

# Newborn Life Support

**~3.5 Kg**

**Phone neonatal unit for help!**

**If preterm, you will also need a neonatal consultant**

Make sure the cord is securely clamped.

**Dry the baby;** Remove wet towels; Cover baby with dry towels  
Or put inside roasting bag and put on hat.

Assess **Colour, Tone, Breathing, Heart Rate** every 30 seconds

## Healthy baby:

Born blue, but good tone,  
Cry within a few seconds of delivery,  
Heart rate ~ 120 – 150 /min,  
Will become rapidly pink during the first ~90 sec.

## BIRTH

Term gestation?  
Amniotic fluid clear?  
Breathing or crying?  
Good muscle tone?

YES

**Routine Care:**  
Provide warmth  
Dry  
Clear airway if necessary  
Assess colour †

NO

**Proceed to advanced  
life support (overleaf)**

† Consider supplemental  
Oxygen if cyanosis persists

**PROBLEM WITH:**  
Term gestation?  
Amniotic fluid clear?  
Breathing or crying?  
Good muscle tone?

**Provide warmth**  
**Position; clear airway if necessary\***  
**Dry, stimulate, reposition**

**Evaluate breathing, heart rate, colour**  
**†, tone Monitor SpO2**

Apnoeic HR < 100/min

**Give positive pressure ventilation †\***

HR < 60/min

**Ensure effective lung inflation †\***  
**then add chest compression**

HR < 60/min

Consider:

Adrenaline (1:10,000): **0.35ml (every 4 min)**

Sodium bicarb (4.2%): **2 - 4ml**

Dextrose (10%): **10ml**

N. Saline (0/9%): **35ml** (consider repeating)

**\* Tracheal intubation may be considered Monitor SPO2**  
**† Consider supplemental Oxygen if cyanosis persists**

**NB: The outcome for a baby with no signs of life after 20 minutes of resuscitation is likely to be very poor. Discontinuation may be justified.**

**~3.5 Kg**

**Dry & Wrap up**

**Face mask**  
**ventilation:**

**40/min**

Head in **Neutral**  
Position.

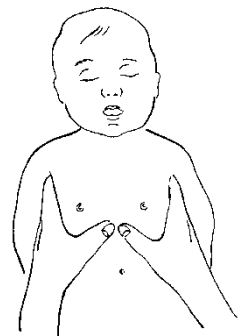
(Chin lift / jaw  
thrust)

Initially **5 inflation**  
**breaths** (each  
sustained for 2-3  
seconds)

**Chest**  
**compressions:**

Depth:  $\frac{1}{3}$  rd chest  
Ratio : 3:1

Rate : 120 /min.  
Just below nipple  
Line



**Endotracheal**  
**Tube (ETT):**

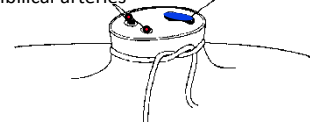
**3.5 mm**

(2.5+3.0  
in prems)

**DRUGS**

iv, io, or uvc:

Umbilical arteries vein



# All Need High Flow (100%) OXYGEN

**3.5 Kg**  
**BROWN**

## ACUTE AIRWAY OBSTRUCTION

Senior help needed (Anaesthetic/A&E)

Calm Environment.

Close Observation.

**ADRENALINE(1:1000) (Neb) 1.4ml**

may repeat every 10 minutes

**BUDESONIDE (Neb):2mg**

## ANAPHYLAXIS

**ADRENALINE(1:1000)(IM):0.03ml**

consider repeat in 5 min.

If using auto injector syringe use **150mcgs**

**HYDROCORTISONE(IV/IO):25mg**

**CHLORPHENIRAMINE(IV/IO):0.9mg**

**\*do not use in neonates\***

(mix with 10 ml 0.9% .saline, give over 1 min.)

IV Adrenaline 1microgram/Kg may be considered  
but **must** be discussed with Senior/Anaesthetics

## WARM FLUID CHALLENGE

**70 ml**

(consider repeat dose)

Give in **35ml** aliquots in TRAUMA/CARDIAC

## DUCT-DEPENDANT CONGENITAL HEART DISEASE

Alprostadil (Prostaglandin E2) (IV/IO)

Initial dose **17.5 nanograms (0.017mcg)/min** may  
be increased in **17.5 nanogram/min** increments

up to **70 nanogram (0.07mcg) / min**

**\*\*Beware May Cause Apnoeas\*\***

## SEPTICAEMIA

Significant volume expansion may be required,  
(Blood cultures, Bone, CRP, Coag, PCR, Glucose,  
Blood Gas)

May need ventilation & Inotropes,

**CEFOTAXIME(IV/IO): 175mg**

## ANALGESIA

**MORPHINE(IV/IO):0.3mg**

## HYPOGLYCAEMIA

**10% DEXTROSE(IV/IO):7ml**

Followed by an infusion of 0.9% Saline 5% Dextrose  
at maintenance volume; adjust dextrose content if  
required.

