The Dudley Group
NHS Foundation Trust

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Ref: FOI-032024-000759

Date: 17/04/2024

Address / Email:

Request Under Freedom of Information Act 2000

Thank you for requesting information under the Freedom of Information Act 2000.

Request

Please could I request all Trust policies relating to management of retained products of conception.

Response

The list below are documents relating to management of retained products of

conception:

- **Diagnosis and Management of Ectopic Pregnancy V1.0**
- **Maternal Sudden Collapse in Pregnancy and The Puerperium V7.0**
- **Miscarriage Management Guideline V2.1**
- **Notification of Pregnancy Loss Guideline V7.0**
- **Postpartum Haemorrhage Guideline V10.3**
- **Postpartum Haemorrhage Guideline V11.0**

If you are dissatisfied with our response, you have the right to appeal in line with guidance from the Information Commissioner. In the first instance you may contact the Information Governance Manager of the Trust.

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Should you disagree with the contents of our response to your appeal, you have the right to appeal to the Information Commissioners Office at.

Information Commissioners Office
Wycliffe House
Water Lane
Wilmslow
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SK9 5AF
Tel: 0303 123 1113
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If you require further clarification, please do not hesitate to contact us.

Yours sincerely

Freedom of Information Team
The Dudley Group NHS Foundation Trust

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NHS Foundation Trust

DIAGNOSIS AND MANAGEMENT OF ECTOPIC (SUSPECTED) PREGNANCY AND PREGNANCY OF UNKNOWN LOCATION GUIDELINE			
	DOCUMENT TITLE:	**DIAGNOSIS AND MANAGEMENT OF ECTOPIC (SUSPECTED) PREGNANCY AND PREGNANCY OF UNKOWN LOCATION GUIDELINE**	
	Name of Originator/Author /Designation & Specialty:	[redacted] Consultant Obstetrics and Gynaecology Early Pregnancy unit lead	
	Local / Trust wide:	Local	
	Statement of Intent:	To ensure immediate diagnosis and optimal treatment of any woman accessing care in the early stages of pregnancy presenting with pain and bleeding and a positive pregnancy test	
	Target Audience:	EPAC and inpatient Nursing, Midwifery ,O&G medical and ED Staff	
	Version:	1.0	
	Name of Group and Date when Recommended for Ratification:	Gynaecology Governance Meeting	Date: 14/09/2023
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	Review Date:	31/12/2026	
	Contributors:	**Designation:** [redacted]	
	The electronic version of this document is the definitive version		

CHANGE HISTORY

Version	Date	Reason
1.0	December 2023	New Document

A translation service is available for this document. The Interpretation/Translation Policy, Guidance for Staff is located on the intranet under Trust-wide Policies

THE DUDLEY GROUP NHS FOUNDATION TRUST

DIAGNOSIS AND MANAGEMENT OF ECTOPIC (SUSPECTED) PREGNANCY AND PREGNANCY OF UNKNOWN LOCATION GUIDELINE

1. INTRODUCTION

In the UK, the incidence of ectopic pregnancy is 11/1000 pregnancies and the maternal mortality associated with it is estimated at 0.2 per 1000 (CMACE, 2011, p.83). In the UK, 1 in 90 pregnancies (just over 1%) is an ectopic pregnancy. About two thirds of these deaths are associated with substandard care. Women who do not access medical help readily (such as women who are recent migrants, asylum seekers, refugees, or women who have difficulty reading or speaking English) are particularly vulnerable.

MBRACE report 2018-20 suggests that eight women who died had ectopic pregnancies (8% of maternal death less 24 wks.). Assessors concluded that almost all women who died from an ectopic pregnancy could have had better care, which might have altered the outcome for a third. Whilst the numbers in this report are small, ectopic pregnancy remains common with a prevalence of approximately 1%. With improved patient and clinician awareness regarding the symptoms of ectopic pregnancy more extra uterine pregnancies could be identified earlier and before collapse occurs. Where women of reproductive age, who may or may not be known to be pregnant, present with collapse, an ectopic pregnancy must be excluded as venous thromboembolism and cardiac disease must not be considered as the only causes. Every opportunity should be taken to ensure women of reproductive age who seek gynaecological or early pregnancy care are aware of the symptoms associated with ectopic pregnancy. It is important that all women know where to seek advice if they are concerned, that early pregnancy services are visible and accessible and welcoming to young and vulnerable women. (https://www.npeu.ox.ac.uk/assets/downloads/mbrrace-uk/reports/maternal-report-2022/MBRRACE-UK_Maternal_MAIN_Report_2022_v10.pdf)

The fallopian tube is the most common site accounting for nearly 95% of ectopic pregnancies. Other possible sites of an ectopic pregnancy are, interstitial (2%), cervical (0.1%), ovarian (0.01%), caesarean section scar (more prevalent now a days) or abdominal (rare).

2. RISK FACTORS FOR ECTOPIC PREGNANCY

- Previous pelvic inflammatory disease
- Tubal surgery/tubal ligation
- Previous ectopic pregnancy
- Infertility
- Assisted reproductive techniques
- Smoking
- Maternal age > 40 years
- Pregnancy while on intrauterine contraceptive device
- Previous caesarean section

The possibility of ectopic pregnancy needs to be excluded, even in the absence of risk factors, because about a third of women with an ectopic pregnancy will have no known risk factors.

3. DIAGNOSIS OF ECTOPIC PREGNANCY

Women with pain and/or bleeding in early pregnancy must be investigated to exclude ectopic pregnancy the initial assessment should include:

1. Clinical history noting any risk factors for ectopic pregnancy
2. Examination with relevant signs and symptoms
3. Urine pregnancy test. A negative urine pregnancy test reliably excludes a clinical pregnancy. If urine pregnancy test negative, serum HCG is not needed.
4. TVS Ultrasound (Transvaginal Ultrasound)

3.1 SYMPTOMS AND SIGNS

Ectopic pregnancy can present with a variety of symptoms including atypical symptoms.

It is important to ask about the last period, its timing, duration and amount of bleeding, as well as details of the previous menstrual period and its regularity. It is important to note previous obstetrics and gynaecology history. Any artificial reproduction techniques used.

Common Symptoms:

- Abdominal Or Pelvic Pain
- Amenorrhoea Or Missed Period Vaginal Bleeding (Can Vary from Spotting to Heavy Bleeding with Clots)

Other Reported Symptoms:

- Breast Tenderness
- Gastrointestinal Symptoms Like Diarrhoea and Vomiting
- Dizziness, Fainting or Syncope
- Shoulder Tip Pain

- Urinary Symptoms
- Passage of Tissue

- Rectal Pressure or pain on defecation

Common Signs:
- Enlarged Uterus
- Tachycardia (More Than 100 Beats Per Minute) Or Hypotension (Less Than 100/60 mmHg)
- Shock Or Collapse
- Orthostatic Hypotension
- Abdominal Distension

More Common Signs:
- Pelvic Tenderness /Adnexal Tenderness /Abdominal Tenderness
- Other Reported Signs:
- Cervical Motion Tenderness
- Rebound Tenderness or Peritoneal Signs
- Pallor

3.2 INVESTIGATIONS

3.2.1 Transvaginal Ultrasound (TVS)

For women suspected to have ectopic pregnancy Transvaginal Ultrasound Scan (TVS) by a trained operator is the diagnostic tool of choice. TVS has a sensitivity of 87 - 99% and a specificity of 94 – 99.9% for the diagnosis of ectopic pregnancy. The initial TVS is non diagnostic in 8-30%.

When ultrasound scan facility is not available out of hours the management should depend on the clinical features.

Clinically stable minimally symptomatic women should be offered the next available appointment in Early pregnancy Assessment Clinic (EPAC).

Process Ultrasound requesting (Appendix 1):

- Electronic request USS pelvis via radiology option on sunrise system ***(ORDERS- OBS USS-Early Pregnancy scan)***
- Fill out the form in the paper Yellow EPAC folder on Emergency surgical Hub at reception include patient details, symptoms and contact number
- **DO NOT** commit to any time slot for EPAC scan, this will be allocated by EPAC nursing staff by contacting patient next working day
- Advise patient that EPAC staff will contact them during the working hours via phone (EPAC will not contact patients out of hours/Bank Holidays/Weekends)
- Ensure all patients are listed in the folder for weekend scans as sonographers will call Emergency Surgical Hub 8-9 am Sat/Sun any patients not listed will be left out. Out of hours service is only available for **inpatients** over weekend/Bank holidays
- Any bank holidays gynae on call team can inform and book patients according to agreed arrangement which could vary
- Pregnancy of < 6 weeks- complications with ectopic are unlikely, most of scans are inconclusive- counsel patients about red flags, request scan after senior discussion if LMP uncertain/symptomatic with pain as a predominant symptom.

3.2.2 Serum human Chorionic Gonadotropin:

The level of hCG produced by a viable intrauterine pregnancy should normally increase by at least 63% or more every 48 hours.

The discriminatory level is the level of βHCG at which one should see an intrauterine pregnancy on transvaginal ultrasound. The level depends on expertise, but in our unit we use 1500 IU/l.

Combination of hCG and TVS

Using the combination of serial HCG and transvaginal ultrasound, the diagnosis of ectopic pregnancy can be made with a sensitivity of 95-98% and a specificity of 98%. There is no significant role of measuring serum progesterone to predict viability and should not be routinely used.
Diagnostic laparoscopy is the gold standard for the diagnosis of ectopic pregnancy. It should be considered if the transvaginal scan was not conclusive and s.HCG levels are above 1500 IU/L or if there is a strong clinical suspicion.

Serum hCG Follow up Advise:

- hCG sent out of hours/Weekends or bank holidays need to be chased by the sending on call doctor and **MUST** be added to Gynae handover list
- After handover during weekdays/working hours Gynae team should communicate in person or over phone clearly the outstanding hCG results to be chased with EPAC Nursing team 08.30 till 17.00. Once a patient is accepted for follow up for hCG or USS in EPAC it should be taken off the Gynae handover sheet to avoid duplication of work, but this must be only after formal handover process and should be kept on the list otherwise
- hCG results should be ideally chased within 12 hours of being done, by the sending clinician before the end of their shift. If this is not possible it is the duty of reviewing clinician to ensure appropriate follow up
- Where needed Gynae Consultant should be informed, and plan discussed and documented on EPR
- Any 3rd hCG MUST be sent after discussion with Gynae Consultant
- After 2x hCG results usually a diagnosis can be reached and if a third hCG is needed like in situations of PUL seek senior advice before requesting it
- Any 4th hCG done without a diagnosis alert EPAC Lead clinician
- After a level of hCG of >1500IU/L the next step should be a USS pelvis and not further repeat hCG as this will not be helpful in order to locate the pregnancy
- If there are any concerns about handover hCGs from EPAC team can handover to **NERVE** Centre to ensure prompt follow up and acting on results

Caution:

Around 15% of normal viable intrauterine pregnancies are associated with less than 63% rise in s.HCG level in 48 hrs and 13% of ectopic pregnancies will have a normal doubling time. Therefore, impaired, or satisfactory s.hCG increment will not discriminate sufficiently between normal and abnormal pregnancies.
In multiple pregnancies the level of s.hCG would be slightly higher requiring an extra 2-3 days for a sac to be visible on ultrasound scan and the levels will not rise as in a singleton pregnancy. After two serial hCG measurements, a senior opinion (Consultant) should be sought if the diagnosis is still not established.

3.2.3 Transvaginal Ultrasound

All early pregnancy ultrasounds **should be Transvaginal scans**. Not doing a TVS is not dependent on the operator discretion and MUST be aimed for all patients with only 3 exceptions as mentioned next.
Transabdominal ultrasound (TAS) – consider in women with

1. an enlarged uterus
2. pelvic pathology like large ovarian cysts
3. Where women find TVS unacceptable but the limitations of TAS must be explained and documented

TVS features of Tubal Ectopic Pregnancy:

An empty uterine cavity with :

1. Complex, inhomogeneous adnexal mass, moving separate to the ovary
2. An adnexal mass, moving separately to the ovary, with an empty gestational sac (sometimes described as a 'tubal ring' or 'doughnut sign')
3. An adnexal mass, moving separate to the ovary, comprising a gestational sac containing a yolk sac or comprising a gestational sac and fetal pole (with or without fetal heartbeat)
4. The corpus luteum seen as a "ring of fire" on colour Doppler will be on the ipsilateral side in 70–85% of cases of tubal EP and when present is a useful marker
5. Moderate to large amount of free fluid in the peritoneal cavity or Pouch of Douglas, which might represent hemoperitoneum
6. Intrauterine pseudosac – collection of fluid within the uterine cavity (in up to 20% of ectopics). This collection of fluid must be differentiated from an early intrauterine sac, which is identified by the presence of an eccentrically located hypoechoic structure with a double decidual sign [gestational sac surrounded by 2 concentric echogenic rings] in the endometrium). Identifying an intrauterine gestation sac will largely exclude ectopic pregnancy but will not rule it out completely
7. The possibility of a heterotopic pregnancy should be kept in mind (1 in 3000 – 4000 of spontaneous conceptions and 1% - 3% of assisted conceptions). Confusion can occur when a pseudosac is seen in the uterus.

Heterotopic Pregnancy:

A heterotopic pregnancy is diagnosed when the ultrasound findings demonstrate an intrauterine pregnancy and a coexisting ectopic pregnancy.

Non-Tubal Ectopic Pregnancy Ultrasound features:

Cervical ectopic pregnancy:

1. 1.Empty uterine cavity.
2. 2.A barrel-shaped cervix.
3. 3.A gestational sac present below the level of the internal cervical os / below level of uterine arteries
4. 4.The absence of the 'sliding sign'
5. 5.Blood flow around the gestational sac using colour Doppler.
6. The 'sliding sign' enables cervical ectopic pregnancies to be distinguished from miscarriages that are within the cervical canal. When pressure is applied to the cervix using the probe, in a miscarriage, the gestational sac slides against the endocervical canal, but it does not in an implanted cervical pregnancy.

Interstitial pregnancy:

1. Empty uterine cavity.
2. Products of conception/gestational sac located laterally in the interstitial (intramural) part of the tube and surrounded by less than 5 mm of myometrium in all imaging planes.
3. The 'interstitial line sign', which is a thin echogenic line extending from the central uterine cavity echo to the periphery of the interstitial sac. The 'interstitial line sign' has been shown to have a sensitivity of 80% and a specificity of 98% for the diagnosis of interstitial ectopic pregnancy
4. Sonographic findings in two-dimension can be further confirmed using three-dimensional ultrasound, where available, to avoid misdiagnosis with early intrauterine or angular (implantation in the lateral angles of the uterine cavity) pregnancy.

Cornual pregnancy:

1. Visualisation of a single interstitial portion of fallopian tube in the main uterine body.
2. Gestational sac/products of conception seen mobile and separate from the uterus and completely surrounded by myometrium.
3. A vascular pedicle adjoining the gestational sac to the unicornuate uterus.
4. Caesarean Scar Ectopic pregnancy:
5. Empty uterine cavity / cervical canal
6. Gestational sac or solid mass of trophoblast located anteriorly at the level of the internal os embedded at the site of the previous lower uterine segment caesarean section scar
7. Thin or absent layer of myometrium between the gestational sac and the bladder/ bulge into veisco-uterine space or broad ligament (<5mm)
8. Evidence of prominent trophoblastic/placental circulation on Doppler examination/identification of uterine artery at internal os with dopplers

The possibility of a heterotopic pregnancy should be kept in mind (1 in 3000 – 4000 of spontaneous conceptions and 1% - 3% of assisted conceptions). Confusion can occur when a pseudosac is seen in the uterus.

Please note that a ***complete miscarriage*** cannot be assumed with just an empty uterus on ultrasound scan unless the patient had a previous scan that confirmed an intrauterine gestation or there is a histology report confirming products of conception. Relying on the macroscopic appearance of tissues can be misleading. If tissue is obtained it needs to be sent for urgent histology for confirmation of pregnancy tissue. Histology may take time and the result may suggest trophoblastic tissue or if no tissue has been obtained, then these patients should be managed as Pregnancy of Unknown Location (PUL). It is important that clinically these patients are managed as suspected **ECTOPIC** unless proven otherwise.

When diagnosing complete miscarriage on an ultrasound scan, in the absence of a previous scan confirming an intrauterine pregnancy, always be aware of the possibility of a pregnancy of unknown location. Products of conception cannot be diagnosed from photographs. **ALL WOMEN** should be managed as a pregnancy of unknown location if a pregnancy has not been previously identified on ultrasound scan. Vulnerable women need additional safety netting in place. Where a follow up pregnancy test is required, systems need to be in place to ensure this occurs. If a woman cannot afford a pregnancy test, she should be given a follow-up appointment in the early pregnancy service.

4. TREATMENT OF ECTOPIC PREGNANCY:

Management depends on the clinical presentation, ultrasound findings, HCG level and woman's preference. See *Flowchart 1*. Management options include:

- Medical
- Surgical
- Expectant

4.1 Expectant management:

Expectant management is a reasonable option for appropriately selected and counselled women. They must be willing and able to attend for follow-up, have minimal/no pain, and have low or declining serum b-hCG levels. Reported success rates range from 57–100% and are very dependent on case selection.

Success rates are inversely proportional to serum s.hCG levels, with lower success rates associated with higher initial serum s.hCG levels. One study reported success rates of 96% with serum s.hCG levels of less than 175 IU/L and 66% if serum s.hCG levels were 175–1500 IU/L. Other studies have reported success rates of 80–90% if the serum s.hCG levels are less than 1000 IU/L and 60–67% if s.hCG levels are less than 2000 IU/L.

Criteria for expectant management based on NICE recommendations (NG 126) are as follows (all criteria must be met):

Women who are clinically stable and pain free

- Have a tubal ectopic pregnancy measuring < 35 mm with no visible heartbeat on transvaginal ultrasound scan
- No hemoperitoneum /free fluid on TVS
- Have serum Hcg levels < 1,000 IU/L (can be considered in level <1500 IU/L)
- Are able to return for follow-up and understand the importance of compliance

For women with a tubal ectopic pregnancy being managed expectantly, repeat hCG levels on days 2, 4 and 7 after the original test and:

- If hCG levels drop by 15% or more from the previous value on days 2, 4 and 7, then repeat weekly until a negative result (less than 25 IU/l) is obtained or
- If hCG levels do not fall by 15%, stay the same or rise from the previous value, review the woman's clinical condition, repeat transvaginal scan and seek senior advice to help decide further management
- Rescan as required if stable (with pain/unwell)
- Methotrexate should be considered if the s.hCG is plateauing or rising
- Surgery should be considered if the patient becomes symptomatic or there is increasing free fluid in the pelvis.
- A consultant should be involved in the decision for expectant management.

Advise women that, based on limited evidence, there seems to be no difference following expectant or medical management in:

- The rate of ectopic pregnancies ending naturally
- The risk of tubal rupture
- The need for additional treatment, but that they might need to be admitted urgently if their condition deteriorates
- Health status, depression or anxiety scores
- Advise women that the time taken for ectopic pregnancies to resolve, and future fertility outcomes are likely to be the same with either expectant or medical management.
- Both the clinician as well as the patient must be well motivated to accept the long recovery time. Typically, this can be up to 8 weeks.

4.2 Medical management with Methotrexate:

Methotrexate is an antimetabolite which prevents the growth of rapidly dividing cells by interfering with DNA synthesis. Its success rate is over 90% in selected cases; the tube is conserved and there is an 80% chance of tubal patency.

Offer systemic methotrexate as a first-line treatment to women who are able to return for follow-up and who have all of the following:

- No significant pain
- An unruptured ectopic pregnancy with an adnexal mass smaller than 35 mm with no visible heartbeat
- A serum hCG level < 1500 IU/litre
- No intrauterine pregnancy (as confirmed on an ultrasound scan) Methotrexate should NOT be offered at first visit
- Offer surgery where treatment with methotrexate is not acceptable to the woman.

Refer to guideline ‘Methotrexate for ectopic pregnancy’ for further information.

