HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Emergency Room Obstetrics, Labour and delivery		
Document:	Multidisciplinary Policy and Procedure		
Title:	Maternal Collapse		
Applies To:	All Obstetrics and Gynecology Staff, Nursing Staff		
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1. PURPOSE:

1.1 **Maternal collapse** is rare but a life-threatening event with wide ranging aetiology, The outcome primarily for the mother but also for the fetus, depends on prompt and effective resuscitation. The purpose of these guidelines is to discuss the identification of women at increased risk of maternal collapse, management of collapse and maternal and neonatal outcomes.

2. DEFINITIONS:

2.1 **Maternal collapse** is defined as an acute event involving the cardio-respiratory system and / or brain resulting in a reduced absent conscious level (and potentially death) at any stage in pregnancy and up to six weeks after delivery.

3. POLICY:

3.1. This policy will serve as a guideline for causes and management of Maternal Collapse.

3.2. **Cause Of Maternal Collapse:**

	Reversible Cause	Cause In Pregnancy
4H's	Hypovolaemia	Bleeding (maybe concealed (obstetric/other) or relative hypovolaemia of dense spinal block, septic or neurogenic shock.
	Hypoxia	Pregnant patient can become hypoxic more quickly. Cardiac Events: peri-partum cardiomyopathy, myocardial infarction, aortic dissection large vessel aneurysms.
	Hypo/Hyperkalaemia and other electrolyte disturbances.	No more likely.
	Hypothermia	No more likely.
4T's	Thromboembolism	Amniotic fluid embolus, pulmonary embolus, air embolus myocardial infarction.
	Toxicity	Local anaesthetic, magnesium, other.
	Tension Pneumothorax	Following trauma/Suicide attempt.
	Tamponade (Cardiac)	Following trauma/Suicide attempt.
	Eclampsia And Pre-eclampsia	Intracranial Haemorrhage

4. PROCEDURE

4.1. MANAGEMENT:

4.1.1 General Considerations

4.1.2 Resuscitation of the patient should be started while considering the differential diagnosis.

4.1.3 Treatment involves supporting the respiratory and cardiovascular system and correction of clotting abnormalities as required,

4.1.4 As chest compressions are not as effective after 20 weeks of gestation, there should be early recourse to delivery of the fetus and placenta to improve maternal outcome if CPR is not affective.

4.1.5 Senior experienced staff should be involved as early as possible including obstetricians, anaesthetist, physician and midwifes, neonatologist, paediatrician, haematologist and Intensivist, depending on the nature of the suspected diagnosis.

4.1.6 The most senior person should take charge and coordinate the resuscitation – delegate tasks and assign rules and responsibilities to other individuals within the team.

4.1.7 Recruit as many people as necessary to assist during resuscitation e.g to record events, drugs given, regularly call out time elapsed, make urgent phone calls, organise transport of laboratory samples, bring blood (Products) to the site of resuscitation and addition staff to support family and significant others.

4.1.8 A perimortem caesarean section tray should be available on the resuscitation trolley in all areas where maternal collapse may occur including the accident and emergency department.

4.2 INITIAL MANAGEMENT FLOW CHART BASIC LIFE SUPPORT **(see appendix 7.1)**

4.2.1 Do Primary Obstetric Survey:

4.2.1 See responsiveness of a woman

4.2.1.1 Note pulse rate and rhythm

4.2.1.2 Auscultate for cardiac murmur, breathing sounds.

4.2.1.3 See for acute abdomen, look for uterine tenderness.

4.2.1.4 Check for fetal viability

4.2.1.5 Assess for need of laparotomy or delivery.

4.2.1.6 Check for any vaginal bleeding or inverted uterus.

4.2.2 Revaluate and continue to support the airway breathing and circulation of the women and consider the need for intensive care support.

4.2.3 Flowchart: Advanced Life Support **(see appendix 7.1)**

4.2.4 Initial doses of drugs to be considered during cardiac arrest:

Feature	Drug to be considered
Cardiac Arrest	1 mg Adrenaline (Epineprine) IV For shockable rhythms give after second shock then every se For non- shockable rhythms give immediately and then every
VF/ VT	300 mg Amiodarone IV after 3rd Shock.
Opiate Overdose	400 – 800 micrograms Naloxone IV.
Magnesium Toxicity	10 ml of 10% Calcium Gluconate IV
Local Anaesthetic Toxicity	1.5 ml / kg 20% Lipid Emulsion (e.g Intralipid, Clinoleic) IV.

