Royal Cornwall Hospitals
NHS Trust

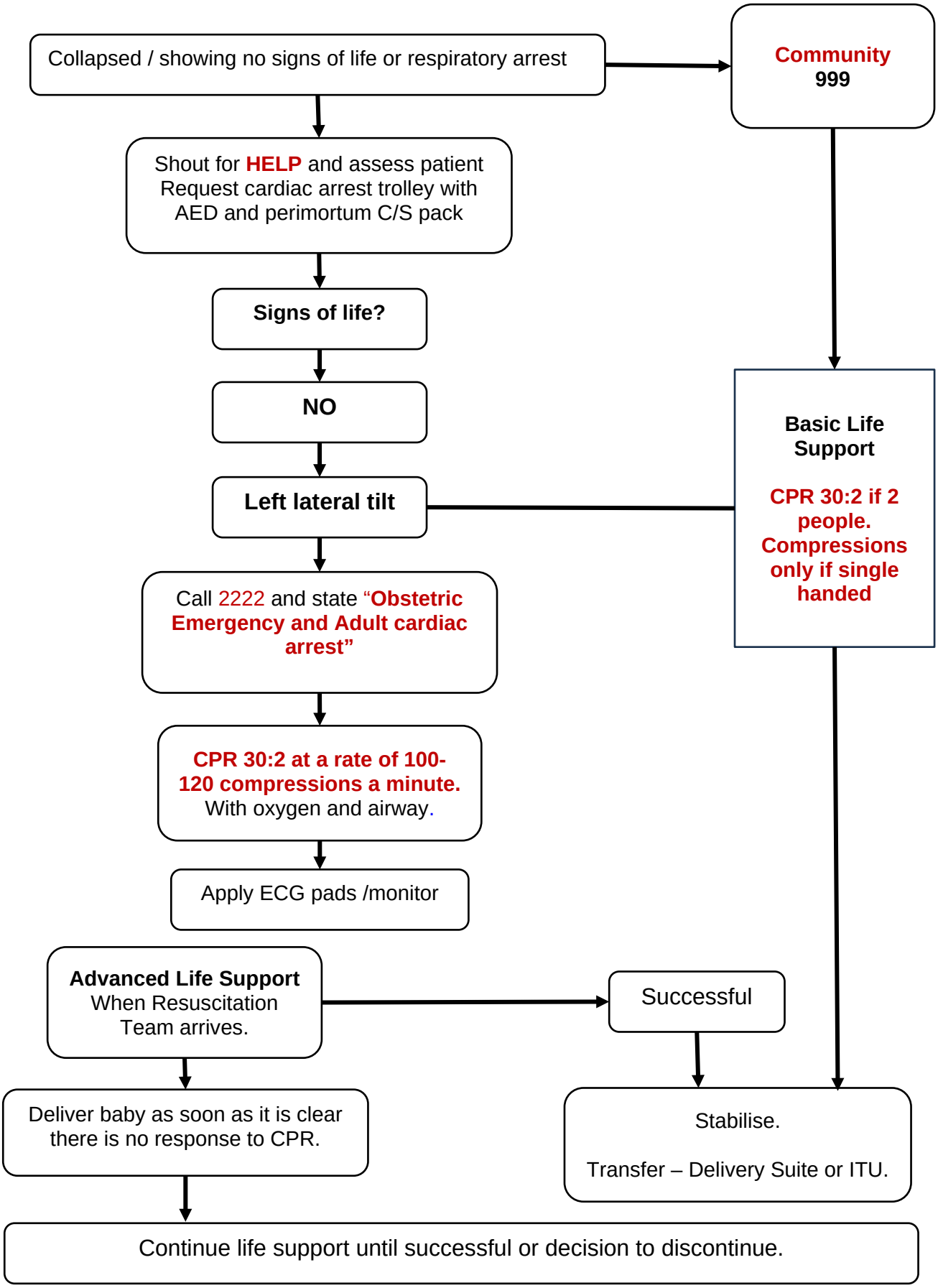
Maternal Collapse in Pregnancy and Puerperium Clinical Guideline

V4.0

April 2024

Summary

Maternal Collapse in Pregnancy and Puerperium



1. Aim/Purpose of this Guideline

1.1. This document guides obstetricians, obstetric anaesthetists, midwives, nurses and maternity support workers (MSW) on the recognition and management of maternal collapse in both the acute and community settings.