4.3 Surgical Management:

Offer surgery as a first-line treatment to women who are unable to return for follow-up after methotrexate treatment or who have any of the following:

- Ruptured ectopic pregnancy with collapse and / or significant free fluid in the abdomen (hemoperitoneum)

- An ectopic pregnancy and significant pain
- An ectopic pregnancy with an adnexal mass of 35 mm or larger
- An ectopic pregnancy with a fetal heartbeat visible on an ultrasound scan
- An ectopic pregnancy and a serum s.hCG level of 5000 IU/litre or more In the presence of a haemodynamically unstable patient the quickest route for achieving haemostasis should be considered (either a laparoscopy or laparotomy)
- Patient choice/ Not able to comply with follow up
- Failed Methotrexate management

A laparoscopic approach to the surgical management of tubal pregnancy, in the haemodynamically stable patient, is preferable to an open approach. In the presence of a healthy contralateral tube, salpingectomy should be performed in preference to salpingotomy. Discuss the possibilities of a chance finding of a damaged contra lateral tube and removal of it, and the issues of infertility/need for future IVF (inform patient NHS funding for IVF cannot be determined at that point); clearly document this in notes.
Fimbrial evacuation (milking) of ectopic pregnancy from the tube should not be undertaken as it predisposes to persistent trophoblast, except if tubal abortion is in progress at surgery.

In women with a history of fertility-reducing factors where salpingotomy should be considered are:

- Previous ectopic pregnancy
- contralateral tubal damage
- previous abdominal surgery
- previous pelvic inflammatory disease

If a salpingotomy is performed, women should be informed about:

- Risk of persistent trophoblast (3.9 – 11%) with the need for serum hCG level follow-up.
- Serum hCG measurement should be arranged on day 7 and expect a drop by 50%
- Followed by weekly hCG measurements until negative result is obtained (hCG < 25IU/L)
- If the drop is <50% repeat in 48 hours and ask for consultant review
- Women should also be counselled that there is a 20% risk (1 in 5) that they may need further treatment in the form of systemic methotrexate or salpingectomy.

In case of Laparoscopic approach DO NOT use a uterine manipulator unless the diagnosis of tubal ectopic is confirmed by direct vision.

Management of ruptured ectopic with collapse in ED:

- ABC of resuscitation
- Get help: Inform Gynae Registrar / Gynae consultant on call
- Call Emergency Anaesthetist
- Site two IV lines (at least 16g)
- Commence IV fluids (crystalloid)
- Give facial oxygen and insert indwelling catheter (urine pregnancy test if not done previously)

- Send blood for FBC, clotting screen and crossmatch at least 2 units of blood and follow ***'Trust Massive bleed Policy'***
- Inform Emergency theatre Coordinator and category of urgency
- Continue fluid resuscitation and ensure intensive monitoring of haemodynamic state, whilst awaiting transfer to theatre
- Do not wait for BP and pulse to normalise prior to transfer to theatre
- Consider a *FAST* scan where available to confirm free fluid in the abdomen. Do not send unwell patient to EPAC
- When surgical management is undertaken whenever possible laparoscopy remains an option for experienced operators with a large hemoperitoneum, but consideration should be given to the condition of the woman, the opinion of the anaesthetic team and the complexity of the procedure required.
- Laparotomy is a reasonable method in cases with haemorrhagic shock as it prevents further blood loss and can be quickly performed or where a surgeon has inadequate experience with operative laparoscopy

Choice of either medical or surgical management:

Offer the choice of either methotrexate or surgical management to women with an ectopic pregnancy who have a serum hCG level of at least 1500 IU/litre and less than 5000 IU/litre, who are able to return for follow-up and who meet all of the following criteria:

- No significant pain
- An unruptured ectopic pregnancy with an adnexal mass smaller than 35 mm with no visible heartbeat
- No intrauterine pregnancy (as confirmed on an ultrasound scan)

Advise women who choose methotrexate that their chance of needing further intervention is increased and they may need to be urgently admitted if their condition deteriorates.

5. ANTI D

Anti-D Ig 250 IU should be given to all non-sensitised rhesus negative women who have a surgical procedure to manage an ectopic pregnancy.

Do not offer anti-D rhesus prophylaxis to women who receive solely medical management or expectant management for an ectopic pregnancy

Ectopic in the rare sites:

Non-tubal ectopic should be discussed with the on-call consultants and an individualised care plan made and documented in the woman's notes. RCOG GTG No. 21 – Diagnosis and Management of Ectopic Pregnancy addresses the diagnosis and optimal management strategies for non-tubal ectopic pregnancy.

Advice on discharge after an ectopic pregnancy:

- Repeat pregnancy test in three weeks – patient to contact EPAC if positive
- Any woman with a previous ectopic that has been managed medically or surgically should be referred to EPAC via GP to have early pregnancy scan if symptomatic. Routine scanning in subsequent pregnancy cannot be accommodated.

- Appropriate contraception advice
- A patient information leaflet on ectopic pregnancy should be provided

Caesarean Scar Pregnancy (CSP):

This is a form of ectopic pregnancy when the gestational sac is fully or partially implanted within the scar from previous Caesarean Section (CS). The incidence of CSP lies between 1 in 1800 to 1 in 2500 and appears to be increasing. This could be secondary to increasing number of Caesareans, awareness as well as better ultrasound diagnosis.

Pathophysiology

There is little knowledge about the exact etiopathology of CSP. The most probable explanation is invasion of the microscopic tract from previous Caesarean section by the blastocyst. There is no clear association between number of previous CS and risk of CSP, in fact most CSP occur after one CS and elective CS for breech appears to be most frequently at risk of CSP. Symptoms:

- Slight vaginal bleeding
- Abdominal discomfort

Some women remain asymptomatic and are diagnosed incidentally either during scan or during and after attempted surgical evacuation of miscarriage. Rarely woman can present with acute pain and profuse bleeding. Haemodynamic instability and collapse in a suspected CSP patient strongly indicate rupture with intra-abdominal bleeding. Diagnosis As it has potential serious and life-threatening complications, reliable diagnosis is crucial.

Diagnosis:

The diagnosis must be made by minimum of 2 people (At least one Ultrasound practitioner should have special interest in early pregnancy scanning). Stable patients are not at immediate risk of rupture; thus, if second operator is not available on the day woman should be given follow up scan appointment within 3 days and where possible on same day. Ultrasound scan (USS) is the main diagnostic tool. A combined Trans -abdominal and Trans vaginal scan has high accuracy rate. Magnetic Resonance Imaging (MRI) can be useful in cases of uncertain USS features.

Differential diagnoses to be considered include:

1. Low implantation of an intrauterine pregnancy
2. Inevitable miscarriage and cervical pregnancy

A gestational sac lying low in the uterine cavity or in endocervix should be clearly differentiated from a CSP or cervical pregnancy. The early phase of miscarriage can mimic CSP. However careful assessment provides vital clues. In impending miscarriage, the sac is often irregular with absent fetal heart, located within the cavity, positive sliding sign with gentle probe pressure and absent or minimal colour Doppler flows. A cervical ectopic pregnancy is present in or close to cervical canal. The cervix will appear ballooned, good colour flow Doppler and negative sliding sign.

Types of CSP

1. Type 1 or Endogenic- implantation occurs on the scar and gestation sac grows towards the uterine cavity. These have potential to reach viable gestation but increased risk of severe haemorrhage and abnormally adherent placenta.
2. Type 2 or Exogenic type- gestational sac is deeply embedded in the scar and myometrium and grows towards the bladder. These are at high risk of first trimester rupture and severe haemorrhage.

Heterotopic pregnancies with CSP

Management

Cases and case series have reported different treatment modalities. All modalities carry a risk of haemorrhage and subsequent hysterectomy. There is insufficient evidence to recommend one specific intervention over the other but surgical management appears to be more effective than medical. Consider woman's symptoms, fertility prospects, and acceptability to prolonged follow up, gestational age, myometrial thickness, and type of CSP before recommending treatment option. If the pregnancy is viable and the patient opts for surgical or medical management, a termination form must be signed by two consultants.
Woman should be informed that CSP is associated with increased maternal morbidity and mortality. See *Flowchart 3* for the management options.

1. **Surgical evacuation**
   Cervical dilatation and curettage is the most common method for managing CSP. This is also the most common treatment modality. This is suitable for endogenic CSP with myometrial thickness of at least 2mm. There are risks of heavy bleeding and incomplete removal of tissue embedded in the scar. The evacuation under scan guidance to aid complete removal of tissue should be considered. Shirodkar suture applied prior to evacuation and tied after the completion or balloon tamponade can be used to minimise bleeding following evacuation.

2. **Methotrexate**
   Medical management should only be considered in haemodynamic ally stable women with minimal or no symptoms. Gestation less than 8 weeks with HCG below 5000 IU/l is more likely to respond to medical management. The regimen is same as tubal ectopic pregnancy. Adequate counselling should be provided regarding the likelihood of a prolonged follow up. Medical management alone may not always work, even in carefully selected women thus necessitating surgical intervention.

3. **Expectant management**
   This is generally not recommended except in very rare situations. This has been reported successfully in asymptomatic women with a non-viable CSEP and falling HCG levels. The decision to offer an expectant management must be carefully balanced with the risks. Women should be counselled that 67% of women require further intervention with 30% risk of hysterectomy. Cases managed expectantly were the endogenous type of CSEP with pregnancy progressing towards the uterine cavity. Cases of expectant management lasting into third trimester are likely to have morbidly adherent placenta and

may require caesarean hysterectomy. In women with endogenous CSEP, who decline termination of pregnancy because of perceived reduced chance of future conception, an expectant approach may be undertaken as a compromise. Women should be informed of risk of uterine rupture, massive haemorrhage and possible hysterectomy at any time during the pregnancy and discussion should be documented by senior clinician.

4. **Abdominal / laparoscopic resection**
   It is preferred in cases of thin myometrium and exogenous CSEP. This can be performed as primary procedure or as an interval procedure after the termination of pregnancy with Methotrexate. The procedure involves resection and closure of defect.

5. **Hysteroscopic resection**
   This can be used as primary (with uterine artery ligation or UAE), interval after Methotrexate and to remove persistent CSP mass after incomplete evacuation. This can also be used with laparoscopic resection for complete removal of exogenous CSEP.

Future pregnancies

Most women have normal subsequent pregnancy. The risk of another CSP has been reported between 3-5%. Early USS between 6-8 weeks in future pregnancies should be used to rule out recurrence. These pregnancies have higher risk of morbidly adherent placenta. Delivery by Caesarean section is recommended, due to risk of scar rupture and repeat section would also allow adequate closure of lower segment.

6. MANAGEMENT OF PUL (PREGNANCY OF UNKNOWN LOCATION)

PUL is a descriptive term used to classify a pregnancy when a woman has a positive pregnancy test, but no pregnancy can be seen on an ultrasound scan.

The management is based on serial s.hCG measurements and repeat ultrasound scan findings. Be aware that women with a pregnancy of unknown location could have an ectopic pregnancy until the location is determined. In a woman with a pregnancy of unknown location, place more importance on clinical symptoms than on serum 2 hCG results, and review the woman's condition if any of her symptoms change, regardless of previous results and assessments.

1. Use serum s.hCG measurements only for assessing trophoblastic proliferation to help to determine subsequent management.
2. Take 2 x serum s.hCG measurements as near as possible to 48 hours apart (but no earlier) to determine subsequent management of a pregnancy of unknown location. Take further measurements only after review by a senior healthcare professional (consultant).
3. Regardless of serum s.hCG levels, give women with a pregnancy of unknown location written information about what to do if they experience any new or worsening symptoms, including details about how to access emergency care 24 hours a day. Advise women to return if there are new symptoms or if existing symptoms worsen.
4. For a woman with an increase in serum s.hCG concentration greater than 63% after 48 hours: Inform her that she is likely to have a developing intrauterine pregnancy (although the possibility of an ectopic pregnancy

cannot be excluded). Offer her a transvaginal ultrasound scan to determine the location of the pregnancy between 7 and 14 days later. Consider an earlier scan for women with a serum s.hCG level greater than or equal to 1500 IU/litre. If a viable intrauterine pregnancy is confirmed, offer routine antenatal care. If a viable intrauterine pregnancy is not confirmed, refer her for immediate clinical review by a senior gynaecologist (Registrar/Consultant)

5. For a woman with a decrease in serum s.hCG concentration greater than 50% after 48 hours:

   Inform her that the pregnancy is unlikely to continue but that this is not confirmed and provide her with oral and written information (PUL Leaflet) about where she can access support and counselling service and ask her to take a urine pregnancy test 14 days after the second serum s.hCG test, and explain that:
   - If the pregnancy test is negative, no further action is necessary.
   - If the pregnancy test is positive, she should return to EPAC for clinical review within 24 hours.
6. For a woman with a change in serum s.hCG concentration between a 50% decline and 63% rise inclusive, please refer to the *Flowchart 2.* Allow them open access to Emergency Surgical Hub for 48 hours and should attend if clinical condition changes.
7. In case of PUL and suboptimal rise in hCG offer a choice of having Surgical evacuation or retained products of conception so diagnosis can be reached and to avoid long follow ups.

Follow up after negative laparoscopy PUL/suspected Ectopic:
- repeat s.hCG in 48 hours and if >50% decline weekly till <25 IU/L
- If suboptimal decline noted Methotrexate rarely may have to be considered
- if > 63% rise noted repeat scan (TVS) in 7 days to look for IUP

8. TRAINING

All clinical nursing and medical staff receive annual adult resuscitation training. Attendance is recorded on the Trust Training Database and monitored by the individual's line manager.

Venepuncture and cannulation training is attended 3 yearly and requires 3 competencies to be achieved prior to undertaking the task independently. Records of training are maintained by Learning and Development and monitored by the individual's line manager.

9. DUTIES (RESPONSIBILITIES)

It is the responsibility of all staff involved In the care of a woman with an ectopic pregnancy or a suspected ectopic pregnancy to adhere to this guideline.

10. LINKED PROCEDURAL DOCUMENTS

- Pregnant and recently delivered women who present in the emergency department Guideline
- Medical Management of Ectopic Pregnancy Guideline
- Miscarriage Management Guideline

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PROCESS FOR MONITORING COMPLIANCE

	Lead	Tool	Frequency	Reporting Arrangements	Acting on recommendations and Lead(s)	Change in practice and lessons to be shared
Adherence to this guideline through actual and near miss incident reporting	All Health Care Professionals	DATIX Incident Reporting System	Monthly	Directorate Governance Meeting	Maternity & Children's Risk Management meeting	Lessons learnt and any changes in practice will be communicated via Email Memos Posters CHATTER Training

FLOWCHART 1 :MANAGEMENT OF ECTOPIC PREGNANCY

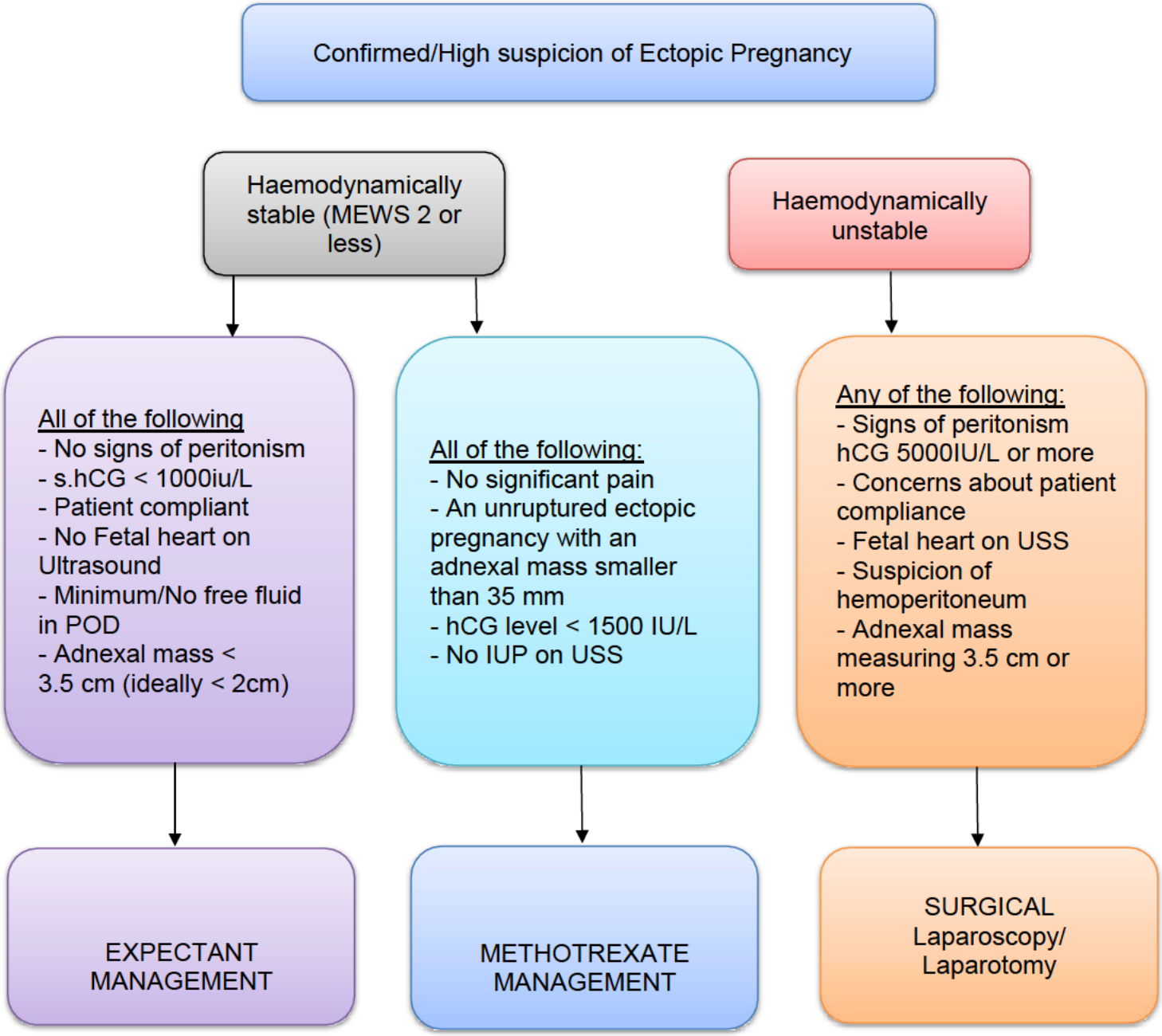
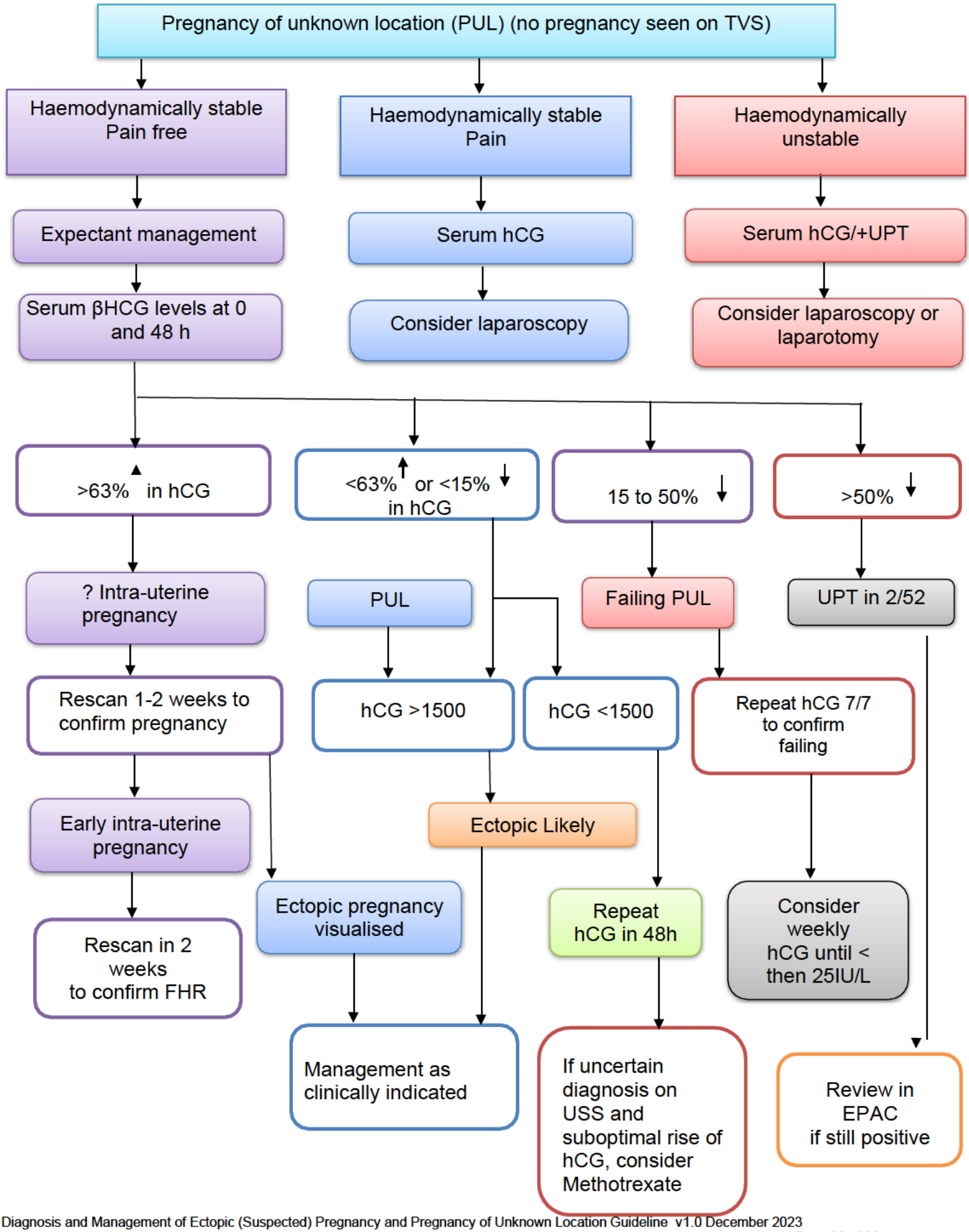


