

# Life Support in Infants and Children



**KEMRI** | Wellcome Trust



**University of Nairobi**



**KENYA  
PAEDIATRIC  
ASSOCIATION**

# Objectives

- ▷ *To describe the structured approach of life support for infants and children*

# Emergency care in Hospital.

- ▷ *What is the most important factor in success?*

# Being prepared.

- ▷ Who is responsible?
  - Who comprises the team? Specific roles?
  - How are they alerted?
- ▷ Where will Life Support take place?
  - Special area or Bedside?
- ▷ Equipment?
  - Responsibility?
- ▷ Knowledge & Skills/Competence (guidelines)?
  - Training and Orientation?

# Provision of emergency care in Hospital.

- ▷ *What is the most important factor in saving lives?*
- ▷ *Prevention – early recognition of very severe illness and appropriate timely action so that children do not collapse.*

# What are the most common causes of 'collapse / arrest' in children?

- ▷ *Respiratory failure*
  - *Pneumonia*
- ▷ *Circulatory failure*
  - *Severe anaemia*
  - *Dehydration*
  - *Septic shock.*
  - *(Pump failure – adults and children with CHD)*

# The collapsed child - A structured approach

- ▷ *Safe, Stimulate, Shout, Setting*
- ▷ *Airway*
- ▷ *Breathing*
- ▷ *Circulation*

# Resuscitation A - Airway



- **Is the airway clear and safe?**
- **At risk?**
- **Obstructed?**
- Look in the mouth
  - Vomit?
  - Secretions?
- Position the airway

*The picture shows the neutral position in an infant*



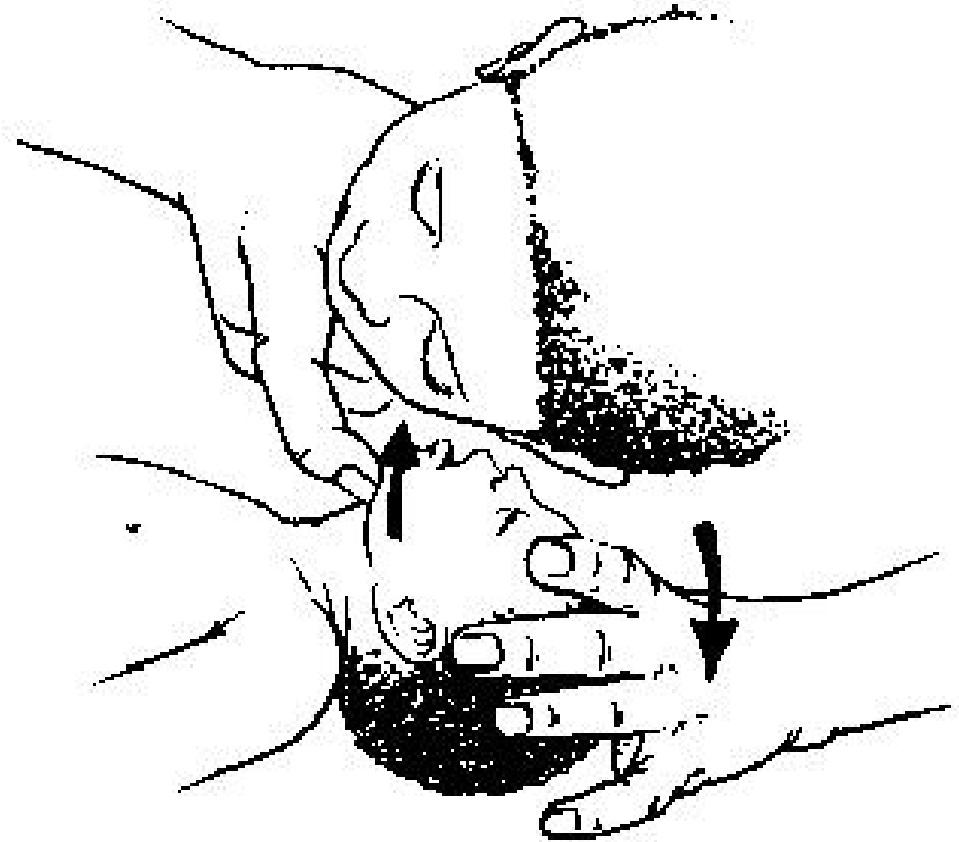
# If there is an airway problem – ACT!

- ▷ Call for help
- ▷ Suction?
- ▷ Airway opening manoeuvres?
- ▷ Oropharyngeal airways?



# Resuscitation A & B – is there any breathing?

- ▷ ***After positioning***
- ▷ Look
  - Chest movement?
- ▷ Listen
  - Stridor?
  - Secretions?
  - Noises of breathing?
- ▷ Feel
  - Air movement?