1.2. **This guideline to be read in consideration with the following guidelines**

- Venous Thromboembolism (VTE) in Pregnancy, Labour and Postnatal period –Diagnosis, Referral, Treatment and Ongoing Management Clinical Guideline (cornwall.nhs.uk)
- Eclampsia and Severe Pre- eclampsia Clinical Guideline (cornwall.nhs.uk)
- Vaginal Birth After Caesarean Section (VBAC) (cornwall.nhs.uk)
- Epidural Analgesia for Labour Pain Clinical Guideline (cornwall.nhs.uk)
- Caesarean Section (CS) Clinical Guideline (cornwall.nhs.uk)
- Obstetric Haemorrhage Clinical Guideline (cornwall.nhs.uk)
- Modified Early Obstetric Warning Score (MEOWS) in Detecting the Seriously Ill and Deteriorating Woman Clinical Guideline V4.0 (cornwall.nhs.uk)
- Sepsis: Management of Maternal Sepsis Clinical Guideline (cornwall.nhs.uk)

1.3. This guideline makes recommendations for women and people who are pregnant. For simplicity of language the guideline uses the term women throughout, but this should be taken to also include people who do not identify as women but who are pregnant, in labour and in the postnatal period. When discussing with a person who does not identify as a woman, please ask them their preferred pronouns, and then ensure this is clearly documented in their notes to inform all health care professionals.

1.4. This version supersedes any previous versions of this document.

Data Protection Act 2018 (UK General Data Protection Regulation – GDPR) Legislation.

The Trust has a duty under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed, and documented. We cannot rely on opt out, it must be opt in.

Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 please see the Information Use Framework Policy or contact the Information Governance Team.

Royal Cornwall Hospital Trust rch-tr.infogov@nhs.net

2. The Guidance

2.1. Incidence

This is a rare event that presents variably as a combination of apnoea, cyanosis and hypotension possibly followed by convulsions and/or cardiac arrest.

The incidence of maternal collapse lies between 0.14 and 6/1000 (14 and 600/100 000) births. As it is rare, with potentially devastating consequences, it is essential that caregivers are skilled in initial effective resuscitation techniques and are able to investigate and diagnose the cause of the collapse to allow appropriate, directed continuing management. It should be noted that vasovagal attacks and the post-ictal state following an epileptic seizure are the most common causes of ‘maternal collapse’ and are not covered by this guideline.

2.2. Identification

A Maternity Early Obstetric Warning Scoring system (MEOWS) should be used for all women; this includes ante natal, intrapartum, and postpartum observations. This is to allow early recognition of the woman who is deteriorating and becoming critically ill.

In some cases, maternal collapse occurs with no prior warning, although there may be existing risk factors that make this more likely. Antenatal care for women with significant medical conditions at risk of maternal collapse should include multidisciplinary team input with a pregnancy and delivery management plan in place.

2.3. Causes

The common reversible causes of collapse in any woman can be remembered using the well-known ‘aide memoire’ employed by the Resuscitation Council (UK) of the 4 T’s and the 4 H’s.

- **T**hromboembolism (include Amniotic fluid embolism/Anaphylactoid Syndrome of pregnancy).
- **T**oxicity (remember spinal and local anaesthetics; magnesium).
- **T**ension pneumothorax.
- **T**amponade (cardiac).
- **H**ypovolaemia.
- **H**ypoxia.
- **H**ypo/hyperkalaemia and other electrolyte disturbances.
- **H**ypothermia.
- Eclampsia, intracranial haemorrhage, and sepsis.

Although consideration should be given to the cause of the collapse throughout the resuscitation process, this should never delay the initiation or continuation of resuscitation. The immediate resuscitative management of all conditions is the same for any woman who collapses before, during, or after labour.