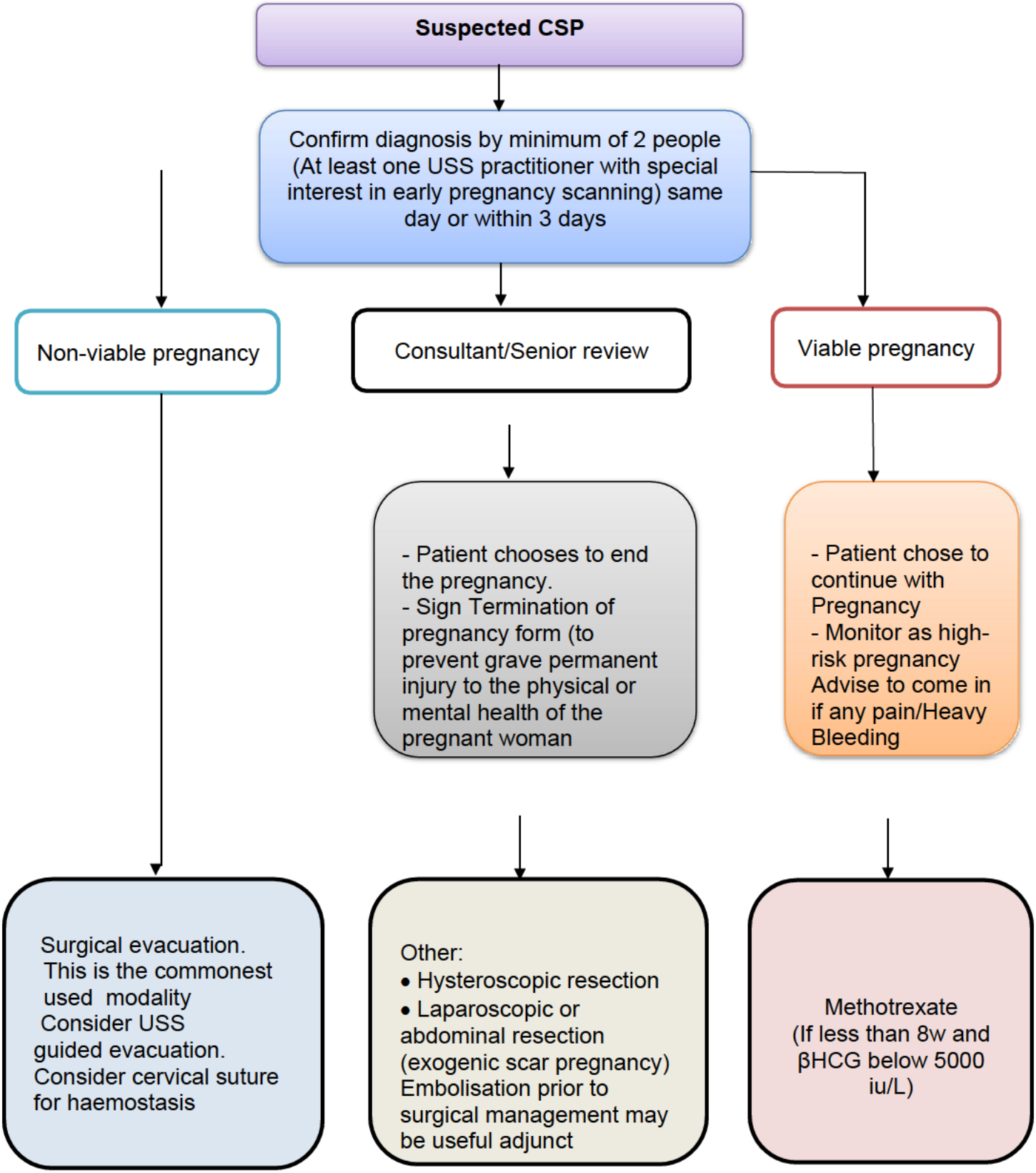
TABLE 1: Follow up after 48-hour s.hCG and action for patients having expectant management

48-hour hCG change	ACTION
Suboptimal rising hCG	Growing pregnancy. Consider medical or surgical management.
More than 63% rise in hCG	Reconsider diagnosis- rule out intrauterine pregnancy
More than 50% drop	Resolving pregnancy repeat hCG weekly until levels less than 25 IU/L
Less than 50% drop	Consider medical management

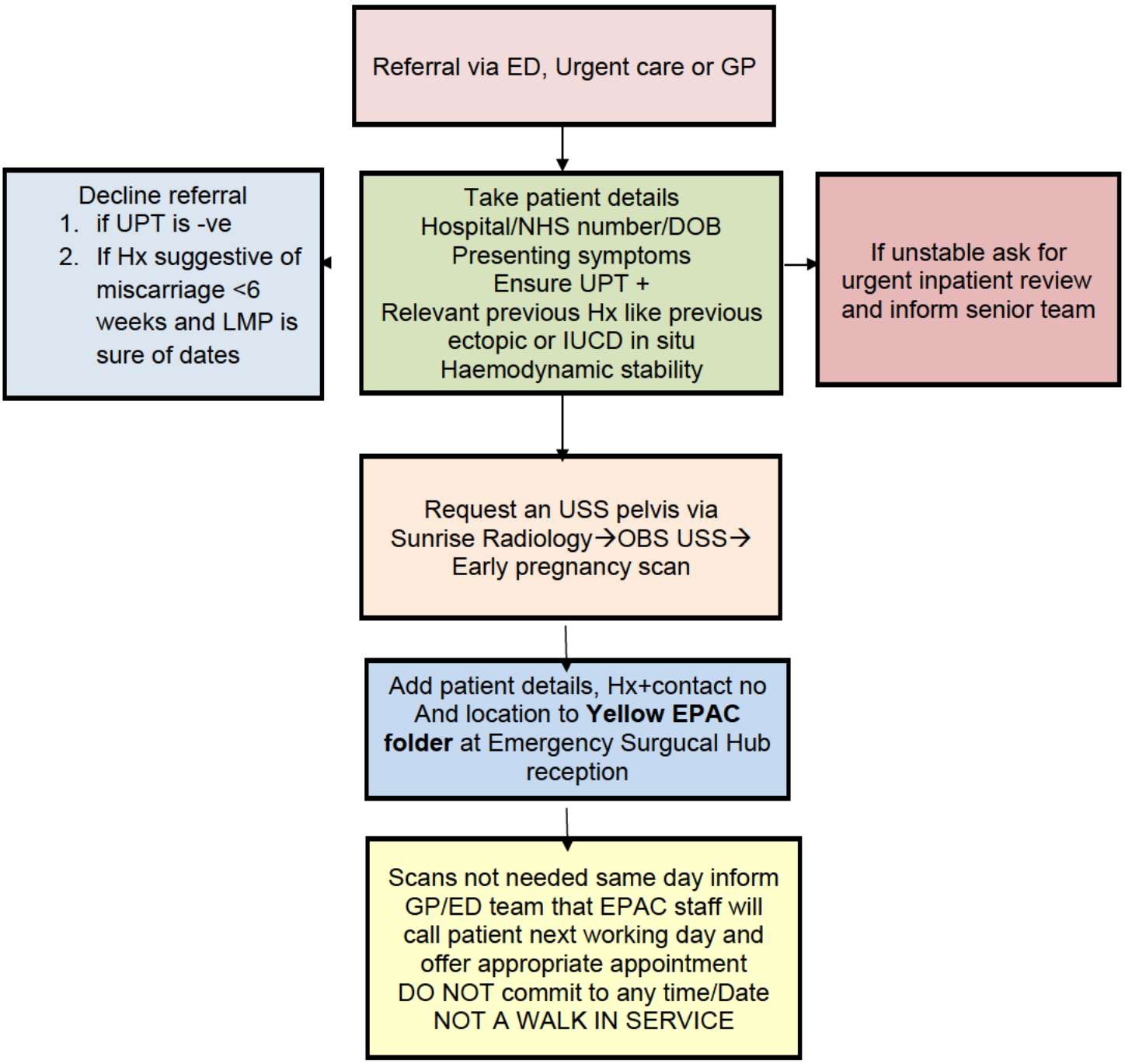
FLOWCHART 2: MANAGEMENT OF PREGNNCY OF UNKOWN LOCATION



FLOWCHART 3- MANAGEMENT OF CAESAREAN SCAR ECTOPIC PREGNANCY



REQUESTING EPAC USS
(APPENDIX 1)



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MATERNAL, SUDDEN COLLAPSE IN PREGNANCY AND THE PUERPERIUM GUIDELINE MANGEMENT AND DIAGNOSIS	udden	MATERNAL, SUDDEN COLLAPSE IN PREGNANCY AND THE PUERPERIUM GUIDELINE DETAILING DIAGNOSIS AND MANAGEMENT	
	Name of Originator/Author /Designation & Specialty:	[redacted] Consultant Anaesthetist	
	Local / Trust wide	Trust-wide	
	Statement of Intent:	Outline potential causes and management of collapse in a pregnant female or woman in the puerperium	
	Target Audience:	All specialists involved in the care of pregnant women	
	Version:	7.0	
	Name of Review and Approval Group and Date when Recommended for Ratification	Virtual Group	15 December 2021
	Name of Division/Group and Date of Final Ratification:	GAMe	14 January 2022
	Review Date:	December 2024	
	Contributors:	Consultant Anaesthetist	
	The electronic version of this document is the definitive version		

CHANGE HISTORY

Version	Date	Reason
1.0	March 2000	Guideline Created
2.0	April 2003	Reviewed and Updated
3.0	January 2007	Reviewed and Updated
4.0	August 2011	Reviewed and Updated
5.0	August 2015	The document entitled “SUDDEN INTRA AND POST PARTUM COLLASE GUIDELINE” has had a full review and is replaced by the new guideline above.
6.0	July 2018	Reviewed and Updated

7.0	August 2021	Reviewed and updated

A translation service is available for this document. The Interpretation/Translation Policy, Guidance for Staff is located on the intranet under Trust-wide Policies.

THE DUDLEY GROUP NHS FOUNDATION TRUST

SUDDEN MATERNAL COLLAPSE IN PREGNANCY AND THE PUERPERIUM

1. GUIDELINE SUMMARY

Maternal collapse is a rare but life-threatening event with a wide-ranging aetiology. It is defined as acute onset cardiorespiratory and or cerebral compromise resulting in a reduced or absent conscious level (and potentially death) at any stage of pregnancy and up to six weeks after delivery. In order to optimise outcome prompt and effective resuscitation is important. Between 2013 and 2015 the maternal death rate was 8.8/100,000 births of which approximately one third were due to direct pregnancy related causes and two thirds due to co-existing medical conditions.

The guideline will aim to describe some potential causes of maternal collapse and the management plan to be adhered to. It is worth emphasising that the speed and aetiology can be highly variable and there may be significant diagnostic uncertainty. Prompt initial management and resuscitation will allow time for diagnostics and identification of causes.

2. GUIDELINE DETAIL

2.1 POTENTIAL CAUSES OF MATERNAL COLLAPSE

Sudden collapse may occur due to:

Haemorrhage
Consider:

Antepartum haemorrhage (APH), post-partum haemorrhage (PPH), ruptured uterus and trauma. Always beware of underestimated external losses with physiological compensation.

Sepsis
Due to increased awareness and education drives (“Surviving Sepsis”) the maternal mortality rate due to sepsis has reduced significantly (24 deaths over last MBBRACE surveillance period in contrast to 71 over the previous period). It does however; still remain a significant cause of morbidity and mortality.

The key actions for diagnosis and management of sepsis are timely recognition, fast administration of intravenous antibiotics and quick involvement of experts.

Thromboembolism/Stroke

Cardiac disease
(54 deaths in CEMACH 2017). The majority in those without previous history including MI, aortic dissection and cardiomyopathy

Uterine inversion

Drug toxicity/ overdose
Includes local anaesthetic toxicity, total spinal and high spinal)

Eclampsia
History is key; always consider epilepsy as an alternative.

- **Intracranial haemorrhage** (uncontrolled hypertension, aneurysms/ Arteriovenous malformation)
- **Anaphylaxis**
- **Other** e.g., aspiration, hypoglycaemia/ metabolic disorder

2.2 Immediate Management

Please see:

The Resuscitation Policy (Prevention and Management of the Deteriorating Patient) available on the HUB.

(1.)GET HELP

- ✓ Call the most senior Anaesthetist and Obstetrician available.
- ✓ Dial 2222 and state **"Anaesthetic Code Red and location"** if help needed immediately
- ✓ Inform coordinator on labour ward if other relevant area
- ✓ Bleep neonatal team if beyond 22 weeks gestation
- ✓ Ensure crash trolley with Automated External Defibrillators (**AED**) immediately available to facilitate resuscitation

(2.)ASSESS PATIENT

- ✓ **A – Airway** Maintain as necessary using simple manoeuvres or adjuncts

- ✓ **B – Breathing** This may involve Hudson mask with reservoir bag and high flow oxygen (if breathing), manual inflation of the lungs with resuscitation bag (if not breathing) or endotracheal intubation

- ✓ **C – Circulation** Follow Resuscitation Council UK Guidelines**.** Commence CPR 30:2 if no cardiac output. Gain IV access with large bore cannula and send bloods for appropriate investigations.

- ✓ If patient has a gravid uterus displace laterally. A left lateral tilt of 15^{o} on a firm surface will relieve aorto-caval compression in the majority

of pregnant women and still allow effective chest compressions to be performed if needed.

- ✓ Consider reversible causes

    - 4 H's (**H**ypoxia, **H**ypovolaemia, **H**yperkalaemia (Electrolytes), **H**ypothermia)
    - 4 T's (**T**ension Pneumothorax, **T**hromboembolic, **T**oxins (Local Anaesthetic), **T**amponade)

- ✓ Monitor pulse, blood pressure, Electrocardiogram (ECG), respiratory rate and oxygen saturation. Record every 5 minutes initially.
- ✓ Insert a Urinary catheter and monitor fluid balance
- ✓ Transfer the patient to the High Dependency or Intensive Care Unit.
- ✓ Concurrent with treatment is the need to determine the cause of collapse.
- ✓ The patient should be carefully examined and clinical signs reviewed to determine the most likely cause of her collapse
- ✓ Further management is determined by the suspected cause

2.3 Cardiac Arrest Management

- ✓ Beyond 20/40 gestation delivery preparation for potential delivery should be considered immediately and the appropriate equipment (scalpel) should be sourced. A scalpel is available in a readymade "grab and go" tray from Obstetric Theatre 1.
- ✓ If there is no response to correctly performed CPR within **4** minutes of maternal collapse or if resuscitation is continued beyond this in women beyond 20 weeks of gestation, delivery should be undertaken to assist maternal resuscitation. **This should be achieved within 5 minutes of the collapse**
- ✓ Resuscitation efforts should be continued until a decision is taken by the Consultant Obstetrician and Consultant Anaesthetist in consensus with the cardiac arrest team
- ✓ Peri-mortem caesarean section should not be delayed by moving the woman – it should be performed where resuscitation is taking place.
- ✓ The operator should use the incision that will facilitate the most rapid access

2.4 Uterine Inversion

This is a rare, but potentially fatal complication of the third stage of labour. The reported incidence of puerperal uterine inversion ranges from 1 in 1200 to 57,000 deliveries (Beringer RM & Patteril M, 2004). It may be more likely to occur when vigorous fundal pressure and cord traction are used before adequate placental separation.

Risk factors for inversion (present in fewer than 50 percent of cases) include fetal macrosomia, rapid labour and delivery, short umbilical cord, use of uterine relaxants, nulliparity, uterine anomalies or tumors (leiomyoma), retained placenta, and placenta accreta.

Presentation

- Presentation of the uterus through the cervix, usually with the placenta still attached
- Severe pain
- Severe vagal shock and bradycardia
- Haemorrhage (present in 94% of cases)

Diagnosis

- Vaginal examination

Management

- Please refer to the Uterine Inversion Guideline for management which is available on the HUB

2.5 Amniotic Fluid Embolism (AFE)

This is a rare condition occurring when amniotic fluid, foetal cells, hair or other debris enters the maternal circulation.

Presentation

Sudden and typically occurs during labour, delivery or within 30 minutes of delivery. It can occur during Caesarean section.

- Respiratory distress
- Hypoxia
- Acute hypotension/cardiac arrest
- Collapse is typically profound, rapid and resistant to treatment
- Disseminated intravascular coagulation (DIC) can occur in those who survive the initial phase
- Convulsions in 10%

Predisposing factors

- Increasing maternal age
- Hypertonic uterine contractions (with or without oxytocin)
- Use of uterine stimulants
- Uterine rupture
- Chorio-amnionitis
- Intra-uterine death
- Maternal allergy or atopy
- Induced labour
- Polyhydramnios
- Placenta accreta

- **Many patients may have no obvious risk factors**

Diagnosis

- Usually by exclusion if the patient survives
- Presence of foetal debris in the mother (central venous blood or sputum in life or lung at autopsy)

Investigations

- Full blood count/urea and electrolytes/albumin
- Coagulation screen
- Serum tryptase
- Chest X-ray (may show Acute Respiratory Distress Syndrome (ARDS))
- Central venous pressure
- Arterial blood gases
- ECG (may show Right Ventricular (RV) strain)
- Echocardiogram (can demonstrate either right of left ventricular dysfunction)
- Ventilation Perfusion (VQ) scan

Management

- Early diagnosis is the best way to improve outcome

- Management is based on symptoms and directed towards the maintenance of oxygenation, circulatory support and correction of the coagulopathy.

- Peri-mortem caesarean section should be carried out within five minutes maximum or as soon as possible after cardiac arrest and is carried out for the benefit of the women.

- Regardless of the presentation, oxygen should be administered to all patients, in concentrations adequate to maintain normal oxygen saturation. Positive End-Expiratory Pressure (PEEP) or Continuous Positive Airway Pressure (CPAP) can be added as required. In severe cases, the initial

hypoxemia is often so profound that irreversible neurological injury may result despite appropriate resuscitative measures

The UK Amniotic Fluid Embolism Register

Data concerning Amniotic Fluid Embolism is being collected by UKOSS (UK Obstetric Surveillance System) and UKNes (The National Maternal Near-Miss Surveillance Programme).

The entry criteria are:

EITHER
Clinical diagnosis of AFE (acute hypotension or cardiac arrest, acute hypoxia or coagulopathy in the absence of any other potential explanation for the symptoms and signs observed).

