For administration of anti-D refer to separate guideline: Anti-D Immunoglobulin (Anti-D) for the prevention of haemolytic disease of the new-born- clinical guideline
- Only when the mother is stable should the viability and condition of the fetus be assessed
- From 28 weeks CTG monitoring should continue until bleeding or significant pain relating to abruption stops. The decision for continuous monitoring at lower gestations should be made by a senior obstetrician
- Consider corticosteroids between 24 and 34+6 weeks' gestation if preterm birth is anticipated but is not required immediately
- Tocolysis should be avoided in a massive APH or there is evidence of fetal compromise
- If the mother remains unstable despite aggressive resuscitation, delivery may be required to stop the bleeding
- In cases of intra-uterine death, vaginal birth is usually appropriate but anticipates PPH. An emergency caesarean section may be necessary for obstetric reasons e.g. transverse lie or if unable to correct maternal shock
- Remember venous thromboprophylaxis as an inpatient after bleeding has completely settled
- For bleeds unrelated to placenta praevia, a speculum examination must be performed before discharge (if not performed before in this pregnancy) to exclude a non-uterine genital tract cause for bleeding (e.g. cervical cancer)

2.6.3 **Placental abruption**

2.6.3.1 The diagnosis is clinical and ultrasound is poor at confirming the presence of a retro-placental clot. Symptoms include severe abdominal or back pain, uterine irritability or contractions and bleeding which is variable in amount. If uterine pain and tenderness is present in the absence of any revealed bleeding the possibility of abruption remains as the blood loss can be concealed. Maternal compromise may therefore be disproportionate to the apparent blood loss. The uterus is hard and tender on palpation and may be large for dates

2.6.3.2 Assess for pre-eclampsia or fetal growth restriction that may co-exist and further compromise fetal well being

2.6.3.3 Regular clotting studies may be required to exclude or treat disseminated intravascular coagulation

2.6.3.4 Oxytocin (10 iu/ML IM) should be given for the third stage of labour, followed by an Oxytocin infusion to prevent PPH a well-recognised risk of abruption.

2.6.4 **Placenta Praevia**

2.6.4.1 **Antenatal management**

- The site of placenta praevia and its grade or the distance between the leading edge of the placenta to the internal os should be documented on the ultrasound report. Transvaginal sonography may be required

- Assessment for placenta accreta by ultrasound (and possibly MRI) is necessary for cases of anterior praevia with previous caesarean section. A plan of care requires a multidisciplinary approach. Refer to the guideline 'MOH-The role of Interventional Radiologist' for further information

- All women with placenta praevia confirmed at the 32 week scan should be referred to the Consultant Obstetrician Antenatal Clinic

- Outpatient care is appropriate in the absence of bleeding. After an APH, the length of inpatient observation should be individualised and will depend upon the size and frequency of the bleeds and the woman's social circumstances

- For major praevia, Caesarean section should be booked for 39 weeks although it may be appropriate at earlier gestations (after maternal steroids) in cases of recurrent or heavy bleeding

- The option for vaginal delivery should be individualised and involve discussion between a Consultant Obstetrician and the woman. The final decision may require placental localisation assessment at term

2.6.4.2 **Caesarean delivery for placenta praevia**

- A minimum of two units of cross-matched red cells must be present on the labour ward and the Haematology Department informed of the case

- Cell salvage equipment should always be available

- A senior obstetrician should be present

- The Anaesthetist should site two wide bore intravenous cannulas prior to starting the procedure and may consider a combined spinal epidural or general anaesthetic rather than a spinal depending upon case specific considerations

- The neonatal team should be present

2.6.4.3 **Management specific to Vasa Praevia**

- Commercial tests distinguishing maternal from fetal blood are not validated or locally available and the diagnosis relies on clinical awareness based upon the history and signs of acute fetal compromise disproportionate to the degree of bleeding and maternal condition

- Category 1 caesarean section will usually be required with early cord clamping

2.6.4.4 **Antenatal Haemorrhage in the community. The Community midwife is expected to:**

- Arrange for immediate transfer to the obstetric unit; via 999 ambulance request category 1 transfer (please refer to Maternal Transfer Ambulance Policy)

- Community Midwife should consider siting a cannula (preferably wide bore/grey) and administer IV Hartmann's solution fluid replacement rapidly (Midwives can supply and administer this for use in maternal resuscitation under NMC midwives exemptions, NMC 2011). (New 2018). This must be administered with caution if the woman has known raised blood pressure

- Commence observations of vital signs and document on MEOWS chart.

- Position woman in left lateral tilt/manually displace uterus

- On arrival of paramedic support paramedic to administer high flow facial oxygen via a non-rebreathe mask

- Collect and bring all blood soiled materials to aid blood loss estimation (New 2018)

- Support paramedic to liaise with Delivery Suite co-ordinator re expected ETA and approximate EBL (New 2018)

2.7 The Guidance: Postpartum Haemorrhage (PPH)

2.7.1 Definition

Primary Post-Partum Haemorrhage (PPH) is the loss of 500ml or more from the genital tract within 24 hours of the birth. Any blood loss that causes deterioration in a woman's condition may be considered a PPH. Secondary PPH is defined as abnormal or excessive bleeding from the birth canal

between 24 hours and 12 weeks postnatally. PPH can be minor 500-1000ml or major > 1000ml

2.7.2 Risk factors (Amended 2018)

Risk factors can be present at booking or develop antenatally or in labour. All midwives and obstetricians should be alert to identifying these, discussing them with the woman and modifying care plans with comprehensive documentation. Women with risk factors should be advised to deliver in an obstetric unit where further emergency treatment options are available. If a woman has risk factors for PPH these should be highlighted in her notes and a plan of care discussed with the woman covering the Third Stage of labour. The woman should be advised and Active Management of the Third Stage.

