Worcestershire Acute Hospitals NHS Trust

Antepartum Haemorrhage Including Massive Obstetric Haemorrhage

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Key Amendments

Date	Amendments	Approved by

Introduction
Obstetric Haemorrhage remains one of the most important causes of maternal mortality. One of the common causes for concern was poor management of placenta praevia.
The recumbent pregnant women can maintain a normal pulse and blood pressure until she has lost one third of her blood volume and therefore in obstetric haemorrhage hemodynamic status may not correspond to apparent blood loss.

Women who decline blood products should be reviewed by an obstetrician and an anaesthetist antenatally. A clear management plan should be documented in the medical records. (Refer to the guidelines Treatment of obstetric haemorrhage in women who refuse blood transfusion and Management of Jehovah's witness patient and others who refuse blood transfusion

After any major obstetric haemorrhage an online incident reporting form should be completed on Datix risk reporting system.
In recent years some possible risk factors for haemorrhage appear to becoming more common e.g.

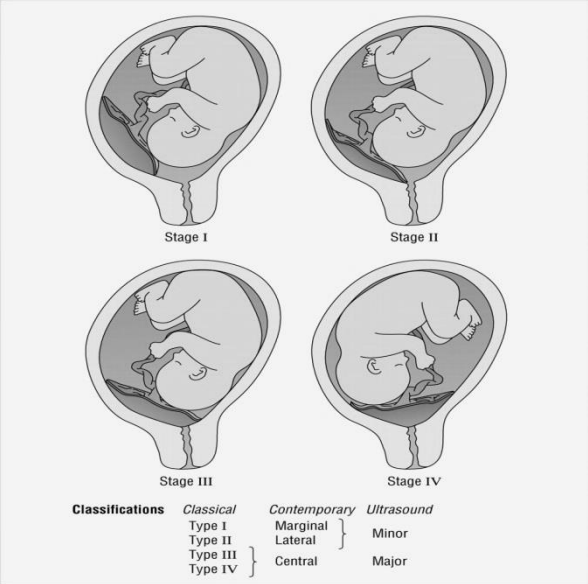
- The increasing mean age of childbirth.
- An increasing number of women with complex medical disorders choosing to become pregnant.
- Increased numbers of multiple pregnancies following assisted reproduction.
- Increased caesarean section rates leading to subsequent placenta praevia or accreta.

Details of Pathway
Antepartum haemorrhage (APH) is bleeding from the genital tract after 24 weeks gestation up to and including delivery of the fetus.
Main causes are:

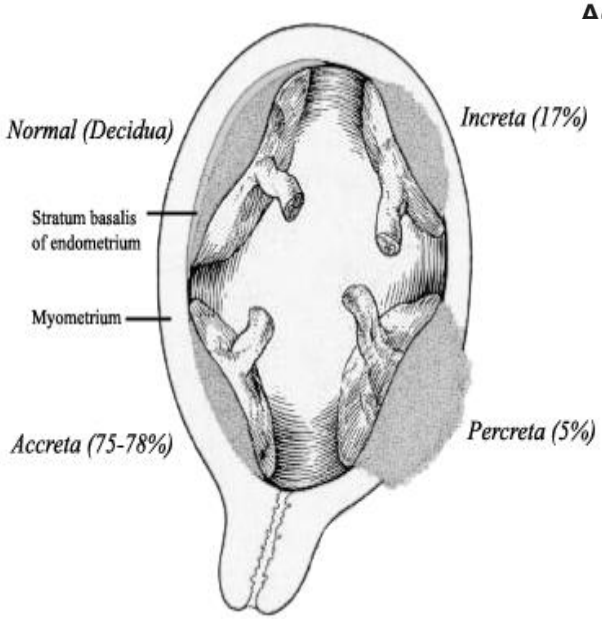
- Placenta praevia
- Placental abruption
- Unclassified APH
- Vasa praevia – see guideline (
- Local causes e.g. bleeding from cervix / vagina
- Bleeding from previous caesarean scar/ uterine rupture – see guideline on VBAC & ruptured uterus (

Diagnosis and Management Depending On Likely Causes

Placenta praevia:
When the placenta is implanted in part or in whole on the lower uterine segment (LUS)



TYPES OF PLACENTA PRAEVIA



DEGREES OF PLACENTA ACCRETA

Signs & Symptoms

- It usually presents as painless and bright red bleeding PV and often with no precipitating factors.
- Uterus is usually soft and non-tender
- In certain cases of preterm labour with placenta praevia there may be associated abdominal pain.
- There is malpresentation and/or high presenting part
- Patient's hemodynamic status usually corresponds to apparent blood loss
- Fetal heart is usually normal. If there is difficulty in picking up fetal heart ultrasound scan should be performed.

