RESUSCITATION

- Check equipment daily, and before resuscitation
- Follow Resuscitation Council UK Guidelines www.resus.org.uk

DRY AND COVER

- Ensure cord securely clamped
- If ≥ 30 weeks, dry baby, **remove wet towels** and cover baby with **dry towels**
- If <30 weeks**,** do not dry body but place in plastic bag, dry head only and put on hat

ASSESS

- Assess **colour, tone, breathing and heart rate**

If baby very floppy and heart rate slow, assist breathing immediately

- Reassess every 30 sec throughout resuscitation process
- If help required, request **immediately**

If baby not breathing adequately by 90 sec, assist breathing

CHECK AIRWAY

For baby to breathe effectively, airway must be open

- To open airway, place baby supine with head in **'neutral position'**
- If very floppy, consider chin support or jaw thrust while maintaining the neutral position

IMMEDIATE TREATMENT

Airway

- Keep head in neutral position
- Use T-piece or self-inflating 'bag-valve system' with 500 mL bag and soft round face mask, extending from nasal bridge to chin
- Give 5 inflation breaths, sustaining inflation pressure (Table 1) for 2–3 sec for each breath

Table 1: Inflation pressure (avoid using pressure higher than recommended)

Term infant	30 cm of water
Preterm infant	20-25 cm of water

No chest movement

Ask yourself:

- Is head in neutral position?
- Is a jaw thrust required?
- Do you need a second person to help with airway to perform a jaw thrust?
- Is there an obstruction and do you need to look with a laryngoscope and suck with a large-bore device?
- Consider use of oro-pharyngeal (Guedel) airway placed under direct vision using laryngoscope
- Is inflation time long enough? If no chest movement occurs after alternative airway procedures **above** have been tried (volume given is a function of time and pressure), a larger volume can be delivered if necessary by inflating for a longer time (3-4 sec)

Endotracheal intubation

Indications

- Severe hypoxia (e.g. terminal apnoea or fresh stillbirth)
- Stabilisation of airway
- Extreme prematurity
- Congenital diaphragmatic hernia

Safe insertion of tracheal tube requires skill and experience
If you cannot insert a tracheal tube within 30 sec, revert to mask ventilation

Breathing

Do not move onto ventilation breaths unless you have a heart rate response OR you have seen chest movement

Review assessment after **inflation breaths**

- Is there a rise in heart rate?
- Is there chest movement with the breaths you are giving?
- If no spontaneous breathing, but chest movement has been obtained, perform 30 sec of **ventilation breaths**, given at a rate of 30 breaths per minute 1 sec inspiration

Table 2: Outcome after 30 sec of ventilation breaths

Heart rate	Breathing	Action
Increases	Not started breathing	Provide 30–40 breaths per min Where available, use PEEP at 3-4 cm water with the T-piece system
<60	Obvious chest movement	Start chest compressions. See below

- If baby is floppy with slow heart rate and there is chest movement
- start cardiac compressions with ventilation breaths immediately after inflation breaths

Chest compression

- Use if heart rate approximately <60 beats/min (do not try and count accurately as this will waste time)

Start chest compression only after inflation of lungs

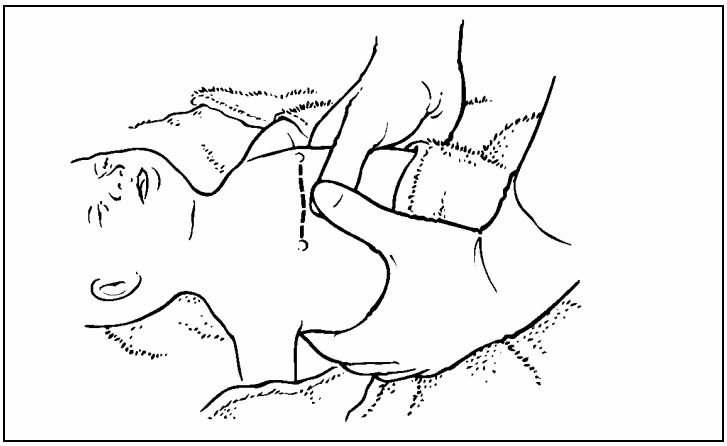
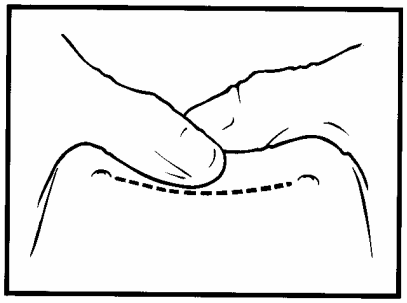