2.7.2.1 **At booking**

- Previous PPH or retained placenta
- Previous LSCS
- BMI >35
- Grandmultiparity (P4 or more)
- Existing uterine anomalies
- Age >40
- Pre-existing bleeding disorders

2.7.2.2 **Antenatal**

-
- APH
- Maternal Hb level below 85g/L at onset of labour
- Over distension of the uterus (multiple pregnancy, macrosomia, polyhydramnios)
- Low-lying placenta
- Hypertension
- Therapeutic anticoagulants

2.7.2.3 **Intrapartum Risk Factors**

- Induction
- Augmentation
- Prolonged 1st and 2nd stage and retained placenta
- Precipitate labour
- Pyrexia in labour
- Operative birth or caesarean section
- Retained placenta
- Lower genital tract trauma

2.7.2.4 **Actions in the presence of risk factors (Amended 2018)**

- Document any identified risks clearly in the maternal notes and offer a referral for an appointment with a Consultant Obstetrician during pregnancy

- An individualised care plan should be made following discussion with the woman including recommendation for an actively managed 3rd stage of labour

- Screen for and correct any anaemia

- Early IV access in labour with full blood count, group and save

- Clear communication with obstetric and anaesthetic staff when a woman presents in labour with risk factors for PPH

- Active management of third stage and consider Oxytocin infusion

2.7.3 Communication & Responsibilities (New 2018)

2.7.3.1 Effective communication is the key to management of obstetric haemorrhage. Clear lines of communication are vital between the medical, midwifery and laboratory staff; between junior and senior staff and between different specialties. All discussions should be documented in the maternal notes. The Obstetric haemorrhage proforma should be used to record communication, care and management and secured into the maternal notes on completion.

The Obstetric haemorrhage proforma must be used for cases in theatre (New 2018)

2.7.3.2 The labour ward co-ordinator is responsible for ensuring relevant medical, social and obstetric history and events prior to the haemorrhage are communicated clearly to the midwifery, obstetric and anaesthetic staff arriving

2.7.3.3 Once an initial assessment of Major PPH has been made:

- The Obstetric Registrar is responsible for ensuring the Consultant

- Obstetrician has been contacted, communicating with haematology/ blood transfusion as required and commencing immediate emergency resuscitative management

- The Anaesthetic Registrar is responsible for ensuring the Consultant Anaesthetist has been contacted, communicating with haematology/ blood transfusion as required and commencing immediate emergency resuscitative management.

- The Labour Ward Co-ordinator is responsible for co-ordinating staff, calling the blood transfusion lab with woman's details with

a summary of the clinical scenario, woman's name, DOB, Hospital number and woman's weight), ensuring blood samples are sent and considering needs of the partner and relatives of the woman. This can be delegated to an appropriate member of the team but the overall responsibility lies with the LW coordinator.

2.3.4.4 Once informed and/or present the Consultant Obstetrician, Consultant Anaesthetist, haematologist, blood transfusion personnel and labour ward co-ordinator must regularly communicate with one another face to face or by phone before arrival to update the team regarding the situation and agree an ongoing plan of care. This must be clearly documented in the maternity notes and summarised on the PPH proforma.

2.7.4 Home birth & Haemorrhage in the community setting: The Midwife is expected to: (New 2018)

- In the Community setting the Midwife will call Paramedics and arrange emergency transfer to Acute Unit. Community midwives and subsequently the Paramedics will work together as a team to undertake the following actions (To be undertaken simultaneously if there is a 2nd Midwife present)

- Call for help by phoning 999 and asking for request category 1 transfer (please refer to Maternal Transfer by Ambulance policy).

- Initiate immediate emergency resuscitative management and assess the cause of the bleeding. Consider tissue, tone, trauma and thrombin (remember bleeding may be concealed)

- Immediately repair vaginal tear if this is the cause of bleeding

- Administer 2nd dose of Oxytocin (Syntocinon 10iu/Ergometrine 500mcg

- Massage uterus expel clots and rub up a contraction

  Community Midwife to site large bore cannula and administer IV Hartmann's solution fluid replacement rapidly (Midwives can supply and administer this for use in maternal resuscitation under NMC midwives exemptions, NMC 2011)

- Consider whether bi-manual compression is required

- Insert indwelling catheter

- Commence observations of vital signs and document on MEOWS chart.

- Position woman flat and elevate legs if hypotensive
- Use emergency drugs to stop bleeding in event of uterine atony
- Community Midwife to administer misoprostol (see below)
- Paramedic to administer high flow oxygen with a non-rebreathe mask consider use of IV tranexamic acid
- Transfer and inform labour ward of events and estimated time of arrival
- All blood loss should be estimated in the community setting and swabs and blood soiled items brought to hospital to be weighed. Procedures for transferring the women into the obstetric unit should be activated once a 500ml loss is estimated see appendix
- The maternal transfer summary should be commenced as soon as possible to the time the midwife identifies the need for transfer

2.7.5 Misoprostol

This is now approved for use by midwives under the RCHT PGD and is being introduced to community teams by Community Matron, including training for administration (New 2018). Misoprostol is an effective uterotonic agent in the treatment of PPH and the guidance for community midwives has been updated to reflect this as it has been widely recommended to prevent PPH (International Journal of Women's Health, 2016, BMJ, 2011; WHO, 2008).

- **Situations for use**
  If you have undertaken first line management of administering 2nd dose of Oxytocin, inserted catheter and rubbed up a contraction and there is still on-going bleeding this is the next stage of your management
- **Administration**
  Administer 800 MCG (each tablet is 200 MCG, administer 4 tablets) per rectum (PR)
- **Contraindications for use**
  Allergy to Cytotec
- **Possible side effects**
  - Stomach pain
  - Diarrhoea (this is the most common effect)
  - Chills, rash
  - Placenta remaining in the womb after birth

- **Storage**
  - Do not store above 30°C
  - Store in original package

- **Renewing stores**
  - Contact pharmacy to order 01872 252588
  - Record administration in handheld notes and advise Hospital Midwife to add to EPMA on arrival to the Acute Unit.