Diagnosis

- Placenta localisation should be performed routinely at the mid trimester scan. If placenta is low lying on the mid trimester scan it should be repeated at 32-34 weeks of gestation to confirm the diagnosis.
- Occasionally, however, this is not the case e.g. if the woman declines antenatal scans and therefore placenta praevia should be suspected if a woman presents with the above symptoms and signs.
- Transvaginal ultrasound scan does not increase the risk of PV bleeding and is more accurate in diagnosing placenta praevia especially in cases of posterior placenta.
- All women who have had a previous caesarean section must have their placental site determined in the second trimester and if the placenta is low lying, placental site should be confirmed in the third trimester, ideally at around 32-34/40 to enable further imaging to occur in a timely manner. If the placenta remains anterior and low at 32-34 weeks in a woman with a history of previous caesarean section (or other specific risk factors for accreta) then the consultant responsible for her care should:

1) Request an Ultrasound on ICE marked for the attention of Dr Rob Johnson and Dr Santhosh Vijay. (Consultant Radiologists)
2) Email Dr Vijay and Dr Johnson and copy in Vicki Russell (medical secretary) regarding the request.

If further imaging such as MRI is felt to be indicated this will be arranged by the radiology department.
Table 1; Link between number of previous caesarean sections, and risk of accreta and placenta praevia

Number of previous C/S	% women with accreta	Chance of accreta if placenta praevia
0	0.24	3%
1	0.31	11%
2	0.57	40%
3	2.13	61%
4	2.33	67%
5	6.74	67%

Management of placenta praevia
Massive haemorrhage should be dealt with in accordance with the protocol for major APH (see below):

- All women with placenta praevia must be seen by a consultant obstetrician antenatally and counselled regarding risk of major haemorrhage, transfusion and hysterectomy, and any objections or queries dealt with effectively.
- Aim to prevent and actively treat anaemia in the antenatal period.
- **Asymptomatic placenta praevia** when reviewed at 32-34 weeks
  - Woman should be advised to avoid intercourse, limit travel and attend hospital immediately if bleeding starts.
  - If no bleeding she may be managed as an outpatient after careful counselling.
  - A woman with an asymptomatic major praevia at 34 weeks should be very carefully counselled by the consultant before contemplating outpatient care. Any home-based care requires close proximity with the hospital, the constant presence of a companion and full informed consent from the woman.
  - It should be made clear to any woman being managed at home that she should attend hospital immediately if she experiences any bleeding, any contractions or any pain (including vague suprapubic period-like aches).
- **If placenta accreta/ percreta** is diagnosed or suspected, the woman should be reviewed by a consultant obstetrician in the antenatal period. The risks and treatment options should be discussed in advance and a plan agreed which should be clearly documented on the consent form. This should include the skin and uterine incisions and whether conservative management or proceeding straight to hysterectomy is preferred where accreta is confirmed at surgery. Additional possible interventions including cell salvage and interventional radiology should be discussed. Caesarean section should be pre-planned by consultant obstetrician with experienced gynaecology surgeon, consultant anaesthetist, consultant haematologist and on occasion with vascular surgeons, interventional radiologist and urologists. See below for caesarean technique.
  - **Apply "care bundle" in all cases of placenta praevia and a previous caesarean section or an anterior placenta underlying the old caesarean section scar:**
    - Consultant obstetrician planned and directly supervising delivery
    - Consultant anaesthetist planned and directly supervising anaesthetic at delivery
    - Blood and blood products available
    - Multidisciplinary involvement in pre-operative planning
    - Discussion and consent includes possible interventions (such as hysterectomy, leaving the placenta in situ, cell salvage and interventional radiology). Local availability of a level 2 critical care bed.