# Resuscitation – Step 1 – Airway and Breathing

Open / Clear the AIRWAY:

**Look / Listen / Feel for** BREATHING

**Child is breathing**

Check adequacy of breathing and need for oxygen.

Proceed to rescue breaths with bag and mask

# Choosing the right size of Bag and Mask



*right size  
and position  
of mask*



*right*

*mask held  
too low*



*wrong*

*mask too  
small*



*wrong*

*mask too  
large*



*wrong*

# Resuscitation B – Giving Rescue Breaths

Open / Clear the AIRWAY:

**Look / Listen / Feel for BREATHING**

**Child IS NOT breathing Or only gasping**

5 rescue breaths with Bag and Mask device

1 second inspiration, 1 second expiration

Watch and make sure the chest rises

Attach oxygen to BVM device as soon as possible

**The chest must rise well at least twice.**

# Resuscitation C – Check for signs of life

5 Rescue breaths with Bag and Mask device

Check for Signs of Life PLUS Large Pulse

Heart Rate  
very slow,  
< 60 bpm

Help is  
needed

Heart Rate about 60 bpm or more

Continue with B & M Ventilation for (using oxygen), rate of 20 breaths/min.

Chest Must rise with each ventilation

**Re-assess after 1-2 minutes!**

**Use your help to check circulation**

# Resuscitation C – Give Chest Compressions

5 Inflation breaths with Bag and Mask device

Check for Signs of Life and the Large Pulse

**No Signs of Life and Absent pulse or Heart Rate, < 60 bpm**

Chest compressions

15 compressions to every two B & M breaths

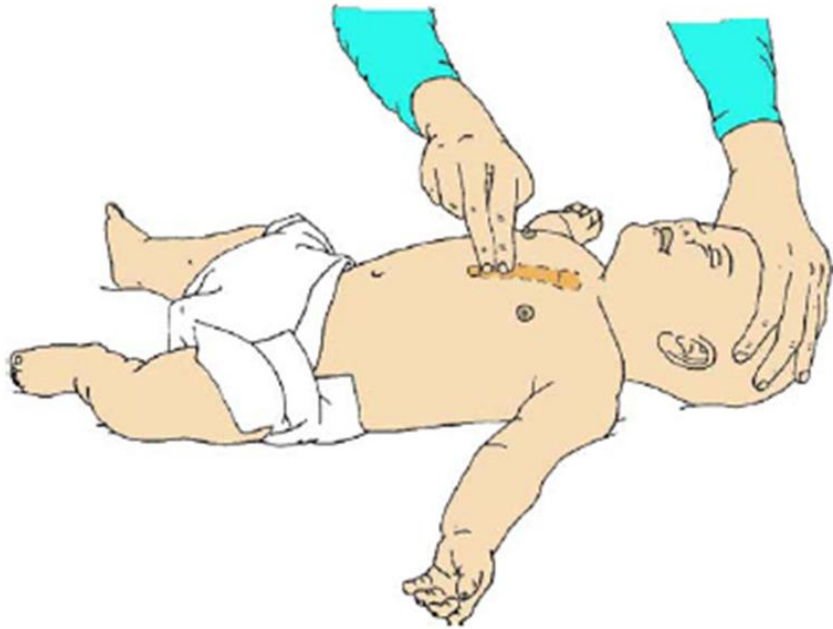
Aim for 6 – 7 cycles of 15:2 per minute

# Giving Effective CPR

- ▷ Lower  $\frac{1}{2}$  of sternum, one finger breadth above xiphisternum
- ▷ Compress the chest by  $\frac{1}{3}$ <sup>rd</sup> its depth & allow for chest recoil
- ▷ Aim at a rate of 100-120 chest compressions/min
- ▷ Give 15 chest compressions:2breaths for 1 minute
- ▷ Reassess ABC after one minute



# Chest Compressions in an Infant



**2-finger technique  
(1 rescuer)**



**2-thumb encircling  
technique (2 rescuers)**

# Chest Compressions in an Older Child



**One-hand technique**



**Two-hands technique**

# Drugs in Resuscitation

- ▷ Consider IO/IV line insertion when a 3<sup>rd</sup> helper arrives
- ▷ Get samples for random blood sugar
- ▷ Consider IO/IV Adrenaline (0.1ml/kg 1:10,000) as rapid push plus a flush of 2-5mls normal saline
- ▷ Manage hypoglycemia with IO/IV 10%dextrose

# Post-Resuscitation Care

- ▶ Frequent reassessment of ABC after every 1-2 minutes
- ▶ Appropriate supplemental oxygen (based on clinical assessment)
- ▶ Decide on admission care

Questions?

# Summary – The Collapsed Infant

- ▷ Safe, stimulate, shout for help
- ▷ A
  - Clear? Position?
- ▷ B
  - Is BVM needed? (add oxygen to bag)
- ▷ C
  - Are chest compressions needed (no signs of life)
- ▷ Reassess ABC after every one minute