2.7.6 Communication with acute unit

The transferring midwife or second health professional must contact the Delivery suite to inform them of the transfer of the woman

- Royal Cornwall Hospital delivery suite: 01872 252361 / 252365 or 252362
- North Devon District Hospital delivery suite: 01271 322605
- North Devon and Exeter Hospital delivery suite: 01392 406650
- Derriford hospital delivery suite: - 01752 763610
- The Situation Background Assessment Recommendations (SBARD) tool should be used to communicate the transfer information to both the ambulance service and the receiving unit.

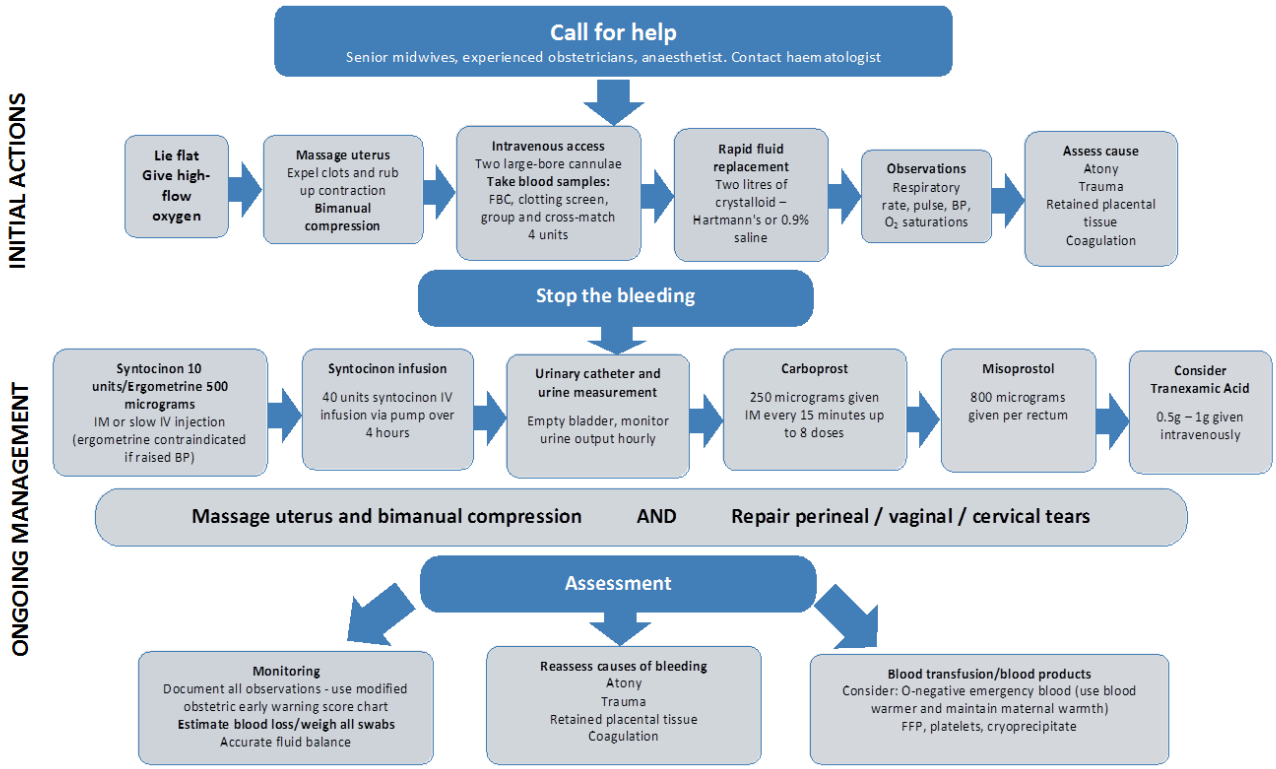
2.7.7 Prior to transfer the midwife must:

- Ensure woman and baby labelled with a hand written wristband which is replaced with printed wristbands as per RCHT positive patient identification procedure, on admission to the unit.

- Refer to Maternal transfer by Ambulance Policy

2.8 Primary PPH

2.8.1 Management of a woman with a Primary PPH



Primary PPH involving an estimated blood loss of 500–1000 ml (and in the absence of clinical signs of shock) should prompt basic measures (close monitoring, intravenous access, full blood count, group and screen) to facilitate resuscitation should it become necessary.

In the Hospital Setting staff will call for help: coordinator, scribe, runners, obstetric middle grade, SHO and anaesthetist.

- Lie the woman flat
- Administer facial oxygen with non rebreathe mask and monitor oxygen saturation levels
- Continually assess Airway, Breathing, Circulation
- Massage the uterus and commence bimanual compression. This is tiring-change clinician regularly to maintain effectiveness
- Assess cause of blood loss remembering the four T's:
    - Tone- palpate uterus and use uterotonics
    - Tissue- examine placenta and membranes and consider theatre for examination under anaesthetic (EUA). Remember that clot alone in the cavity may impair contractility

    - Trauma- systematically examine the lower genital tract and repair a tear. EUA may be required to identify and access a cervical or forniceal tear
    - Thrombin- assess for bruising, puncture site ooze and evaluate repeated blood results
    - Consider rare causes such as uterine rupture or inversion, broad ligament haematoma and extra genital bleeding (e.g. splenic, liver capsule or adrenal)
    - Secondary PPH is usually due to retained products and/or infection

- Empty the bladder inserting a size 12ch Foleys Indwelling Catheter

- IV access with one (consider two) wide bore cannula

- Take blood for FBC and Group and save as minimum. Cross match and clotting studies if large PPH or maternal compromise