Placenta Praevia and antepartum haemorrhage (APH)

- Management will depend upon gestation, amount of bleeding, site/ type of placenta and haemodynamic status of the woman.
- Vaginal examination should be avoided in all known cases of placenta praevia and in cases where placenta praevia has not been excluded.
- Massive haemorrhage should be dealt with in accordance with the protocol for massive obstetric haemorrhage.
- Women with minor placenta praevia who present with APH should be admitted and monitored. If bleeding settles and there are no further episodes of bleeding PV over 48 hours they may be managed as an outpatient with careful counselling. It should be made clear to any woman being managed at home that she should attend hospital immediately if she experiences any bleeding, any contractions or any pain (including vague suprapubic period-like aches).
- **Women less than 34 weeks with major praevia who have previously bled should initially be managed as an inpatient for at least 48 hours after the bleeding settles. They may then be managed as an outpatient after careful counselling and review by a consultant.**
- **Women from 34 weeks of gestation with major placenta praevia who have previously bled should be reviewed and counselled on an individual basis. There should be a low threshold for offering admission from 34/40 and if being managed as an outpatient they must be advised to** attend hospital immediately if she experiences any bleeding, contractions or pain (including vague suprapubic period-like aches). She should be advised to remain close to the hospital and to have the constant presence of a companion.
- Decisions regarding blood availability during inpatient antenatal care should be based on clinical factors relating to individual cases, as well as local blood bank services. Women with atypical antibodies form a particular high-risk group and discussions in these cases should involve the local haematologist and blood bank.

- **The mode of delivery** should be based on clinical judgement supplemented by sonographic information. Based on the RCOG Green Top Guideline No 27 2011
    - A woman with a placental edge less than or equal to 2cm from the internal os should be delivered by caesarean section.
    - If placental edge is >2 cms from the internal os women are suitable for vaginal delivery.–

- **The timing of delivery**: will depend upon gestation, amount of bleeding, site/ type of placenta and haemodynamic status of the woman.
    - Elective caesarean section should be deferred to 38 weeks in cases of placenta praevia to minimise neonatal morbidity
    - Elective caesarean section in asymptomatic women with suspected placenta accreta should not be before 36-37 weeks. (With corticosteroid cover)
    - If there is only minor bleeding the timing of delivery will depend on the gestation. If the baby is less than 35+6 weeks consider giving steroid for fetal lung maturity (see guideline)
    - Emergency caesarean section will be influenced by individual circumstances

- **Personnel at delivery:**
    - Any woman going to theatre with known placenta praevia should be delivered by the most experienced obstetrician and anaesthetist on duty. As a minimum requirement during a planned procedure, a consultant obstetrician and anaesthetist should be present within the delivery suite. A junior doctor should not be left unsupervised when caring for these women.
    - When an emergency arises, consultant staff should be alerted and should attend as soon as possible.

- CEMACH recommends that all caesarean sections performed in women with placenta praevia who have had a previous caesarean section should be conducted by a consultant obstetrician, because of the high risk of major morbidity.

- **The choice of anaesthetic technique** for caesarean section for placenta praevia must be made by the anaesthetist, in consultation with the obstetrician and mother, but there is increasing evidence to support the safety of regional blockade.

- **Technical aspects of caesarean section for placenta praevia**
  - Placenta praevia with or without previous caesarean section carries a risk of massive obstetric haemorrhage and hysterectomy.
  - Consent should include risk of hysterectomy, massive blood loss and need for blood products.
  - In most cases the lower uterine segment (LUS) is sufficiently developed to allow low transverse uterine incision.
  - If LUS is marginally developed and there are large vessels over the LUS then classical caesarean section may be a safer option
  - Its best to leave membranes intact go to the edge of the placenta, rupture the membranes and bring the presenting part out through the incision, this is much better than cutting through the placenta, which increases the risk of fetal exsanguination
  - The surgical manoeuvres required in the face of massive haemorrhage associated with placenta praevia caesarean section should be performed by appropriately experienced surgeons.
  - See the guidelines on management of PPH for the management of bleeding from placental bed including use of Balloon Tamponade. - PPH &

    Balloon tamponade guideline)
  - Blood should be readily available for the peripartum period: whether ready cross matched blood is required and in what amount will depend on the clinical features of each individual case. When women have atypical antibodies, direct communication with the blood bank should enable specific plans to be made to match the individual circumstance.
  - Cell salvage may be considered in women at high risk of massive haemorrhage and especially in women who refuse donor blood.

- **Placenta Accreta**: Caesarean hysterectomy rate for placenta accreta is>50% but for praevia alone is 2%.
  - If placenta is morbidly adherent accreta / percreta attempts to remove placenta may cause massive haemorrhage.
  - If the diagnosis is suspected or made before delivery, consider delivering the baby through a uterine incision at a site distant from the placenta and leave the placenta left in situ. Going straight through the placenta to achieve delivery is associated with more bleeding and a high chance of hysterectomy and should be avoided.
  - Elective caesarean hysterectomy should be considered if family is complete.
  - Cross matched blood and blood products should be readily available in anticipation of massive haemorrhage.
  - Cell salvage may be considered in women at high risk of massive haemorrhage and especially in women who refuse blood. It is recommended that the woman should be transferred to a unit with a cell saver if she refuses donor blood.
  - Interventional radiology can be life saving in the treatment of massive post partum haemorrhage. If a woman is suspected of having a placenta accreta and refuses donor blood, it is recommended that she is transferred to a unit with interventional radiology on site.
  - If the placenta fails to separate, leaving it in place and closing, or leaving it in place and performing a hysterectomy are both associated with less blood loss than trying to separate it.