OR
Pathological diagnosis (presence of fetal squames or hair in the lungs).

LOCAL ANAESTHETIC TOXICITY

This may occur after placement of a combined spinal-epidural, epidural or top up of existing epidural by anaesthetist or midwife and is caused by a large volume of local anaesthetic entering the circulation and causing systemic toxicity.

Lipid resuscitation appears to be an effective treatment and may be useful in treating systemic toxicity in the pregnant patient. Obstetric care providers should be aware of intra-lipid resuscitation and consider its use. There have been several case reports of successful outcomes after the use of Intralipid following cardiac arrest (AAGBI, 2010).

Presentation

In pregnancy, the higher cardiac output will often lead to rapid presentation.

- Light-headedness, sedation, peri-oral tingling, metallic taste in mouth
- Central Nervous System (CNS) – seizures, agitation, loss of consciousness
- Cardiovascular – arrhythmias

Diagnosis

Patient who has recently had a spinal/epidural placement or undergone an epidural top-up with the above symptoms. The toxic plasma levels for lignocaine are 6-10 mcg/ml.

Management

- Begin basic resuscitation with support of the airway, breathing and administration of oxygen. Antenatal patients should be maintained in the left lateral or wedged position

- Intravenous access, fluid bolus and use of vasoconstrictors to maintain the circulation

- Initiate CPR if necessary

- Intralipid is kept on the deteriorating patient trolley, and can be used in cardiac arrest secondary to local anaesthetic toxicity and that which is unresponsive to standard therapy. Advance Life Support (ALS) should continue whilst using this regime.

- Manage arrhythmias as usual, recognising that they may be very refractory to treatment.

- Perimortem caesarean section will improve chances of survival of both baby and mother

Intralipid regime

- Treatment of cardiac arrest with lipid emulsion consists of an intravenous bolus injection of Intralipid 20% 1.5 ml/kg over 1 minute (100 ml for a 70 kg woman) followed by an intravenous infusion of Intralipid 20% at 0.25 ml/kg/ min (400 ml over 20 minutes for a 70 kg woman).

- The bolus injection can be repeated twice at 5-minute intervals if an adequate circulation has not been restored (a further two boluses of 100 ml at 5-minute intervals for a 70 kg woman).

- After another 5 minutes, the infusion rate should be increased to 0.5 ml/kg/ min if adequate circulation has not been restored.

- CPR should be continued throughout this process until an adequate circulation has been restored, and this may take over an hour.

- All cases of lipid rescue should be reported to the National Patient Safety Agency (www.npsa.nhs.uk)

Sepsis

Genital tract sepsis still remains the second leading cause of direct maternal deaths. 1 in 11 died from Influenza when it could have been preventable through immunisation. Group A streptococci and coliforms were the commonest organisms in genital tract sepsis. The key messages to prevent sepsis related deaths were; “Think sepsis” - timely recognition, fast administration of antibiotics and early involvement of experts.

Presentation

- Often unwell, pyrexial, tachycardic, hypotensive, warm peripheries, hypoxic and tachypnoeic.
- Hypothermia is a significant finding that may indicate severe infection and should not be ignored
- Poor urine output
- Diarrhoea is a common and important symptom of pelvic sepsis
- Circulatory shutdown and impaired consciousness may occur as sepsis progresses

Diagnosis and Investigation

- White cell count may be raised or below the normal range
- Leucopenia <4 x10^9 white blood cells/l is a significant finding that may indicate severe infection
- Neutrophils increased
- Arterial blood gases may show acidosis with a high lactate
- Elevated C-reactive protein is an early marker of infection
- Screening should include blood cultures, high vaginal swabs and mid-stream urine sampling
- Swabs or specimens should be taken from any potentially infected site e.g., wound or sputum
- Diagnostic ultrasound scan should be considered to check for retained products of conception

Management

- Refer to Maternal Sepsis Guideline on the Hub.

Cardiac Disease

The incidence of cardiac disease in pregnancy is 0.2- 4%. The incidence of primary cardiac arrest in pregnancy is much rarer at around 1/30 000 maternities, and most cardiac events have preceding signs and symptoms. The incidence of congenital and rheumatic heart disease in pregnancy is increasing secondary to increased survival rates owing to improved management of congenital heart disease and increased immigration. Other cardiac causes include dissection of the coronary artery, acute left ventricular failure, infective endocarditis and pulmonary oedema.

Presentation

Cardiac disease can present in otherwise healthy women with signs and symptoms such as central chest or interscapular pain, shortness of breath or signs of cardiac failure. In aortic root dissection there may be a wide pulse pressure, mainly secondary to systolic hypertension and a new cardiac murmur.

Investigation and Management

Cases of suspected cardiac disease should be promptly referred to a cardiologist for further investigation appropriate imaging. Cases should be managed by an appropriately skilled and experienced multidisciplinary team, usually in regional centres.

3. DEFINITIONS/ABBREVIATIONS

AFE – Amniotic Fluid Embolism
APH – Antepartum Haemorrhage
ARDS – Adult Respiratory Distress Syndrome
CEMACH – Confidential Enquiry into Maternal and Child Health
CNS – Central Nervous System
CPAP – Continuous Positive Airways Pressure
CPR – Cardiopulmonary Resuscitation
DIC – Disseminated Intravascular Coagulation
MBRRACE – Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries
PEEP – Positive End Expiratory Pressure
PPH – Postpartum Haemorrhage
RV strain – Right Ventricular Strain

4. DUTIES (RESPONSIBILITIES)

It is the duty of all health care professionals to adhere to this guideline as well as linked procedural guidelines

6. TRAINING/SUPPORT

All health care professionals working within this guideline will have attended Obstetric mandatory training and Emergency Skills Drills.

Medical staff in training will only perform the procedure outlined within this guideline under supervision of a senior practitioner i.e., Anaesthetist / Obstetrician.

7. LINKED PROCEDURAL DOCUMENTS (IF APPLICABLE)

Uterine Inversion Guideline
Maternal Sepsis Guideline
Resuscitation Policy (Prevention and Management of the Deteriorating Patient
Placenta Praevia, Placenta Accreta and Vasa Praevia (diagnosis and management) Guideline

8. REFERENCES

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PROCESS FOR MONITORING COMPLIANCE

	Lead	Tool	Frequency	Reporting Arrangements	Acting on recommendations and Lead(s)	Change in practice and lessons to be shared
Adherence to this guideline through actual and near miss incident reporting	All Health Care Professionals Obstetric Anaesthetists	DATIX Incident Reporting System	Quarterly	Aggregated Report of Incidents to the Clinical Quality Safety and Patient Experience Committee Women and Children Risk/ Clinical governance management Team meetings	Anaesthetist Management team meetings Women and Children Risk/ Clinical governance management Team meetings Directorate Risk Management Groups	Changes and Lessons Learnt are communicated via MEMOS E-MAIL POSTERS TRAINING CHATTER

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MISCARRIAGE MANAGEMENT GUIDELINE			
	DOCUMENT TITLE:	**MISCARRIAGE MANAGEMENT GUIDELINE**	
	Name of Originator/Author /Designation & Specialty:	[redacted] Consultant O&G EPAC Lead	
	Local / Trust wide	Obstetrics & Gynaecology Department	
	Statement of Intent:	Outline the diagnosis and options of treatment for management of miscarriage	
	Target Audience:	Clinical Specialist Nurses, Doctors in Obstetrics & Gynaecology and Accident & Emergency, Sonographers, Pharmacists	
	Version:	2.1	
	Name of Group and Date when Recommended for Ratification	Gynae QPDT	Date: October 2023
	Name of Division and Date of Final Ratification:	Surgery, Women and Children GAMe	Date: 29/12/2023 (virtual)
	Review Date:	31/10/2026	
	Contributors: **Sharon Turner** **Heather James** **Rachael Rudge**	**Designation:** [redacted] (ST7 O&G trainee) EPAC Nursing staff Directorate of Obstetrics and Gynaecology	
	The electronic version of this document is the definitive version		

CHANGE HISTORY

Version	Date	Reason
1.0	Oct 2020	The document should be used in conjunction with trust guidelines previable pregnancy loss, pregnancy of unknown location & ectopic pregnancy, Anti-D in pregnancy, Disposal of Fetal Remains
2.0	October 2023	Amended section as NICE (NG126) update in Aug 23
2.1	December 2023	Added Progesterone prescription process to page 6

A translation service is available for this document. The Interpretation/Translation Policy, Guidance for Staff is located on the intranet under Trust-wide Policies.

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MISCARRIAGE MANAGEMENT GUIDELINE

1. Introduction:

Approximately 20% pregnancies miscarry in UK, this can cause considerable distress. Early pregnancy loss causes 50,000 admissions annually in UK. Management options for miscarriage should consider patient choice as well as the clinical situation. Increasingly, miscarriage can be managed in an outpatient setting with direct access to acute trust services if required. Ample time should be allowed for deciding and if necessary and clinically safe to do so, another appointment should be arranged.

2. Objective:

This guidance will cover diagnosis and management of miscarriage till 13 completed weeks of pregnancy. All women will be treated in a safe, acceptable environment allowing individual care to be delivered to women which is appropriate to their needs and clinical situation. This will also help to provide support and patient involvement in the process of decision making for options of management and should be given written information when possible.

The following general principles can be implemented in order to improve patient safety, experience and reducing risk. This guidance is in accordance with **"Ectopic pregnancy and miscarriage: diagnosis and initial management (update) (NG126)" April 2019.** https://www.nice.org.uk/guidance/ng126/updated **August 2023**

3. Referral criteria:

3.1 Referral by Healthcare staff:

Early pregnancy assessment Centre (EPAC) will accept referrals for patients with symptoms of mild to moderate bleeding and or pain till 20 weeks of pregnancy:

1. Confirmed positive urine pregnancy test
2. > 6 weeks pregnant with bleeding and minimal pain consider giving advice for expectant management and refer is pregnancy test is positive after 7-10 days and symptoms persist or worsen
3. < 20 weeks pregnant with symptoms of pain or bleeding
4. Haemodynamically stable
5. Rainbow pathway patients (previous significant mental health history, poor obstetric history referred by bereavement/perinatal mental health midwife)

3.2. Self-referral criteria:

These referrals should be accepted at 6+ weeks gestation and should be spread out in the week and take less priority than emergency patients.

1. Previous history of molar pregnancy

2. Previous Ectopic pregnancy (regardless of mode of management)
3. Recurrent pregnancy loss (> 3 pregnancy losses)

If concerns about severe bleeding or pain referrals should be directed to on call Registrar or consultant and managed via emergency/inpatient route for<16 weeks gestation. In case of pregnancy > 16 weeks advise the referrer to contact Obstetric team or labour ward triage for advice in case of concerns about rupture of membranes, difficulty in locating fetal heart, severe abdominal pain or bleeding.

4. Procedures:

During working hours referrals can be taken from General practice to EPAC. Referrals from A&E and out of hours practice will need to be taken by on call doctors. If a patient is referred out of hours or weekend when EPAC is closed the person taking the referral should ensure that patient had a positive pregnancy test and if stable enter patient details including contact number details in the EPAC book on B5 and advice that patient will be contacted by EPAC staff once referral is reviewed about time and date of appointment. Direct patient led referrals cannot be accepted at EPAC unless assessed by a healthcare professional.

5. Useful Contact Numbers:

EPAC opening hours between 9:00am – 5pm Monday – Friday
Early Pregnancy Assessment Centre: Ext 3875
B5 ward: Ext: 3359/3349
On call Gynae Consultant bleep: 7339
On call Gynae SHO Bleep: 7340

6. Abbreviations:

ERPC: Evacuation of Retained Products of Conception
EPAC: Early pregnancy assessment Centre
HCG: Human Chorionic Gonadotrophin
MGSD: Mean gestational sac diameter
LMP: Last menstrual period
PUL: Pregnancy of unknown location
TAS: Transabdominal ultrasound scan
TVS: Transvaginal ultrasound scan
UPT: Urine Pregnancy Test
CRL: Crown Rump Length
SMM: Surgical management of miscarriage

7. Duties and Responsibilities

Clinical Director Obstetrics and gynaecology

Ensure all clinical staff are aware of the guidelines.
Ensure that patients are managed by medical staff in accordance with the guidelines.

Lead clinician for Early pregnancy
Ensure that these guidelines are updated regularly as per trust policy and in the event of new national guidance.

Medical staff
All medical staff are responsible for ensuring management of patients with a miscarriage or those suspected to have a miscarriage according to these guidelines.

Nursing staff
All nursing staff involved in providing direct patient care for patients who have or are suspected of a miscarriage are responsible for ensuring that care is in line with these guidelines.

Duties of sonographers
Ensure staff is appropriately trained and competent in undertaking TV scan. Offer TV scan to all patients under 13 weeks of gestation unless contraindications present:

- Large Fibroids or pelvic mass
- Patient refusal
- In case where a TV scan is not done document the reason within the report

8 Assessment and diagnosis:

8.1 Clinical History

This should include:

- Estimated gestation by LMP or previous scan
- Nature and severity of bleeding and pain
- Symptoms of severity of bleeding should be ascertained such as feeling faint or fainting, passage of clots, fever and offensive vaginal bleeding

8.2 Clinical Examination

A clinical assessment should be carried out in all patients who are symptomatic. This will include an abdominal and pelvic assessment. Speculum examination is required in cases of heavy or recurrent bleeding to exclude products of conception protruding from the cervix and if there is suspicion of infection.

The following must be clearly documented in the patient records:

- Pulse
- BP
- Temperature
- Urine Pregnancy Test

8.3 Investigations for Diagnosis

- Full blood count – look for anaemia/raised haematocrit/raised white cell count.
- Serum for group and save.
- Cross match blood if heavy bleeding, patient unstable and requiring immediate surgical evacuation of retained pregnancy tissues.
- High vaginal swab if infection is suspected for culture and sensitivity.
- Pelvic ultrasound scan preferably transvaginal if required – to diagnose type of miscarriage and to exclude molar or ectopic pregnancy if not already had a scan.

9.Types of Miscarriage and Ultrasound diagnosis:

Type of Miscarriage	Clinical Definition	Ultrasound Criteria	Plan
Complete miscarriage	The pregnancy tissue has been totally passed, the cervix is closed on examination and there is only mild bleeding / cramping. In case of known IUP, if obvious pregnancy tissue seen with the above clinical picture, an ultrasound scan is not needed.	The uterine cavity is empty or contains < 15mm AP diameter pregnancy tissue. In case where previous IUP is not known suspicion should be high not to miss a PUL/Ectopic pregnancy	Serial hCG in case of suspected PUL/ Ectopic Contact EPAC: - If UPT is till +ve after 3 weeks - If bleeding persists for more than 3 weeks
Threatened Miscarriage	Vaginal bleeding with or without abdominal pain in an on-going pregnancy is termed as threatened Miscarriage.	USS may show PUV or ongoing live IUP	- Offer vaginal micronised progesterone 400 mg twice daily to women with a live IUP confirmed by a scan, if they have vaginal bleeding with previous history of miscarriage until 16 completed weeks of pregnancy. - Offer follow up in 14 days if symptoms persist. - If bleeding settles continue routine antenatal care
Incomplete miscarriage	Some pregnancy tissues have passed but some still remain in the uterine cavity. The cervical os is open and the patient still has cramps and bleeding.	**In a previously known IUP** Intrauterine tissue that is echogenic which may show vascular supply confirms retained pregnancy tissue measurements are variable (15-50mm AP diameter) Simple blood clot needs to be considered.	Offer options of management RPOC < 30mm conservative treatment very successful
Missed miscarriage	No pregnancy tissues have been passed. There may be spotting or some pain, but there may be no symptoms.	A previously identified fetal heart action subsequently followed by a scan showing no fetal heart activity. If CRL is 7 mm or more with no evidence of heart pulsations on transvaginal scan, this is consistent with a failed pregnancy. Two qualified sonographers need to make this diagnosis together.	Second option is repeating the scan on another date by either TV/TA scan (TA US) if images are acceptable. Offer options of management. If diagnosed out of hours or weekend request second opinion the next working day.
Anembryonic Pregnancy	It is a form of a failed early **pregnancy**, where a gestational sac develops, but the embryo does not form	- If the gestation mean sac diameter is 25mm or more on TV scan, with no evidence of an embryo or yolk sac on transvaginal scan - ≥11 days after scan showing gestational sac with yolk sac, but no embryo, or - ≥2 weeks (14 days) after a scan showing gestational sac without yolk sac or embryo	Offer options of management

		Two qualified sonographers confirm the diagnosis Use the phrase **'Pregnancy of Uncertain Viability'** for - a gestation sac < 25mm with a yolk sac or - CRL less than 7mm with **NO** heartbeat.	In case of PUV arrange a follow up scan in 7-14 days. In case scan is done in 7 days should be a TV scan

Important note:

The absence of a gestation sac within the uterus or the absence of ultrasound signs of an ectopic in a woman with a positive pregnancy test should be regarded as a **'pregnancy of unknown location'**. This needs to be reported, with immediate referral for further assessment i.e., βHCG and clinical assessment.
Sonographers should ensure that they undertake a transvaginal scan to look for evidence of an ectopic pregnancy in the absence of an identifiable IUP such as an adnexal mass and free fluid.
If an IUP has not been confirmed on a previous scan and obvious pregnancy tissue is not seen, these women should be treated as a Pregnancy of Unknown Location (PUL) and follow up serum βHCG measurements are needed to confirm pregnancy failure (see PUL/Ectopic guidelines).

Threatened Miscarriage:
Vaginal bleeding with or without abdominal pain in an on-going pregnancy is termed as threatened Miscarriage.

Recommendation from PRISM Trial (Progesterone in Early pregnancy bleeding)
The PRISM trial is a well-powered multi-centered randomised, double -blinded placebo-controlled trial carried out at Tommy's National Centre for Miscarriage Research
Results:

- No previous miscarriages: the live birth rate was 74% in the progesterone group and 75% in the placebo group, i.e., no benefit
- 1-2 previous miscarriages: the live birth rate was 76% in the progesterone group and 72% in the placebo group, i.e., some benefit
- 3 or more previous miscarriages: the live birth rate was 72% (98/137) in the progesterone group and 57% in the placebo group, i.e., substantial benefit
-

The recommendations are very specific:

- It is for women who have vaginal bleeding and have previously had at least one miscarriage
- They need to have had a scan that shows that intra- uterine pregnancy sac
- The treatment is with micronised (Cyclogest) progesterone, 400 mg, twice a day
- If a is seen on scan, treatment is continued until 16 completed weeks of pregnancy

The NICE guidance **does not recommend** progesterone treatment for

- Women who have vaginal bleeding in early pregnancy but have not had a previous miscarriage
- Women who have had one or more previous miscarriages but don't have any vaginal bleeding during early pregnancy.

Micronised Progesterone:

Is a biochemical hormone with a molecular structure identical to that of endogenous progesterone produced by the ovary. Its use in miscarriage is an unlicensed but supported in the NICE recommendations on Ectopic pregnancy and miscarriage: diagnosis and initial management (NG126).

The benefits and side effects of treatment should be discussed with the patient. Suggest patient access to patient information leaflet *"The Use of Progesterone for Women with Early Pregnancy Bleeding and Previous Miscarriage"*.

Prescription:

Options for prescription are Cyclogest pessaries or Utrogestan vaginal capsules both off license. Once a patient fulfils the criteria EPAC staff will contact the on-call team for prescription to be issued from hospital pharmacy for a maximum duration of dispensing as 2 weeks. The rest of duration till 16 weeks depending at the time of presentation will be requested via discharge letter to be prescribed by patient's own GP.

Contra-indications:

- Severe hepatic dysfunction,
- Undiagnosed vaginal bleeding
- Mammary or genital tract carcinoma
- Thrombophlebitis
- Thromboembolic disorders
- Cerebral haemorrhage
- Porphyria
- Missed abortion

Special warnings/precautions:

Micronised Progesterone can be administrated by vaginal/rectal route (off licence use). Micronised Progesterone contains soya lecithin and may cause hypersensitivity reactions (urticarial and anaphylactic shock in hypersensitive patients). As there is a possible relationship between allergy to soya and allergy to peanut, patients with peanut allergy should avoid using micronized progesterone.