- Intravenous fluids Hartmanns 1000ml stat

- Screen for and treat potential infection. Remember Sepsis 6

- Administer Uterotonic Drugs:

    - repeat bolus oxytocic: Ergometrine 500mcgs (IM or IV with caution) or Syntometrine 500 micrograms/5 IU solution for injection IM or Oxytocin 10 IU/ml units IM (if hypertensive)
    - Oxytocin 40/IU in N/Saline 0.9% 500ml @125ml/hr IV
    - Misoprostol 800-1000 mcg PR
    - Carboprost 250mcg IM at 15 minute intervals up to a maximum of 8 doses (caution asthma)
    - Tranexamic acid 1g IV (not a uterotonic)

- **Early decision for EUA if bleeding on going and inform consultant obstetrician. See MOH section for surgical options**

- Remember venous thromboprophylaxis as an inpatient after bleeding has completely settled

2.8.2 Documentation

- Commence full MEOWS assessment including fluid balance, initially at 5 minute intervals then as per MEOWS score.

- Complete documentation, PPH proforma for blood loss over 1000ml (vaginal or caesarean section delivery) and arrange debrief for woman, her family and staff involved

- Datix to Patient Safety

2.8.3 Postnatal care after PPH (New 2018)

2.8.3.1 Transfer to postnatal ward only when woman is stable and transfer is agreed with the obstetric team

2.8.3.2 Continue regular MEOWS observations, as per trigger score, on the postnatal ward and these should be repeated immediately if the woman reports bleeding or being unwell. These should be documented in the maternal notes. If observations are abnormal the obstetric team should be asked to review the woman urgently.

2.8.3.3 For bleeds over 1000ml a fluid balance chart should be continued for a minimum of 24 hours post-delivery. If output is abnormal the obstetric team should be asked to review the woman urgently.

2.8.3.4 Women should be informed about signs of bleeding, expected amount of PV bleeding in the postnatal period and when they should inform the midwife of concerns.

2.8.3.5 Women should have an FBC on day 2 or prior to discharge if discharge before day 2. Oral or intravenous iron should be prescribed as directed by the Anaemia in Pregnancy guideline

2.8.3.6 Women should be given an opportunity to discuss their labour and birth and events around their haemorrhage. For larger PPHs this should ideally be with the obstetrician or midwife providing care during the haemorrhage. Implications for future pregnancies and births should be discussed. All discussions should be documented in the maternal notes. Cases of massive obstetric haemorrhage should be offered follow up in the Obstetric clinic

2.9 The Guidance: Massive Obstetric Haemorrhage

2.9.1 Definitions:

Massive Obstetric Haemorrhage is defined as blood loss >2000ml or rate of blood loss of 150ml/min, or 50% blood volume loss within 3hrs. It may result in a decrease in haemoglobin (Hb) >40g/l, or an acute transfusion requirement of >4 units. An MOH that triggers the 'Massive Obstetric Haemorrhage' protocol is defined as blood loss that is 'uncontrolled' and 'on-going' with a rate of blood loss of 150mls or more per minute or >2L .

2.9.2 Trigger Phrase:

The anaesthetist /obstetrician leading on the management of the massive obstetric haemorrhage must communicate to all members of the clinical team involved in the care of the women that the situation has now become a 'Massive Obstetric Haemorrhage' (MOH). The time that the MOH was declared must be noted and documented on the proforma (Appendix 1). Any subsequent communication between the clinical team and other clinical areas e.g. portering personnel and laboratory personnel, must include the trigger phrase of 'Massive Obstetric Haemorrhage'

2.9.3 Communication and Resuscitation must be simultaneous (New 2017).

CALL FOR HELP – Summon Help - via emergency Buzzer.

2.9.4 Communication pathway:

- Call the senior midwife, resident anaesthetist, Obstetric Registrar and SHO
- Involve senior medical staff early (Senior Anaesthetists and consultant Obstetrician)
- Midwifery coordinator to nominate one person to communicate with lab staff and support services
- Nominated person to call the neonatologist if the baby is alive and undelivered
- Nominated person to call the blood bank (ext. 2500) and alert lab staff that there is a Massive Obstetric Haemorrhage
- Allocate a MSW or porter to be on standby for urgent blood samples/collection of blood
- Consider informing Intervention Radiology team (see separate guideline). This should be done at Consultant level

2.9.5 Resuscitation

- Full A to E assessment and management of Airway, Breathing, Circulation, Drugs/Disability, Exposure and Emergency Surgery
- Oxygen 100% high flow, via reservoir mask
- Full left lateral tilt for APH - Head down, legs up
- Consider warming blanket
- Site two large bore IV cannulae (at least 16 g). Take blood at the same time for urgent cross match (type specific), full blood count (FBC) and coagulation screen.
- Commence a Modified Obstetric Early Warning System (MOEWS) chart including fluid balance monitoring. If the woman is already in theatre the monitoring will be done by the anaesthetist using the appropriate anaesthetic chart and the MEOWS chart will be started when the woman is in recovery

2.9.6 Fluid balance

- Warm all resuscitation fluids and aim to correct hypovolaemia initially with crystalloids
- Consider permissive hypotension – systolic BP <85mmHg
- If a blood transfusion is required urgently and a delay anticipated in receiving group specific blood, consider the use of 0 Rhesus negative blood in Maternity blood fridge.
- Dextrans are hazardous and should not be used in obstetric practice
- Restore normovolaemia, monitor Hb and haematocrit, use nearside patient testing (HaemaCue)
- If the MOH trigger is called, request ‘Obstetric Haemostatic Pack’ from lab (ext. 2500). Pack 1 contains 4 units of type specific blood. Pack 2 will automatically follow pack 1 unless blood bank is asked to stand down. Pack 2 will contain FFP and platelets (which should be given on arrival) and a further 4 units of cross matched blood. Pack 3 contains FFP, 4 X red cells, platelets and Cryoprecipitate
- Use FBC, coagulation studies, fibrinogen levels and haematology advice to guide the use of further blood products: FFP (for clotting factors), cryopreciptate (for fibrinogen), platelets (to maintain >50x109/l).
- Re-infusion of blood from the cell saver can be given through a normal blood giving set. Even though a Leucodepletion filter is recommended,

it may not be appropriate for acute resuscitation as this will slow the reinfusion (see Obstetric Cell Salvage guideline). Cell Saver blood must be prescribed