Hypovolaemia due to bleeding is the most common cause of a maternal collapse, but shock can occur secondary to a high spinal block.

2.4. Identification

In the event of a collapsed woman - Immediate Emergency Resuscitative Management:

2.4.1. Call for help via emergency bell.

2.4.2. Call 2222 Request 'Obstetric Emergency and Adult Cardiac Arrest Team for maternal collapse'. State location. If neonatal team are required call 2222 and request 'Neonatal Emergency'.

2.4.3. Commence Basic Life support (A.B.C.). In trauma consider c-spine injury.

2.4.4. Give oxygen via facial mask at 15 L/Min with reservoir mask and ensure you fill the reservoir bag.

2.4.5. Manual uterine displacement (pregnant women only).

2.4.6. Obtain venous access (2 large bore cannulae), consider intra osseous (IO) or central venous access.

2.4.7. Initiate fluid resuscitation to correct shock.

2.4.8. Institute Advanced Life Support (intubation / ventilation / vasoactive medications) for:

- persistent hypoxia.
- hypotension or
- reduced level of consciousness.

2.4.9. Start modified early obstetric warning system chart (MEOWS).

2.5. Initiate Investigations to Establish a Diagnosis:

- Review maternal medical history to identify possible cause.
- MEOWS observations.
- Obtain venous blood samples for tests appropriate to the clinical situation including blood glucose (available on venous blood gas).
- Arterial blood gases if indicated.
- ECG.

N.B Inform the Obstetric and Anaesthetic Consultants on call at an early stage. For ANY maternal collapse Obstetric Consultant must attend in person.

2.6. Maternal cardiac arrest

To achieve a perimortem caesarean section within 5 minutes it is essential the obstetric registrar is included in the cardiac arrest call team. Stating ‘maternal cardiac arrest’ will ensure the obstetrician is included in the emergency call.

2.7. Perimortem section

As soon as it is clear that resuscitation efforts have been deemed unsuccessful delivery should be undertaken to assist maternal resuscitation if the woman is over 20 weeks’ gestation.

This should be achieved within 3 minutes to achieve the best outcome for the woman.

Preparations for birth are therefore required the moment that a cardiac arrest is declared.

The perimortem section should be performed where resuscitation is taking place and not delayed by moving the woman.

Perimortem section is not performed for the benefit of the baby, but it may survive and so a neonatologist should be called at viable gestations. CPR should be continued throughout the procedure.

If resuscitation is successful, the abdomen should be packed, and the mother moved to an operating theatre for closure.

2.8. Maternal Collapse in the community setting

2.8.1. During intrapartum care a MEOWS chart is used as per the intrapartum guideline.

2.8.2.

2.9. Local arrangements for Ambulance Transfer

- The midwife should phone 999 or give instructions for someone else to phone 999 for an ambulance; request a Paramedic and state 'Emergency' maternity transfer. Please refer to SWASFT maternal ambulance transfer (Appendix 3).
- This is a category 1 call.
- Ask for confirmation that the call has been made and the estimated time of arrival (ETA) taking a reference number.
- If calling from the Isles of Scilly, the midwife should phone 999 and request transfer by the Search and Rescue Helicopter (The Isles of Scilly GP should also be informed).
- The Isles of Scilly Midwife or GP will transfer the patient to the mainland and stay with the patient until she has handed over the care to a member of staff on Delivery Suite.
- Continue to follow the Maternal Transfer by Ambulance Clinical Guideline (cornwall.nhs.uk).

2.10. Specific conditions to consider in differential diagnosis

2.10.1. Toxicity

2.10.1.1. Magnesium toxicity- antidote is 10mls of 10% calcium gluconate given by slow IV injection**.**

2.10.1.2. Local anaesthetic toxicity (Bupivicaine). Give Intralipid 20% 1.5ml/kg over 1min (100ml for 70kg woman) followed by an IV infusion of 15mls/kg/hr (400ml over 20mins). The bolus injection can be repeated twice at 5-minute intervals. See The Association of Anaesthetists (AAGBI) quick reference handbook 3-10. Advanced life support and CPR should be continued throughout administration of intralipid until an adequate circulation is restored. All cases of lipid rescue should be reported to the Lipid rescue site (www.lipidrescue.org).