Adverse Effects

Vaginal haemorrhage, Vaginal discharge, and Pruritus.

Drug Interactions:

Micronized Progesterone **Cyclogest/Utrogestan** may interfere with the effects of bromocriptine and may raise the plasma concentration of ciclosporin. Micronised Progesterone (Utrogestan®) may affect the results of laboratory tests of hepatic and/or endocrine functions. Metabolism of Micronised Progesterone is accelerated by rifamycin medicines and antibacterial agents.

10. Counselling:

Miscarriage is a significant negative life event for many women affecting both their physical and emotional welfare. Give thorough counselling to all women to support making an informed choice about their care and management as this is associated with positive quality of life outcomes. Adequate explanation supplemented with written information should be given to assist decision making. Following a confirmed diagnosis of incomplete or missed miscarriage the options are

1. Expectant
2. Medical management
3. Surgical management of miscarriage

11. Management of Miscarriage:

11.1 Conservative management of a miscarriage:

All women with an early pregnancy loss can be given up to 1 week to consider the options and to allow expectant management unless:

- The woman is at increased risk of haemorrhage (for example, she is in the late first trimester, fibroids etc)
- She has previous adverse and/or traumatic experience associated with pregnancy (for example, stillbirth, miscarriage, or antepartum haemorrhage) or
- She is at increased risk from the effects of haemorrhage (for example, if she has coagulopathies or is unable to have a blood transfusion) or
- There is evidence of infection.

Management should take into account patient choice and the clinical situation. Infection rates after expectant, medical and surgical management are not significantly different and are reassuringly low. Women should be counselled regarding the pros and cons of different management choices. The general themes to cover include:

Expectant management of Miscarriage:

- **Advantages** - safe, ‘natural’ (avoid hospital admission / intervention), autonomy

- **Disadvantages**- Discomfort, less predictable, need for follow up (USS/EPAU), protracted bleeding (up to 6 weeks), need for subsequent further intervention (failure of expectant approach more likely in women with silent miscarriage compared to incomplete miscarriage, and in women who do not miscarry within 14-21 days)

11.1.1 Management of Inevitable miscarriage

Where a patient presents with pain and /or bleeding under 16/40 gestation and the cervical os is open (>16/40 transfer to labour ward triage). Patient will be assessed and informed sensitively that she will miscarry / is miscarrying the pregnancy. Where products of conception are seen at the cervix they should be removed gently with sponge holding forceps. Further management will be discussed on case-by-case basis. Pregnancy tissues will be disposed of following local policy on sensitive disposal of fetal remains.

Clinical diagnosis of inevitable miscarriage – most of which will be incomplete is made on the basis of symptoms and signs:
• Positive urine pregnancy test
• Pain (usually crampy)
• Bleeding (usually heavy period type +/- clots)
• Abdominal tenderness
• Open internal cervical os (i.e., not multips os) +/- passage of products of conception.

Where a patient is actively miscarrying / bleeding heavily it may be appropriate to give Ergometrine, Syntometrine or Misoprostol or even perform an emergency surgical ERPC. Medical support should be urgently sought from a registrar or above. If clinically stable, expectant management is an effective and acceptable method to offer women who miscarry. Women may wish to continue expectant management or consider a medical or surgical approach at a later date if required. Expectant management for incomplete miscarriage is highly effective. On discharge, give contact details of EPAC/Emergency Surgical Hub to the patient with safety net advice.

11.2 Medical Management:

- **Advantages**- can be done as outpatient up to 9 weeks (CRL 23 mm), scheduled, safe, autonomy, avoids surgery / GA, effective
- **Disadvantages**- hospital admission if above 9 weeks, discomfort, need for follow up (USS/EPAU), protracted bleeding (up to 3 weeks), need for subsequent surgical management in 5-15%

11.3 Surgical Management of miscarriage (SMM)

- **Advantages** - scheduled, safe, quick, most effective (need for repeat SMM < 5%)
- **Disadvantages**- hospital admission, GA, uterine instrumentation – genital tract trauma, endometritis.

Women are ineligible for Expectant or medical management if:

- Excessive vaginal bleeding/risk of severe bleeding/History of coagulopathy
- Jehovah's witness or decline blood products
- Severe intolerable pain or Fever (>37.5°C)/Suspected infection
- Haemodynamic instability (abnormal vital signs – tachycardia with hypotension)
- Anaemia (Hb < 10g/dL)
- USS is suggestive of trophoblastic disease
- Contraindications to prostaglandin therapy – Uncontrolled asthma, hypertension, glaucoma, mitral stenosis, known allergy to misoprostol or mifepristone - long term corticosteroid therapy / adrenal insufficiency, renal failure, hepatic failure, malnutrition (medical management only)
- previous adverse and/or traumatic experience associated with pregnancy (for example, stillbirth, miscarriage or antepartum haemorrhage)
-

A significant number of women prefer Expectant management, and it may be continued as long as the patient is willing, provided there are no signs of infection such as:

- Vaginal discharge
- Excessive bleeding
- Pyrexia
- Abdominal pain

Follow up after expectant management

- Arrange a follow up scan in 2 weeks for first follow up
- However other options should be considered if no products of conception (POC) are passed after a 2 week 'wait and see' time period or if patient wishes to change her mind.
- If the resolution of bleeding and pain indicate that the miscarriage has completed during 7 to 14 days of expectant management, the women should be advised to carry out at home pregnancy test 3 weeks after their miscarriage and advise to contact EPAC for individualised care if it is still positive.

11.3.1 Medical management of miscarriage

Misoprostol is an E1 analogue; misoprostol may be given orally, sublingually or vaginally and is most effective if administered vaginally (95% versus 87% respectively). However, Miscarriage is not a licensed indication for use of Misoprostol, but it is common practice in UK. It has no significant effect on lungs or blood vessels and can be used in stable asthmatics. It causes ripening of the cervix and initiates uterine contractions. The advantage of medical management is that it can be done as an outpatient, it avoids surgical intervention and associated anaesthetic complications and may avoid hospital admission.

Indications:

- Missed Miscarriage till 12 weeks
- RPOC 15-50mm

Contraindications to Medical management

Absolute:

1. Adrenal insufficiency long term glucocorticoid therapy
2. Haemoglobinopathies or anticoagulant therapy
3. Anaemia (haemoglobin < 10 g/dl)
4. Suspected ectopic pregnancy or gestational trophoblastic disease
5. Evidence of infected retained tissue: will need IV antibiotics for 12 hours followed by SMM
6. Porphyria
7. Cerebro-vascular disease
8. Coronary artery disease and prosthetic heart valves
9. Glaucoma
10. Non-steroidal anti-inflammatory drug ingestion in previous 48 hours
11. Chronic renal or liver disease

Relative:

1. Hypertension
2. Severe asthma

Serious or frequent risks

With advanced gestation and increased size of gestation sac, pain and bleeding may be more severe. Occasionally patients may need to be admitted for stronger pain relief.

- Common side effects include fever, shivering, nausea or diarrhoea.
- Patients may have excessive bleeding requiring blood transfusion.
- It may be required to carry out surgical management in case of severe bleeding or unstable patient.

Success rates for medical management Varying rates of efficacy have been quoted with medical management in non-viable pregnancies. The efficacy is greatest for those pregnancies of less than 10 weeks or with a sac diameter of less than 24mm (92 – 94%)

11.3.2 Outpatient medical management of miscarriage till 9 weeks gestation:

Criteria:

- Gestation up to 9 weeks
- CRL of 23 mm or less with confirmed diagnosis of miscarriage
- Mean sac diameter or RPOC of 50 mm or less
- >18 years old with a responsible adult at home for support

- Live within 1 hour of the hospital
- No signs of infection
- In borderline cases >9 weeks but < 10 weeks and patient keen on outpatient management discuss care with on call consultant

During the initial consultation:

- Baseline observations should be taken and recorded
- Full blood count (FBC) and Group and Screen (G&S)
- Written informed consent should be obtained and the patient should be given written information.
  Risks include:
  - Bleeding (2-3%)
  - Risk of haemorrhage requiring transfusion (1%)
  - Infection (<3%)
  - Incomplete procedure and need for surgical management (5-15%)
- There is no need for pathological examination of RPOC but can be done as per patient request
- Only in case of recurrent miscarriage 3 or more consecutive miscarriage option of cytogenetic testing should be discussed by Registrar or consultant on call. In this case patient should be given a dry pot for POC collection and advised to bring it to EPAC within opening hours. In case of out of hours or weekend patients will be asked to keep it in a fridge and bring it the next working day to EPAC. Tissue disposal form must be signed in this case
- Offer a written prescription of:

- Co-codamol 30/500 two tablets 6 hourly or PRN for pain relief for 1 week
- Cyclizine 50mg one tablet 8 hourly or PRN for 1 week
- Ibuprofen 400mg TDS PRN pack for 3 days (this can be purchased)

Medication should be prescribed on an outpatient prescription, which can then be taken to the hospital pharmacy on Monday to Friday by the patient.

- Contact details for EPAC and SAU/gynaecology ward (B5) should be given for open access for 48 hours if having outpatient management.
- Routine Anti-D prophylaxis is not required if miscarriage management is solely medical without uterine instrumentation in the first trimester.

Follow up:

- (See **Appendix B** for checklist of the phone call and file in notes)
- Assess via telephone after 48 hours from 1st dose of Misoprostol

- History of heavy bleeding and passage of pregnancy tissue. Advise patient to do a urine pregnancy test (UPT) in 3 weeks. To contact EPAC with result or remains symptomatic with persistent bleeding or pain after 48 hours
- History with minimal bleeding with no convincing history of passage of pregnancy tissue. Offer second course of misoprostol or surgical treatment after 48-72 hrs. This may require USS in women with indefinite history.
- Document if discharged or further follow up arranged.

11.3.3 Inpatient Medical Management 9-12 weeks:

Criteria:

- 9-16 weeks gestation (after 16 weeks contact maternity and liaise with Obstetric team for further care)
- Patients refusing blood transfusion or Jehovah's witness
- Patient preference

- Hb< 10g/dl
- RPOC > 50mm

Arrangement for inpatient care:

If inpatient care is planned:

- Contact Emergency Surgical Hub/B Ext 3949 before discharge for admission arrangement
- Written consent
- Tissue disposal form to be signed by medical staff and patient
- Issue information leaflet
- Bloods: FBC, G&S
- Book a bed on B5 (preferably a side room is possible) and inform the Nurse in charge about patient and confirm the time for attendance
- Prepare drug chart with Misoprostol regimen, analgesics and antiemetics for further admission
- Patients are advised before arrival on the day to check by calling ward B5 at 7.30am to ensure bed availability at 3349/3359
- Ensure after discharge notes are sent to B5
- Fill Checklist in (Appendix A) and file in notes

Inpatient care:

- The patient should arrive on B5 by 08:15 to commence the regimen
- During this period BP and pulse must be monitored at least 4 hourly
- PV loss should also be checked and recorded regularly
- The patient must be advised to use disposable bedpans when going to toilet, so that any pregnancy tissue can be observed and sent to histology

- If POC have been expelled and the patient is stable, the patient should be reassured and discharged
- In case of concerns about heavy bleeding or haemodynamic instability immediately inform Gynae SHO/registrar on call and document in notes
- Escalation for a senior review needs to be made for any patient with a total EBL >500ml at any time.
- Inform the SHO/Registrar on call to review the patient before discharge
- In the case of uncertainty of completeness of miscarriage, a TV US may be offered if the patient is experiencing moderate symptoms of bleeding and/or pain or expectant management if mild for a further 7 days

11.3.4 Miscarriage >12weeks till 16 weeks

The same regimen can be used for patients till 23+6 week patients. Dose adjustment may be needed in 17+ weeks patients with previous caesarean section.

- Day 1: Offer Mifepristone 200mg orally
- Day 3: Misoprostol 800mcg PV followed by 400mcg orally at 3 hourly intervals up to 4 doses

In case treatment had not worked after 4 doses of misoprostol orally advised patient options to have 24-48 hours rest and restart the oral misoprostol regimen 400mcg 3 hourly up to 4 doses. If the patient is bleeding and may need a surgical evacuation of uterus, they should be kept nil by mouth with intravenous fluids administered.

Retained placenta can occur in up to 25% of cases at advanced gestation, speculum examination is required and if placenta cannot be removed. If not successful arrange for surgical removal in theatre.

11.3.5 Prescribing

Outpatient Regimen till 9 weeks:

- 200 mg oral mifepristone to be given at EPAC and patient to be discharged
- 48 hours later, 800 micrograms misoprostol (vaginal, oral or sublingual) unless the gestational sac has already been passed. Moisten tablets with 1-2 drops of water as per manufacturer’s recommendations to facilitate insertion of drug and ensure patient comfort.
- Tablets should be inserted high into the vagina to ensure medication is retained and can reach its maximum efficiency.
  - Advise patient to lie down in a quite area for 30 min
  - One set of observations to be done and recorded in notes before discharge
  - Provide contact information in case patient starts to bleed after mifepristone

Inpatient regimen 9 -13 weeks:

- 200 mg oral mifepristone to be given at EPAC and patient to be discharged
- Single dose of misoprostol 800 micrograms (4 tablets) given vaginally and observe for 24 hours
- If miscarriage has not occurred after this regimen, the patient can be offered a repeat dose of Misoprostol 800mcg after a period of rest of 24 hours or expectant management at home with direct access to the ward in case of heavy bleeding or pain as per patient request and individual risk factors.
- Analgesia and anti-emetics should be provided as TTOs.

Alternative routes for Misoprostol:

If the patient **does not wish to have vaginal administration of misoprostol,** she may utilise the following alternative regimes:

Sublingual: Give 800mcg misoprostol tablets sublingually, to allow dissolution of the tablets without biting or chewing. The tablets need to stay there for at least 15 minutes to allow them to dissolve. If they are still felt there after 15 minutes then the remaining fragments can be swallowed by a drink of water. Subsequently oral doses of 400mcg Misoprostol 3 hours afterwards as per the normal inpatient regimen can be taken. Patient must be informed that via oral route GI side effects are common.

OR

Oral: Take 2 (400mcg) misoprostol tablets orally and up to a further 4 oral doses of 400µg at 3 hourly intervals. This regimen may be used in women up to 16 weeks' gestation with a uterine scar.

Patient advice at discharge:

- Inform that in case of heavy bleeding SMM may be required and therefore she should be prepared to stay overnight if necessary.
- Women may or may not pass all the pregnancy tissue whilst on the ward.
- They should be advised of what to expect when they go home and not referred to EPAC for a scan before 3 weeks, as most of them would miscarry at a later stage after discharge from the hospital unless worrying symptoms like heavy bleeding or pyrexia
- Any pregnancy tissue that is obtained should be sent for histological examination to exclude a molar pregnancy

Follow up:

- Ask patient to do a urinary pregnancy test in 3 weeks. If it is positive, then she should ring EPAC for individualised care.

- In case of very heavy bleeding or feeling unwell advice patient to attend A&E
- If the pregnancy test after 3 weeks is negative but the woman is still bleeding heavily or has other symptoms (for example, pelvic pain or fever), then she needs to contact EPAC for advise
- Telephone contact numbers and open access to EPAC and ward B5 for 48 hours must be given in case of heavy bleeding or pain worse than her period
- Provide leaflet
- If a woman decides to change her management plan at any time, she should telephone the EPAC and be assessed again for each option.
-

11.4 Surgical Management of Miscarriage (SMM)

Offer women undergoing a miscarriage a choice of surgical management in a theatre under general anaesthetic. This is a quick and once-only procedure in the presence of moderate to severe vaginal bleeding. However, it includes risks associated with general anaesthesia, possible blood transfusion or uterine perforation. Consider chlamydia screening and offer Azithromycin for high-risk group. Provide oral and written information to all women undergoing surgical management of miscarriage about the treatment options available and what expect during and after the procedure.

Indications of SMM:

- Patient preference
- Persistent excessive lower genital tract bleeding (including those having
- Expectant or medical management).
- Haemodynamic instability
- Evidence of infected retained tissue
- Suspected gestational trophoblastic disease
- For patients requesting SMM at gestations above 12 weeks, discuss management plan with consultant on call for emergencies.

Theatre booking:

- Contact Emergency Theatre
- Fill Emergency theatre booking form on intranet with patient details
- Inform Gynaecology Consultant on call for emergencies for that day
- In case of inpatient/unwell patients also contact on call Anaesthetist and emergency theatre coordinator to discuss the urgency

Preparing patient for theatre:

- Patient must be clerked and consented
- Consent must be taken by an appropriately trained doctor/ EPAC Nurse
- Fill the tissue disposal form
- FBC, G&S, Cross match if suspicion of heavy bleed like for suspected molar pregnancies
- Advise the patient when she must stop eating and drinking
- Inform the patient to attend day case ward about 7.30am in main theatres
- Cervical preparation with a prostaglandin makes dilation of the cervix safer. A single dose of 400mcg of misoprostol PV should be given at least 1-3 hours before the procedure.
- Self-administration of misoprostol can be undertaken by the woman if she wishes

Genital tract infection and surgical management Treatment

Where retained pregnancy tissues and infection is suspected, delaying surgical intervention for 12-24 hours to allow intravenous administration of broad-spectrum antibiotics is recommended (see trust antibiotic prescribing guidelines).

12 Anti D

Offer anti-D rhesus prophylaxis at a dose of at-least 500 IU (50 micrograms) to all rhesus negative women who:

- Undergo surgical management of miscarriage
- >12 weeks gestation
- Miscarriage with heavy bleeding or severe pains per the RCOG guideline
- Kleihauer test is NOT required

13 Results and further management

It is the responsibility of the patient's named consultant to review all results including histology and to initiate further management once patients are discharged from EPAC.
All molar pregnancies should be reported to Charring Cross Hospital.

14. Bereavement services and support:

Miscarriage could be traumatic to the patients and her partners. Patients may need further supportive counselling and should be offered access to the Bereavement Services on 01384 244198. Bereavement service referral form to the bereavement specialist midwife is available at the EPAC. EPAC nurses can refer those patients requiring bereavement service.
Patients can be signposted to The Miscarriage Association via telephone: 01924 200799 or online: www.miscarriageassociation.org.uk.

15. Education and Training

All current staff will be made aware of this guideline during discussion at staff meetings. All new staff will be made aware of this guideline during induction into the Department. Responsibility for education and training lies with the Lead Clinician for EPAC.