2.9.7 Monitoring

- Monitor heart rate, blood pressure, respiratory rate, oxygen saturation and temperature at 15 minute intervals
- Record MEOWS score
- Catheterise and record urine output hourly
- Blood gases and lactate as advised by anaesthetist
- Consider invasive monitoring to guide on going therapy (A-line, CVP line)
- CTG +/- ultrasound if antenatal
- Uterine height/tone/contractility and vaginal blood loss

2.8.8 Clinical Management

- If antenatal: consider expediting delivery
- If postnatal: rub up contraction and commence bimanual compression. This is tiring- change clinician regularly to maintain effectiveness
- Transfer to theatre early for further resuscitation and possible surgery
- Request ODP to set up cell saver
- **Start medical management** (for postpartum cases):
  - Oxytocin 40iu in 500mls Normal Saline given at 125mls/per hour for 4 hrs (10iu per hour)
  - Ergometrine 500mcg IM or IV (NOT if raised BP)
  - Carboprost 250mcg given deep IM every 15 minutes up to 8 doses (NOT if asthmatic)
  - Misoprostol 800mcg PR
  - Tranexamic acid 1g IV
- **Surgical manoeuvres:**
  - Bakri balloon
  - Vaginal pack

- B Lynch suture
- Ligation of uterine and then internal iliac arteries (but not if considering Intervention Radiology)
- Consider role of interventional radiology
- Hysterectomy (involve second consultant in decision if time allows and additional skills required). Don't delay decision

- **Post-operative care:**
  - Multidisciplinary decision to determine requirements for ICU/HDU care
  - Inform blood bank of resolution of MOH
  - Consider prophylactic antibiotics
  - Blood transfusion to be avoided after acute management unless very symptomatic
  - Consider intravenous iron
  - Venous thromboprophylaxis should be commenced after haemostasis is secured due to prothrombotic state developing after major haemorrhage
  - Debrief the woman and her partner
- **Documentation:**
  - Complete MOH proforma
  - Datix to Risk Management

3. Monitoring compliance and effectiveness

Element to be monitored	Application of this guideline in Antepartum, Postpartum and Massive Obstetric Haemorrhage
Lead	Audit midwife and Maternity Forum
Tool	Are appropriate interventions undertaken and in accordance with the guideline
Frequency	Individual cases identified via Patient Safety meeting and Maternity Forum

Reporting arrangements	A formal report of the results will be received at the Maternity Forum / Clinical Audit Forum.
Acting on recommendations and Lead(s)	Any deficiencies identified will be discussed at the Maternity forum / Clinical Audit Forum and an action plan developed Action leads will be identified and a time frame for the action to be completed The action plan will be monitored by Maternity Forum/ Clinical Audit Forum
Change in practice and lessons to be shared	Required changes to practice will be identified and actioned within a time frame agreed on the action plan A lead member of the forum will be identified to take each change forward where appropriate The results of the audits will be distributed to all staff through the Patient Safety Newsletter and Maternity Forum.

4. Equality and Diversity

4.1 This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement.

4.2 Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Document Title	OBSTETRIC HAEMORRHAGE CLINICAL GUIDELINE V2.1			
Date Issued/Approved:	5th April 2018			
Date Valid From:	5th April 2018			
Date Valid To:	5th April 2021			
Directorate / Department responsible (author/owner):	Rob Holmes and Karen Watkins, Obstetric Consultants			
Contact details:	01872 252730			
Brief summary of contents	This guidance is for obstetricians, obstetric anesthetists, midwives, nurses and maternity support workers and gives guidance on the management of Obstetric Haemorrhage.			
Suggested Keywords:	Massive Obstetric Haemorrhage, post-partum haemorrhage, PPH, ante partum haemorrhage, APH, praevia, abruption, vasa praevia, accrete, maternal collapse, bleeding, MOH, FFP, Bakri, embolization, cell salvage, oxytocin, platelets, Ergometrine, Misoprostol, Carboprost, interventional radiologist, B Lynch			
Target Audience	RCHT	PCH	CFT	KCCG
	✓			
Executive Director responsible for Policy:	Medical Director			
Date revised:	5th April 2018			
This document replaces (exact title of previous version):	Obstetric Haemorrhage Clinical Guideline V2.0			
Approval route (names of committees)/consultation:	Midwifery Guidelines Group Obs & Gynae Directorate Divisional Board			
Divisional Manager confirming approval processes	David Smith			
Name and Post Title of additional signatories	Not required			
Name and Signature of Divisional/Directorate Governance	{Original Copy Signed}			

