Newborn Resuscitation

Preparation
- Before birth – gather equipment, confirm gestation, foetal distress, meconium
- Cord should be clamped at 1 minute
- Take baby and place in resuscitaire
- Remove wet towels
- Rub baby dry
- Cover with new towel and put hat on to reduce heat loss (if <28 weeks gestation, immediately cover up to neck in food-grade plastic wrap or bag without drying)
- Start timer

Quick examination
- Breathing (established/crying)
- Heart rate (>100bmp) – key observation (assess using oximeter on right hand/wrist)
- Tone (good muscle tone)
- Colour (pink)

Procedure

If heart rate <100bmp or breathing restricted:
- Give 5 inflation breaths via bag and mask (air in term infant, 40% oxygen in preterm) – watch for adequate chest expansion
- If chest not expanding adequately:
  - Try jaw-thrust (2-person technique preferred) ± Guedel airway and suction
  - Give 5 further breaths
  - If still not expanding adequately, consider tracheal intubation to allow adequate ventilation

When 5 inflation breaths performed with adequate chest expansion:
- Re-assess (breathing, heart rate, tone, colour)

↘ If heart rate <60bmp:
- Get help
- Start chest compressions (3:1 compressions:breaths)
- Perform for 30 seconds
- Re-assess
- If heart rate still <60bmp, repeat another 30 second cycle
- Re-assess
- If heart rate still <60bmp (despite adequate chest expansion), continue and administer drugs below (re-assess every 30 seconds)

↘ If heart rate >60bmp:
- Breathing not established →
  - Continue ventilations until breathing established (re-assess every 30 seconds)
  - Consider naloxone 0.1mg/kg IM (max 0.2mg) if opiates used in delivery and mother not opiate-dependant
- Breathing established → hand back to mum but monitor closely
Inflation breath technique

- Ensure head is in neutral position
- Inspiratory time of 2-3 seconds
- Ventilation rate 30-40/min
- Watch for chest movement
- Tracheal intubation may be required for prolonged resuscitation, severe meconium aspiration or diaphragmatic hernia
- If no chest movement
  - Try jaw-thrust or Guedel airway
  - Look for airway obstruction – consider suction
  - May need higher positive pressure (e.g. if pneumothorax, lung hypoplasia, diaphragmatic hernia)
  - If intubated – consider position of tracheal tube
- Target saturations (attach monitor to right hand/wrist)
  - 1-5 minutes: 70-80%
  - 5-10 minutes: 80-85%
  - >10 minutes: 85-95%

  If low, increase oxygen in increments of 20%

Compression technique

- Technique
  - From caudal end, grasp both your hands around their chest
  - Place one thumb on top of the other over the sternum just below imaginary line between nipples
  - Compress the chest diameter by one third
- 3:1 compression:breaths ratio
- Another person should perform ventilations – if you are alone, use 2 fingers to perform compressions and hold the mask in place with your other hand
- Compression rate 100/min
- Re-assess after every 30 seconds

Drugs

Should be given intraosseously or via umbilical venous catheter. Estimate birth weight to calculate doses. In usual order:

- Adrenaline 1:1000 IV
  - 1st dose: 0.1ml/kg (10mcg/kg)
  - 2nd dose: 0.3ml/kg (30mcg/kg)
- Sodium bicarbonate 4.2% 4ml/kg IV
- Dextrose 10% 2.5ml/kg IV
- 10ml/kg fluid bolus (0.9% saline) IV