2.11. Amniotic Fluid Embolism

This is a rare obstetric event with high rates of maternal morbidity and mortality.

2.11.1. Risk Factors

- Multiparity or very fast labour.
- Abruption.
- Intrauterine fetal demise.
- Oxytocin hyper stimulation or prostaglandin induction of labour.

2.11.2. Clinical Presentation

- Respiratory distress, wheeze, hypoxia with cyanosis, may have a cough and frothy sputum.
- Restlessness, distress, panic, nausea, and vomiting.
- Feeling cold, light headedness, a feeling of pins and needles in the fingers.
- Seizures in up to 30% of patients.
- Unexpected cardiovascular collapse.
- Rapid progression to DIC predominantly manifested by uterine haemorrhage, coma, and death.

2.11.3. Specific Tests

- Fetal squames, fat, mucin or keratin: Send a clotted sample to Histology and ask for cytokeratin staining on clot to be performed.

2.11.4. Remedial actions

- DIC: Administer fresh frozen plasma and platelets as indicated by ROTEM, coagulation and liaise with haematology.
- Supportive care with MDT input.
- Liaise with ICU consultant and outreach team.

2.12. Cardiovascular Events

There should be a low threshold for further investigating pregnant or recently delivered women with:

- Severe chest pain.
- Chest pain that radiates to the neck, jaw, back or epigastrum.
- Chest pain associated with other features such as agitation, vomiting.

  Or breathlessness, tachycardia, tachypnoea, or orthopnoea.

NB: The presence of a wheeze may not necessarily indicate asthma and may be a feature of heart failure and management of suspected cardiovascular events will be directed by a cardiology specialist.

2.13. Uterine Inversion

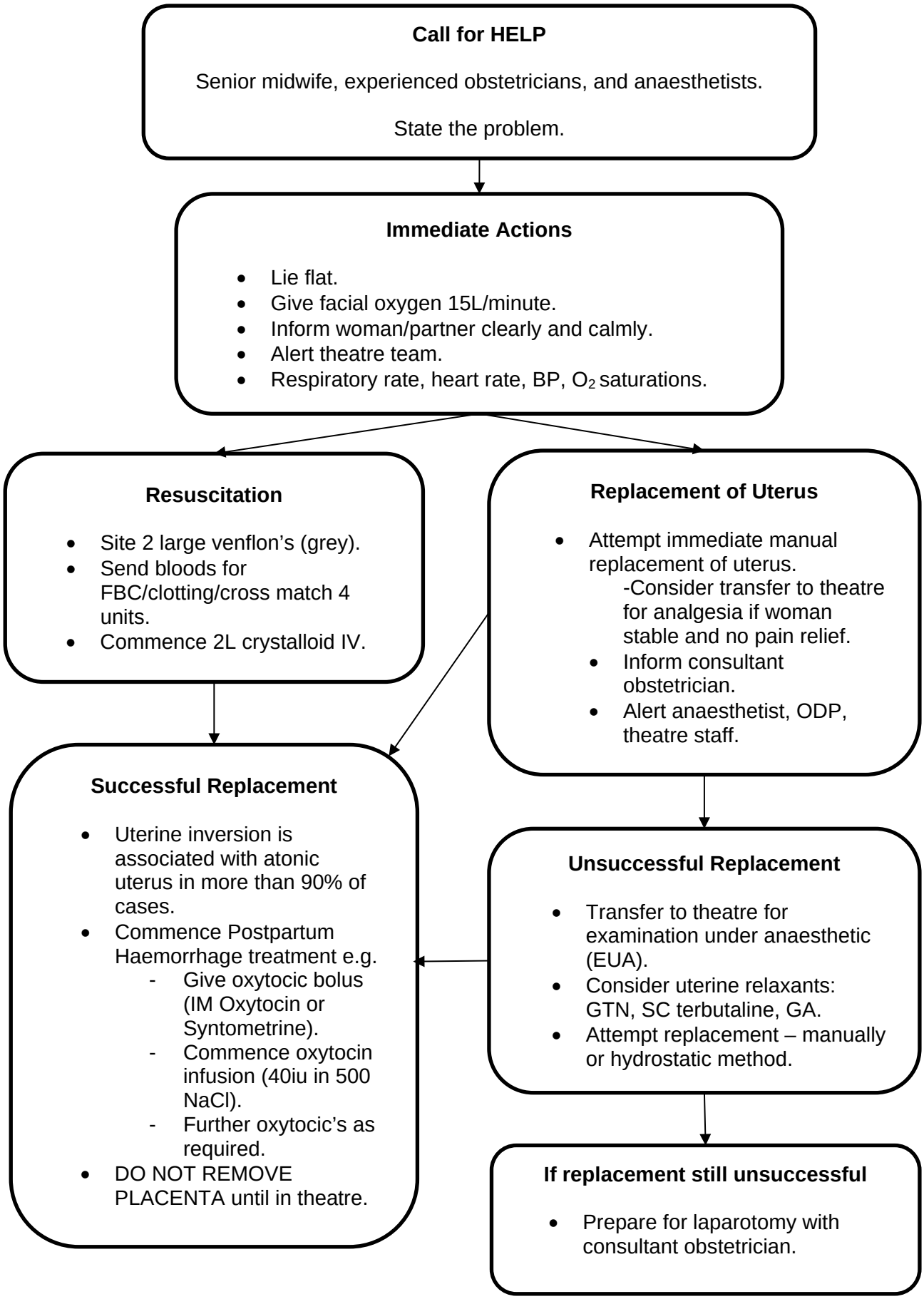
Uterine inversion is uncommon and may result from mismanagement of the third stage occurring when traction on the cord is attempted before uterine contraction and placental separation are established.

