# 1-1 Obstetric Cardiac Arrest v.1

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 if ≥ 20 weeks

## START

1. **Confirm cardiac arrest** *-and-* **call for help. Declare 'Obstetric cardiac arrest'**
   - Team for mother (at any gestation) and team for neonate if ≥ 22 weeks
2. **Lie flat, apply manual uterine displacement to the left if ≥ 20 weeks or uterus palpable at or above umbilicus**
   - Or left lateral tilt (from head to toe at an angle of 15-30$^0$ on a firm surface)
3. **Start CPR** *-and-* **call for cardiac arrest trolley**
   - Check for reversible 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)
   - If VF / pulseless VT ➔ defibrillation *-and-* give 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 drainage port *-or-* tracheal tube if trained to do so (Intubation may be difficult and airway pressures may be higher)
   - Apply waveform capnography ($ETCO_2$) monitoring to airway
   - If no expired $CO_2$ ➔ presume oesophageal intubation
7. **Circulation**
   - IV access above the diaphragm, if fails or impossible use upper limb intraosseous (IO)
   - See (**Box B**) for reminder about drugs
   - Consider extracorporeal CPR (ECPR) if available
8. **Emergency hysterotomy (perimortem caesarean section)**
   - Perform by 5 minutes if no return of spontaneous circulation and ≥20 weeks gestation, to improve maternal outcome
   - Perform immediately if maternal fatal injuries or prolonged pre-hospital arrest

| **Box A: Reversible causes *4Hs* and *4Ts* (specific to obstetrics)** | |
|---|---|
| Hypoxia | Respiratory – Pulmonary embolism (PE)<br>Failed intubation, aspiration<br>Heart failure<br>Anaphylaxis<br>Eclampsia / PET – pulmonary oedema, seizures |
| Hypovolaemia | Haemorrhage – obstetric (remember concealed), abnormal placentation, uterine rupture, atony, splenic artery/hepatic rupture, aneurysm rupture<br>Distributive – sepsis, high regional block, anaphylaxis |
| Hypo/hyperkalaemia | Also check blood sugar, sodium, calcium and magnesium levels |
| Hypothermia | |
| Tamponade | Aortic dissection, peripartum cardiomyopathy, trauma |
| Thrombosis | Amniotic fluid embolism, PE, myocardial infarction, air embolism |
| Toxins | Local anaesthetic, magnesium, illicit drugs |
| Tension pneumothorax | Risks include trauma, positive pressure ventilation (including general anaesthesia)<br>Can be exacerbated by Entonox / nitrous oxide |

| **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 |
| Thrombolysis / PCI | For suspected massive pulmonary embolism / MI |
| Tranexamic acid | 1g if haemorrhage suspected |
| Intralipid | **1.5 ml/kg IV** bolus and **15 ml/kg/hr IV** infusion |