16. Monitoring Compliance and Effectiveness:

Monitoring of implementation, effectiveness and compliance with these guidelines will be the responsibility of the Lead Clinician for EPAC group. The guidance will be reviewed and updated every 3 years or earlier in line with national guidance. Where non-compliance is found, it must have been documented in the patient's medical notes.
Audits will include:

- Adherence to the guideline
- Any untoward incidents or reports

17. REFERENCES:

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10. https://onlinelibrary.wiley.com/doi/full/10.1111/tme.12091 Assessed April 2020

Appendix A:

Checklist for Medical Management:

Confirm Diagnosis by TAS /TVS	
Explain diagnosis and treatment options. Explain success rate and potential complications. Discuss conservative, medical & surgical management	
Opted Method of management	
Check FBC, G&S, Rh type	
Provide written information leaflet and details of the miscarriage association	
Obtain written consent. Consent form to state 'Medical management of miscarriage'.	
Advise bleeding may continue for up to 3 weeks	
Provide contact numbers for 24-hour telephone advice	
Exclude contraindications to use Misoprostol. Explain 'off label' use of misoprostol.	
Prescribe paracetamol, codeine, NSAIDs, antiemetic & azithromycin if required.	
Advise women that they can bring pregnancy tissue for histological examination if they wish and about sensitive disposal.	
Advise patient will be contacted after 48 hours first dose of misoprostol Date patient will be contacted:	
Patient contact Tel:	
Prescribe anti D 250 IU for Rh –ve women where indicated	
Complete discharge letter	

Appendix B

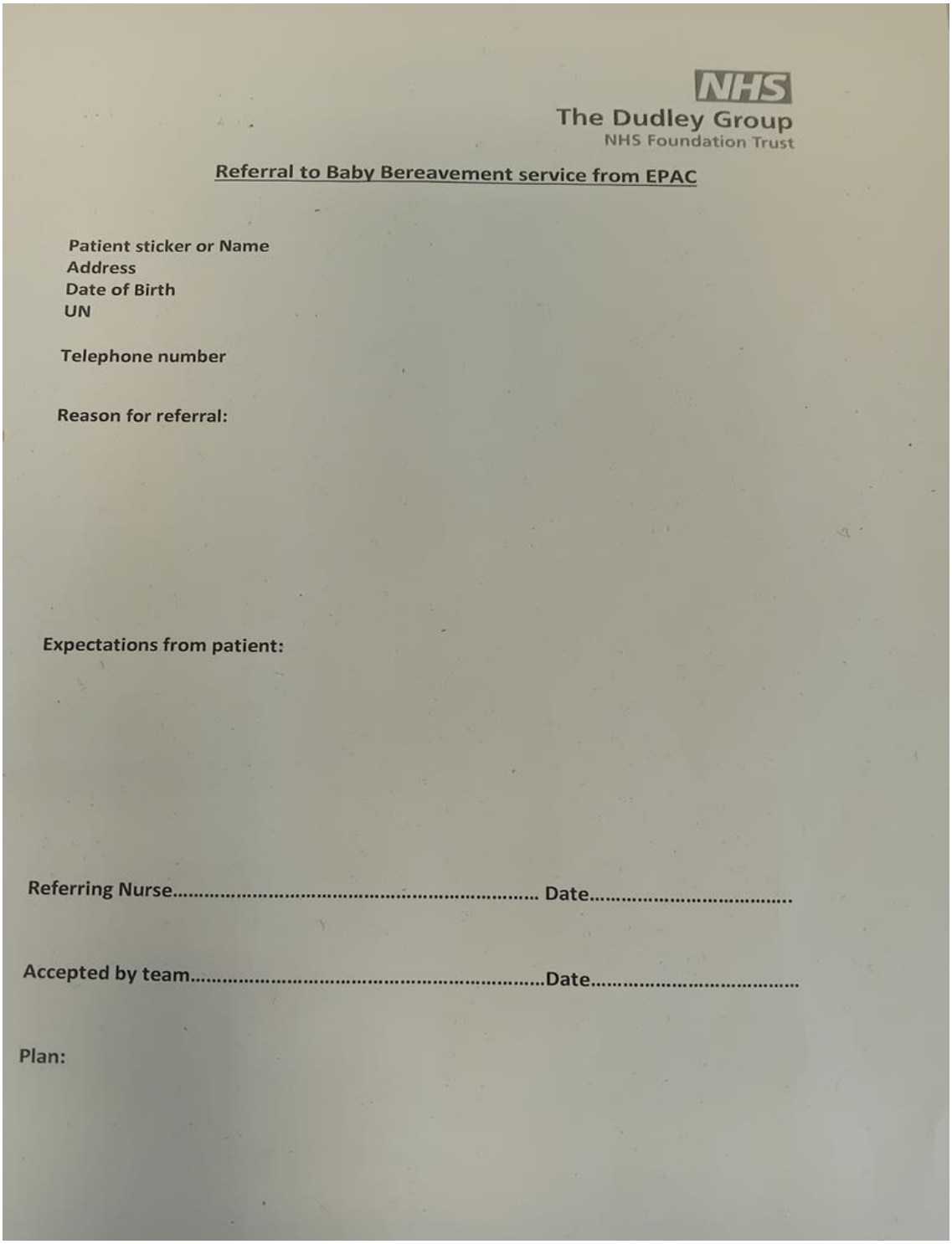
Contact patient day 2 via pone after Medical Outpatient management and file this in the notes. If this is over weekend or bank holiday patient can be contacted in 24 hours or the next working day.

Checklist of questions to be discussed with patient:

- History of heavy bleeding and passage of pregnancy tissue
- History with minimal bleeding with no convincing history of passage of pregnancy tissue
- Clinical Impression Incomplete/Complete
- If incomplete advised: Conservative/Second Dose of Misoprostol/ Surgical
- If complete advised UPT in 3 weeks
- Plan: Discharged/ Further follow up

Appendix C

Bereavement referral form:



NHS
The Dudley Group
NHS Foundation Trust

Referral to Baby Bereavement service from EPAC

Patient sticker or Name
Address
Date of Birth
UN

Telephone number

Reason for referral:

Expectations from patient:

Referring Nurse..... Date.....

Accepted by team.....Date.....

Plan:

The Dudley Group
NHS Foundation Trust

NOTIFICATION OF PREGNANCY LOSS GUIDELINE			
	DOCUMENT TITLE:	**NOTIFICATION OF PREGNANCY LOSS GUIDELINE**	
	Name of Originator/Author /Designation & Specialty:	[redacted] CNS, Early Pregnancy Assessment Clinic (EPAC)	
	Local / Trust-wide	Trust-wide	
	Statement of Intent:	To ensure that the midwifery services are notified promptly to cancel any planned antenatal care, ensuring further distress is not caused by inappropriate appointments being sent out or a community midwife visiting.	
	Target Audience:	Early Pregnancy Assessment Clinic Staff Emergency Surgical Hub Staff (ward B5) Antenatal/Community Midwifery staff	
	Version:	V7	
	Name of Group and Date when Recommended for Ratification	Gynaecology outpatients Governance	Date 9.8.22
	Name of Division and Date of Final Ratification:	Surgery, Women and Children, GAME	Date 24 August 2022
	Review Date:	August 2025	
	Contributors:	Sister, Early Pregnancy Assessment Clinic Gynaecology Nurse Specialist	
	The electronic version of this document is the definitive version		

CHANGE HISTORY

Version	Date	Reason
V1	01/08/2001	Created – First document
V2	01/09/2002	Updated and reviewed
V3	01/10/2005	Updated and reviewed
V4	01/04/2010	Updated and reviewed
V5	22/10/2013	Updated and reviewed
V6	August 2017	This document has been reviewed and replaces version 5
V6.1	September 2018	Amendments made to sections 4,5,6.
V6.2	March 2020	Amendment made to Appendix 1.
V7	August 2022	Full review of document

A translation service is available for this document. The Interpretation/Translation Policy, Guidance for Staff is located on the intranet under Trust-wide Policies.

THE DUDLEY GROUP NHS FOUNDATION TRUST

NOTIFICATION OF PREGNANCY LOSS GUIDELINE

1. GUIDELINE SUMMARY

Up to the 20th week of pregnancy, women with complications resulting in miscarriage may be managed by the Early Pregnancy Assessment Clinic (EPAC) or, if requiring hospital admission, may be nursed on the Emergency Surgical Hub (ESH). In the event of miscarriage, it is important the midwifery services are notified promptly to cancel any planned antenatal care, ensuring further distress is not caused by inappropriate appointments being sent out or a community midwife visiting.

2. GUIDELINE DETAIL

2.1 ACTION REQUIRED BY THE NURSE RESPONSIBLE FOR THE WOMAN'S CARE FOLLOWING HER PREGNANCY LOSS

On day of confirmed pregnancy loss e.g., following:

- Falling BHCG levels
- Evacuation of Retained Products of Conception (ERPOC)
- Ultrasound scan

The nurse must:

- ESH – Pre-24-week Pregnancy Loss form **(Appendix 1)** to be completed and put in the Ward clerk's Diary. Ensure that under 18's, smokers, and women with BMI over 26 are indicated on form. This ensures that the Family nurse partnership service (FNP) and Healthy Pregnancy Support Service are also made aware of miscarriage
- Early Pregnancy Assessment Clinic to complete the form and take it to Community Midwives Office as soon as possible.
- Record information on discharge planner
- Record woman's information in the miscarriage book, one is located in Early Pregnancy Assessment Clinic and one which is located on the ESH.

2.2. ACTION REQUIRED BY GYNAECOLOGICAL CLERICAL STAFF

- Ensure the Pre-24-week pregnancy loss form is delivered to the community midwives office in Maternity OPD as soon as practically possible (office open 9-5 Monday to Friday)
- Record on pregnancy loss form, clerk's name, and date of notification.
- Record date taken to community office against woman's name in EPAC/ESH miscarriage book.

2.3. ACTION TAKEN BY COMMUNITY CLERICAL STAFF

- If smoking or BMI>26 weeks is ticked on form, ensure the pre-24-week pregnancy loss form is promptly placed in the relevant HPSS trays in the community office. If the woman is <20 years, the HPSS will ensure that the FNP are contacted to advise of miscarriage.
- If aged < 20 (non-smoker and normal BMI) please ensure that the form is also placed in the FNP tray
- End the pregnancy on OASIS and CRIS, ensuring no further appointments are sent

2.4. ACTION TAKEN BY FNP

- The FNP will be notified of the pre-24-week pregnancy loss form by HPSS and process as per their guideline. The FNP will be contacted on their main administration number: 01384 366662

2.5. ACTION TAKEN BY HPSS

- The HPSS will be given the pre-24-week pregnancy loss form.
- If the HPSS is already engaged with the woman, it is appropriate to phone her and continue to offer her services, with a view to improving outcome of a future pregnancy.
- If the woman is < 20 years the HPSS will then notify the FNP service by telephone of the pregnancy loss on 01384 366662.
- If the HPSS has no knowledge of the woman, it is appropriate to wait and see if the woman contacts them following the community midwives letter. **(Appendix 2)**

2.6. ACTION TAKEN BY COMMUNITY MIDWIFE

- The named community midwife will normally identify a miscarriage through the GP's records.
- In this instance the Community Midwife must ensure they inform the FNP and HPSS service if appropriate.
- The Community Midwife must also ensure they inform the community clerical staff to end the pregnancy on OASIS and CRIS ensuring no further appointments are sent.
- NHS England screening standards state that women must be informed of booking blood results even if miscarriage has occurred. The named midwife should send the attached letter **(Appendix 2)** to all women who have normal blood results.

2.7. ACTION TAKEN BY SCREENING TEAM

- Any women identified as having abnormal blood results will be contacted by to inform of blood results and implications for future pregnancies

3. DEFINITIONS/ABBREVIATIONS

EPAC	Early Pregnancy Assessment Clinic
ERPOC	Evacuation of Retained Products of Conception – a surgical procedure to remove pregnancy tissue following incomplete or missed miscarriage
ESH	Emergency Surgical Hub (based on ward B5)
BHCG	Beta Human Chorionic Gonadotrophin – a quantitive measure of pregnancy hormone
FNP	Family Nurse Partnership
HPSS	Healthy Pregnancy Support Service
SANDS	Stillbirth and Neonatal Death Society
BMI	Body Mass Index
OPD	Outpatients Department
OASIS	Trust Patient Administration System
CRIS	Radiology Information System

4. TRAINING/SUPPORT

Staff working within specialties that are likely to receive patients with pregnancy loss at 20 weeks or less gestation (antenatal, EPAC, Emergency Surgical Hub) will receive local training during their induction to the area.

The EPAC CNS is available for further support for staff where necessary.

5. REFERENCES

None

Appendix 1

ALL PRE 24 WEEK PREGNANCY LOSSES (to be used in conjunction with Notification of Pregnancy Loss guideline)

Name …… NHS No ……DOB…….

Address ……

Postcode ……

Has been seen on EPAC/ESH (delete as appropriate) Date ……..

Diagnosis …… No of wks ……

Consultant ……

GP …… Practice ……

Signature ……. Print name……
Designation……..

Patient under 18 years old / smoker/BMI ↑ 26 (circle as appropriate)
Send to the Community Midwives office on completion.

All pre-24-week Pregnancy Losses V.2 ST August 2022

Appendix 2

Dear

Re: Screening test result – booking bloods

Please accept my sincere condolences for your recent pregnancy loss; I hope that you are getting the support you need to deal with this distressing situation. Further support can be obtained from the support groups detailed below.

I am writing to confirm the blood results that you had taken on ___/___/20__ were all normal requiring no further action. A copy of these results has been sent to your GP.

If you have any questions or queries, please do not hesitate to contact me on the above telephone numbers.

Yours sincerely

Community Midwife

Support Groups:

The Miscarriage Association
17 Wentworth Terrace, Wakefield, WF1 3QW
t: 01924 200799
e: info@miscarriageassociation.org.uk
w: www.miscarriageassociation.org.uk

Stillbirth and Neonatal Death Society (SANDS)
3rd Floor, 28 Portland Place, London, W1B 1LY
t: 020 7436 7940
e: info@uk-sands.org
w: www.uk-sands.org

Healthy Pregnancy Support Workers (HPSS)
The HPSS service is happy to help support lifestyle changes to improve your health in future.
If you smoke or have a BMI > 26, and would like support towards a healthier lifestyle please contact them on;
01384 244 358
Visits can be arranged in your own home

POSTPARTUM HAEMORRHAGE GUIDELINE			
	DOCUMENT TITLE:	**POSTPARTUM HAEMORRHAGE GUIDELINE**	
	Name of Originator/Author /Designation& Specialty:	[redacted] - Consultant Obstetrician	
	Local / Trust-wide	Maternity Department	
	Statement of Intent:	To provide guidance to midwifery, obstetric, anaesthetic, theatre, recovery, and haematology staff on the management of PPH and massive obstetric haemorrhage,	
	Target Audience:	Midwifery and Obstetrics	
	Version:	11.0	
	Name of Review and Approval Group and Date when Recommended for Ratification	Virtual Consultation - Maternity Governance Group	Date: 18/05/2023
	Name of Division/Group and Date of Final Ratification:	Surgery Women and Children: GAMe	Date:28/06/2023
	Review Date:	30/06/2026	
	Contributors:	**Designation:**	
	The electronic version of this document is the definitive version		

CHANGE HISTORY

Version	Date	Reason
7.0	October 2012	Adapted and amended against CNST
8.0	April 2013	Adapted 8.9.2 in line with the CNST assessors recommendations Risk and Assurance Committee.
9.0	August 2017	Full Review
10.0	March 2020	Full Review
10.1	April 2020	Amendment made to section 3.3, 3.4 and 4.4 regarding postnatal Syntocinon
10.2	August 2020	Amendment made to section 3.3 and 4.6 regarding vaginal pack insertion by Dr Sutherland ST5
10.3	Mar 2022	Amendment made to section to 3.2, 3.3, 4.1, 4.3 and 4.5
11.0	June 2023	Full review of the document, amendment made to sections 3.3, 3.4, 4.4.

A translation service is available for this document. The Interpretation/Translation Policy, Guidance for Staff is located on the intranet under Trust-wide Policies.

THE DUDLEY GROUP NHS FOUNDATION TRUST

POSTPARTUM HAEMORRHAGE GUIDELINE

1. INTRODUCTION

Although there has been a decline in deaths from obstetric haemorrhage in the United Kingdom over the last 50 years, *Saving Lives, Improving mother's care* (MBRRACE-UK December 2016) highlighted haemorrhage as the fourth leading direct cause of maternal death with 13 deaths from 2012 to 2014.

While it is recognised that a fall in the rate of major obstetric haemorrhage is due to improved management of the condition it is nevertheless essential for maternity services to continue to strive to reduce the risks of obstetric haemorrhage and learn from and improve the management of obstetric haemorrhage.

2. Postpartum Haemorrhage (PPH)

2.1 Definition of PPH

Primary PPH is the most common form of major obstetric haemorrhage. The traditional definition of primary PPH is the loss of 500 ml or more of blood from the genital tract within 24 hours of the birth of a baby. PPH can be minor (500–1000 ml) or major (more than 1000 ml). In women with lower body mass (e.g., less than 60 kg), a lower level of blood loss may be clinically significant

Secondary PPH is defined as abnormal or excessive bleeding from the birth canal between 24 hours and 12 weeks postnatally.

2.2 Risk factors for PPH

Awareness by clinicians of the risk factors for PPH can help in earlier diagnosis and quicker action. These are:

- Previous PPH
- General Anaesthesia
- Multiple pregnancy
- Fetal Macrosomia
- Failure to progress in the second stage.
- Hypertension
- Prolonged third stage of labour.
- Retained placenta
- Placenta Accreta
- Cervical/Perineal trauma

Be aware PPH can occur without any evident risk factors.

2.3 Causes of PPH

Before deciding on the treatment of PPH the following causes should be considered and rejected or ascertained

Consider the four T's as the causes of Primary PPH

- TONE - Apply Bi-manual compression
- TRAUMA - Apply pressure and repair trauma
- TISSUE - Check placenta, prepare for theatre for exploration
- THROMBIN - Check blood clotting

3. Management of a Primary Postpartum Haemorrhage (Appendix 1)

3.1 Immediate attendance would be expected of the following:

- Midwife identifying the PPH to call for help, pull emergency buzzer
- Labour Ward Coordinator (Lead Midwife) to instigate **2222** call stating **OBSTETRIC EMERGENCY**

Effective communication is vital in the management of an obstetric emergency. It is vital that a team approach to management should be taken; the following birth attendants should be involved in care and notified immediately.

- Labour Ward Coordinator (Lead Midwife)
- Maternity Support Worker (Runner) – for support if blood collection from haematology for transfusion is required
- 2nd Midwife - to scribe
- Emergency call team:
  - Senior Obstetrician (Labour Ward Consultant when in attendance)
  - Junior doctor
  - Duty Obstetric Anaesthetist (Labour Ward Consultant Anaesthetist when in attendance)
  - Theatre nurse and theatre ODP

3.2 Basic Actions in all cases of PPH

All these actions may occur simultaneously

- Rub up a contraction
- Consider Bi-manual compression
- Ensure the woman is conscious, has a clear airway and is breathing and alert
- Reassure the mother and her partner
- Check her pulse and blood pressure
- Lay down, with a head down tilt
- Give Oxygen by facemask, 15 litres /min
- IV access with at least two 14 or 16G cannula
- Take blood for Full Blood Count and baseline Clotting screen
- Obtain a group and save or ask blood bank to change a group and screen sample to a group and save
- Consider Cross match 4 units (This should be a senior obstetric or anaesthetist's decision)

- Clearly label all specimens and forms, having checked patients' details with the patient and against their wristband. Do not use patient labels on blood transfusion sample or form.
- Give IV Crystalloid (e.g., Hartmann's) stat
- Ensure bladder empty and Foley's catheter inserted. Attach urometer bag to monitor hourly urine output.
- Document maternal observations every 15 min on sunrise.
- Transfuse blood as soon as possible, if clinically required until blood is available, infuse up to 3.5 l of warmed (if possible) clear fluids, initially 2 l of warmed isotonic crystalloid. Further fluid resuscitation can continue with additional isotonic crystalloid or colloid (succinylated gelatin).
- Commence a fluid balance chart and document input and output.
- Ensure there is clear documentation of the sequence of events, plan of care and occurrence of timely review. All entries to be signed and name printed.
- All incontinence sheets and sanitary pads should be saved in an attempt to estimate the cumulative loss by weighing them.
- Any swabs used must be checked with another member of staff and documented in the clinical notes.

Dependent on the cause, other management options may be required, and this should be decided on by the multi professional team consisting of the senior obstetrician, lead midwife and anaesthetist. These should be clearly documented in the woman's intrapartum or postpartum notes.

3.3 Causative Factor: Tone

- Expel clot from the vagina and uterine cavity with fundal massage
- Bimanually compress the uterus
- Consider second dose of syntometrine
- Commence IV oxytocin (Syntocinon) 40IU in 36mls sodium chloride 0.9% over 4 hours (10ml/hr). Slow IV or IM ergometrine 500mcg if not contra-indicated (Hypertension, Cardiac disease)
- Sublingual misoprostol 800 mcg (senior Obstetrician decision and Administration)
- Consider IM carboprost (Haemabate) 250mcg every 15 minutes to a maximum of 8 doses (2mg) if not contraindicated (Asthma)
- If active bleeding continues despite medical management consider transfer to theatre after discussion with consultant for EUA, uterine balloon (Bakri / Rusch) or further surgical management if required.
- Consideration should be given to the use of tranexamic acid (0.5 to 1g IV) in the management of PPH

3.4 Causative Factor: Tissue

- Commence IV oxytocin (Syntocinon) 40IU in 36mls sodium chloride 0.9% over 4 hours (10ml/hr).
- Deliver the placenta if not delivered – manually remove in the room if the epidural block is dense enough or take to theatre for manual removal of placenta if additional analgesia or anaesthesia is required.
- If placenta delivered check, it is complete and clearly document in the notes.