2.13.1. Presentation

- Severe lower abdominal pain

- Cardiovascular collapse (vagal nerve stimulation may induce bradycardia)
- Haemorrhage
- Shock - the degree of shock is usually out of proportion to the amount of blood lost and may be associated with a low pulse rate and hypotension.

Acute Uterine Inversion Management Algorithm



2.14. Uterine Rupture

This most commonly occurs in women with a uterine scar from previous LSCS or following uterine surgery such as myomectomy. Most uterine ruptures will occur during labour but can be associated with instrumental delivery or manual removal of placenta. Rarely may it present with antenatal collapse.

2.14.1. Presenting symptoms and signs:

- Fetal heart rate abnormalities, typically starting with a fetal tachycardia, reduced variability followed by deep late decelerations.
- Maternal tachycardia and hypotension.
- Inco-ordinate uterine activity or slow progress in labour.
- PV bleeding.
- Haematuria.
- Presenting part rising out of the pelvis.
- Severe abdominal pain (may be masked somewhat by epidural anaesthesia or break through a previously working epidural).

2.10.2. Actions

- Seek Senior Obstetric and Anaesthetic opinion (Registrars and on-call Consultants).
- Stop Oxytocin infusion (if running).

2.10.3. Management

- MEOWS monitoring and resuscitation.
- Request Obstetric haemorrhage pack.
- Proceed to caesarean section (or laparotomy) after adequate resuscitation.
- Deliver baby by extending rupture if necessary.
- Repair uterus if possible and ensure bladder is not damaged.
- Follow protocol for massive obstetric haemorrhage (Obstetric Haemorrhage).
- Antibiotics.
- Consider ICU opinion depending on maternal status (to be discussed between Obstetric Consultant and Obstetric Consultant Anaesthetist).

2.15. Documentation

Accurate documentation is essential. All staff involved in the provision of care should provide written: -

- Documentation of actions undertaken within the maternity notes.
- Documentation of the staff in attendance and the time they arrived.
- Documentation of involvement of clinicians outside the maternity service.

