The Faculty of Intensive Care Medicine

Maternal cardiac arrest:

Set-up:	
Lines/access:	RIJ CVC & left radial arterial line
Infusions:	Sedatives, noradrenaline, 1L crystalloid at 100ml/hr
Airway:	ETT 7.0, 20 cm at the teeth
Ventilator:	P-SIMV 25/15, Ppeak 42, FiO_2 1.0, Rate 22 breaths/min, quiet chest with minimal air entry
Other:	Cardiac arrest trolley, perimortem C-section pack (with large gauze, umbilical clip, blade) ITU ventilator Infusions sets and pumps Clerking, set of bloods, CXR, ABGs (from resus, ITU), ECG

Clinical Setting:

I: You are the ICU registrar called by the nurse of the patient in bed 8
S: Nurse reports that the pressures are very high and the patient is not ventilating
B: 31F who is 35 weeks pregnant. She has asthma, which has been poorly controlled throughout this pregnancy. She presented to A&E a few hours ago with acute severe asthma, able to talk in partial sentences and with a peak flow that was 50% of predicted at best. Because of pressures on ED bed capacity, she has been admitted rapidly to ITU prior to stabilisation of her asthma exacerbation. So far, she has received 10 rounds of salbutamol nebs, 1 ipratropium neb, and 40mg of oral prednisolone A blood gas done on arrival in ITU showed a high normal pCO2 and she was becoming confused so she has just been intubated.
A: High peak pressures on the ventilator, failure to shift enough air
R: Called for help

Potential Clinical Course:

- Initially **A** ETT, **B** PC-SIVM, PC 25, PEEP 15, Ppeak 42, RR 22, Vt 150, FiO2 1.0, SpO_2 88% quiet chest with minimal air entry, EtCO2 7.1, **C** HR 150bpm SR, BP 100/40 (MAP 60), **D** Sedated
- Falling VTs, falling saturations, recognition of impending respiratory arrest
- Progresses to cardiac arrest
- ITU team provide ALS, maternal cardiac arrest put out and O&G team recognise the need to perform peri-mortem C-section
- ROSC after baby is delivered

This Simulation Scenario has been written by Dr Simon Stallworthy, edited by Dr Lina Grauslyte and produced by Dr Melia and approved by the FICM Education Sub-Committee. If you have any queries, please contact FICM via contact@ficm.ac.uk.

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Info Sheet For Faculty

- Initial settings: SpO_2 88% on FiO_2 1.0
  PC-SIMV, Pinsp 25, PEEP 15, Ppeak 42, Vt 150 ml
  $EtCO_2$ 7.1 kPa
  RR 22/min
  Quiet chest with minimal air entry
  HR 150bpm SR
  BP 100/40, MAP 60

- Progress to: SpO_2 55% on FiO_2 1.0
  PC-SIMV, Pinsp 25, PEEP 15, Ppeak 42, Vt 150 ml
  $EtCO_2$ 7.1 kPa
  RR 22/min
  Silent chest
  HR 90 bpm SR
  BP 88/40

- Progress to: Cardiac arrest

- After delivery: SpO_2 95% on FiO_2 1.0
  PC-SIMV, Pinsp 25, PEEP 15, Ppeak 35, Vt 220 ml
  $EtCO_2$ 5.5 kPa
  RR 22/min
  Global wheeze
  HR 150 bpm SR
  BP 100/40

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Faculty Roles:

Bedside Nurse 1:

- You are a senior ITU nurse
- You are looking after a 31F 35 weeks pregnant with life threatening asthma that was just intubated
- You have noticed that the Ppeak are very high and the Vt are getting lower
- You take direction well, and can perform tasks asked if you in a timely fashion
- You are an experienced nurse, but you have never seen a maternal cardiac arrest

Bedside Nurse 2:

- You are a new starter – you have never seen an ITU emergency before
- You have done BLS training, but not ALS
- You are quite startled when asked questions/given directions, requiring instructions to be repeated to you
- If the candidate names equipment using technical terms then you inform them that you don't know what that is eg bougie
- You are keen to help, but are unwilling to do anything beyond your skill set

Anaesthetic Trainee:

- You respond to the 2222 call
- You are a CT2, reasonably confident, ALS trained, however, you have never seen a maternal cardiac arrest
- You seek direction and instructions from the ITU SpR

HiLLO: 5

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