4.2.5 Fluid Resuscitation

4.2.5.1 Two 16 gauge cannula

4.2.5.2 Urgent blood for CBP

4.2.5.3 Extended coagulation studies

4.2.5.4 Cross match 6 units of blood and FFPs

4.2.5.5 Arterial blood gases

4.2.5.6 Blood Glucose Level

4.2.5.7 Treat hypotension with warmed crystalloid and blood products as required.

4.2.6 Keep the patient warm as hypothermia is one of the main dangers in contributing to acidosis, coagulopathy and infection and infection. Continue resuscitation effort until a decision is taken regarding need for emergency caesarean section or perimortem caesarean section.

4.3 Perimortem Caesarian Section

4.3.1 If there is no response to correctly performed cardiopulmonary resuscitation (CPR) within 4 minutes of maternal collapse, delivery should be undertaken to assist maternal resuscitation. This should be achieved within 5 minutes of the collapse. Perimortem caesarean section should not be delayed by moving the woman – it should be performed by the obstetrician where resuscitation is taking place as it is primarily in the interest of maternal, not fetal survival.

4.3.1.1 Continue CPR during perimortem caesarean section and afterwards, to improve the chance of a successful neonatal and maternal outcome.

4.3.1.2 Limited equipment is required to facilitate the delivery of the baby (e.g a surgical scalpel, Mayo scissors and forceps). Sterile preparation and drapers are unlikely to improve survival.

4.3.1.3 Maternity units should consider having a prepared perimortem caesarean section kit available at all times (e.g. A surgical scalpel, Mayo scissors and forceps).

4.3.1.4 The operator should use the incision that will facilitate the most rapid access.

4.3.1.5 Anaesthetics / Intensivist support to protect airway, supervise CPR and help to determine the underlying cause.

4.3.2 Once the uterus is empty, if there is ongoing intractable bleeding (coagulopathy), consider aortic compression as a temporary measure to maintain cardiac output. to perform aortic compression, the experienced operators fist is placed over the umbilicus and pushed downward toward the spine.

4.3.2.1 Management of other causes of maternal collapse:

4.3.2.1.1 In the case of maternal collapse secondary to antepartum haemorrhage, the fetus and the placenta should be delivered promptly to allow control of haemorrhage.

4.3.2.1.2 In the case of massive placental abruption, caesarean section may be indicated even if the fetus is dead to allow rapid control of the haemorrhage.

4.3.2.1.3 Management of pulmonary embolism see from guideline……

4.3.2.1.4 The management of pulmonary embolism is supportive rather than specific.

4.3.2.1.5 The management of amniotic fluid embolism is supportive rather than specific.

4.3.2.1.6 Coagulopathy needs early, aggressive treatment, including aggressive use of fresh frozen plasma.

4.3.2.1.7 After successful resuscitation, cardiac cases should be managed by an expert cardiology team.

4.3.2.1.8 Septic Shock should be managed in accordance with the sepsis guidelines.

4.3.2.1.9 Drug overdose/toxicity should be treated as given in the table of drug in this guideline.

4.3.2.1.10 Eclampsia should be managed according to eclampsia guidelines….

4.3.2111 In case of anaphylaxis all potential causative agents should be removed and give 500 micrograms (0.5ml) of 1: 1000 Adrenaline intramuscular.

4.3.3 Documentation:

4.3.3.1 Accurate documentation in all cases of maternal collapse, whether or not resuscitation is successful, is essential. All cases of maternal death should be reported.

4.3.3.2 Responsibilities: OB/Gyne Resident, OB/Gyne Specialist, OB/Gyne Consultant, Consultant Anaesthetist, Pediatrician, Haematologist, Intensivist, Physician, Nurse or Midwife incharge.

Equipment and forms: Resuscitation Kit, Perimortem Caesarean section tray.

5. MATERIALS AND EQUIPMENT:

5.1 Resuscitation Kit
5.2 Perimortem Caesarean Section Tray
5.3 Consultation Request Form
5.4 Physician Order Form

6. RESPONSIBILITIES:

6.1 All Physician (Consultant, Specialist and Residents) in Obstetric Gynaecology Department.
6.2 Anaesthetist
63 Paediatrician/ Neonatologist, Internal medicine, Intensivist, Physician
6.4 All Nurses/Midwifes

7. APPENDICES:

6.1 N/A

8. REFERENCES:

7.1 RCOG Maternal Collapse in pregnancy and the puerperium, green top Guidelines no 56 January 2011.
7.2 South Australian perineal practice guidelines, clinical guidelines, collapse (Maternal) March 2017.