Lead confirming approval by specialty and divisional management meetings	Name: Caroline Amukusana			
Signature of Executive Director giving approval	{Original Copy Signed}			
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet & Intranet	✓	Intranet Only	
Document Library Folder/Sub Folder	Clinical / Midwifery and Obstetrics			
Links to key external standards	CNST 3.7			
Related Documents:	• International Journal of Women's Health (2016). Efficacy of misoprostol for the treatment of PPH: current knowledge and implications for care planning for care planning • PROMPT (2016) Practical Obstetric Multi-professional Training • BMJ (2011) Misoprostol for the management of postpartum haemorrhage • WHO (2008) Misoprostol to prevent and treat postpartum haemorrhage: a systematic review and metaanalysis of maternal deaths and dose related side effects • RCOG:Antepartum Haemorrhage (Green-top Guideline No. 63, 2011) • ROCG:Placenta Praevia, Placenta Praevia Accreta and Vasa Praevia: Diagnosis and Management (Green-top Guideline No. 27, 2011) • BJA-CEACCP: Massive haemorrhage in pregnancy volume 5 number 6 (2005) • The Scottish obstetric guidelines and audit project; The Management of PPH (Updated March 2002) • Frca.co.uk (Emergency treatment of obstetric haemorrhage) Blood transfusion and the anaesthetist: management of massive haemorrhage. AAGBI (Oct 2010)			
Training Need Identified?	Yes, 2018-training action plan for community midwives to undertake cannulation training-see Training Needs Analysis Use of Misoprostol is included in annual			

	PROMPT training and is being cascade trained by community team leaders and community matron

Version Control Table

Date	Version No	Summary of Changes	Changes Made by *(Name and Job Title)*
April 2008	V1.0	Initial Issue	Dr Catherine Ralph Consultant Obstetric Anaesthetist
January 2011	V1.1	Inclusion of massive obstetric haemorrhage trigger phrase	Dr Catherine Ralph Consultant Obstetric Anaesthetist
April 2012	V1.2	Compliance monitoring tool added	Dr Catherine Ralph Consultant Obstetric Anaesthetist
Sept 2012	V1.3	Changes to compliance monitoring only	Jan Clarkson Maternity Risk Manager
June 2013	V1.4	If a blood transfusion is required and a delay is anticipated in receiving group specific blood, use 0 Rhesus negative blood.	Jan Clarkson Maternity Risk Manager
October 2013	V1.5	Added: If bleeding continues: (Request **Obstetric Haemostatic Pack** from lab) pack 1 contains 6 units of cross matched blood, pack 2 will automatically follow pack 1 unless blood bank is asked to stand down, and that will contain FFP and platelets (which should be given on arrival) and a further 6 units of cross matched blood Alteration: Fresh Frozen Plasma (FFP) is only produced upon request or routinely with second pack. Changed blood g/dl to g/l.	Jan Clarkson Maternity Risk Manager

6th March 2014	V1.6	Added drug doses of uterotonics: • Oxytocin 40iu in 500mls Normal Saline given at 125mls/per hour for 4 hrs (10iu per hour). • Ergometrine 500mcg, given IM or IV (NOT if raised BP). • Carboprost 250mcg given deep IM every 15 minutes up to 8 doses (NOT if asthmatic). • Misoprostol 800mcg PR or PV, (avoid PV if using cell salvage). Changed: 4gd/l to 40g/l in line with current Hb levels	Dr Catherine Ralph Consultant Anaesthetist
17th February 2017	V1.7	Flow chart added and minor changes and merging of Major Obstetric Haemorrhage (MoH) Clinical guideline and Post Partum Haemorrhage and addition of Antepartum Haemorrhage section Pack 3 added in line with recommendation from Dr Stephen Bassey	Mr Rob Holmes. Consultant Obstetrician Dr Catherine Ralph, Consultant Anaesthetist Dr Stephen Bassey, Consultant Transfusion Scientist
5th September 17	V1.8	Risk Factors Communication pathway to alert team Care of APH in the community Care of PPH in the community Communication between community and main unit. Guideline to flow form APH, PPH to MoH Flow charts added as appendices	Trudie Roberts Maternity Matron Community and Karen Watkins, Obstetric Consultant
14th March 2018	V2.0	See New 2018 in body of text Syntocinon replaced with Oxytocin Algorithms added to 3.4.1 and 4.6.1	Rob Holmes, Consultant Anaesthetist and Helen Odell, Safety Improvement Lead and Maternity Guidelines Group

5th April 2018	V2.1	2.6.4.4 updated with Community Midwife responsibilities during APH regarding cannulation and administration of IV Hartmann's fluid replacement, communication with Delivery Suite co-ordinator, collecting blood soiled material and supporting paramedic 2.7.5 Misoprostol administration and community midwife responsibility to cannulate and administer IV Hartmann's and clear care pathway for PPH in the community setting added	Sarah-Jane Pedler, Practice Development Midwife

Appendix 2. Initial Equality Impact Assessment Form

This assessment will need to be completed in stages to allow for adequate consultation with the relevant groups.

<table>
<tr><td colspan="6">Name of Name of the strategy / policy /proposal / service function to be assessed

Obstetric Haemorrhage Clinical Guideline V2.1</td></tr>
<tr><td colspan="3">Directorate and service area:
Obs & Gynae Directorate</td><td colspan="3">Is this a new or existing Policy?
Existing</td></tr>
<tr><td colspan="3">Name of individual completing assessment:
Rob Holmes</td><td colspan="3">Telephone:
01872-250000</td></tr>
<tr><td>1. Policy Aim*

Who is the strategy / policy / proposal / service function aimed at?</td><td colspan="5">To give guidance to obstetricians, obstetric anaesthetists, midwives, nurses and maternity support workers on the management of Antepartum Haemorrhage, Postpartum Haemorrhage and Major Obstetric Haemorrhage.</td></tr>
<tr><td>2. Policy Objectives*</td><td colspan="5">To ensure timely recognition and management of Antepartum Haemorrhage, Postpartum Haemorrhage and Major Obstetric Haemorrhage.</td></tr>
<tr><td>3. Policy – intended Outcomes*</td><td colspan="5">Safe outcome for pregnant or newly delivered women.</td></tr>
<tr><td>4. *How will you measure the outcome?</td><td colspan="5">Compliance Monitoring Tool</td></tr>
<tr><td>5. Who is intended to benefit from the policy?</td><td colspan="5">Pregnant and newly delivered women.</td></tr>
<tr><td rowspan="3">6a Who did you consult with

b). Please identify the groups who have been consulted about this procedure.</td><td>Workforce</td><td>Patients</td><td>Local groups</td><td>External organisations</td><td>Other</td></tr>
<tr><td>x</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Please record specific names of groups

Clinical Guidelines Group
Obstetric and Gynaecology Directorate
Policy Review group</td></tr>
<tr><td>What was the outcome of the consultation?</td><td colspan="5">Guideline approved</td></tr>
</table>

7. The Impact
Please complete the following table. **If you are unsure/don't know if there is a negative impact you need to repeat the consultation step**.