- Give: Metronidazole 500mg IV, Genttamicin 160mg IV and Benzylpenicillin 1.2g IV.
- If penicillin allergic: Teicioplanin 400mg IV

3.5 Causative Factor:Trauma

- Check for obvious genital trauma. Ensure good lighting and visualise the Cervix.
- Visualise the apex, apply pressure to the bleeding point and suture in the room If it is easily identified or transfer to theatre if not easily identifiable
- Examine the anus, vulva, vagina and cervix under direct vision manually explore the uterine cavity to exclude trauma or retained placental Tissue consider laparotomy
- Give: Metronidazole 500mg IV, Gentamycin 160mg IV and Benzylpenicillin 1.2g IV.
- If penicillin allergic: Teicioplanin 400mg IV

3.6 Causative Factor:Thrombin

- Risk factors for the development of coagulopathy include pre-eclampsia (particularly HELLP syndrome) and antepartum haemorrhage (APH) (particularly abruption).
- The diagnosis should be suspected when bleeding continues despite the presence of an empty, well contracted uterus and in the absence of genital trauma. Ensure involvement of anaesthetic team and haematologist.
- Anticipate the need for and order blood components early
- Further management will be determined on an individualised basis after liaison between the senior registrar and on call haematologist.
- If there is intractable bleeding and there is no response to conventional blood product transfusion and surgical / obstetric interventions, consider use of recombinant factor VIIa. This is only issued after approval by a consultant haematologist

4. MANAGEMENT OF PPH – MASSIVE BLEED

If the mother has lost 1500ml or more and is still bleeding the obstetrician or anaesthetist makes the decision to instigate the massive bleed protocol by Dialling 2222 stating MASSIVE BLEED (Trigger phrase)

4.1 In the event of any massive obstetric haemorrhage effective communication using SBAR and completion of the proforma is paramount to expedite the resolve of the emergency; this includes timely management by the multidisciplinary team which must include immediate notification to the individuals detailed below and is the responsibility of the midwife **(Appendix 2)**

- Consultant/Senior Obstetrician
- Consultant Anaesthetist
- Labour Ward Coordinator (Lead Midwife)
- Haematologist
- Blood Bank Department personnel

All communication and management plans made between the above personnel must be clearly documented within the clinical notes. Consultant Obstetrician must attend in case of massive bleed >2L which is ongoing.

It is the responsibility of the most senior obstetrician present, lead midwife and anaesthetist to coordinate the management of a massive PPH and delegate roles to the members of the team.

4.2 Immediate Clinical Action

- Lay down, with a head down tilt, care should be taken if the woman has an epidural
- Rub up a contraction
- Insert urinary catheter
- Perform bimanual compression when required
- Apply pressure to trauma when required
- Administer oxygen by facemask, 15 litres /min
- IV access with 2 Grey 16G cannula
- Take bloods for FBC, clotting, fibrinogen, U & E's, cross match blood.

4.3 Action to be taken as soon as practical:

- Stand down – As soon as the haemorrhage control and resuscitation is achieved and blood products are not required the major haemorrhage procedure should be deactivated by contacting blood bank via switchboard.
- Transfer to the Maternity HDU or Intensive Care Unit (ITU) as appropriate. This is a Senior Obstetrician/Anaesthetist decision.
- Submit a DATIX

4.4 Drugs Administration

The following drugs will be considered and administered:

- Syntometrine 1ml IM / Ergometrine 500mcg IM / slow IV
- IV oxytocin (Syntocinon) 40IU in 36mls sodium chloride 0.9% over 4 hours at 10mls/hr.
- Hemabate 250mcg every 15mins IM max 8 doses (consider theatre by 2nd dose)
- Sublingual misoprostol 800mcg (senior Obstetrician decision and Administration). If under GA or found necessary, can be administered rectally.

4.5 Access to Blood for Massive Haemorrhage

In cases of massive bleed refer to the Trust 'Massive Bleed Procedure' which includes the availability of the 'massive bleed box' containing the following blood products

- 4 units of red cells initially
- 4 units of fresh frozen plasma will follow (once thawed)
- 1 adult doses of platelets will be issued following collection of second box of red cells. A further dose of Platelets will be available on request based on lab or near patient testing results.

A trained Maternity Support Worker (Runner) would be instructed to collect this box from Haematology. Guidance from the British Committee for Standards in Haematology summarises the main therapeutic goals of the management of massive blood loss as maintaining:

- Hb greater than 80 g/l
- platelet count greater than 50×10^9/l
- prothrombin time (PT) less than 1.5 times normal
- activated partial thromboplastin time (APTT) less than 1.5 times normal
- fibrinogen greater than 2 g/l.

4.6 Preparation for Theatre

4.6.1 If bleeding from placental bed vessels occurs at Caesarean section (particularly after placenta praevia). The senior obstetrician should consider inserting a Rusch or Bakri catheter.

If the abdomen is not open and the maternal condition suggests blood loss greater than visible, consider intra-abdominal bleeding. Ultrasound may be helpful to look for intra-abdominal blood e.g., between liver and right kidney. However, do not allow scanning to delay laparotomy.

If laparotomy is considered, then this should always be discussed with the Consultant Obstetrician on call. The Consultant must be present in theatre if a laparotomy is performed.

Ensure the hysterectomy set and Robinson drains are available.

Consider a B-Lynch suture particularly if there is an element of uterine atony:

Other techniques which can be considered are:

- Bilateral uterine artery ligation
- Arterial embolisation
- Hysterectomy

In the case of TRAUMA or TISSUE as the causative factors, it may be agreed that the woman requires surgical intervention, and she should be prepared for theatre. This decision should be made by a senior obstetrician with both the Lead midwife and anaesthetist's involvement.

4.6.2 Vaginal Pack

If a vaginal pack is inserted

- A **blue wristband** should be applied to the patient. It is the responsibility of the person inserting the pack to ensure the wristband has been applied.
- On removal of the vaginal pack the wristband should be cut off by the person removing the pack.
- **Clearly document in the notes**
    1. The number of packs inserted (whether tied together or not if more than 1)
    2. Duration pack should be left in for
    3. That the wristband has been applied to the patient.
    4. The time and date that the vaginal pack and wristband have been removed

4.7 Subsequent Management

- All management should continue to be a multi-disciplinary approach.
- The woman should be transferred to the Maternity High dependency room (HDU) room (Anaesthetic decision) for at least 24hours once stabilised
- All women who have a significant bleed should remain on the Obstetric unit for a minimum of 48 hours after the last bleed.

4.8 Women who decline blood components/products

Clear documentation must be made in the clinical records of all women who decline blood components and/or products (refer to Women who Decline Blood Products trust guideline), during the antenatal assessment, or on first contact. An individualised management plan of care should be made and recorded in the clinical notes. Trust wide supplementary consent form for Jehovah's Witnesses should be used when seeing those patients in the anaesthetic antenatal clinic. [redacted]

4.9 Arrangements for Interventional Radiology and Cell Salvage

4.9.1 Interventional Radiology is not currently available or offered at the Dudley Group NHS Foundation Trust in emergency situations. It is available if organised with the radiologists, but only in elective cases.

4.9.2 Cell salvage - There is a dedicated cell salvage machine that is present in Obstetric Theatre 2 anaesthetic room with the necessary equipment stored in a marked cell salvage box. Staff are trained in the use of cell salvage.

This procedure should only be performed by multidisciplinary teams who develop regular experience of intraoperative blood cell salvage. All patients that are at risk of obstetric haemorrhage in elective and emergency cases should be considered for cell salvage by the Consultant Anaesthetist and Consultant Obstetrician involved in their care.

The unit of cell salvaged blood must not be kept for more than 4 hours after preparation. When Cell Salvage blood is given, there is a pale green label which needs to be completed and attached to the blood bag given. Once the blood has been given, part of the green label needs to be detached and stuck in the patient's notes.

4.10 Communication with the woman

During the process the woman and her family should be kept fully informed and given an opportunity for further discussion by both the midwifery and medical staff involved in the provision of care.

5. Postpartum Haemorrhage on the Midwifery Led Unit (MLBS)

- Call for help – pull emergency buzzer
- The midwife should rub-up a contraction and administer Syntometrine 1ml (IM)
- Deliver the placenta if possible
- Consider bimanual compression
- Insert Foley's indwelling urinary catheter

- Monitor maternal observations (BP,RR,Pulse) and document vital signs on Sunrise.
- Early suturing of perineal trauma
- Commence fluid balance and clear documentation
- If bleeding not controlled – the woman needs to be transferred to the Obstetric unit

6. Postpartum Haemorrhage at a Homebirth

- The midwife should rub-up a contraction and administer Syntometrine 1ml IM
- Deliver the placenta if possible
- Consider bimanual compression
- Insert Foley's indwelling urinary catheter
- Monitor maternal observations (BP,Temperature, Respiratory rate,Pulse) and document on sunrise.

2nd Midwife in Attendance/ Assistant/ Relative

- Dial 999 and ask for a paramedic ambulance and arrange urgent transfer to hospital
- Inform the Lead Midwife of the woman's transfer from home to the obstetric unit so that they can prepare staff, room and equipment
- Insert an intravenous cannula and commence crystalloid fluids (eg.Hartmanns or normal saline) once the paramedics arrive.
- The midwife should accompany the woman in the ambulance to hospital to maintain continuity and reassurance.
- The second midwife should arrange the safe transfer of the baby to the hospital to be with the mother.
- N.B Any woman transferred from a homebirth to hospital should be admitted to the Obstetric unit

7. Secondary Postpartum Haemorrhage

7.1 Community Management

Initially

- Observations of T.P.R. and B/P
- Check fundal height, tenderness and blood loss.
- Give IM Syntometrine 1ml if appropriate

Stabilise

- Transfer into the obstetric unit
- Inform Lead Midwife
- Arrange ambulance transfer
- Midwife to accompany woman to hospital.

7.2 Hospital Management

- Admit to the obstetric unit
- Get immediate senior obstetric review
- Obtain IV access and commence IV infusion if indicated
- Send bloods obtained, urgently.

- Group and save serum (cross match if appropriate), full blood count, Coagulation screen if indicated, Bacteriology screen if appropriate - i.e., Blood cultures, HVS
- Abdominal palpation and speculum examination should be performed. If the uterus is atonic and the cervical os open, then retained products are more likely Retained products of conception and infection must be considered in all cases.
- The management of care will be determined by clinical findings. Ultrasound of the uterus may be indicated and should be performed by a trained operator. A negative scan does not completely exclude retained products.
- Antibiotics (Co-Amoxiclav 1.2g IV TDS) after bacteriology screen should be given to all women prior to evacuation of the uterus. If the woman is stable the ERPC should be delayed until 24 hours post- commencement of antibiotics. She should complete a 5-day course of antibiotics post-op.
- If necessary, Evacuation of Retained Products of Conception can be carried out. The surgery should be performed or supervised by an experienced surgeon (Senior Obstetrician / Consultant). She should be consented for examination under anaesthetic and evacuation of retained products and the risks of infection, trauma to the uterus, bleeding and perineal breakdown and resuturing discussed and documented. Ultrasound guidance during the procedure is preferable.

8. Auditable Standards

A continuous audit is undertaken of this guideline and is included in the Maternity Audit Programme and is reviewed quarterly within the intrapartum forum. The guideline will be audited as a minimum, against the following standards.

- Evidence of agreed local definition of postpartum haemorrhage
- Evidence of documented clear lines of communication between the consultant obstetrician, consultant anaesthetist, haematologist, blood transfusion personnel and labour ward coordinator
- Description of the management of women with a postpartum haemorrhage
- Documentation of fluid balance
- Urgent access to blood, including portering arrangements
- Trigger phrase used to activate the massive haemorrhage protocol
- An individual management plan documented in the health records of women who decline blood products
- Any use of intra operative cell salvage
- Staff training

When the audit has identified deficiencies the action plans will be monitored through the named meeting/manager.

9. Definitions/Abbreviations

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10. Training/Support

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All cases of PPH involving a blood loss of greater than 1500 ml should be the subject of a formal clinical incident review.

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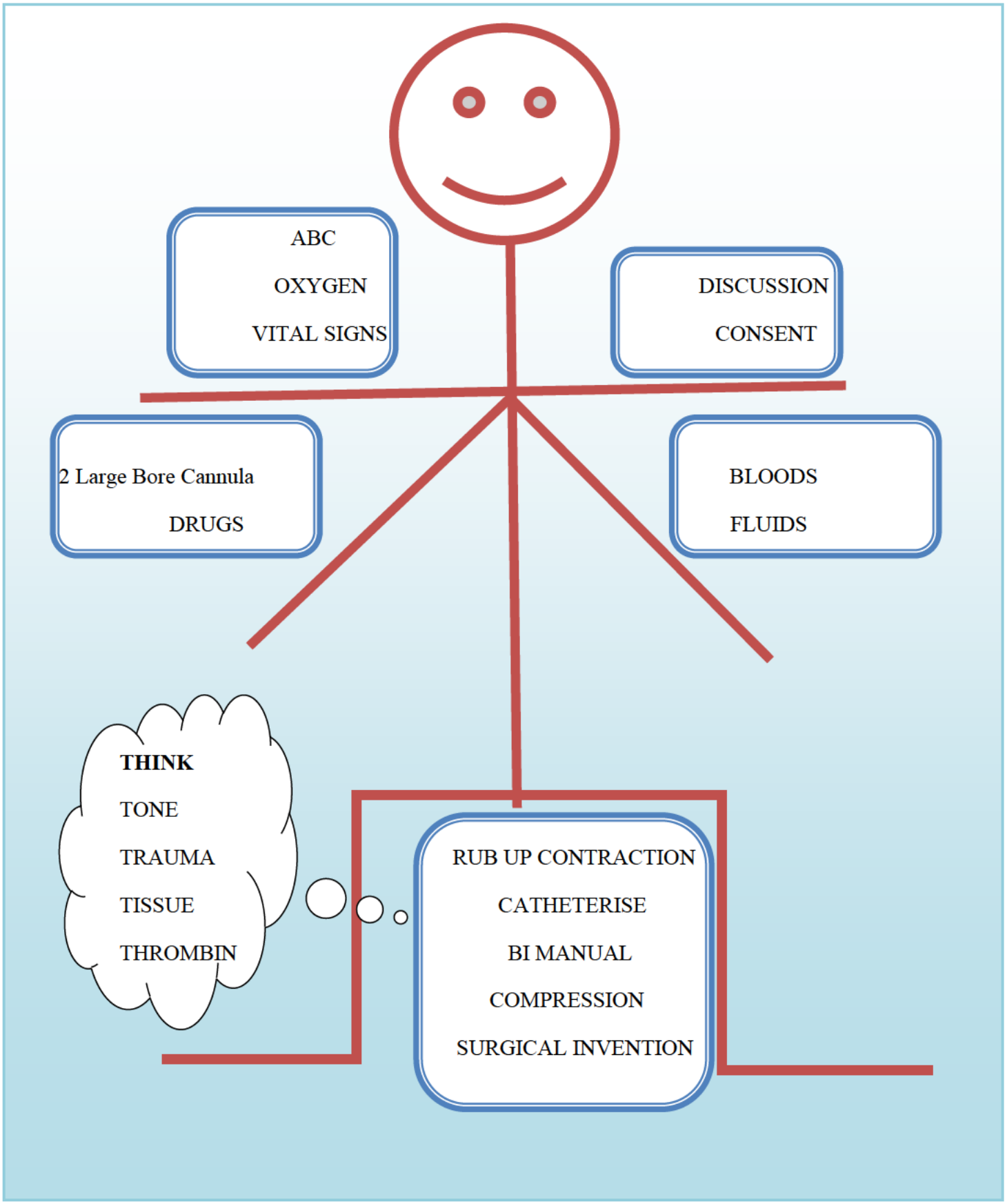

Appendix 2: Proforma For Obstetric Haemorrhage

Affix a label

Date and time:

……

Scribes name:…… Room no:……

Procedure	Time	Signature
Emergency 2222		
Lead Midwife		
Obstetric Registrar		
SHO		
Anaesthetist		
ODA		
IV access x2		
Haematologist/blood bank informed		
Consultant Obstetrician informed		
BLOODS X match 6 units FBC CLOTTING BIOCHEMISTRY Khliehauier (APH)		
Fluid balance Commence		
Indwelling catheter/Urimeter		
Drugs (PPH)		
Syntometrine		
Ergometrine		
Syntocinon		
Haemabate		
Misoprostol		
Blood administration		
Haemacue result		
Transfer to theatre		
FH (APH)		
Left lateral tilt		
Time of Delivery		
Decision to delivery time		

☐ Pease tick If **MASSIVE BLEED** trigger word was used

The Dudley Group
NHS Foundation Trust

POSTPARTUM HAEMORRHAGE GUIDELINE			
	DOCUMENT TITLE:	**POSTPARTUM HAEMORRHAGE GUIDELINE**	
	Name of Originator/Author /Designation& Specialty:	[redacted]- Consultant Obstetrician	
	Local / Trust-wide	Maternity Department	
	Statement of Intent:	To provide guidance to midwifery, obstetric, anaesthetic, theatre, recovery, and haematology staff on the management of PPH and massive obstetric haemorrhage,	
	Target Audience:	Midwifery and Obstetrics	
	Version:	11.0	
	Name of Review and Approval Group and Date when Recommended for Ratification	Virtual Consultation - Maternity Governance Group	Date: 18/05/2023
	Name of Division/Group and Date of Final Ratification:	Surgery Women and Children: GAMe	Date:28/06/2023
	Review Date:	30/06/2026	
	Contributors:	**Designation:**	
	The electronic version of this document is the definitive version		

CHANGE HISTORY

Version	Date	Reason
7.0	October 2012	Adapted and amended against CNST
8.0	April 2013	Adapted 8.9.2 in line with the CNST assessors recommendations Risk and Assurance Committee.
9.0	August 2017	Full Review
10.0	March 2020	Full Review
10.1	April 2020	Amendment made to section 3.3, 3.4 and 4.4 regarding postnatal Syntocinon
10.2	August 2020	Amendment made to section 3.3 and 4.6 regarding vaginal pack insertion by [redacted] ST5
10.3	Mar 2022	Amendment made to section to 3.2, 3.3, 4.1, 4.3 and 4.5
11.0	June 2023	Full review of the document, amendment made to sections 3.3, 3.4, 4.4.

A translation service is available for this document. The Interpretation/Translation Policy, Guidance for Staff is located on the intranet under Trust-wide Policies.

THE DUDLEY GROUP NHS FOUNDATION TRUST

POSTPARTUM HAEMORRHAGE GUIDELINE

1. INTRODUCTION

Although there has been a decline in deaths from obstetric haemorrhage in the United Kingdom over the last 50 years, *Saving Lives, Improving mother's care* (MBRRACE-UK December 2016) highlighted haemorrhage as the fourth leading direct cause of maternal death with 13 deaths from 2012 to 2014.

While it is recognised that a fall in the rate of major obstetric haemorrhage is due to improved management of the condition it is nevertheless essential for maternity services to continue to strive to reduce the risks of obstetric haemorrhage and learn from and improve the management of obstetric haemorrhage.

2. Postpartum Haemorrhage (PPH)

2.1 Definition of PPH

Primary PPH is the most common form of major obstetric haemorrhage. The traditional definition of primary PPH is the loss of 500 ml or more of blood from the genital tract within 24 hours of the birth of a baby. PPH can be minor (500–1000 ml) or major (more than 1000 ml). In women with lower body mass (e.g., less than 60 kg), a lower level of blood loss may be clinically significant

Secondary PPH is defined as abnormal or excessive bleeding from the birth canal between 24 hours and 12 weeks postnatally.

2.2 Risk factors for PPH

Awareness by clinicians of the risk factors for PPH can help in earlier diagnosis and quicker action. These are:

- Previous PPH
- General Anaesthesia
- Multiple pregnancy
- Fetal Macrosomia
- Failure to progress in the second stage.
- Hypertension
- Prolonged third stage of labour.
- Retained placenta
- Placenta Accreta
- Cervical/Perineal trauma

Be aware PPH can occur without any evident risk factors.