9. APPROVALS:

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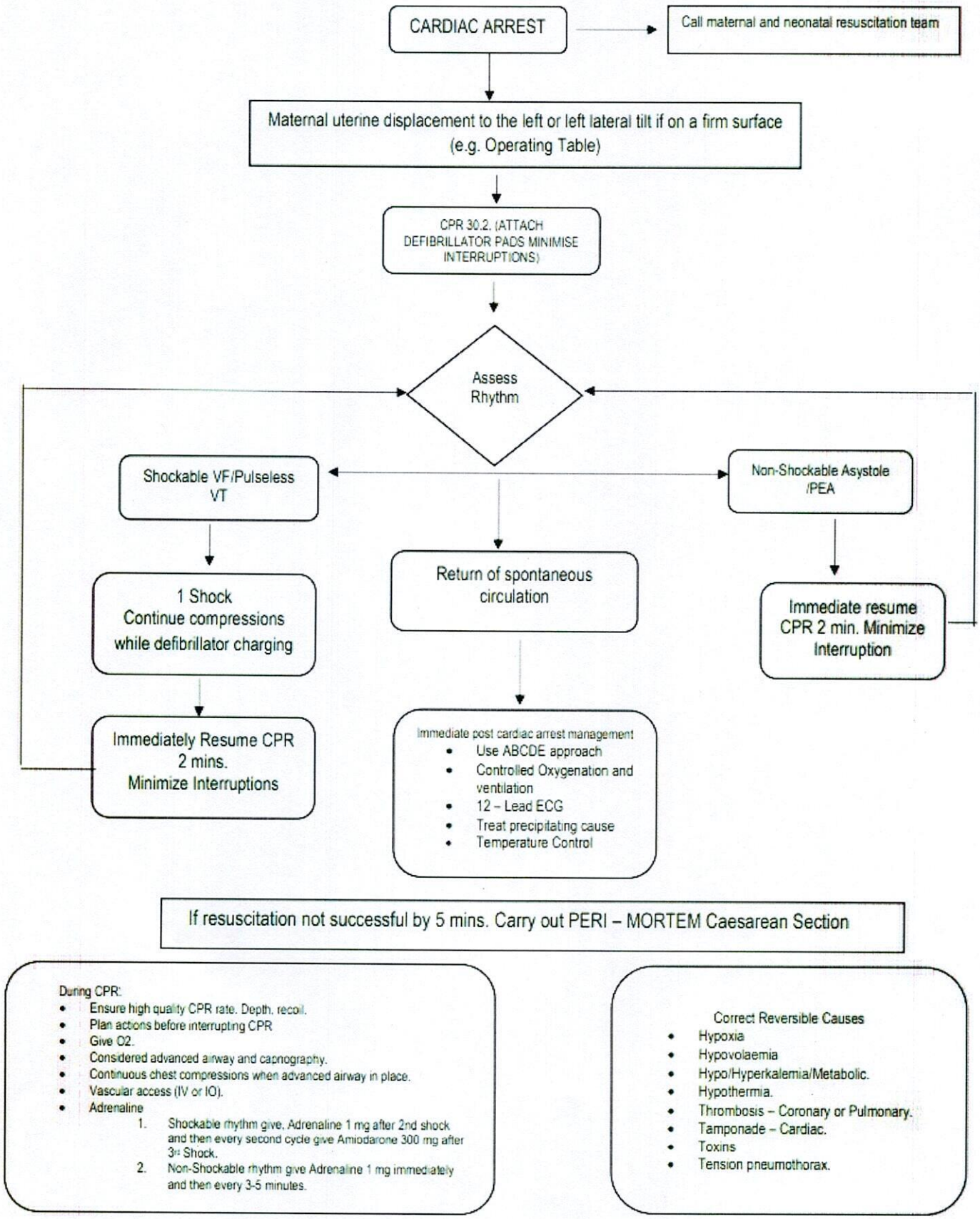