## FITS/CONVULSIONS

Check Blood Sugar & Temperature

IV/IO access: **LORAZEPAM(4mg/ml):0.3mg**

Or **DIAZEPAM (PR):1.75mg**

Or **BUCCAL MIDAZOLAM :1.75mg**

Repeat after 10 minutes if no improvement

**PHENYTOIN (IV/IO):70mg** over 20 minutes

Consider **PHENOBARBITONE (IV/IO)** as an

alternative: **70 mgs** over 20 minutes

Consider **PARALDEHYDE (PR) 1.4ml** mixed with

**1.4ml** olive oil

**Call for anaesthetic help if still fitting when  
phenytoin is commenced**

## Senior/ Specialist Supervision Required:

**Raised Intracranial Pressure:**

20% Mannitol (IV/IO):**9ml** over 30 mins

Or Hypertonic Saline 2.7% (IV/IO):**10ml**

**Tricyclic overdose with ECG changes:**

8.4% Sodium Bicarbonate (IV/IO):**3.5ml**

**SVT rate >220** Following vagal manoeuvres:

Adenosine (3mg/ml) (IV/IO):**0.35mg** then **0.7mg**  
then **1mg**

**VT with pulse: Amiodarone 17.5mgs over 20mins.**

**Consider cardioversion if unstable: 4J, 4J, 8J**

**Head:  
Neutral**

Unresponsive  
Not breathing or only  
occasional gasps

Call resuscitation team  
(1 min CPR first, if alone)

### CPR

(5 initial breaths then 15:2)  
Attach defibrillator/monitor  
Minimise interruptions

Assess rhythm

Shockable  
(VF/Pulseless VT)

Non-shockable  
(PEA/Asystole)

**1 Shock  
20 J**

IV/IO access,  
intubate

Immediately resume  
**CPR for 2 min**  
Minimise interruptions

**Adrenaline  
0.35 ml (1:10,000)  
alternate cycles**

Immediately resume  
**CPR for 2 min**  
Minimise interruptions

# 3.5 Kg

**brown**

## CPR

### Minimise interruptions

**If pulse absent  
or < 60/min (with  
poor circulation)**

**Depth: at least  
1/3 rd chest**

**Rate:**

**100-120 /min**

**1 finger breadth above  
xiphisternum**



### **ET tube size:**

**Uncuffed 3.5 (± 0.5mm)**

**Cuffed 3.0 (± 0.5mm)**

**Monitor ETCO2**

**When To Stop.** The outcome for a child with no signs of life after 30 minutes of non-shockable resuscitation is likely to be very poor. Discontinuation may be justified except in poisoning & extreme hypothermia

Consider **Amiodarone** (300mg/10ml): **0.6 ml** (after 3<sup>rd</sup> and 5<sup>th</sup> shock)

Consider **Bicarb** (8.4% ): **3.5 ml**

Consider **Fluid challenge: 70 ml**

### CORRECT REVERSIBLE CAUSES:

Hypoxia, Hypovolaemia, Hyper /hypokalaemia /metabolic, Hypothermia, Tension pneumothorax, Tamponade, Toxins, Thromboembolism

# Other Useful Drugs and Information

## INFUSIONS:

### **Dopamine\*:**

To make standard solution: 15mg/kg in 50ml 5% dextrose

Concentration: 1ml/hr = 5 micrograms/kg/min

Dose Range: 5 – 20 micrograms/kg/min

### **Dobutamine\*:**

To make standard solution: 15mg/kg in 50ml 5% dextrose

Concentration: 1 ml/hr = 5 micrograms/kg/min

Dose Range: 5 – 20 micrograms/kg/min

### **Adrenaline:**

To make standard solution: 0.3mg/kg in 50ml 5% dextrose

Concentration: 1 ml/hr = 0.1 micrograms/kg/min

Dose Range: 0.1 - 4 micrograms/kg/min

### **Noradrenaline:**

To make standard solution: 0.3mg/kg in 50ml 5% dextrose

Concentration: 1 ml/hr = 0.1 micrograms/kg/min

Dose Range: 0.1 - 4 micrograms/kg/min

### **Morphine\*:**

To make standard solution: 1mg/kg in 50ml 5% dextrose

Concentration: 1 ml/hr = 20 micrograms/kg/hr

Dose Range: 10 - 40 micrograms/kg/hr

### **Midazolam\*:**

To make standard solution: 3mg/kg in 50ml 5% dextrose

Concentration: 1 ml/hr = 1 micrograms/kg/min

Dose Range: 1 - 4 micrograms/kg/min

\*To be doubled for infants less than 10kg.