2.3 Causes of PPH

Before deciding on the treatment of PPH the following causes should be considered and rejected or ascertained

Consider the four T's as the causes of Primary PPH

- TONE - Apply Bi-manual compression
- TRAUMA - Apply pressure and repair trauma
- TISSUE - Check placenta, prepare for theatre for exploration
- THROMBIN - Check blood clotting

3. Management of a Primary Postpartum Haemorrhage (Appendix 1)

3.1 Immediate attendance would be expected of the following:

- Midwife identifying the PPH to call for help, pull emergency buzzer
- Labour Ward Coordinator (Lead Midwife) to instigate **2222** call stating **OBSTETRIC EMERGENCY**

Effective communication is vital in the management of an obstetric emergency. It is vital that a team approach to management should be taken; the following birth attendants should be involved in care and notified immediately.

- Labour Ward Coordinator (Lead Midwife)
- Maternity Support Worker (Runner) – for support if blood collection from haematology for transfusion is required
- 2nd Midwife - to scribe
- Emergency call team:
  - Senior Obstetrician (Labour Ward Consultant when in attendance)
  - Junior doctor
  - Duty Obstetric Anaesthetist (Labour Ward Consultant Anaesthetist when in attendance)
  - Theatre nurse and theatre ODP

3.2 Basic Actions in all cases of PPH

All these actions may occur simultaneously

- Rub up a contraction
- Consider Bi-manual compression
- Ensure the woman is conscious, has a clear airway and is breathing and alert
- Reassure the mother and her partner
- Check her pulse and blood pressure
- Lay down, with a head down tilt
- Give Oxygen by facemask, 15 litres /min
- IV access with at least two 14 or 16G cannula
- Take blood for Full Blood Count and baseline Clotting screen
- Obtain a group and save or ask blood bank to change a group and screen sample to a group and save
- Consider Cross match 4 units (This should be a senior obstetric or anaesthetist's decision)

- Clearly label all specimens and forms, having checked patients' details with the patient and against their wristband. Do not use patient labels on blood transfusion sample or form.
- Give IV Crystalloid (e.g., Hartmann's) stat
- Ensure bladder empty and Foley's catheter inserted. Attach urometer bag to monitor hourly urine output.
- Document maternal observations every 15 min on sunrise.
- Transfuse blood as soon as possible, if clinically required until blood is available, infuse up to 3.5 l of warmed (if possible) clear fluids, initially 2 l of warmed isotonic crystalloid. Further fluid resuscitation can continue with additional isotonic crystalloid or colloid (succinylated gelatin).
- Commence a fluid balance chart and document input and output.
- Ensure there is clear documentation of the sequence of events, plan of care and occurrence of timely review. All entries to be signed and name printed.
- All incontinence sheets and sanitary pads should be saved in an attempt to estimate the cumulative loss by weighing them.
- Any swabs used must be checked with another member of staff and documented in the clinical notes.

Dependent on the cause, other management options may be required, and this should be decided on by the multi professional team consisting of the senior obstetrician, lead midwife and anaesthetist. These should be clearly documented in the woman's intrapartum or postpartum notes.

3.3 Causative Factor: Tone

- Expel clot from the vagina and uterine cavity with fundal massage
- Bimanually compress the uterus
- Consider second dose of syntometrine
- Commence IV oxytocin (Syntocinon) 40IU in 36mls sodium chloride 0.9% over 4 hours (10ml/hr). Slow IV or IM ergometrine 500mcg if not contra-indicated (Hypertension, Cardiac disease)
- Sublingual misoprostol 800 mcg (senior Obstetrician decision and Administration)
- Consider IM carboprost (Haemabate) 250mcg every 15 minutes to a maximum of 8 doses (2mg) if not contraindicated (Asthma)
- If active bleeding continues despite medical management consider transfer to theatre after discussion with consultant for EUA, uterine balloon (Bakri / Rusch) or further surgical management if required.
- Consideration should be given to the use of tranexamic acid (0.5 to 1g IV) in the management of PPH

3.4 Causative Factor: Tissue

- Commence IV oxytocin (Syntocinon) 40IU in 36mls sodium chloride 0.9% over 4 hours (10ml/hr).
- Deliver the placenta if not delivered – manually remove in the room if the epidural block is dense enough or take to theatre for manual removal of placenta if additional analgesia or anaesthesia is required.
- If placenta delivered check, it is complete and clearly document in the notes.

- Give: Metronidazole 500mg IV, Genttamicin 160mg IV and Benzylpenicillin 1.2g IV.
- If penicillin allergic: Teicioplanin 400mg IV

3.5 Causative Factor:Trauma

- Check for obvious genital trauma. Ensure good lighting and visualise the Cervix.
- Visualise the apex, apply pressure to the bleeding point and suture in the room If it is easily identified or transfer to theatre if not easily identifiable
- Examine the anus, vulva, vagina and cervix under direct vision manually explore the uterine cavity to exclude trauma or retained placental Tissue consider laparotomy
- Give: Metronidazole 500mg IV, Gentamycin 160mg IV and Benzylpenicillin 1.2g IV.
- If penicillin allergic: Teicioplanin 400mg IV

3.6 Causative Factor:Thrombin

- Risk factors for the development of coagulopathy include pre-eclampsia (particularly HELLP syndrome) and antepartum haemorrhage (APH) (particularly abruption).
- The diagnosis should be suspected when bleeding continues despite the presence of an empty, well contracted uterus and in the absence of genital trauma. Ensure involvement of anaesthetic team and haematologist.
- Anticipate the need for and order blood components early
- Further management will be determined on an individualised basis after liaison between the senior registrar and on call haematologist.
- If there is intractable bleeding and there is no response to conventional blood product transfusion and surgical / obstetric interventions, consider use of recombinant factor VIIa. This is only issued after approval by a consultant haematologist

4. MANAGEMENT OF PPH – MASSIVE BLEED

If the mother has lost 1500ml or more and is still bleeding the obstetrician or anaesthetist makes the decision to instigate the massive bleed protocol by Dialling 2222 stating MASSIVE BLEED (Trigger phrase)

4.1 In the event of any massive obstetric haemorrhage effective communication using SBAR and completion of the proforma is paramount to expedite the resolve of the emergency; this includes timely management by the multidisciplinary team which must include immediate notification to the individuals detailed below and is the responsibility of the midwife **(Appendix 2)**

- Consultant/Senior Obstetrician
- Consultant Anaesthetist
- Labour Ward Coordinator (Lead Midwife)
- Haematologist
- Blood Bank Department personnel

All communication and management plans made between the above personnel must be clearly documented within the clinical notes. Consultant Obstetrician must attend in case of massive bleed >2L which is ongoing.

It is the responsibility of the most senior obstetrician present, lead midwife and anaesthetist to coordinate the management of a massive PPH and delegate roles to the members of the team.

4.2 Immediate Clinical Action

- Lay down, with a head down tilt, care should be taken if the woman has an epidural
- Rub up a contraction
- Insert urinary catheter
- Perform bimanual compression when required
- Apply pressure to trauma when required
- Administer oxygen by facemask, 15 litres /min
- IV access with 2 Grey 16G cannula
- Take bloods for FBC, clotting, fibrinogen, U & E's, cross match blood.

4.3 Action to be taken as soon as practical:

- Stand down – As soon as the haemorrhage control and resuscitation is achieved and blood products are not required the major haemorrhage procedure should be deactivated by contacting blood bank via switchboard.
- Transfer to the Maternity HDU or Intensive Care Unit (ITU) as appropriate. This is a Senior Obstetrician/Anaesthetist decision.
- Submit a DATIX

4.4 Drugs Administration

The following drugs will be considered and administered:

- Syntometrine 1ml IM / Ergometrine 500mcg IM / slow IV
- IV oxytocin (Syntocinon) 40IU in 36mls sodium chloride 0.9% over 4 hours at 10mls/hr.
- Hemabate 250mcg every 15mins IM max 8 doses (consider theatre by 2nd dose)
- Sublingual misoprostol 800mcg (senior Obstetrician decision and Administration). If under GA or found necessary, can be administered rectally.

4.5 Access to Blood for Massive Haemorrhage

In cases of massive bleed refer to the Trust 'Massive Bleed Procedure' which includes the availability of the 'massive bleed box' containing the following blood products

- 4 units of red cells initially
- 4 units of fresh frozen plasma will follow (once thawed)
- 1 adult doses of platelets will be issued following collection of second box of red cells. A further dose of Platelets will be available on request based on lab or near patient testing results.

A trained Maternity Support Worker (Runner) would be instructed to collect this box from Haematology. Guidance from the British Committee for Standards in Haematology summarises the main therapeutic goals of the management of massive blood loss as maintaining:

- Hb greater than 80 g/l
- platelet count greater than 50×10^9/l
- prothrombin time (PT) less than 1.5 times normal
- activated partial thromboplastin time (APTT) less than 1.5 times normal
- fibrinogen greater than 2 g/l.

4.6 Preparation for Theatre

4.6.1 If bleeding from placental bed vessels occurs at Caesarean section (particularly after placenta praevia). The senior obstetrician should consider inserting a Rusch or Bakri catheter.

If the abdomen is not open and the maternal condition suggests blood loss greater than visible, consider intra-abdominal bleeding. Ultrasound may be helpful to look for intra-abdominal blood e.g., between liver and right kidney. However, do not allow scanning to delay laparotomy.

If laparotomy is considered, then this should always be discussed with the Consultant Obstetrician on call. The Consultant must be present in theatre if a laparotomy is performed.

Ensure the hysterectomy set and Robinson drains are available.

Consider a B-Lynch suture particularly if there is an element of uterine atony:

Other techniques which can be considered are:

- Bilateral uterine artery ligation
- Arterial embolisation
- Hysterectomy

In the case of TRAUMA or TISSUE as the causative factors, it may be agreed that the woman requires surgical intervention, and she should be prepared for theatre. This decision should be made by a senior obstetrician with both the Lead midwife and anaesthetist's involvement.

4.6.2 Vaginal Pack

If a vaginal pack is inserted

- A **blue wristband** should be applied to the patient. It is the responsibility of the person inserting the pack to ensure the wristband has been applied.
- On removal of the vaginal pack the wristband should be cut off by the person removing the pack.
- **Clearly document in the notes**
    1. The number of packs inserted (whether tied together or not if more than 1)
    2. Duration pack should be left in for
    3. That the wristband has been applied to the patient.
    4. The time and date that the vaginal pack and wristband have been removed

4.7 Subsequent Management

- All management should continue to be a multi-disciplinary approach.
- The woman should be transferred to the Maternity High dependency room (HDU) room (Anaesthetic decision) for at least 24hours once stabilised
- All women who have a significant bleed should remain on the Obstetric unit for a minimum of 48 hours after the last bleed.

4.8 Women who decline blood components/products

Clear documentation must be made in the clinical records of all women who decline blood components and/or products (refer to Women who Decline Blood Products trust guideline), during the antenatal assessment, or on first contact. An individualised management plan of care should be made and recorded in the clinical notes. Trust wide supplementary consent form for Jehovah's Witnesses should be used when seeing those patients in the anaesthetic antenatal clinic. [redacted]

4.9 Arrangements for Interventional Radiology and Cell Salvage

4.9.1 Interventional Radiology is not currently available or offered at the Dudley Group NHS Foundation Trust in emergency situations. It is available if organised with the radiologists, but only in elective cases.

4.9.2 Cell salvage - There is a dedicated cell salvage machine that is present in Obstetric Theatre 2 anaesthetic room with the necessary equipment stored in a marked cell salvage box. Staff are trained in the use of cell salvage.

This procedure should only be performed by multidisciplinary teams who develop regular experience of intraoperative blood cell salvage. All patients that are at risk of obstetric haemorrhage in elective and emergency cases should be considered for cell salvage by the Consultant Anaesthetist and Consultant Obstetrician involved in their care.

The unit of cell salvaged blood must not be kept for more than 4 hours after preparation. When Cell Salvage blood is given, there is a pale green label which needs to be completed and attached to the blood bag given. Once the blood has been given, part of the green label needs to be detached and stuck in the patient's notes.

4.10 Communication with the woman

During the process the woman and her family should be kept fully informed and given an opportunity for further discussion by both the midwifery and medical staff involved in the provision of care.

5. Postpartum Haemorrhage on the Midwifery Led Unit (MLBS)

- Call for help – pull emergency buzzer
- The midwife should rub-up a contraction and administer Syntometrine 1ml (IM)
- Deliver the placenta if possible
- Consider bimanual compression
- Insert Foley's indwelling urinary catheter

- Monitor maternal observations (BP,RR,Pulse) and document vital signs on Sunrise.
- Early suturing of perineal trauma
- Commence fluid balance and clear documentation
- If bleeding not controlled – the woman needs to be transferred to the Obstetric unit

6. Postpartum Haemorrhage at a Homebirth

- The midwife should rub-up a contraction and administer Syntometrine 1ml IM
- Deliver the placenta if possible
- Consider bimanual compression
- Insert Foley's indwelling urinary catheter
- Monitor maternal observations (BP,Temperature, Respiratory rate,Pulse) and document on sunrise.

2nd Midwife in Attendance/ Assistant/ Relative

- Dial 999 and ask for a paramedic ambulance and arrange urgent transfer to hospital
- Inform the Lead Midwife of the woman's transfer from home to the obstetric unit so that they can prepare staff, room and equipment
- Insert an intravenous cannula and commence crystalloid fluids (eg.Hartmanns or normal saline) once the paramedics arrive.
- The midwife should accompany the woman in the ambulance to hospital to maintain continuity and reassurance.
- The second midwife should arrange the safe transfer of the baby to the hospital to be with the mother.
- N.B Any woman transferred from a homebirth to hospital should be admitted to the Obstetric unit

7. Secondary Postpartum Haemorrhage

7.1 Community Management

Initially

- Observations of T.P.R. and B/P
- Check fundal height, tenderness and blood loss.
- Give IM Syntometrine 1ml if appropriate

Stabilise

- Transfer into the obstetric unit
- Inform Lead Midwife
- Arrange ambulance transfer
- Midwife to accompany woman to hospital.

7.2 Hospital Management

- Admit to the obstetric unit
- Get immediate senior obstetric review
- Obtain IV access and commence IV infusion if indicated
- Send bloods obtained, urgently.

- Group and save serum (cross match if appropriate), full blood count, Coagulation screen if indicated, Bacteriology screen if appropriate - i.e., Blood cultures, HVS
- Abdominal palpation and speculum examination should be performed. If the uterus is atonic and the cervical os open, then retained products are more likely Retained products of conception and infection must be considered in all cases.
- The management of care will be determined by clinical findings. Ultrasound of the uterus may be indicated and should be performed by a trained operator. A negative scan does not completely exclude retained products.
- Antibiotics (Co-Amoxiclav 1.2g IV TDS) after bacteriology screen should be given to all women prior to evacuation of the uterus. If the woman is stable the ERPC should be delayed until 24 hours post- commencement of antibiotics. She should complete a 5-day course of antibiotics post-op.
- If necessary, Evacuation of Retained Products of Conception can be carried out. The surgery should be performed or supervised by an experienced surgeon (Senior Obstetrician / Consultant). She should be consented for examination under anaesthetic and evacuation of retained products and the risks of infection, trauma to the uterus, bleeding and perineal breakdown and resuturing discussed and documented. Ultrasound guidance during the procedure is preferable.

8. Auditable Standards

A continuous audit is undertaken of this guideline and is included in the Maternity Audit Programme and is reviewed quarterly within the intrapartum forum. The guideline will be audited as a minimum, against the following standards.

- Evidence of agreed local definition of postpartum haemorrhage
- Evidence of documented clear lines of communication between the consultant obstetrician, consultant anaesthetist, haematologist, blood transfusion personnel and labour ward coordinator
- Description of the management of women with a postpartum haemorrhage
- Documentation of fluid balance
- Urgent access to blood, including portering arrangements
- Trigger phrase used to activate the massive haemorrhage protocol
- An individual management plan documented in the health records of women who decline blood products
- Any use of intra operative cell salvage
- Staff training

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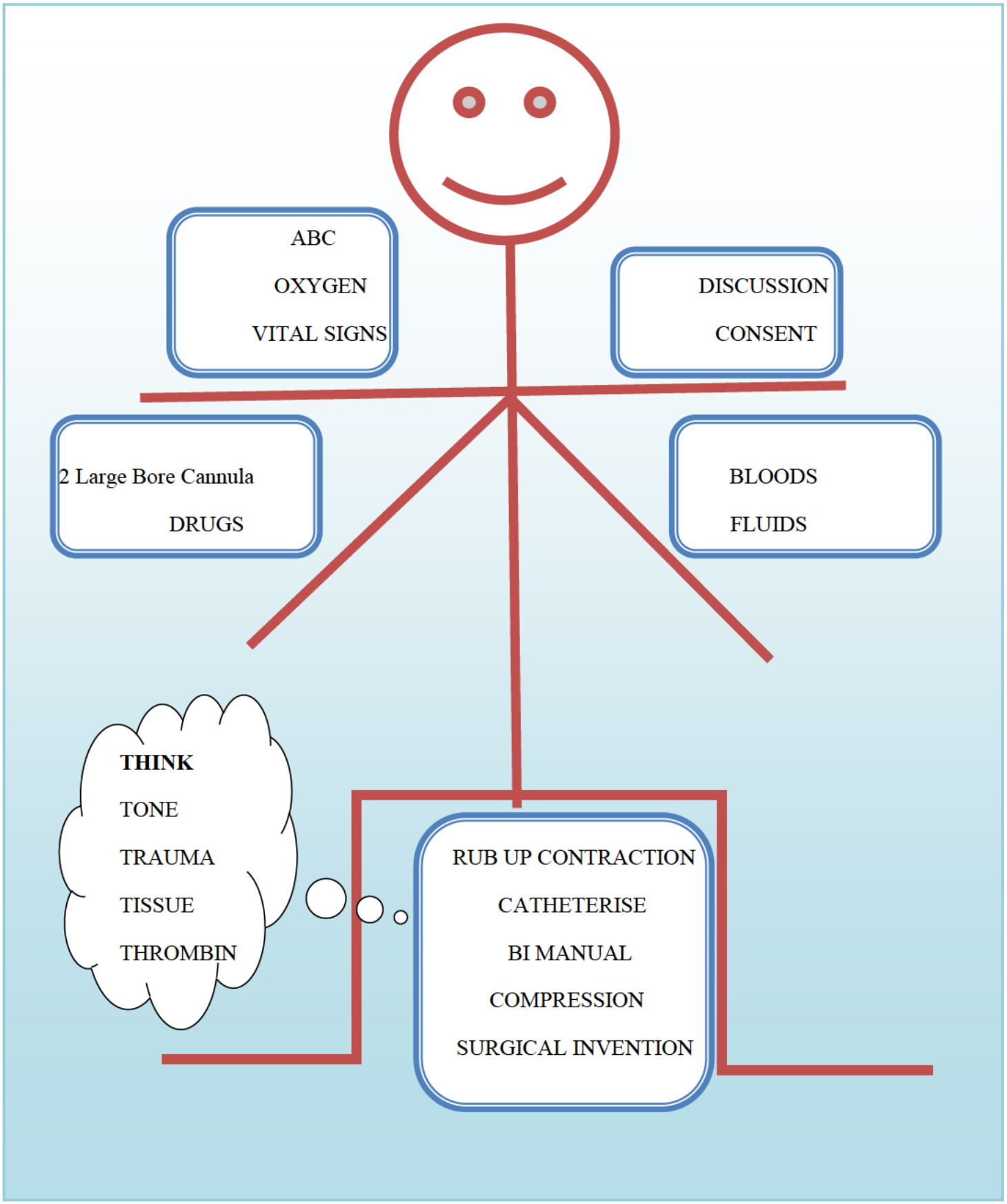

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Consultant Obstetrician informed		
BLOODS X match 6 units FBC CLOTTING BIOCHEMISTRY Khliehauier (APH)		
Fluid balance Commence		
Indwelling catheter/Urimeter		
Drugs (PPH)		
Syntometrine		
Ergometrine		
Syntocinon		
Haemabate		
Misoprostol		
Blood administration		
Haemacue result		
Transfer to theatre		
FH (APH)		
Left lateral tilt		
Time of Delivery		
Decision to delivery time		

☐ Pease tick If **MASSIVE BLEED** trigger word was used