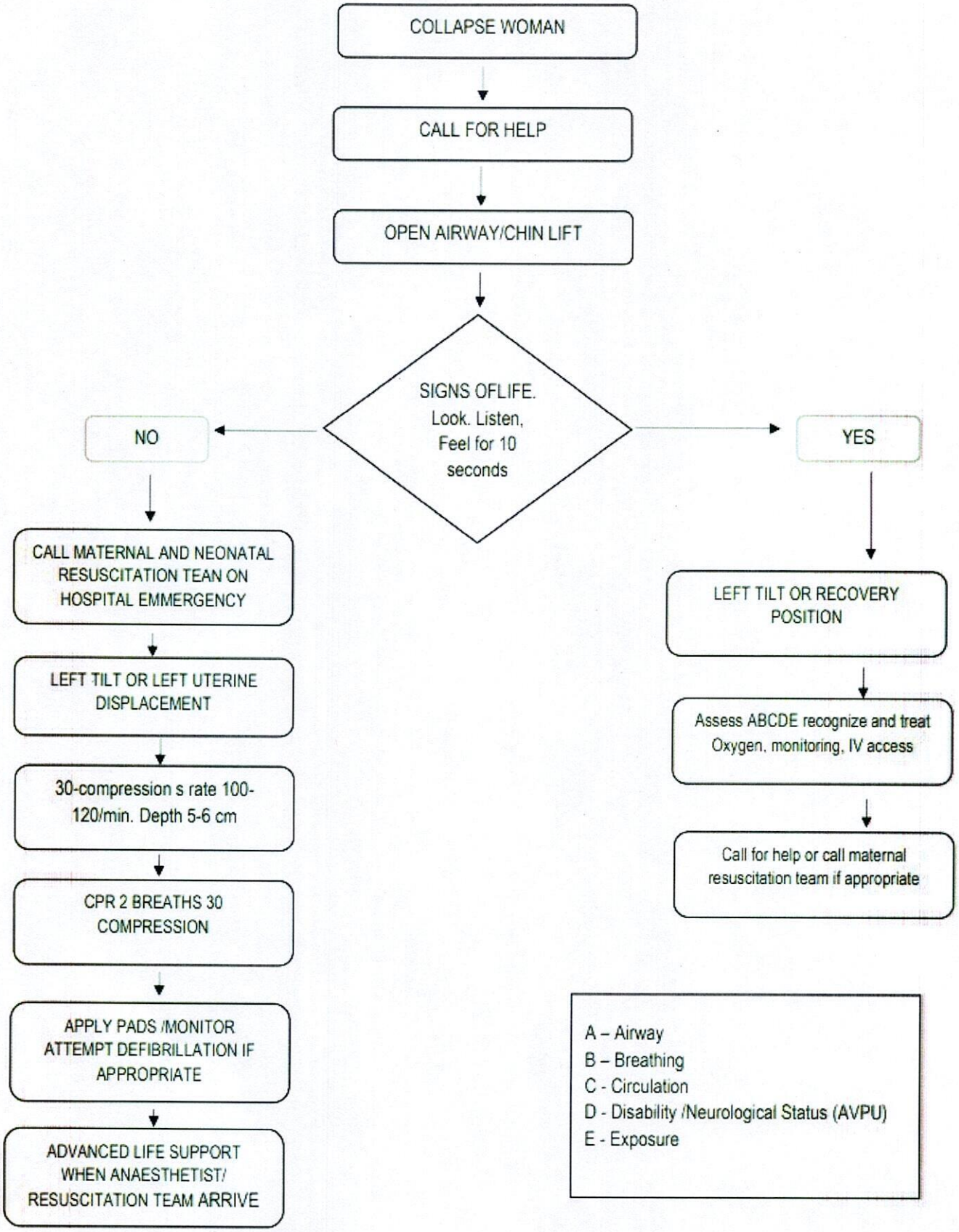
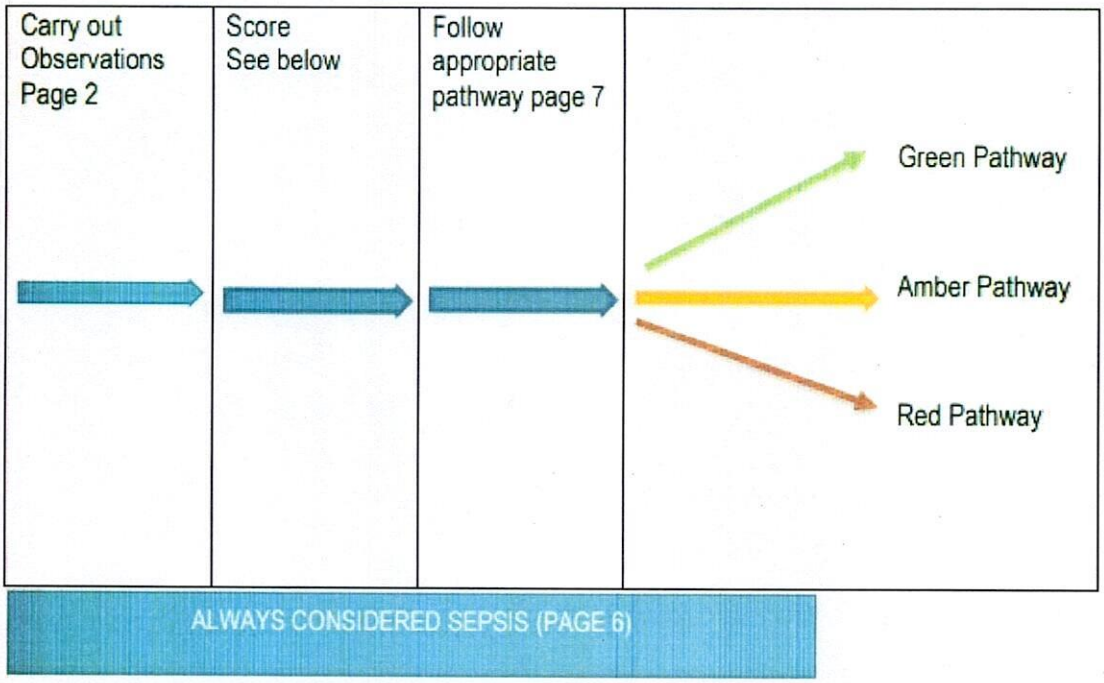
APPENDIX 7.1 Flowchart: Advanced Life Support