- If the placenta partially separates, the separated portion should be delivered and any haemorrhage that occurs needs to be dealt with in the usual way. Adherent portions can be left in place, but blood loss in such circumstances can be large and massive haemorrhage management needs to follow in a timely fashion.
- See the guidelines on management of PPH for the management of bleeding from placental bed including use of Balloon Tamponade. - PPH & Balloon tamponade guideline) Conservative management of placenta praevia accreta can be successful and can preserve fertility. The woman should be warned of the risks of bleeding and infection postoperatively. Prophylactic antibiotics may be useful. (Suggested regime: 24-48 hours of Cefuroxime 750mg IV TDS and Metronidazole 500mg IV TDS followed by oral Co-amoxiclav 250/125 TDS for 7-14 days depending on clinical situation.)
- Ensure at least weekly follow up
- Perform weekly HCG levels (Low levels do not guarantee complete placental resolution so should be supplemented by ultrasound.)
- Neither methotrexate or arterial embolisation is recommended routinely but may be helpful in selected cases. There is still a risk of major secondary PPH and hysterectomy.
- Dose of Methotrexate: IM 1mg/kg (as per Ectopic pregnancy). This may be repeated once after 7 days if HCG not falling satisfactorily.

  * Administration of Methotrexate should be a consultant decision after careful counselling of the patient. Methotrexate is excreted into breastmilk and advice on breast-feeding must be sought from Medicines Information (ext 30235) on a case by case basis.

Placenta Abruption - Partial or complete premature separation of a normally situated placenta before the delivery of the baby.
Risk factors include previous abruption, pre-eclampsia, IUGR, non-vertex presentation, polyhydramnios, advanced maternal age, multiparity, low BMI, IVF, intrauterine infection, PROM, trauma, smoking and drug use (cocaine and amphetamines)

- The bleeding may be concealed, revealed or both.
- Patient's hemodynamic status does not always correspond to apparent blood loss. Be ware of large concealed abruption where revealed APH may be minimal.
- All women presenting with APH should have their pulse and blood pressure checked.
- Be Alert! Pre-eclampsia and abruption commonly co-exist.
- There is tendency to under transfuse in cases of massive APH, and CVP should be considered.
- Sudden onset of severe abdominal pain, shock, and tenderness over a hard woody feeling uterus are the characteristic signs and symptoms.
- However where there an abruption in a posteriorly sited placenta the uterus may be soft.
- The fetal heart sounds may be muffled or absent. If unsure perform ultrasound scan to confirm fetal heart either present or absent.
- Fetomaternal haemorrhage during abruption can be significant. Kleihauer test should be performed on all Rh negative women with abruption and appropriate dose of anti-D should be given. Anti D Guideline

Placental Abruption & Intrauterine Fetal Death

- If the baby is dead the abruption is major by definition and a coagulopathy is possible. There is likely to have been up to 1500ml of haemorrhage (always implement the massive haemorrhage protocol see page 3). Consider early and appropriate blood transfusion

  NB: Haemoglobin estimation on admission may be falsely elevated.
- On-call consultant obstetrician and anaesthetist should be informed a.s.a.p.
- ARM should be performed if cervix is favourable as this will reduce intra-uterine pressure.

- If maternal condition is stable and cervix is not favourable induction of labour should be considered using Propess 10mg vaginally (see guideline Induction of labour)
- Urine output should be monitored hourly.
- Labour usually progresses quickly to vaginal delivery in this situation.
- If labour progress is inadequate labour should be augmented with oxytocin
- Try and avoid a caesarean section in these cases where the fetus is dead.

Mild revealed abruption & live fetus and no uterine tenderness:

- Expectant management may be followed.
- Timing and mode of delivery depends upon amount of bleeding, maternal status and presence or absence of fetal heart and gestation.