- Admit under Enhanced Care (MECU) on electronic records and update as appropriate in line with Modified Early Obstetric Warning Score (MEOWS) in Detecting the Seriously Ill and Deteriorating Woman Clinical Guideline V4.0 (cornwall.nhs.uk)

2.16. Incident reporting

Any incident of maternal collapse, whatever the outcome, will be reviewed through the Patient Safety Meeting. All maternal deaths should be reported to MBRRACE and perinatal deaths to PMRT.

2.17. Compliance monitoring

Attendance at the PROMPT training will be monitored monthly and an action plan developed and monitored if any deficiencies are identified.

2.18. Roles and responsibilities

2.18.1. Maternity Support Worker (MSW)

- Supporting the team within the remit of their job description.
- To support the wider MDT, birthing person, and the birthing partner.

2.18.2. Midwife

- Commence BLS if required. Arrange category 1 ambulance transfer in community setting.
- To assess additional parameters of MEOWS and calculate the total score or undertake full MEOWS observations and score.
- To escalate within the required timeframes following the MEOWS triggers table.
- To ensure the escalation is followed appropriately and escalate further (to Outreach/ICU teams) if unable to obtain senior review and/or clear care plan within the 30 min timescale or if woman is deteriorating rapidly.

2.18.3. Obstetric team

- To respond to the escalation as per MEOWS triggers table.

- Doctors called to review patients with a MEOWS trigger should ensure that there is a clear patient review and time limited management plan in the medical notes and discussed with the midwife caring for the patient.

- If the physiological parameters are accepted by the medical staff as appropriate/ normal / acceptable for that individual patient, then this should be clearly indicated in the midwifery and medical notes.

- If women deteriorate and become severely ill to coordinate involvement from the multidisciplinary team if required (Anesthetic Team, Outreach etc.).

- Regular Consultant involvement is needed in care of women who deteriorate and become severely ill.

2.18.4. Anaesthetic team

- All severely ill women should be reviewed by multidisciplinary team involving the Anesthetists.

- There should be a named Anaesthetic Consultant or autonomously practicing anaesthetists for all critically unwell patients on delivery suite.

- It is the responsibility of the named anaesthetist to hand over details of the patients care and progress when shifts change.

- The named Anaesthetist will liaise with the ITU/HDU team if transfer is necessary.

- There remains the expectation that obstetric MDT management, including anaesthetic care, continues on a daily basis for patients in ITU, and as requested. (NEW 2024 ACSA/GPAS standard).

- To document care plans in maternal notes with the planned review times.

3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	Audit of adherence to guideline.
Lead	Audit midwife and Maternity Forum.
Tool	Audit midwife and Documentation Audit.
Frequency	1% of notes during three-year period or more frequent if need identified in Patient Safety management.

Information Category	Detail of process and methodology for monitoring compliance
Reporting arrangements	Report back to maternity forum.
Acting on recommendations and Lead(s)	Action plan will be developed and leads appointment, monitoring of action plan at the forum.
Change in practice and lessons to be shared	As per action plan.

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the Equality Diversity And Inclusion Policy or the Equality and Diversity website.

4.2. Equality Impact Assessment

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

Appendix 1. Governance Information

Information Category	Detailed Information
Document Title:	Maternal Collapse in Pregnancy and Puerperium, Clinical Guideline V4.0
This document replaces (exact title of previous version):	Maternal Collapse In Pregnancy And Puerperium, Clinical Guideline V3.0
Date Issued/Approved:	March 2024
Date Valid From:	April 2024
Date Valid To:	April 2027
Directorate / Department responsible (author/owner):	Katharine Sprigge, Obstetric Anaesthetist.
Contact details:	01872 252879
Brief summary of contents:	Guideline for the care of maternal collapse in pregnancy.
Suggested Keywords:	Maternal, collapse.
Target Audience:	**RCHT:** Yes **CFT:** No **CIOS ICB:** No
Executive Director responsible for Policy:	Chief Medical Officer
Approval route for consultation and ratification:	Maternity Guidelines Group
Manager confirming approval processes:	Caroline Chappell
Name of Governance Lead confirming consultation and ratification:	Tamara Thrilby
Links to key external standards:	CNST
Related Documents:	• Resuscitation Council (UK). Resuscitation Guidelines • CEMACE March 2011.The 8th Report 2006-2008. Reviewing maternal deaths to make motherhood safer • UKOSS 2017