COLLAPSE WOMAN
CALL FOR HELP
OPEN AIRWAY/CHIN LIFT
SIGNS OFLIFE. Look. Listen, Feel for 10 seconds
NO
YES
CALL MATERNAL AND NEONATAL RESUSCITATION TEAN ON HOSPITAL EMMERGENCY
LEFT TILT OR LEFT UTERINE DISPLACEMENT
30-compression s rate 100-120/min. Depth 5-6 cm
CPR 2 BREATHS 30 COMPRESSION
APPLY PADS /MONITOR ATTEMPT DEFIBRILLATION IF APPROPRIATE
ADVANCED LIFE SUPPORT WHEN ANAESTHETIST/ RESUSCITATION TEAM ARRIVE
LEFT TILT OR RECOVERY POSITION
Assess ABCDE recognize and treat Oxygen, monitoring, IV access
Call for help or call maternal resuscitation team if appropriate
A – Airway
B – Breathing
C - Circulation
D - Disability /Neurological Status (AVPU)
E - Exposure

Modified Early Obstetrics Warning System Chart

The form should be used for the recording of physiological Observation and MEOWS Score. All action communications in relation to a deteriorating obstetric patient must be documented in the maternal notes.



Physiological Parameters	3	2	1	0	1	2	3
Respiratory Rate	<12			12-20		21-25	>25
Oxygen Saturation	<92	92-96		>95			
Any supplemental Oxygen		Yes		No			
Temperature	<36			36.1–37.2		37.3 - 37.7	>37.7
Systolic	<90			90-140	141-150	151-160	>160
Diastolic				60-90	91-100	101-110	>110
Heart Rate	<50	50-60		61-100	101-110	111-120	>120
Level of consciousness				A			V,P or U
Pain (Excluding Labour)				Normal			Abnormal
Discharges/Lochia				Normal			Abnormal
Proteinuria						+	++>

GREEN PATHWAY

Total MEOWS =0

Continue routine 4 hourly observation

Repeat observation if patient condition changes

Total MEOWS=1 – 4

Inform Midwife/Nurse in charge who must assess the patient immediately

Midwife/Nurse to decide if increased frequency of monitoring and/or escalation of clinical care are required

If concerned about patient contact SHO

If symptom of pre-eclampsia (Headache, visual disturbance, Abdominal pain) Lower threshold for escalation

CONSIDERED SEPSIS
(See Page 6)

Document all action

AMBER PATHWAY

Total MEOWS=5-6
OR

If any individual parameters=3
Inform Midwife/Nurse in charge (consider critical care outreach)

Midwife/Nurse to immediately review the patient

Contact middle grade doctor obstetric (ST/REg./Trust Grade and consider early consultant involvement

Inform obstetric anesthetist care to be provided in appropriately monitored environment

Increased the frequency of observation to 1 hourly

If symptom of pre-eclampsia(Head, visual disturbance, Abdominal pain) Lower threshold for escalation

Considered sepsis

(see Page 6)

Document all action

RED PATHWAY

MEOWS ≥ 7

Acutely concerned regarding sudden deterioration

Contact middle grade doctor obstetric (ST/Reg./Trust Grade) and Obstetrics Anaesthetist immediately

Consider 2222 for Obstetric emergency team

Commence continuous monitoring of vital signs

Consider immediate referral to ICU or HDU obstetric

Considered Critical Care Outreach (Bleep 654)

CONSIDERED SEPSIS
(See Page 6)

Document all action