Are there concerns that the policy **could** have differential impact on:

Equality Strands:	Yes	No	Unsure	Rationale for Assessment / Existing Evidence
Age		**X**		**All Pregnant Women**
Sex (male, female, trans-gender / gender reassignment)		**X**		**All Pregnant Women**
Race / Ethnic communities /groups		**X**		**All Pregnant Women**
Disability - Learning disability, physical impairment, sensory impairment, mental health conditions and some long term health conditions.		**X**		**All Pregnant Women**
Religion / other beliefs		**X**		**All Pregnant Women. There is a separate guideline for *Women Declining Blood Products***
Marriage and Civil partnership		**X**		**All Pregnant Women**
Pregnancy and maternity		**X**		**All Pregnant Women**
Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian		**X**		**All Pregnant Women**

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:

- You have ticked "Yes" in any column above and
- No consultation or evidence of there being consultation- this excludes any *policies* which have been identified as not requiring consultation**. or**
- Major this relates to service redesign or development

8. Please indicate if a full equality analysis is recommended.	**Yes**		**No**	**X**

9. If you are **not** recommending a Full Impact assessment please explain why.

N/A

Signature of policy developer / lead manager / director Mr Rob Holmes		Date of completion and submission 5th April 2018
Names and signatures of members carrying out the Screening Assessment	1. Rob Holmes 2. Human Rights, Equality & Inclusion Lead	

Keep one copy and send a copy to the Human Rights, Equality and Inclusion Lead
c/o Royal Cornwall Hospitals NHS Trust, Human Resources Department, Knowledge Spa, Truro, Cornwall, TR1 3HD

This EIA will not be uploaded to the Trust website without the signature of the Human Rights, Equality & Inclusion Lead.

A summary of the results will be published on the Trust's web site.

Signed Sarah-Jane Pedler

Date 5th April 2018

Patient Label

Appendix 3.

Royal Cornwall Hospital NHS Trust
Directorate of Obstetrics & Gynaecology

Obstetric Haemorrhage Summary Proforma

Date and time of Haemorrhage	
Location of delivery	RCHT / Penrice / Helston / Home/ St Mary's
Mode of delivery	NVD / Kiwi Ventouse / Forceps / LSCS / Vaginal Breech
Date and Time of delivery	
Total blood loss	
Time transfer to RCHT (if community site)	
Primary source of bleeding -	Uterine atony / retained placenta / genital tract trauma / Other (please state…….
Secondary source of bleeding -	Uterine atony / retained placenta / genital tract trauma / Other (please state…….

Communication **Name**	**Time called /Time arrived**
Delivery suite coordinator :	/
Obstetric Registrar :	/
Obstetric SHO :	/
Resident Anaesthetist:	/
Consultant Obstetrician:	/
Senior Anaesthetist:	/
ODP:	/
Blood bank informed:	/
MSW/Porter on standby for urgent samples/blood collection:	/
'**Massive Obstetric Haemorrhage'** Trigger phrase.	Yes/NA **Time**:
Obstetric haemostatic pack Requested by	Yes/NA **Time**
Interventional radiologist:	Yes/NA **Time**

Other personnel involved:	**Time commenced**
Facial oxygen	
MEOWS chart/observations	
Intravenous access – 2 large bore cannulae	
FBC, clotting, G&S or cross match & sent	
Fundal massage	
Urethral catheter	
Drugs	
Bimanual compression	
In to theatre (management to continue on green op sheet)	

Use MEOWS chart for observations and, fluid input and output

Summary of fluid replacement

Product	Total Volume Given
Normal Saline	
Hartmann's	
Gelofusine	
Blood – cross-matched	
Blood – O Rh - ve	
Other i.e. Fresh Frozen Plasma(FFP) /Cryo/ Platelets	

Summary Uterotonics used

Product	Dose and Route of administration	Number of times given
Syntrometrine		
Oxytocin/Ergometrine bolus		
Oxytocin infusion		
Haemabate		
Misoprostol		

Serial Haemoglobin (Hb) & Clotting Results

Date / Time						
Signature						
Hb						
WBC						
Platelets						
Hct						
INR						
APPT						
Fibrinogen						

Name……..

Signature…… Date…….

Appendix 4.

SWASFT AMBULANCE TRANSFER: MATERNAL and NEONATAL

The ambulance service provides a **Category 1** (**New 2018**) emergency response that **will not** be diverted to other incidents for patients who are in cardiac arrest or an immediately life threatening situation. Examples of situations requiring a **Category 1** response are:

- Active seizure/eclamptic fit
- PPH - significant uncontrolled bleeding with maternal compromise
- Delayed first and second stage labour with confirmed fetal compromise
- APH – significant blood loss/signs of abruption with confirmed maternal compromise
- Fetal bradycardia and birth not imminent
- Thick meconium with confirmed fetal compromise
- Cord prolapse
- Shoulder dystocia in which the baby has been unable to be delivered
- Neonatal resuscitation

In exceptional circumstances a woman may not meet the definition for a **Category 1** response but you may feel that a **Category 1** response is required e.g. PPH where immediate transfer from a birth centre/home is required. In these circumstances please apply the following procedure:

- Dial 999
- When asked what is wrong with the patient state that they are in peri-arrest; this will initially trigger a **Category 2** (New 2018) response
- When triage commences, advise the call taker that you require a **Category 1** response and you wish to speak **immediately** to a clinical supervisor
- Once transferred to the Clinical Supervisor explain the situation. Where it is agreed to be appropriate, the Clinical Supervisor will over-ride the system and confirm a response

The call sequence above is **only** to be used for those patients deemed to be suffering an immediate threat to life.