Figure 1



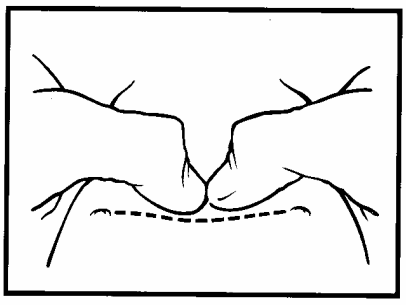


Figure 2

Pictures taken from NLS manual and Resuscitation Council (UK) and reproduced with their permission

Ideal hold (figure1/figure 2)

- Circle chest with both hands so that thumbs of both hands can press on the sternum just below an imaginary line joining the nipples with fingers over baby's spine

Alternative hold (less effective)

- Compress lower sternum with fingers whilst supporting baby's back. The alternative hand position for cardiac compressions can be used when access to the umbilicus for UVC catheterisation is required, as hands around the chest may be awkward

Action

- Compress chest quickly and firmly to reduce the antero-posterior diameter of the chest by about one-third, followed by full re-expansion to allow ventricles to refill
- remember to relax grip during IPPV, and feel for chest movement during ventilation breaths, as it is easy to lose neutral position when cardiac compressions are started

Coordinate compression and ventilation to avoid competition.
Aim for 3:1 ratio of compressions to ventilations,
and 90 compressions and 30 breaths (120 'events') per min

Blood

- If there is evidence of fetal haemorrhage, consider giving O negative emergency blood

Resuscitation drugs

- Always ask about drugs taken recently by, or given to mother
- Consider drugs only if there is an undetectable or a slow heartbeat despite effective lung inflation and effective chest compression
- Umbilical venous catheter (UVC) is preferred venous access

Adrenaline 1:10,000

- 10 microgram/kg (0.1 mL/kg) IV
- If this dose is not effective, consider giving 30 microgram/kg (0.3 mL/kg) after sodium bicarbonate has been given

Sodium bicarbonate 4.2%

- 1-2 mmol/kg (2-4 mL/kg) IV (never give via ET tube)

Glucose 10%

- 2.5 mL/kg IV slowly over 5 min

Sodium chloride 0.9%

- 10 mL/kg IV

Naloxone

- Consider only after ventilation by mask or endotracheal tube has been established with chest movement seen and heart beat >100 beats/min
- If mother has been given pethidine within 2-4 hr of delivery, give IM naloxone:
- 100 microgram (0.25 mL) for small prem babies
- 200 microgram (0.5 mL) for all other babies

Do not give naloxone to babies born to mothers who abuse narcotics

WHEN TO STOP

- If no sign of life present after 15 min of continuous good quality resuscitation, outlook is poor with few survivors, majority will have cerebral palsy and learning difficulties
- If no sustained spontaneous breathing 30 min after a heart rate has been established, majority also have poor prognosis

Continue resuscitation until a senior paediatrician advises stopping

DOCUMENTATION

Make accurate written record of facts (not opinions) as soon as possible after the event

Record

- When you were called, by whom and why
- Condition of baby on arrival
- What you did and when you did it
- Timing and detail of any response by baby
- Date and time of writing your entry
- A legible signature

COMMUNICATION

- Inform parents what has happened (the facts)