Major Placental Abruption & Live Fetus

- In all cases of significant revealed APH / concealed abruption management depends on maternal condition and should be dealt with in accordance with the protocol for major APH (see below).
- In suspected cases of placental abruption where the fetus is alive the decision regarding delivery will be determined by a number of factors e.g. CTG, maternal condition, degree of bleeding (if revealed haemorrhage) and gestation.
- The decision re delivery should be made by an experienced obstetrician.
- If caesarean section is to be performed for major abruption Consultant Obstetrician and Consultant Anaesthetist should ideally be present and haematology must be involved. There may be cases of major abruption where urgent caesarean section may be required and senior most obstetrician available should proceed with the delivery while awaiting arrival of on-call consultant.

Unclassified APH

- In almost 50% of cases cause of APH cannot be established. Some of these are minor degrees of placenta praevia and placental abruption and others may be disruption of sinuses or small vessels.
- Usually associated with mild APH and in some cases recurrent episodes of minimal bleeding PV.
- These cases may be managed as an outpatient after initial assessment for 24 hours.
- Fetal growth should be monitored by serial growth scans as there is a higher risk of IUGR and perinatal loss.
- In cases of recurrent unclassified APH induction of labour should be considered at or near term even if fetal growth is satisfactory.
- Kleihauer test should be performed on all Rh negative women with abruption and appropriate dose of anti-D should be given. Anti D Guideline

Local Causes

- Bleeding can occasionally occur from the cervix either due to cervical ectopy or polyps (very rarely cervical carcinoma).
- The bleeding however is not usually massive.
- Bleeding from the vagina is not common and usually follows on from trauma.
- Vulval bleeding can result from the rupture of vulval varicosities. Immediate treatment is by applying pressure to the vulva and resuscitation. Surgery may well be necessary to stop the bleeding.
- Bleeding may occur from perineal laceration caused by descending fetal parts during active second stage. If there is significant bleeding while awaiting delivery of the baby it should be expedited e.g. by giving episiotomy or instrumental delivery as maternal shock can occur from significant APH whatever the cause.

Management of Major APH

1. Prompt recognition
2. Summon help - Consultant obstetrician / anaesthetist
   Registrar obstetrician / anaesthetist
   Midwives and delivery suite coordinator
   Porters should be informed to be on standby for urgent blood collection from the lab
   Haematologist and blood transfusion technicians
   HCAs
   Identify an individual to scribe.
3. Activate 2222 call and say 'Major Haemorrhage' and give location. Switchboard will contact the lab, the anaesthetist on call, the porters and consultant haematologist. The major haemorrhage pack will be initiated (appendix 1).

   Follow ABCD rule

   A - Airway
   - Assess and maintain patency.
   - O2 via face mask (Hudson).
   - Attach pulse oximeter to patient.

   B - **Breathing**
   - Assess
   - Protect airway
   - Monitor respiratory rate

   C - Circulation
   Restoration of circulating volume should be the first priority and labour ward anaesthetist should take charge of this.
   - Insert 2 large bore IV cannulae.
     - Send bloods for FBC, clotting studies, PET bloods and X–match 4 units blood. If the baby is dead the abruption is major by definition and a coagulopathy is possible. There is likely to have been up to 1500ml of haemorrhage. It is important to give up to 2 units of blood as soon as possible. Do not be fooled by haemoglobin estimation on admission as it may well be falsely elevated.
     - Clinical vigilance & ongoing assessment of patient. Continuous pulse/BP/ECG/Oximeter monitoring
     - Regularly assess volume loss
     - Consider CVP/arterial line.
     - Catheterise and monitor urine output hourly.

   Replace volume loss and Urgent access to blood
   - Warm IV fluids and infuse with a pressure bag. Initially infuse up to 2 litres of Hartmann's solution followed by colloid e.g. Volplex 500mls. Administer blood as soon as it is possible.
   - If blood loss appears life threatening consider giving O Rh negative red cells. Preferably however please use group specific fully X matched blood.
   - When requesting blood be clear in your request to the haematologist and porters about the urgency and state what you need, when you need it and enquire when it will be ready for collection alert

   D - **Diagnose** the cause of APH and manage accordingly as above with regards to fetal monitoring and delivery.

   Inform paediatricians and request attendance of experienced paediatrician for delivery.