For all other emergencies, a **Category 2** level ‘lights and sirens’ response will still be provided but may be diverted to more serious **Category 1** calls. **Category 2** calls **will not** be diverted to lower level categories. Examples of situations given by SWASFT requiring a **Category 2** response are:

- PPH – minimal bleeding and no patient compromise
- Thin meconium – no suspected fetal compromise
- Delayed first and second stage labour with suspected fetal compromise
- Uncomplicated fetal tachycardia
- APH – small amount of blood loss but no maternal compromise

- Retained placenta

You can also request an urgent ambulance response within 1, 2 or 4 hours for incidents not deemed.

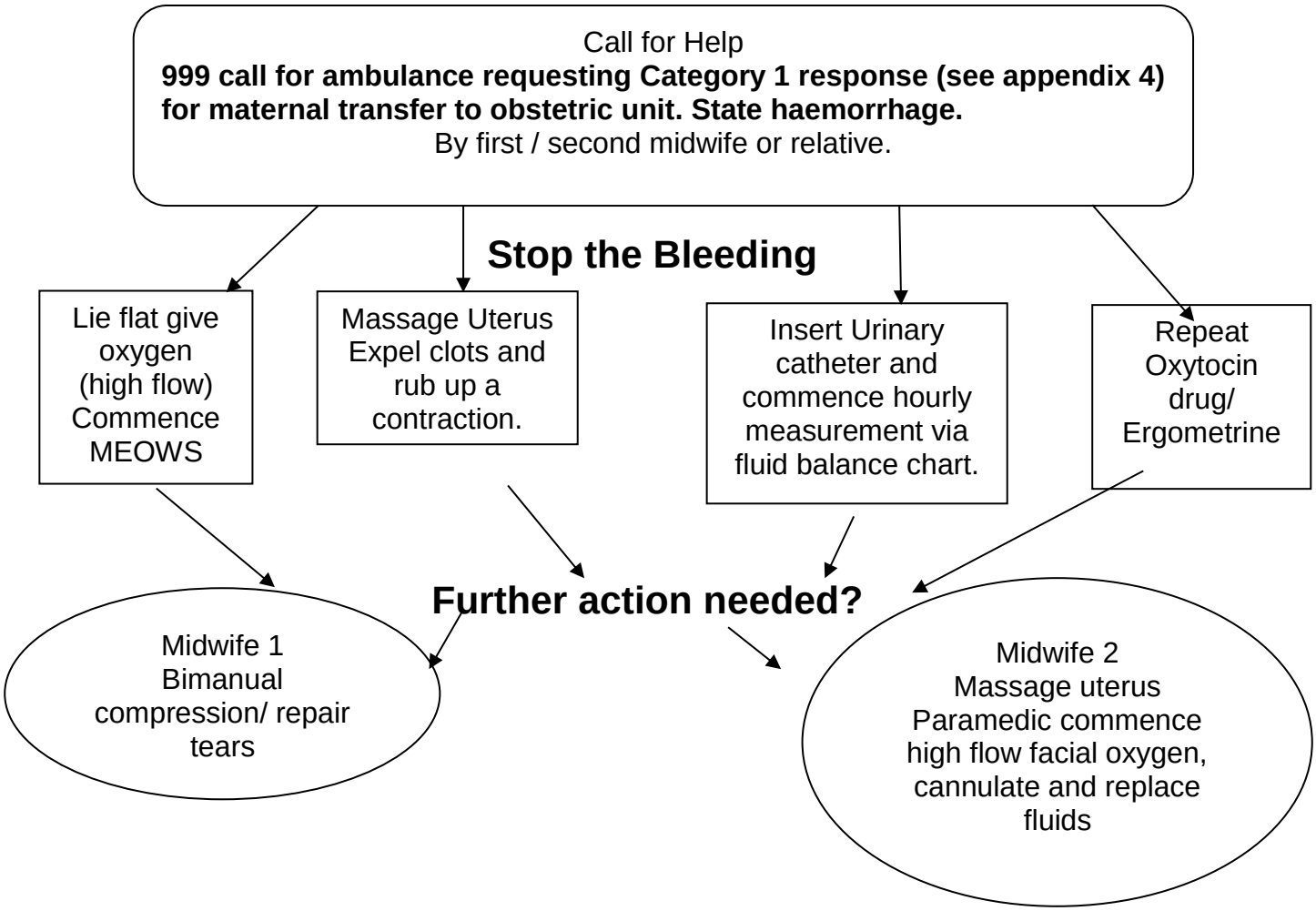
The following examples provided by RCHT may be considered as urgent but not **Category 1** or **Category 2**:

- Delay in progress of labour
- Maternal observations deviating from normal but woman asymptomatic and MEOWs score is 4 or less
- Meconium Liquor and birth not imminent
- Request for further analgesia
- Perineal repair requiring obstetric intervention where bleeding is no concern
- Small APH with no maternal compromise
- Retained placenta without significant blood loss
- Baby born in the community who did not meet the criteria for community birth*
- Baby born with minor abnormality not causing compromise but requiring paediatric assessment*
- Baby born IUGR requiring paediatric assessment*

**These babies can be managed appropriately in the community while you await the ambulance, making sure the baby is kept warm, infant feeding has commenced and the parents are advised appropriately.*

Appendix 5.

Community Midwife Immediate Action



Appendix 6.
Massive Obstetric Haemorrhage (MoH) in acute unit flow chart