Information Category	Detailed Information
	• PROMPT 2022/23
Training Need Identified?	No
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet and Intranet
Document Library Folder/Sub Folder:	Clinical / Midwifery and Obstetrics

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
January 2017	1.0	See additions (new 2017) in text	Rob Holmes, Consultant Obs and Gynae
September 2017	1.1	Addition of collapse in the community setting. Ambulance transfer agreement	Trudie Roberts Maternity Matron Community
March 2018	2.0	Updated with CQC recommendations, see new 2018 in body of text	Maternity Guidelines group and Helen Odell, Safety and quality Improvement lead.
March 2021	3.0	Full version update	Sophie Haynes, Obstetric Consultant
March 2024	4.0	Full version update	Katharine Sprigge, Obstetric Anaesthetist.

All or part of this document can be released under the Freedom of Information Act 2000.

All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus 6 years.

This document is only valid on the day of printing.

Controlled Document.

This document has been created following the Royal Cornwall Hospitals NHS Trust The Policy on Policies (Development and Management of Knowledge Procedural and Web Documents Policy). It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Equality Impact Assessment

Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity, and Inclusion Team rcht.inclusion@nhs.net

Information Category	Detailed Information
Name of the strategy / policy / proposal / service function to be assessed:	Maternal Collapse In Pregnancy And Puerperium, Clinical Guideline V4.0
Directorate and service area:	Obstetrics and Gynaecology
Is this a new or existing Policy?	Existing
Name of individual completing EIA (Should be completed by an individual with a good understanding of the Service/Policy):	Catherine Wills, Maternity Guidelines Midwife
Contact details:	01872 255019

Information Category	Detailed Information
1. Policy Aim - Who is the Policy aimed at? (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed)	To provide guidance to obstetricians and midwives on the management of maternal collapse in pregnancy.
2. Policy Objectives	To ensure evidence-based advice and management of a pregnant woman declining blood products.
3. Policy Intended Outcomes	Safe outcome for women and baby.
4. How will you measure each outcome?	Compliance monitoring.
5. Who is intended to benefit from the policy?	Women and newborns.

Information Category	Detailed Information
6a. Who did you consult with? (Please select Yes or No for each category)	• Workforce: Yes • Patients/ visitors: No • Local groups/ system partners: No • External organisations: Yes • Other: No
6b. Please list the individuals/groups who have been consulted about this policy.	**Please record specific names of individuals/ groups:** Maternity Guidelines Group.
6c. What was the outcome of the consultation?	Guideline Agreed.
6d. Have you used any of the following to assist your assessment?	**National or local statistics, audits, activity reports, process maps, complaints, staff, or patient surveys:** No.

7. The Impact

Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

Protected Characteristic	(Yes or No)	Rationale
Age	No	
Sex (male or female)	No	
Gender reassignment (Transgender, non-binary, gender fluid etc.)	No	
Race	No	
Disability (e.g. physical or cognitive impairment, mental health, long term conditions etc.)	No	
Religion or belief	No	
Marriage and civil partnership	No	

Protected Characteristic	(Yes or No)	Rationale
Pregnancy and maternity	No	
Sexual orientation (e.g. gay, straight, bisexual, lesbian etc.)	No	

A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment: Catherine Wills, Maternity Guidelines Midwife.

If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:
Section 2. Full Equality Analysis

Appendix 3. Obstetric Cardiac Arrest – [Maternal Cardiac Arrest QRH OAA V1.1.pdf (resus.org.uk)]

Obstetric Cardiac Arrest

Resuscitation Council UK | MBRRACE-UK

Alterations in maternal physiology and exacerbations of pregnancy related pathologies must be considered. Priorities include calling the appropriate team members, relieving aortocaval compression, effective cardiopulmonary resuscitation (CPR), consideration of causes and performing a timely emergency hysterotomy (perimortem caesarean section) when ≥ 20 weeks.