Use 0.9% Saline rather than 5% Dextrose to mix infusions in head injury / meningitis / encephalitis / seizure.

## Other Useful Drugs and Information (continued):

### **Alprostadi (Prostaglandin E2):**

To make standard solution: 30micrograms/kg in 50ml 5% dextrose

Concentration: 1 ml/hr = 10 nanograms/kg/min

Dose Range: 5 - 20 nanograms/kg/min

### **Amiodarone:**

Initial loading dose 5mg/kg over 20 minutes followed by infusion.

To make standard solution: 15mg/kg in 50ml 5% Dextrose

Concentration: 1ml/hr = 5micrograms/kg/min

Dose Range: 5 – 15 micrograms/kg/min/hour

### **Aminophylline:**

Initial loading dose of 5mg/kg (maximum 500mg) over at least 20 minutes followed by infusion.

To make standard solution: 1mg/ml solution in 5% Dextrose

Concentration: 1ml/kg/hr = 1mg/kg/hr

Dose Range: 0.5 – 1mg/kg/hr

### **Insulin for DKA:**

0.05-0.1units/kg/hour

<http://www.bsped.org.uk/clinical/docs/DKAcalculator.pdf>

**Calcium** (for hyperkalaemia, hypocalcaemia and calcium channel blocker overdose):

0.3ml/kg of 10% Calcium Gluconate (i.e. 0.1mmol/kg Ca) to maximum of 4.5mmol (20ml) over 30 minutes **OR**

0.1mls/kg of 10% Calcium Chloride to a maximum of 4.5mmol (6.5mls) over 30 minutes.

**Atropine** (stat dose after vagal stimulation induced bradycardia):

20 micrograms/kg iv (minimum 100mcg to maximum 600mcg)

Birth – 1 month 15 micrograms/kg iv

## **GLASGOW COMA SCALE**

SUITABLE FOR **UNDER 4 YEARS**

**Best = 15, Worst = 3**

### **RESPONSE**

### **SCORE**

#### ***EYE OPENING***

Spontaneously	4
To verbal stimuli	3
To pain	2
No response to pain	1

#### ***BEST MOTOR RESPONSE***

Spontaneous or obeys verbal command	6
Localises to pain or withdraws to touch	5
Withdraws to pain	4
Abdominal flexion to pain (decorticate)	3
Abnormal extension to pain (decerebrate)	2
No response to pain	1

#### ***BEST VERBAL RESPONSE***

Alert, babbles, coos, words to usual ability	5
Less than usual words/ spontaneous irritable cry	4
Cries only to pain	3
Moans to pain	2
No response to pain	1

## **GLASGOW COMA SCALE**

**SUITABLE FOR 4 YEARS AND OVER**

**Best = 15, Worst = 3**

<b>RESPONSE</b>	<b>SCORE</b>
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### ***EYE OPENING***

Spontaneously	4
To verbal stimuli	3
To pain	2
No response to pain	1

### ***BEST MOTOR RESPONSE***

Obeys verbal command	6
Localises to pain	5
Withdraws from pain	4
Abnormal flexion to pain (decorticate)	3
Abnormal extension to pain (decerebrate)	2
No response to pain	1

### ***BEST VERBAL RESPONSE***

Orientated and converses	5
Disorientated and converses	4
Inappropriate words	3
Incomprehensible sounds	2
No response to pain	1



**Normal fluid requirements**

Body weight	Fluid req / day (ml/kg)	Fluid req /hour (ml/kg)
First 10 kg	100	4
Second 10 kg	50	2
Subsequent kilograms	20	1

**Normal Paediatric Ranges**

Age (Years)	Heart Rate / min	Respiratory Rate / min	Systolic BP (mmHg)
<1	110 – 160	30 – 40	80 – 90
1 – 2	100 – 150	25 – 35	85 – 95
2 – 5	95 – 140	25 – 30	85 – 100
5 – 12	80 – 120	20 – 25	90 – 110
>12	60 - 100	15 - 20	100 - 120