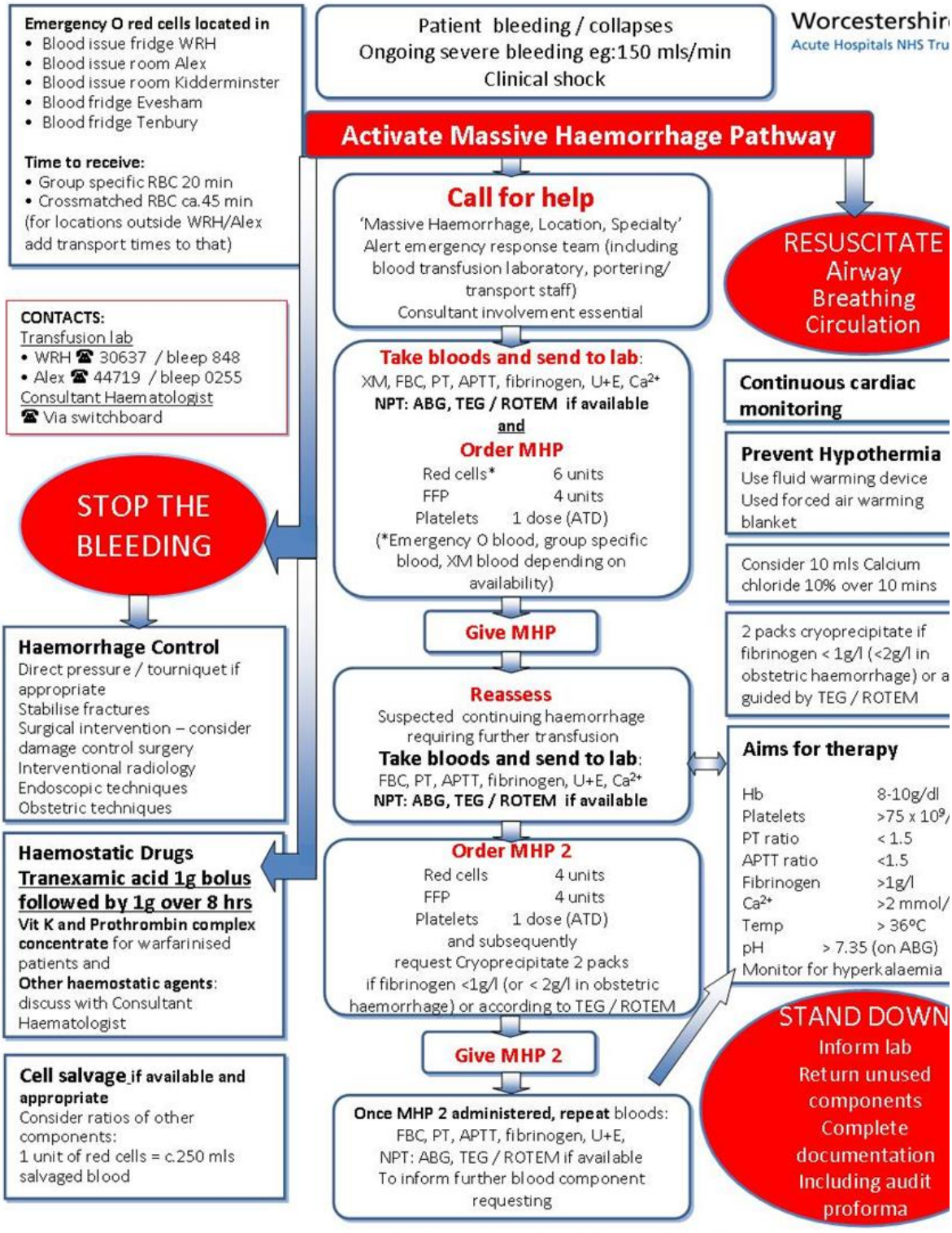
   NB: APH predisposes to PPH (PPH guideline)

After Care:

- All women following major APH require intensive monitoring for at least first 24 hours.
- In some cases transfer to high dependency unit or ITU may be required
- Remember accurate documentation at all times.
- Debrief/discuss with patients & colleagues following delivery**.**
- Datix should be completed for all major APH cases.
- It is important to remember that thrombo-embolic disease (TED) is still one of the commonest causes of maternal death. TED stockings should be the bare minimum in these cases. Consider pneumatic calf compression devices and continue them post-operatively until it is safe to give heparin (e.g. Enoxaparin

Appendix 1
Reference Guideline for the management of massive blood loss

Transfusion Management of Massive Haemorrha



ABG – Arterial Blood Gas
FFP- Fresh Frozen plasma
PT- Prothrombin Time
APTT – Activated partial thromboplastin time
MHP – Massive Haemorrhage Pack
TEG/ROTEM- Thromboelastography
ATD- Adult Therapeutic Dose
NPT – Near Patient Testing
XM - Crossmatch