START

1. **Confirm cardiac arrest and call for help. Declare 'Obstetric cardiac arrest'**
   - Team for mother and team for neonate if > 20 weeks
2. **Lie flat, apply manual uterine displacement to the left**
   - Or left lateral tilt (from head to toe at an angle of 15–30° on a firm surface)
3. **Commence CPR and request cardiac arrest trolley**
   - Standard CPR ratios and hand position apply
   - **Evaluate potential causes (Box A)**
4. **Identify team leader, allocate roles including scribe**
   - Note time
5. **Apply defibrillation pads and check cardiac rhythm** (defibrillation is safe in pregnancy and no changes to standard shock energies are required))
   - if VF / pulseless VT ➔ defibrillation and first adrenaline and amiodarone after 3rd shock
   - If PEA / asystole ➔ resume CPR and give first adrenaline immediately
   - Check rhythm and pulse every 2 minutes
   - Repeat adrenaline every 3-5 minutes
6. **Maintain airway and ventilation**
   - Give 100% oxygen using bag-valve-mask device
   - Insert supraglottic airway with drain port –*or*– tracheal tube if trained to do so (intubation may be difficult, and airway pressures may be higher)
   - Apply waveform capnography monitoring to airway
   - If expired CO_2 is absent, presume oesophageal intubation until absolutely excluded
7. **Circulation**
   - I.V. access above the diaphragm, if fails or impossible use upper limb intraosseous (IO)
   - See **Box B** for reminders about drugs
   - Consider extracorporeal CPR (ECPR) if available
8. **Emergency hysterotomy (perimortem caesarean section)**
   - Perform if ≥ 20 weeks gestation, to improve maternal outcome
   - Perform immediately if maternal fatal injuries or prolonged pre-hospital arrest
   - Perform by 5 minutes if no return of spontaneous circulation
9. **Post resuscitation from haemorrhage - activate Massive Haemorrhage Protocol**
   Consider uterotonic drugs, fibrinogen and tranexamic acid
   Uterine tamponage / sutures, aortic compression, hysterectomy

Version 1.1

Box A: POTENTIAL CAUSES *4H's and 4T's* (specific to obstetrics)	
Hypoxia	Respiratory – Pulmonary embolus (PE), Failed intubation, aspiration Heart failure Anaphylaxis Eclampsia / PET – pulmonary oedema, seizure
Hypovolaemia	Haemorrhage – obstetric (remember concealed), abnormal placentation, uterine rupture, atony, splenic artery/hepatic rupture, aneurysm rupture Cardiac – arrhythmia, myocardial infarction (MI) Distributive – sepsis, high regional block, anaphylaxis
Hypo/hyperkalaemia	Also consider blood sugar, sodium, calcium and magnesium levels
Hypothermia	
Tamponade	Aortic dissection, peripartum cardiomyopathy, trauma
Thrombosis	Amniotic fluid embolus, PE, MI, air embolism
Toxins	Local anaesthetic, magnesium, illicit drugs
Tension pneumothorax	Entonox in pre-existing pneumothorax, trauma

Box B: IV DRUGS FOR USE DURING CARDIAC ARREST	
Fluids	**500 mL IV** crystalloid bolus
Adrenaline	**1 mg IV** every 3-5 minutes in non-shockable or after 3rd shock
Amiodarone	**300 mg IV** after 3rd shock
Atropine	**0.5-1 mg IV** up to 3 mg if vagal tone likely cause
Calcium chloride	**10% 10 mL** IV for Mg overdose, low calcium or hyperkalaemia
Magnesium	**2 g IV** for polymorphic VT / hypomagnesaemia, **4 g IV** for eclampsia
Thrombolysis/PCI	For suspected massive pulmonary embolus / MI
Tranexamic acid	**1 g** if haemorrhage
Intralipid	**1.5 mL kg^{-1} IV** bolus and **15 mL kg^{-1} hr^{-1} IV** infusion

Obstetric Anaesthetists' Association — Promoting the highest standards of anaesthetic practice in the care of mother and baby

GUIDELINES 2021